

Supporting Documents for Quantitative metric 3.3.2

3.3.2: Number of books and chapters in edited volumes/books published and papers published in national/ international conference proceedings per teacher during last five years

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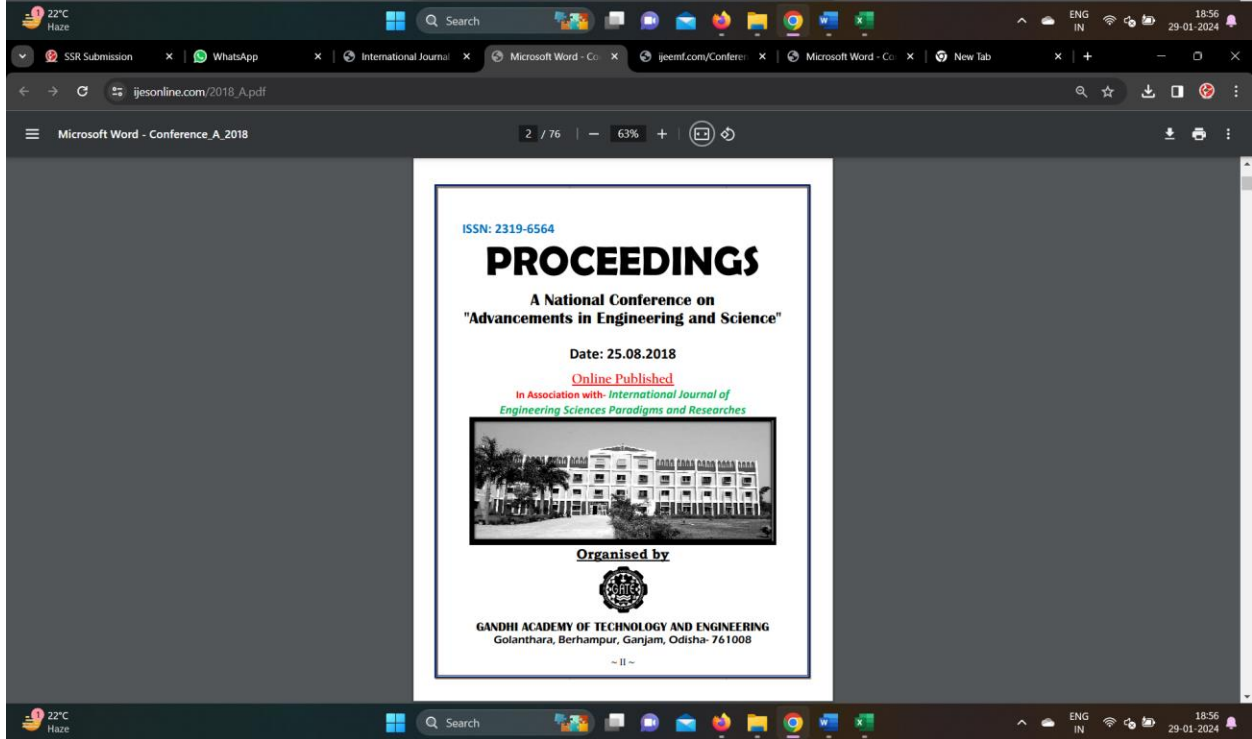
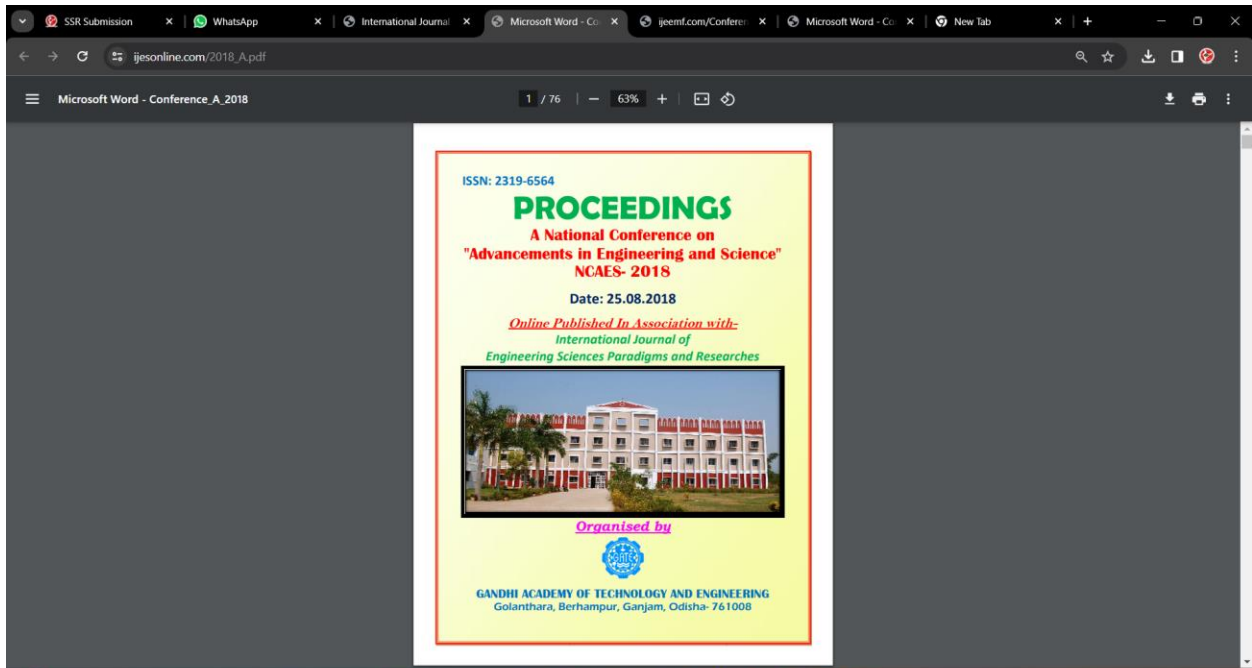
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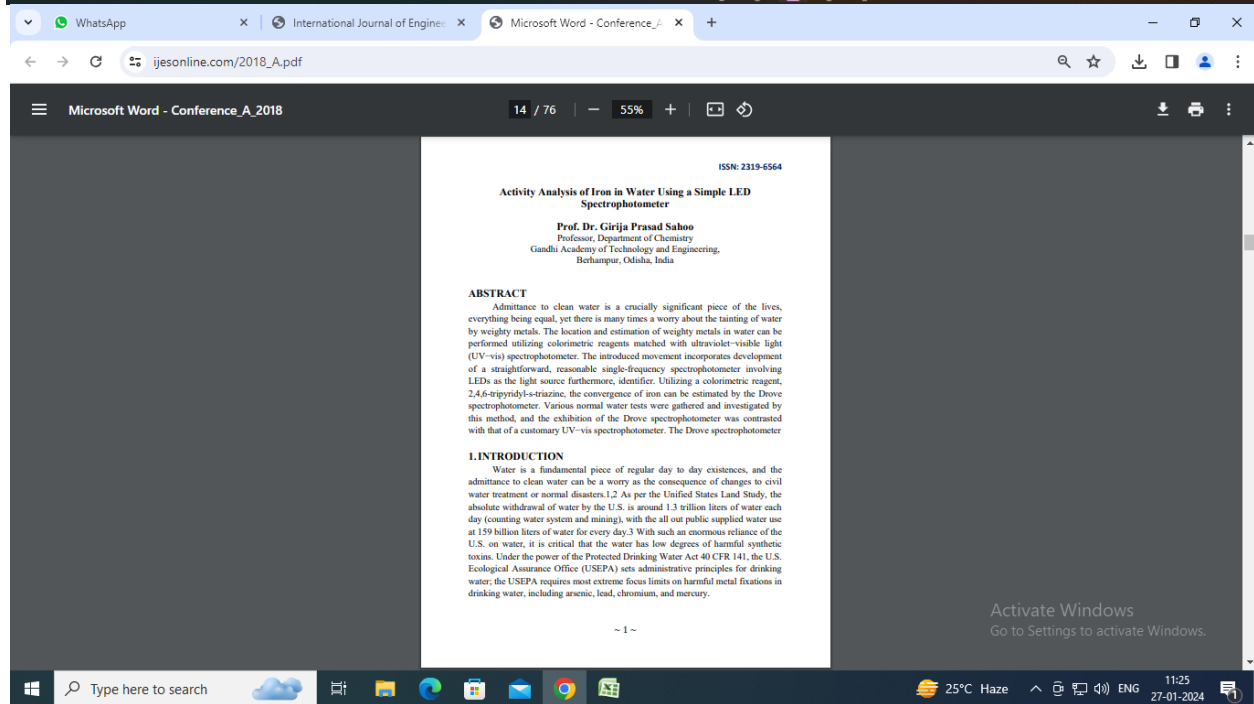
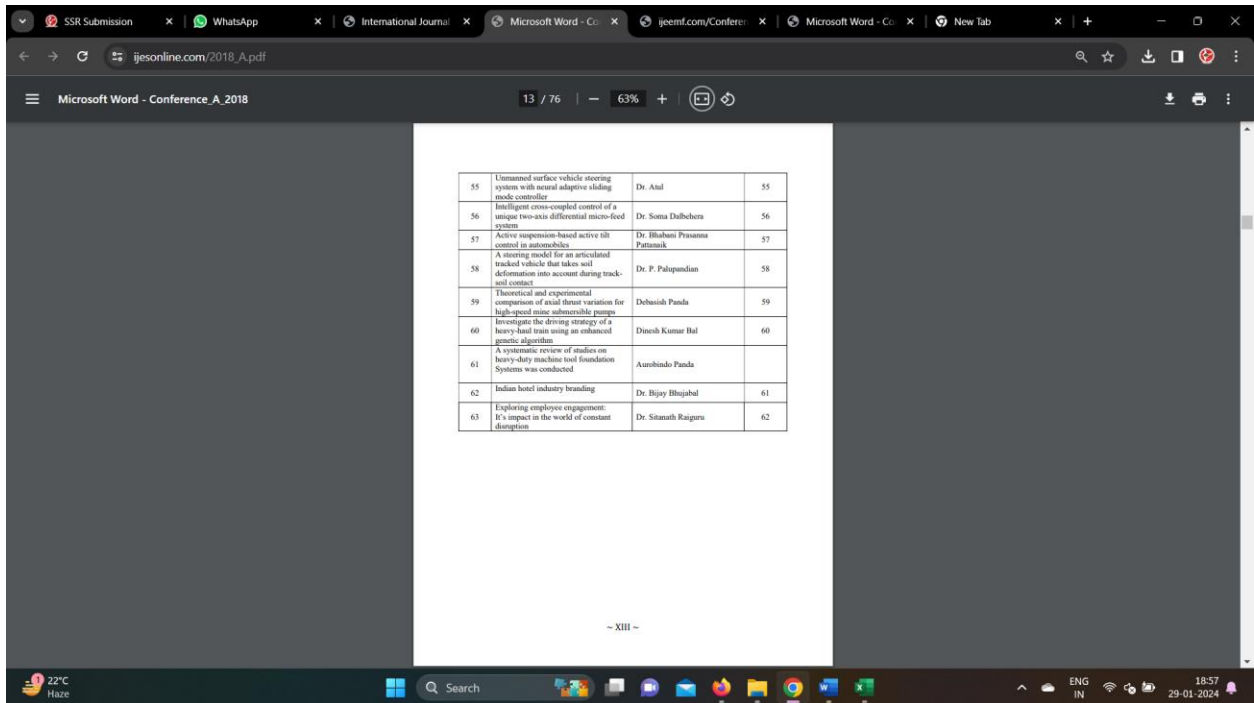
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New organometallics imines of Rhenium(I) as potential ligands of GSK-3β: Synthesis, characterization and biological studies

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Gandhi Academy of Technology and Engineering, Berhampur, Odisha, India

ABSTRACT

Subbed amino-piperazine subsidiaries have been blended and utilized as forerunners in the readiness of new organometallic Re(I) imine edifices of the overall equation $[(5-C_5H_4CH_2-N-C(CH_2)_5-Pz-R)Re(CO)]$ (Pz-R = alkyl or aryl piperazine). The piperazine-based ligands were intended to be likely inhibitors of the GSK-3β kinase. All ligands and buildings were full portrayed and assessed in HT-29 and PT-45 disease cell lines, where GSK-3β assumes a urgent part. In this specific situation, we completed natural assessment utilizing the MTT colorimetric examine. Concerning structure action relationship, our discoveries

1. INTRODUCTION

Bioorganometallic science is the investigation of organically dynamic atoms that contain carbon straightforwardly attached to metals or metalloids. The functionalization of metal piece with natural ligands or potentially formed biomolecules (amino acids, peptides, proteins or starches) has turned into a suitable system to acquire new builds that have exorbitant interest as designated therapeutics.¹⁻¹⁴ Albeit a large portion of the work in this space has been centered around medium and late progress metal edifices, rhenium subsidiaries have been concentrated as potential anticancer agents.¹⁵ Regarding cytotoxicity, some rhenium carbonyl buildings equivalent or even surpass that of the deep rooted hostile to disease drug cisplatin. There are various models that incorporate the Re(I) tricarbonyl center with subordinate ligands (N,N, alicoxido/hydroxido, N,O, P,P bidentate).

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Cobalt (II) complex with novel unsymmetrical tetradentate Schiff base (ON) ligand: In vitro cytotoxicity studies of complex, interaction with DNA/protein, molecular docking studies, and antibacterial activity

Prof. (Dr.) Amit Kumar Jana
Professor, Department of Chemistry
Gandhi Academy of Technology and Engineering, Berhampur, Odisha, India

ABSTRACT

[Co(H₂O)₂] and cobalt (II) complex [Co(L₂(MeOH)₂)ClO₄, (L₂=4-(E)-1-(2-(6(E)-pyridin-2-ylmethylene)amino)phenyl)imino)ethyl)benzene-1,3-diol) novel Schiff base has been synthesized and characterized by FT-IR, UV-Vis, ¹H-NMR spectroscopy and essential investigation procedures. The connection of Co(II) complex with DNA and BSA was explored by electronic absorption spectroscopy, fluorescence spectroscopy, circular dichroism (Diac) and warm denaturation studies. Our investigations show that this complex could

1. INTRODUCTION

Since Schiff bases can undoubtedly frame stable edifices with most progress metal particles, they play an significant part in inorganic science (Cheng et al. 2011, Wu et al. 2011). Furthermore, heaps of research has as of late been done on metal edifices of Schiff bases got from heterocyclic compounds (Golbedaghi et al. 2010, Shivakumar and Halli 2008). Coordination with different metal particles and development of stable mixtures has made tetradentate Schiff bases notable. In addition, organic chemists have likewise been zeroing in on Schiff bases.

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Interactions of cinnamaldehyde and its metabolite cinnamic acid with human serum albumin and interference of other food additives

Prof. (Dr.) Dr. Sagarika Pasayat
Professor, Department of Chemistry
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ABSTRACT:

Taking into account the unfriendly impact of food added substances on people, exhaustive examination of their physiological impacts at the atomic level is significant. The connections of cinnamaldehyde (CNMA), a food fragrance, and its major metabolite cinnamic corrosive (CA) with human serum egg whites (HSA) were analyzed by numerous spectroscopies. NMR examination uncovered CNMA and CA both bound to HSA, and sexually transmitted disease NMR tests laid out CNMA and CA basically associated with site I and site II of HSA, separately. The ligands caused solid extinguishing of HSA fluorescence through a static extinguishing component, with hydrophobic and electrostatic collaboration between CNMA/CA and HSA, individually. UV-vis assimilation and Disc results

1. INTRODUCTION

Cinnamaldehyde (CNMA, Fig. 1A) is the significant part in cassia also, cinnamon bark oils. CNMA, which is a for the most part supported fixing of scents and forces, grants a cinnamon flavor to food varieties what's more, is likewise utilized as a characteristic food additive to safeguard sea-going and meat items from growths. The significant metabolite of CNMA is cinnamic corrosive (CA, Fig. 1A), oxidized by β -oxidation similar to that of greasy acids (Peters and Caldwell, 1994).

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Towards the interaction between calcium carbide and water during gas-chromatographic determination of trace moisture in ultra-high purity ammonia

Prof. (Dr.) Priyabrat Mahapatra
Professor, Department of Chemistry
Gandhi Academy of Technology and Engineering, Berhampur, Odisha, India

ABSTRACT:

The momentum study centers around the cycles required during the stream change of water into acetylene in a calcium carbide response cell for the follow dampness examination of smelling salts by response gas chromatography. The elements adversely influencing the reproducibility and the exactness of the estimations are suggested and examined. The intramolecular response of the HO Ca C CH transitional was found to be a side response delivering foundation acetylene during the contact of wet smelling salts gas with calcium carbide. The presence of the HO Ca C CH transitional among the response items is affirmed by an FTIR ghostly

1. INTRODUCTION

Introduction Moisture assurance at follow levels in electronic grade ammonia is one of the most significant and simultaneously modification issues of follow examination [1-6]. High virtue ammonia (>99.9995%) is utilized as the nitrogen hotspot for the AlGaIn/GaN epilayers in the creation of light-emitting diodes (LEDs), semi-guide lasers, and high electron versatility semiconductors (HEMTs) [7-9]. Follow dampness emphatically influences the exhibition of growth layers during the synthetic frame testimony process (CVD) and causes decrease of the interaction yield. While standard techniques for water content assessment (dewpoint, Karl-Fisher titration, conductivity estimation,

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**A Study on the Importance of CSR
for the Economic Development of the Society in India**

Prof. (Dr.) Ramesh Chandra Rath
Professor, Department of Economics
Gandhi Academy of Technology and Engineering, Berhampur, Odisha, India

ABSTRACT:

The phrase (CSR) corporate social responsibility is not a new one. Previously, only a few firms did anything for the betterment of society. All shareholders are essential components of every company entity. If they are serviced better, the organization will undoubtedly survive. The objective of this study is to help readers comprehend the importance of CSR in societal economic development.

Keywords - Economic development, sustain, CSR.

1. INTRODUCTION

A sense of responsibility for the well-being of society should be embedded in the company's Culture. "The individual sense of social responsibility is an extension of the CSR." Ratan Tata stated that active participation in CSR projects is required for the corporation.

In today's world, digitalization is important in both company and non-commercial organizations. Many business tasks have become practical and simple as a result of Internet use, including promotion, virtual exhibition, production, distribution, and many more. It benefits the organization in many ways, but there are some difficult roles to play that we cannot deny. Corporate social responsibility is all about improving society with the help of organizations.

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A Comprehensive Study of New Tax Regime on Salaried Persons in Berhampur City

Prof. (Dr.) Mousumi Parida
Professor, Department of Economics
Gandhi Academy of Technology and Engineering, Berhampur, Odisha, India

ABSTRACT:
In the era of economic slowdown the finance minister Nirmala Sitharaman presented her second union budget on 1st February 2020. In this budget she introduced a new tax regime, where salaried taxpayer can choose any option out of either old tax regime or new tax regime. If tax payer selects old tax regime he/she can avail all tax exemptions and deductions which was availed by him/her in previous year 2019-20 or before, but if he/she selects new tax regime he/she has to forego about 70 exemptions and deductions. The basic object of this research is to compare the old tax regime and new tax regime. This study will help the taxpayer to select the old or new tax regime on the basis of their investments and earnings.
Key words: - New tax regime, Old tax regime, Deductions

1. INTRODUCTION
The vital source of revenue of government is taxation. Government collects revenue from tax and non-tax sources. Tax sources include income tax, corporate tax, custom duty, union exercise duty and goods& service tax. Non tax sources include non-debt capital receipts, non-tax revenue, borrowings and receipt from other liabilities. Taxation is known as mandatory charge. Direct and indirect taxes are two different sources of tax in Indian taxation system. Direct tax is progressive in nature whereas indirect tax is proportionate in nature. In direct tax incidence of tax and impact of tax lies on the same person whereas indirect tax can be collect from other persons i.e. costumers.

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Impact of Demonetization on Indian Economy

Prof. (Dr.) Tanmaya Kumar Pradhan
Professor, Department of Economics
Gandhi Academy of Technology and Engineering, Berhanpur, Odisha, India

ABSTRACT:

Demonetization is the act of stripping a currency unit of its status as legal tender. It occurs whenever there is a change of national currency. While this is the third time in the Indian history that Indian high value currency has been stripped of its status as a legal tender, the first two instances of demonetization did not have an impact like the recent one. This is primarily because, this time, the demonetized currency represents 86% of the total currency in circulation. Immediate impact People's purchasing power would be lowered resulting in a reduction in demand since they are left with no cash. Though some may believe that prices will fall when supply exceeds demand, there is a chance that prices will rise if supply is also reduced. Because the money supply has been significantly reduced, certain industries will be badly impacted as cash transactions cease. Income and consumption would be

Keywords: Money, Income, Transactions, Demonetization, Reduce Corruption, Economy etc.

1. INTRODUCTION

Demonetization is the act of removing a monetary unit's legal tender status. It occurs whenever a country's currency is changed: the present form or forms of money are removed from circulation and retired, frequently to be replaced with new notes or coins. A country's old currency is sometimes totally replaced with new currency.

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Impact of FDI on Financial Performance of Insurance Companies

Prof. (Dr.) Jyotirmaya Satapathy
Professor, Department of Economics
Gandhi Academy of Technology and Engineering, Berhampur, Odisha, India

INTRODUCTION

Risk is an essential aspect of life, and the insurance sector is regarded as the backbone for the country's risk management systems. This is one of the key reasons why the government develops particular rules and regulations to promote the insurance sector and its growth. One of the reasons that foreign direct investment was introduced in the insurance business was to expand these organizations' risk coverage capabilities toward the Indian populace. India has a large population, and a considerable proportion of people live below the poverty line. Because of the scarcity of insurance businesses in India, total insurance premiums are very high, resulting in lower insurance penetration.

1. RESEARCH QUESTION AND OBJECTIVE

An organization's profitability can be affected by a variety of internal and external factors, one of which is its capital structure. The key research goal in the provided situation will be to determine whether FDI in a company's equity capital affects its profitability or not. Furthermore, how FDI investment affects profitability will be examined with the help of this research (Myers, 2019). Over a four-year period, the profitability of private and public sector firms will be compared to the increase and decline in FDI investment.

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Research on MTI talent cultivation under language education planning

Prof. (Dr.) Bairagi Patra
Professor, Department of English
Gandhi Academy of Technology and Engineering, Berhampur, Odisha, India

ABSTRACT:

In order to tell China's stories well, promote the Chinese voice, and show a true and comprehensive China, to enhance our capacities of transnational communication, our country has elevated its understanding of the discrepancies of transnational communication work to a new position. The authors feel the close connection between the diligence and propose that graduate scholars majoring in restatement in the new period should concentrate on the practical conditions of transnational communication and laboriously acclimatize to the requirements of global development.

INTRODUCTION

The civilization of MTI talents has always been an important issue in the field of language restatement and communication under language education planning. With the development of globalization and the adding frequency of multilingual communication, there's a growing demand for restatement professionals who are complete in multiple languages. The MTI program is devoted to cultivating largely professed and well-rounded restatement professionals for society. Against the background of current global language planning, in-depth exploration into the styles and ways of MTI gift civilization is of significant significance in perfecting the quality and effectiveness of restatement and interpretation exploration. In the period of globalization, language education planning has come an important part of public development and artistic exchange.

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Teaching English for Research Publication Purposes to science students in China: A case study of an experienced teacher in the classroom

Ajit Kumar Satapathy
Professor, Department of English
Gandhi Academy of Technology and Engineering, Berhampur, Odisha, India

ABSTRACT:
Within ESP/EAP, compared with the large volume of corpus-informed discourse analytic research, there is only limited literature featuring the actual classroom discourse, or more specifically, the ESP/EAP practitioners' teaching itself. Such classroom-based research, however, can significantly inform the preparation of ESP/EAP teachers. In this paper, we address the research gap by presenting a case study of how an experienced, native-English-speaking English for Research Publication Purposes (ERPP) teacher went about teaching an ERPP course by invitation at a university in China. Data were collected through classroom observation with audio and video recordings and interviews.

INTRODUCTION
In common with schoolteacher education for ESP/ EAP in general (Basturkmen, 2014), there's little literature aimed at the medication of preceptors of English for Research Publication Purposes (ERPP) (Cargill & Burgess, 2008). Research applicable for the tutoring of ERPP includes a) converse analysis, in particular Swalesian kidney analysis (Swales, 1990); b) social constructivist accounts of how expert and neophyte pens go about writing for publication, grounded on interviews and textbook analysis (J. Flower, 2000, Li, 2006, Lillis and Curry, 2010); c) first- person accounts of successful alternate language academic pens (Belcher & Connor, 2001).

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Mathematical model to analyze the flow and heat transfer problem in U-Shaped geothermal exchangers

Prof. (Dr.) Rama Chandra Dash
Professor, Department of Mathematics
Gandhi Academy of Technology and Engineering, Berhampur, Odisha, India

ABSTRACT:

In this study, we propose a fine model for U-shaped geothermal heat exchangers grounded on the unsteady Navier – Stokes problem. In the numerical result of this problem, we divide the exchanger into two computational disciplines rectilinear pipes where the temperature field is reckoned analytically, and a U-curved pipe where results for both the inflow and heat exchange are calculated using a numerical procedure grounded on the Galerkin finite elements system. The results of some numerical simulations are handed and used to study the performance of geothermal exchangers by assessing the effective energy produced. We also present a confirmation analysis grounded on experimental measures attained from a real geothermal exchanger.

INTRODUCTION:

Geothermal energy is generated and stored in the form of heat below the Earth's face. This renewable resource may be unique because it's nearly independent of solar energy and the rainfall conditions. This point is notable for renew suitable energy coffers because it means that geothermal energy is available every day throughout the time. It's also an indefatigable energy resource and in mortal terms, its eventuality is similar to that of the sun. Useful operations of geothermal energy include electric power generation and perfecting the effectiveness of systems for hot water product and air-excretion in structures.

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Predator interactions Population dynamics with multiple Allee effects induced by fear factors – A mathematical study on prey-

Prof. (Dr.) Sandhya Mishra
Professor, Department of Mathematics
Gandhi Academy of Technology and Engineering, Berhampur, Odisha, India

ABSTRACT:

In the present, ecologists generally consider the relations, which are directly related to the viscosity goods, that species have on each other, like predation, mutualism, retreatment. Still, some experimental studies showed that picceman from the direct payoff, predation fears itself can reduce the prey growth rate by 40, thus, in the present study, we have considered a particularity effect, which is characterized by the reduction of prey growth rate due to fear of bloodsucker, where the prey is formerly suffered by the lovmaking convinced strong Allee goods, in the reduplication process. First, we developed and antomized the single species model and showed that how the fear effect can significantly reduce the percipia growth rate (pp) and may be a possible cause of the multiple Allee goods at low pop ulation viscosity.

1. INTRODUCTION:

The presence of bloodsucker may significantly alter the prey gets - such an extent that it could affect the prey more influential than direct predation(1,2). But in utmost of the studies on prey- bloodsucker systems, only consider the direct payoff of prey in the presence of bloodsucker, as this predation is veritably easy to observe in nature. Though we only observe the direct payoff, but all prey responds to the predation threat and shows different types ofanti-predator responses, which includes habit tat changes.

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Mathematical modelling and analysis of nano particle gradients induced by magnetic fields

Prof. (Dr.) Chetan Kumar Sharma
Professor, Department of Mathematics
Gandhi Academy of Technology and Engineering, Berhampur, Odisha, India

ABSTRACT:

In this paper, we infer numerical models for the elements of super paramagnetic nano particles beneath the impact of connected attractive areas. Such models are required in numerous applications, e.g. attractive medicate focusing on in cancer treatment. They are the beginning point for the advancement of steady numerical approaches and for the definition of optimization issues, which are required for the ideal plan of attractive field arrangements. Besides, we appear the presence and uniqueness of classical radially symmetrical arrangements and outline their subjective conduct by numerical reenactments utilizing Matlab.

INTRODUCTION:

In this paper, we are concerned with the numerical demonstrating and investigation of forms within the field of attractive focusing on. By and large talking, the point is to control the flow of attractive particles by connected attractive areas. In our examinations, we consider super paramagnetic nano particles which these days are at the center of numerous applications; here, we say those from biomedicine. In this area, magnetic targeting may be a promising approach e.g. in cancer treatment, where it can give an vital elective or expansion to customary treatments, [13,14,9]. In customary treatments, such as chemotherapy, drugs are dispersed all over the body, so that they slaughter not fair fast-growing cancer cells, but moreover bone-marrow, skin, hair, intestinal and immune-system cells. Hence, the awesome esteem of the attractive focusing on strategy comprises within the capacity to target illness locations.

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Global analysis of a mathematical model for hepatitis C considering the host immune system

Prakash Kumar Shukla
Professor, Department of Mathematics
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ABSTRACT:

A fine model is considered in order to dissect the dynamics of hepatitis C contagion (HCV) and the host vulnerable system. This model is grounded on a system of four discrimination equations. By using geometric tools, enough conditions are determined in terms of the parameters that guarantee the global stability of the aboriginal equilibrium.

INTRODUCTION:

Hepatitis C is a complaint that substantially affects the liver. It's caused by the hepatitis C contagion (HCV). The acute infection is generally asymptomatic, but the habitual infection(50 – 70 of the cases) might produce liver damage, and about 20 of the cases get cirrhosis ten times after being infected(9). The HCV is substantially caused through the blood, some rare cases by sexual contact and infrequently from mama to her baby. Roughly from 130 to 150 millions of people around the world are infected by HCV (2015). currently, there's no vaccine against HCV. The current treatment consists in barring the viral cargo using interferon and ribavirin for 48 weeks. The treatment cures about half of the cases, but it constantly has secondary responses that can be mortal. There are some procedures to estimate the hepatic lesion; one of them is the liver vivisection which was the stylish tool for times to cover the elaboration of the hepatic complaint. Its use has dropped because it's veritably aggressive procedure for the case.

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Solutions for General Relativity in modified gravity

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ABSTRACT:

Later gravitational wave perceptions of parallel dark gap mergers and a parallel neutron star merger by LIGO and Virgo Collaborations related with its optical partner compel deviation from Common Relativity (GR) both on strong-field administration and cosmological scales with tall exactness, and assist solid imperatives are anticipated by near-future perceptions. Hence, it is vital to distinguish hypotheses of modified gravity that naturally have the same arrangements as in GR among a gigantic number of hypotheses. We clarify the three conditions for speculations of modified gravity to permit GR arrangements

1. INTRODUCTION:

Later estimations of gravitational waves (GWs) from twofold dark gap (BH) mergers by LIGO and Virgo Collaborations clarified that the watched GWs are reliable with the expectation of Common Relativity (GR) for parallel coalescence waveforms. Additionally, the nearly concurrent location of GWs from a neutron star (NS) merger, and the brief gamma-ray burst has significantly obliged a deviation of engendering speed of GWs over cosmological remove from the speed of light down arrange 10-15. End of the estimations of GWs with uncommon exactnesses will make it conceivable to test modified gravity from totally diverse viewpoints.

Different gravitational speculations elective to GR have been professional- postured to clarify inflation and/or late-time speeding up of the

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The affect of radiation treatment arranging strategy on spontaneous clinic affirmations

Bikram Kumar Sahu
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ABSTRACT:

PURPOSE: Treatment burdens and toxicities related to palliative radiation treatment (RT) may lead to impromptu healing center confirmations (UHAs). The probability for these toxicities may be related to treatment method. We compared rates of UHA between patients accepting nonconformal (2- dimensional) and conformal (3-dimensional or higher) radiation medications to bone metastases including the vertebral column.

Methods and materials: We reflectively analyzed patients treated with RT for bone metastases at a single tertiary care center between 2010 and 2017. We compared rates of RT-related UHA inside 90 days of accepting radiation utilizing Cox competing hazard relapse models.

INTRODUCTION:

Radiation treatment (RT) may be a profoundly compelling shape of indication palliation for patients with bone metastases. At the same time, patients who get palliative RT for bone metastases are especially helpless to treatment-related burdens and toxicities that in some cases lead to unplanned hospitalizations.1 Spontaneous healing center confirmation (UHA) could be a result of treatment-related burdens that overpower dad-tients to such an degree that hospitalization is required.

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Analytical Solution for Ultimate bearing capacity of strip footing seated on inclined backfill

Dr. Harish Chand Giri
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Gandhi Academy of Technology and Engineering, Berhampur, Odisha, India

ABSTRACT:

Concurrent building construction began when inclines on Earth's surface began to receive more infrastructure. Shallow foundations were preferred for residential and commercial buildings with low ceilings. Footings were positioned differently on slanted terrain than they were on a level one. Meyerhof was the first to give analytical answers for footing on inclined ground. Other academics have since extended these ideas. The ultimate carrying capacity of a footing on a slope has been determined through the development of analytical solutions in this study. Rankin's Earth Pressure Theory was employed to conduct the study of one-sided equilibrium. For the c-φ soil, the results have been shown for various values of slope angles. Meyerhof's theoretical solution, which established the ultimate bearing capacity of a shallow foundation situated on a slope, has been compared to analytical results.

1. INTRODUCTION:

This study provides an analytical solution using Rankine's earth pressure theory to calculate the ultimate bearing capacity of footing at varied angles of θ. One of the most significant earth pressure theories, Rankine's theory, is still in use today due to its exacting theory, understandable concept, and straightforward computation. The one-sided equilibrium analysis was carried out using it to determine the footing's ultimate bearing capacity.

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Behavior of Rectangular RC Columns Confined with BFRP sheets Subjected to Axial Loading

Dr. Jyotikumum Acharya
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ABSTRACT:

This work presents the results of a research into the behavior under axial compression stress of small rectangular reinforced concrete columns encased in fiber reinforced polymer (FRP) sheets. The purpose of this study is to evaluate the performance of these strengthened columns experimentally utilizing sheets made of a novel and promising FRP material called basalt fiber reinforced polymer (BFRP). Additionally, it seeks to explore the upper bound of the cross-sectional aspect ratio parameter, a contentious topic for the past twenty years. Eight RC columns with aspect ratios of 1.0, 1.5, 2.0, and 2.5 were therefore put to the test. An analysis was conducted on the axial and transverse behavior of columns. The nominal compressive strength of rectangular RC BFRP-confined column sheets was then predicted using a few confinement models for rectangular RC columns that were already in use.

INTRODUCTION

Due to their excellent engineering qualities, which include minimal thickness in addition to high strength and high corrosion resistance, fiber reinforced polymer (FRP) composites have shown to be a viable alternative to steel for reinforcing concrete structures in recent decades. In addition, they maintain the architectural perspective. FRP materials have successfully improved the behavior of circular concrete columns with a geometrical structure that permits the fibers to be stressed uniformly, with regard to an important structural element like a column.

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Characteristic Study Of Concrete By Replacing Glass Cullet And Ceramic Tiles Over Conventional Aggregates

Narayan Tiadi
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Gandhi Academy of Technology and Engineering, Berhampur, Odisha, India

ABSTRACT:

Invention of various researches in concrete proves that compressive strength of concrete can be easily obtained using various wastes from environment into a great extent. Therefore, from these results the strength also obtained under sustainable rate without making any hazard to the environment. Here, a study was carried to improve the compressive strength of concrete by replacing coarse aggregate with ceramic wastes and fine aggregate with Glass cullet at different proportions.

INTRODUCTION

The combination of cement, coarse aggregate, Fine aggregate with different proportions of water makes the combined substance to resist the compressive stress is Known to be Concrete. Thus, under eco free considerations, various alternatives are chosen by replacing these constituents thereby, the strength, durability's are also enhanced into a great extent (1,2,4). Here, M30 Grade of concrete being chosen for the strength determinations with 0%-0%, 10%-20% and 20%-10% replacement of Glass cullet and Ceramic wastes in concrete. This combined action increases the compressive stresses at higher level than to the conventional mix of concrete (2,3). Concrete samples of M-30 grade are prepared as per IS-10262, 2009 mix design procedure with and without replacement of Glass cullet and Ceramic wastes.

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Evaluation of vehicle light weighting to reduce greenhouse gas emissions with focus on magnesium substitution

Ankita Jena
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ABSTRACT:

In order to decrease runoff from a site and replenish ground water levels, pervious concrete is a unique high porosity concrete that is used for flatwork applications. It permits water from precipitation and other sources to pass through there. Important characteristics of pervious concrete are its durability and water absorption capacity. Large aggregates are used in its construction, with little to no fine aggregate. With very little fine aggregate, it is mostly composed of water, coarse aggregate, and cement. Parking lots, places with little traffic, residential streets, pedestrian walkways, and greenhouses are among the typical applications for pervious concrete.

INTRODUCTION

A unique kind of concrete known as "pervious concrete" substitutes gravel for coarse aggregate and does not use any fine aggregate. A homogenous mixture of cement, gravel or aggregate, and water is known as pervious concrete. "No-fines" concrete is another term for pervious concrete. One of the most crucial factors to take into account when designing new buildings and evaluating the state of existing ones is the durability of the concrete. Concrete construction is becoming increasingly complex and the importance of producing structures that are both cost effective and durable has never been higher.

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A Methodical Mapping Study of Block chain-Based Applications in Higher Education

Dr. Dhaneswar Parida
Professor, Department of Computer Science
Gandhi Academy of Technology and Engineering, Berhampur, Odisha, India

ABSTRACT:

Blockchain technology is now being applied in areas other than digital money, including education, health, and the Internet of Things. We provide a methodical mapping analysis in this work to gather and examine pertinent blockchain research pertaining to the higher education sector. The focus of the article is on two primary themes. Initially, it looks at cutting edge blockchain-based apps created for educational reasons. It also enumerates the difficulties and areas of unfinished study that require attention in further investigations.

INTRODUCTION

By utilizing modern technologies like the Internet and World Wide Web, the traditional educational system in higher education has experienced considerable and ongoing development. Web-based apps are being used to foster active learning, enhance collaboration, facilitate resource sharing, and improve communication. There aren't many goods now built on blockchain, and blockchain applications for education are still in their infancy. Nonetheless, there are a lot of new opportunities that blockchain technology may provide.

2008 saw the initial development of blockchain for the Bitcoin electronic payment system [2]. From then on, this new technology has developed quickly and is now the focus of extensive study in several enterprises, research centers, and academic institutions worldwide [1][8][49]. The goal of blockchain technology is to address the issue of a "trusted" central authority handling the task of mediating transactions between parties.

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A Systematic Mapping Study of Blockchain-Based Supply Chain Management

Dr. Subhendu Kumar Pani
Professor, Department of Computer Science
Gandhi Academy of Technology and Engineering, Berhampur, Odisha, India

ABSTRACT:

Incredibly, in the past several years, blockchain technology (BCT) has become increasingly important and widely accepted. applied to a variety of fields, including supply chain networks, banking, supply and legal sectors, and smart property. Without the assistance of a third party, this technique guarantees the integrity and immutability of data. BCT may also ensure a decentralized and transparent transaction system across industries and enterprises. A thorough study of the present research difficulties related the effective use of BCT in supply chain management (SCM) is lacking, despite the fact that general research in the field has been conducted. There isn't currently a comprehensive literature review (SLR) on blockchain-based supply chain management.

INTRODUCTION

In an effort to enhance supply chain performance across various industries and offer novel approaches to supply chain management (SCM), recent systematic literature reviews (SLRs) on the subject have emphasized the significance of information and communication technology (ICT) in SCM, though they have not specifically addressed blockchain technology (BCT).

Because of the BCT's novel features, which offer effective answers to the gaps that exist in a number of supply chain sectors, it has been inspiring study topics. In fact, the subject of the blockchain's applicability for supply chain management has not been included in any of the SLRs that have been done up to this point.

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Self-Driving Database Management Systems: Query-based Workload Forecasting

Dr. Sachi Nandan Mahanty
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ABSTRACT:

The capacity to simulate the workload of the target application is the first step towards developing an autonomous database management system (DBMS). In order to foresee future workload requirements and promptly pick the appropriate optimizations, this is required of the system. Previous forecasting methods model the query resource usage. But these measurements are unstable, changing as soon as the hardware resources and database's physical layout do, making earlier forecasting models meaningless.

1. INTRODUCTION

We introduce QueryBot 5000, a powerful forecasting tool that leverages previous data to provide a DBMS with a projected future query arrival rate prediction. Our method relies on the logical structure of the workload rather than the quantity of physical resources utilized to execute the queries in order to better accommodate highly dynamic situations. This offers distinct aggregation intervals for various horizons, ranging from short-term to long-term. Another method we provide for lowering the overall number of forecasting models that need to be maintained is based on clustering. Using three real-world database traces, we assess our method by comparing our predicting models to other cutting edge algorithms.

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Analysis of information Storage Security Issues in Cloud computing paradigm

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ABSTRACT:

Cloud computing gives on request services to its clients. Data capacity is among one of the essential services given by cloud computing. Cloud service provider has the data of data proprietor on their server and client can get to their information from these servers. As information owners and servers are diverse personalities the worldview of information capacity brings up numerous security challenges. An autonomous instrument is required to create beyond any doubt that information is accurately facilitated in to the cloud storage server. In this paper we'll talk about the distinctive strategies that are utilized for secure information capacity on cloud.

INTRODUCTION

Cloud computing is the combination of many preexisting advances that have developed at distinctive rates and in numerous settings. The objective of cloud computing is to permit clients to require advantage from all these innovations. Numerous organizations are moving into cloud since it permits the clients to store their information on clouds and can get to at anytime from anyplace. Information breaching is conceivable in cloud environment since information from different clients and commerce organizations lie together in cloud. By sending the information to the cloud the information proprietors exchange the control of their information to a third individual that will raise security issues. Now and then the Cloud Benefit Provider (CSP) itself will use/corrupt the information illicitly.

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Dynamic controllable external database with Fresh cloud service

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ABSTRACT

Database outsourcing is one of the prominent cloud services in which the database owner (DO) delegates database management to a cloud service provider (CSP) to reduce the cost of database management and maintenance. Despite its huge advantages, it suffers from certain security problems, such as secrecy of outsourced databases and controllability of search results. Recently, some research has been done on the verifiability of external databases (ODB) search results, which ensures the correctness and completeness of the search results.

1. INTRODUCTION

Database outsourcing is one of the prominent cloud services in which the database owner (DO) delegates database management to a cloud service provider (CSP) to reduce the cost of database management and maintenance. Despite its huge advantages, it suffers from certain security problems, such as secrecy of outsourced databases and controllability of search results. Recently, some research has been done on the verifiability of outsourced databases (ODB) search results, which ensures that zeroCloud Computing is a new information technology (IT) paradigm that enables on-demand, daily access to a shared network, a set of configurable computing resources. One of the main services of the cloud service is the outsourcing of databases. Where the customer can delegate database management to the CSP to reduce maintenance and database management costs. Despite its many advantages, ODB has some security problems [1]. One security

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A Collaboration Platform for Enabling Industrial Symbiosis: Application of the Database Engine for Waste-to-Resource Matching

Dr. Chinmaya Ranjan Pattnaik
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Gandhi Academy of Technology and Engineering, Berhampur, Odisha, India

ABSTRACT:

Database outsourcing is one of the prominent cloud services in which the database owner (DO) delegates database management to a cloud service provider (CSP) to reduce the cost of database management and maintenance. Despite its huge advantages, it suffers from certain security problems, such as secrecy of outsourced databases and controllability of search results. Recently, some research has been done on the verifiability of external databases (ODB) search results, which ensures the correctness and completeness of the search results.

1. INTRODUCTION

Population growth, along with a growing middle class and affluent consumers, is accelerating per capita consumption of global resources. Thanks to this, waste is generated in the world faster than other environmental pollutants, including greenhouse gases [1]. Such waste is especially urgent in densely populated and landless cities like Singapore. Although 61% of the 7.81 million tonnes of waste generated in Singapore in 2016 was recycled [2], incineration and landfill capacities are struggling to keep up with the increasing amount of waste generated over the years. In addition, incineration and landfill represent a missed opportunity for businesses. There is potential value in waste that can be recycled by turning waste into natural resources.

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Challenges and security issues of underwater wireless Sensor networks

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ABSTRACT:

With the advances in technology, there has been an increasing interest from researchers and industrial institutions in the use of Underwater Wireless Sensor Networks (UWSNs). Constrained by the open acoustic channel, harsh underwater environment and the particularities of itself, UWSNs are vulnerable to a wide class of security threats and malicious attacks. A survey on threats, challenges and security issues of UWSNs are presented in this paper. In addition, current security researches and mechanisms are presented and discussed.

1. INTRODUCTION

Underwater wireless sensor networks (UWSNs) have proven robust in various underwater applications in ocean surveillance, resource exploration, surveillance, and military applications under severe underwater conditions [1][2]. Current research focuses primarily on communication, self-organization, connectivity, processing ability, adaptability and low energy consumption. UWSNs are vulnerable to a number of security threats and malicious attacks that severely disrupt network communication and collaboration. Security requirements for UWSNs are implemented to prevent these attacks. Unfortunately, these studies were limited to mitigating security threats in UWSNs because resources are much more limited, while the security situation is more server-based due to functions and network environments.

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Developmental methods for creating artificial Intelligence in robotic systems

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ABSTRACT:

This paper explores evolutionary methods of symbolic regression to build artificial intelligence for robotic systems. We look at symbolic regression methods and show the features of their application in solving the synthetic task of controlling robot systems. The measure of the complexity of artificial intelligence is determined and the advantage of using the principle of small variations of the basic solution in relation to the creation of intelligent control systems is pointed out. A variational analysis programming method is described and an example of its use for the synthesis of intelligent control is described.

1. INTRODUCTION

The current problem of creating artificial intelligence has become more acute with the development of robotic systems. Despite the fact that much has been said about the problem of creating artificial intelligence, the concept of artificial intelligence itself and its definition are important. It is clear that the presence of intelligence is essential in decision systems, pattern recognition, inference and learning, and thus these human-developed systems must contain elements of artificial intelligence.

The statement that artificial intelligence is a system containing conditional operators is also confirmed by the fact that it is difficult to find a mathematical device where the formal mathematical formulation of the problem would give a conditional operator as a solution.

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Time series forecasting using artificial neural methods: a systematic review

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ABSTRACT:

This paper examines the development of time series forecasting models using artificial neural methods in a systematic literature review. A systematic review of articles published in the past 11 years on time series forecasting with new neural network models was performed and the methods used were presented. Among the results obtained during the period covered by the study, 17 studies were found that met all the search criteria. Only three of the proposals received death with a neural network model of an autoregressive different process. From these results, it is concluded that although there are many studies that introduce the application of neural network models, but few of them have proposed new neural

INTRODUCTION

Time series is a general problem of great practical interest in many fields. Because it allows you to find the future values of the series from its previous values with a certain margin of error. In the related literature, there are many successful applications in various fields such as economics, finance, and water science. In the late 1970s, Box and Jenkins [20] did important work on the study of applications consisting of mathematical linear models. These models represent autoregressive (AR) and moving average (MA) processes. AR processes assume that the current value of a time series is a linear combination of its previous values.

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Future Prospects and Difficulties of Blockchain- Integrated Internet of Things

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ABSTRACT:

Within the Web of Things (IoT) thought, normal contraptions conclusion up sharp and self-governing. As we are seeing thought behind usually changing into a authenticity on account of accomplishment in development, but we still confront challenges, particularly in a few field like security e.g., data constancy. Taking account, the up and coming headway within the field of IoT appears exceptionally imperative to give trust within the field of colossal drawing closer information establishment. Blockchain has given us the other way to share our information with others.

1. INTRODUCTION

The web of things (IoT) spread an thought which depicts the association of normal gadgets with the web but with the capability to recognize themselves as an person and diverse gadget. This innovation is closely related to the RFID "radio-frequency identification" for communication methodology, indeed it may assimilate the other advances like QR codes, remote innovations or to a few expand sensors advances [1]. On the other hand, blockchain is an progressed record of exchanges. Blockchain was started from the concept where each block named as record are associated together in a frame of chain subsequently named as block-chain.

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Investigation into the Impact of Primary Load Imbalance on the Composite Transformer's Accuracy

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ABSTRACT:

The assessment of the error in a three-phase three-element combined transformer involves employing a three-phase detection method to accurately measure the error in both current and voltage transformers. The close proximity of these transformers in the combined structure makes them susceptible to electromagnetic interference, particularly in situations with imbalanced primary loads, a common occurrence in power systems. This paper presents an experimental investigation aimed at understanding the impact of primary load imbalance on the error characteristics of three-phase three-element combined transformers.

1. INTRODUCTION

Three-phase three-element combined transformers are extensively utilized in power grids with voltage levels ranging from 6kV to 35kV. These transformers exhibit two structural variations: independent iron core structure and three-column core structure. The three-column core structure, when compared to the independent iron core structure, offers advantages such as a compact design, smaller volume, and lower cost. This paper primarily focuses on the three-phase three-element transformer with a three-column iron core structure. The preferred detection method for such transformers is the three-phase detecting method, which involves simultaneously raising the voltage and current of each phase to detect errors during actual operational conditions.

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Optimal Design of Static Plate in UHV Converter Transformer Utilizing PSO Algorithm

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ABSTRACT:

Electrostatic plates, positioned at both ends of the windings in UHV converter transformers, serve to shield the electric field of the winding ends and enhance voltage distribution during impulse voltages. Existing literature on optimizing electrostatic plate structures often focuses on surface maximum field stress rather than the overall insulation margin. The allowable stress value in transformer insulation design is closely tied to the stress oil volume (or the size of the oil gap). Therefore, reducing surface maximum field stress may not necessarily improve the overall insulation margin. This means that optimizing for surface maximum field strength only satisfies local insulation requirements. This paper.

1. INTRODUCTION

Electrostatic plates, commonly known as electrostatic rings, installed at both ends of transformer windings, serve the purpose of shielding the electric field at the winding ends and enhancing voltage distribution during impulse voltages. Existing literature on electrostatic plate optimization often prioritizes surface maximum field stress over the overall insulation margin. The allowable stress in transformer insulation design is intricately linked to the stress oil volume (or oil gap size). Therefore, reducing surface maximum field stress does not necessarily

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Analysis of the Key Insulation Structure in a 500kV Radial Split Transformer and Optimize it

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ABSTRACT:

The split transformer, widely used in power stations for efficiently limiting short-circuit currents, has found extensive application, particularly in LV split-type starting-up standby transformers. This paper focuses on ensuring the insulation structure's reliability in a 500 kV radial split transformer. Finite Element Method (FEM) analysis was employed to examine the electric field distribution in HV winding end insulation, lead insulation, and HV winding outlets insulation. The insulation structures were optimized based on the FEM analysis results. Changes were implemented in the static plate structure of the high voltage winding, transforming it into a composite insulation structure. Additionally, improvements

INTRODUCTION

Presently, the 500 kV transmission line serves as the backbone network in China. The utilization of a 500 kV split transformer directly from the 500 kV line for power generation has become common. In comparison to double-winding transformers of the same capacity, the 500 kV split transformer exhibits greater split impedance with its low-voltage split windings. This characteristic effectively reduces short-circuit currents and short-circuit capacity. Power plant design specifications mandate the use of split transformers for 200 – 400 MW units in HV power plants. While the capacity of split transformers may not be large.

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Investigation of Insulation Material Properties under Nonlinear AC-DC Composite Electric Field for Converter Transformer

Dr. Ajaya Kumar Swain
Professor, Department of Electrical Engineering
Gandhi Academy of Technology and Engineering, Berhampur, Odisha, India

ABSTRACT:

This paper explores the nonlinear ac-dc composite electric field within the winding area of a converter transformer, taking into account the frequency and temperature dependence of insulation materials. Initial measurements were conducted on the relative permittivity and conductivity of insulation papers, vegetable oils, and mineral oils at various frequencies and temperatures. Subsequently, a model of the oil-paper insulation structure for a 500 kV converter transformer valve-side winding was established.

1. INTRODUCTION

The converter transformer holds significant importance in the primary system of high-voltage direct current transmission, crucially impacting system stability. The converter transformer plays a pivotal role in the DC transmission system. Employing an oil-paper insulation structure, this system is susceptible to partial discharge, a primary factor contributing to insulation performance deterioration. The condition of the oil-paper insulation directly influences the state and lifespan of various power appliances, emphasizing the critical role of converter transformer design. Consequently, the study of composite electric field calculation methods and the permissible field strength of insulation materials under this field is integral to converter transformer design.

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Magnetostriction Characteristics of Electrical Steel and its Correlation with No-Load Noise in Power Transformers

Dr. Satyajit Mohanty
Professor, Department of Electrical Engineering
Gandhi Academy of Technology and Engineering, Berhampur, Odisha, India

ABSTRACT:

This paper investigates the correlation between the experimentally determined magnetostriction of grain-oriented electrical steel (GOES) coils and the no-load noise of power transformers (PT). The primary source of a PT's no-load noise is the magnetostrictive vibration of the magnetic core constructed with stacked GOES sheets. Using an in-house measurement system capable of assessing steel coils weighing up to 6,000 kg, distinctions in the magnetostriction of GOES materials were identified. The study analyzes the flux-dependent behavior and harmonic composition of magnetostrictive properties in different steel coils. Two experimental studies with PTs are presented, demonstrating exemplary results. The

INTRODUCTION

In recent decades, a noticeable increase in noise levels, particularly in populated areas, has been observed. This rise in noise pollution can be attributed primarily to population growth and urbanization. The overall impact of noise pollution has prompted governments to amend legislation and implement noise limits. The European Parliament has also taken steps to establish relevant policies, exemplified by the European Directive 2002/49/EC. These regulatory changes affect operators of power transformer (PT) substations and PT manufacturers alike.

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An Innovative Approach to Investigate Core Vibration in Power Transformers

Dr. Jyoti Prasad Patra
Professor, Department of Electrical Engineering
Gandhi Academy of Technology and Engineering, Berhampur, Odisha, India

ABSTRACT:

Large power transformers often face significant challenges related to vibration and noise, with core vibration serving as a critical factor in accurate calculations. The complexities of vibration calculation intensify for transformers housed in tanks, considering the intricate propagation path of vibration within the tank and transformer oil. This paper presents an innovative approach to investigating core vibration in the DFP-270,000/500 super high-voltage generator transformer. Through vibration-acoustic coupling calculations, the damping coefficient of the transformer's core vibration is determined, employing magnetic structural coupling analysis. To assess the proposed method's feasibility and applicability, numerical results are compared with experimental data.

1. INTRODUCTION

In recent times, the escalation of power transformer capacity and voltage levels has exacerbated the issue of transformer noise, making it a significant concern. Transformer noise emanates from various sources, including the core, winding, and cooler, with the core being the primary contributor. The noise generated by the core is attributed to the magnetostrictive effect induced by the alternating magnetic field acting on the silicon steel sheets comprising the core. This magnetostriction causes periodic vibrations in the transformer core, resulting in propagated noise.

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Eddy Current Loss Analysis in Transformer Foil Winding Utilizing Magneto-Fluid-Thermal Simulation

Dr. Arul Kumar P
Professor, Department of Electrical Engineering
Gandhi Academy of Technology and Engineering, Berhampur, Odisha, India

ABSTRACT:

Accurate estimation of temperature distribution in foil windings is essential for ensuring the longevity of power transformers, as localized heating can expedite the aging of insulation materials. Traditional 3-D electromagnetic models, coupled with heat transfer principles, face challenges in estimating non-uniform losses and temperature distributions due to the intricate magnetic leakage flux. This paper presents a magneto-fluid-thermal coupling model to calculate temperature rise and predict potential hotspots in a simplified 2500 kVA dry-type power transformer. The model considers the influence of insulation barriers, reshaping the air-flow path and affecting radiative effects between high-voltage and low-voltage windings. Experimental temperature rises, measured using infrared thermography,

1. INTRODUCTION

In the realm of energy transmission, power transformers play a pivotal role, making their reliability paramount for power systems. Transformer failures often stem from thermal effects, with local heating posing a significant threat to the insulation structure. The calculation of additional losses in the windings of large-capacity power transformers, especially the highly non-uniform power losses in foil windings due to induced current, is a critical consideration.

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Enhancement of Variable Speed Controllability for a 20 kW Class High-Temperature Superconducting Induction / Synchronous Motor under No-Load Conditions

Dr. Bidyut Ranjan Das
Professor, Department of Electrical Engineering
Gandhi Academy of Technology and Engineering, Berhampur, Odisha, India

ABSTRACT:

The term "HTS motor" in this context refers to a high-temperature superconducting motor. Specifically, the HTS induction/synchronous motor (HTS-ISM) mentioned in the abstract is a type of motor utilizing high-temperature superconducting technology. The focus of the research and development described in the abstract is on the application of this motor in next-generation transportation equipment such as trains and buses.

1. INTRODUCTION

Energy-Effective buses have been spotlighted in the world, marketable preface of Electric Vehicle (EV) or Plug-in Hybrid Vehicle (PHEV), as a representative one, are adding time by time. In order to further ameliorate the total system effectiveness of the below machine, exploration and development of largely effective drive motor is veritably important. An HTS motor is seen as an advance towards achieving similar pretensions. Development of superconducting traction motors for automotive operation have been reported in literature (1) (2). Our design group has developed the high performance superconducting motor for the forenamed operations. We call our motor a High Temperature Superconducting Induction/ Synchronous Motor (HTS-ISM) (3).

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Optimization and Comparative Analysis of Linear Flux-Switching Permanent Magnet Motor and Linear Induction Motor for Electromagnetic Launch Systems

Inshar Kanta Satapathy
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Gandhi Academy of Technology and Engineering, Berhampur, Odisha, India

ABSTRACT:

In pursuit of a motor design that combines the simplicity and robustness of induction linear motors with the high power factor and efficiency of permanent magnet linear motors, this paper introduces, investigates, and quantitatively compares a novel long primary double-sided linear flux-switching permanent magnet (DSLFSPM) motor with linear induction motors (LIM) for electromagnetic launch systems. The topology, operational principles, and electromagnetic performance of the DSLFSPM motor are explored. To comprehensively analyze linear induction motors, three LIMs are designed with identical overall dimensions and key parameters.

1. INTRODUCTION

With the advancement of industry and weaponry, the electromagnetic launch system has found widespread applications in shipboard aircraft launches, unmanned aerial vehicle launches, vehicle impact tests, and other military and civilian equipment. Currently, there are two primary methods employed in shipboard aircraft launches: the steam launch system and the electromagnetic launch system. In comparison to the steam launch system, the electromagnetic launch system boasts several advantages, including a wide application range.

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Modeling and Operation of a Fixed-Pole Rotor Induction Motor with Bearing less Configuration

Manoj Kumar Patnaik
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Gandhi Academy of Technology and Engineering, Berhampur, Odisha, India

ABSTRACT:

Traditional bearingless induction motors (BIMs) generate rotor currents through both the suspension force winding magnetic field and the torque winding magnetic field, leading to errors in radial suspension force generation. To address this issue, we propose a novel design known as the bearingless fixed-pole rotor induction (BFPR) motor. We analyze the structure of the BFPR motor, deduce mathematical models for radial suspension forces, and conduct finite element analysis to investigate induced currents and radial suspension forces. The results are compared with traditional BIMs. Additionally, we build a prototype motor and conduct experimental research.

1. INTRODUCTION

Magnetic bearings provide non-contact support between the stator and rotor using electromagnetic forces, effectively addressing issues like wear, vibration, noise, and the need for lubrication. These bearings find applications in specialized machines such as turbo-molecular vacuum pumps, artificial heart pumps, and centrifugal blood pumps. However, motor systems supported by magnetic bearings often face challenges such as long axial length, low critical speed, and complex structures, limiting the development of high-speed and high-power magnetic bearing motors.

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Refined Validation of a Rotor Fault Diagnosis Approach in Laboratory and Field Soft-Started Induction Motors

Ajaya Kumar Nahak
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ABSTRACT:
Induction motors are ubiquitous rotating electrical machines in various industries. Predictive maintenance of these motors is critical to prevent unexpected faults that can result in substantial economic losses for companies. In recent years, industrial induction motors operated by different types of drives, including soft-starters, have become more prevalent. Soft-starters offer advantages such as damping high starting currents, enabling a smooth motor startup, and avoiding undesirable commutation transients from other starting methods. Despite these benefits, they do not eliminate the potential occurrence of rotor damages, a common fault in such motors. While a few works have proposed predictive maintenance techniques for diagnosing rotor conditions in soft-started machines, very few have demonstrated the validity of their methods in real motors.

1. INTRODUCTION
Induction motors find applications across various industrial sectors, with factories housing hundreds or even thousands of these reliable machines. Despite their general reliability compared to other motor types, such as DC machines or synchronous motors, they are susceptible to various faults. Studies indicate that the most common issues include bearing failures, stator insulation faults, and rotor damages. Rotor faults, in particular, pose significant risks for several reasons maintenance of this motor component is often limited or nonexistent.

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SIMO Type Voltage Mode Two- Square Multifunction Filter

Dr. Sudhansu Sekhar Khuntia
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Gandhi Academy of Technology and Engineering, Berhampur, Odisha, India

ABSTRACT:

This document provides an overview of international efforts to establish standards for voice, audio and video signal processing for use in the emerging Integrated Services Digital Networks (ISDN). ISDN is the focus of the ongoing work of the CCITT (International Telegraph and Telephone Consultative Committee). Designed as evolved networks from basic digital telephone networks, ISDNs provide end-to-end digital connections to support a wide range of services, including voice, data, voice and video applications. The CCITT Forum has been a driving force in the development of digital devices and networks in recent years. Today, CCITT's standardization role is growing in importance due to the rapid development of digital communication technology and the global development of new communication services.

1. INTRODUCTION

All accepted & presented papers of the Conference by duly registered authors, will be submitted to IEEE Xplore Digital Library for Publication.

(All papers of SPIN-2014, SPIN-2015 and SPIN 2016 have been published in IEEE Xplore Digital Library and have been indexed by Scopus, Google Scholar etc.) Papers of SPIN-2017 have been submitted to IEEE Xplore for publishing and under process of being published.

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A New Implementation of the first-order universal Filter for the current state

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ABSTRACT:
A new first-order current-state universal filter structure (FOCMUF) is introduced. The circuit uses a second-generation differential dual X current driver (DD-DXCCII), a versatile member of the current driver family. Simultaneous multiple filter functions, i.e., high-pass (HP), low-pass (LP), and all-pass (AP) are readily available in high-impedance connectors, making the proposed topology suitable for sequential applications. The main highlights of the presented configuration are the use of only one active block, only grounded capacitor, high operating frequency and low sensitivity. In addition, non-ideal analyzes and parasitic studies are also presented.

1. INTRODUCTION
The current mode approach is rated quite high compared to the voltage mode because of its inherent advantages in the design of analog signal processing modules. The main advantages are higher operating bandwidth, higher linearity, better dynamic range, greater circuit simplicity and lower supply voltage requirements (Ferri and Guerin, 2003; Minaei et al., 2006). Variations of current carriers such as active building blocks (ABBs) (Kumar and Chatravodi, 2017; Kumar and Chatravodi, 2018; Chatravodi and Kumar, 2018a; Maheshwari, 2013)

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Research on optimization methods for biomedical signal properties

Dr. Lokanath Sarangi
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Gandhi Academy of Technology and Engineering, Berhampur, Odisha, India

ABSTRACT:

Effective treatment of health problems requires reliable and rapid diagnosis of diseases in the early stages. The best possible way to achieve this is to develop a visualization system to assess the problem and recommend corrective measures for treatment. The main purpose of medical image analysis will be to support physicians in specific clinical applications that require visual evaluation of medical images develop the objectivity and reproducibility of the analysis. Medical image analysis includes different stages medical image retrieval from multiple medical data centres, relevant feature extraction, feature dimension reduction and classification of medical images based on optimal features. In this review paper,

1. INTRODUCTION

Automation of disease diagnosis is becoming very popular, especially when a quick report is needed. Currently, researchers often prefer to use slow, manual analysis to extract information from images time-consuming and certainly not scalable for large-scale medical image database studies. Medical images are proved critical in the search for answers to many important problems in disease diagnosis and prognosis, as well as in medicine. target confirmation Implementing advanced healthcare display systems is a challenging task for engineers. in standardized image systems.

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Simulating the operational details of a 16-bit Microprocessor

Dr. Srinivas Mantha
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ABSTRACT:

The goal of this project is to design and simulate a 16-bit processor. The design was implemented using VHDL synthesis tool Xilinx 9.2. A microprocessor is basically an electronic device that consists of ALU and control circuits required for a computer to function as a processor. The microprocessor is an integrated circuit that interprets and executes program instructions and behaves intelligently. The processor runs at the internal clock speed and the clock frequency depends on the no. / pulses per second. With each clock pulse, the processor performs an action corresponding to a guide. Thus, the CPU power can be reduced to zero. of orders executed accordingly secondly. During the execution of instructions, data is temporarily stored in memory units called registers. Control signals are electronic signals used to communicate between different processor units during instruction execution.

1. INTRODUCTION

The main objective of this project is to design a 16-bit MICROPROCESSOR using VHDL (Very High) speed Integrated circuit Hardware description language). It is better to plan such a project you have an idea about the functionality of the project, because in such cases we do not need to generalize system. This limits both costs and time required for system development. That's the basic idea behind the project. Basically, a microprocessor contains RAM, ALU, and a controller information flow. Before designing a

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Ensemble methods for classifying moving image eeg signals

Dr. Sanjay Kumar Padhi
Professor, Department of Electronics and Telecommunication Engg,
Gandhi Academy of Technology and Engineering, Berhampur, Odisha, India

ABSTRACT:

Brain-Computer Interface (BCI) allows disabled people to interact with the real world without using neuromuscular pathways. BCIs are based on artificial intelligence piloted systems. They collect patterns of brain activity related to mental processes and convert them into commands for actuators. A possible application of BCI systems is in rehabilitation centers. In this regard, a new method for automatic recognition of motor imagery (MI) tasks was developed. The contribution is an effective hybridization of multi-step principal component analysis (MSPCA), wavelet packet decomposition (WPD), statistical feature extraction of subgroups, and ensemble learning-based classifiers for MI task classification. The proposed electroencephalogram (EEG) signals are segmented

1. INTRODUCTION

Brain-Computer Interface (BCI) allows people to use the electroencephalogram (EEG) to operate peripheral devices such as virtual worlds, robots or spelling machines. The main purpose of BCI is to use brain signals to generate commands to control peripheral devices. The most important application is to bypass damaged areas of the body or to stimulate partially paralyzed organs. BCI devices are considered the best solution to alleviate the problems of people with various neuromuscular disorders such as spinal cord injuries, amyotrophic lateral sclerosis, cerebral palsy and cerebral palsy [1].

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Parking indicator nearby

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ABSTRACT:

In cities like Mumbai where the population is at its peak and the roads are full of vehicles and long traffic jams. With such a growing population, it is difficult to find a parking space for our car. We came up with an idea where users can log into our app and find the ideal parking space closest to their destination. This saves users time and fuel. The user can easily see parking options from the app and drive directly to the location without wasting time. Thus, it is an intelligent parking system that takes into account the driving time location of the driver and predicts the availability of parking spaces for different parking spaces based on real-time parking data. Users can enter the destination they want to go to, and based on the location, the system offers different parking spaces in the area.

1. INTRODUCTION

In big cities like Mumbai where the population is at its peak and the roads are full of vehicles and long traffic. As the demand for vehicles increases, it is difficult to find a parking space for our bicycles. Therefore, people have to haphazardly park their vehicles wherever they can find a space, leading to traffic violations such as illegal, accidental double or corner parking [2]. To deal with such a parking crisis in Mumbai, a user can check the availability of parking spaces near their destination using a mobile application. Our application allows the driver to receive a parking space. The application provides the driver with a route from their current location to the parking lot with an estimated time, taking into account traffic along the route.

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Artificially intelligent integrated cyber security system

Dr. Kommu Naveen
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ABSTRACT:

This study presents and analyzes recorded failures of AI systems. After that, we extrapolate the results to possible future AIs. I argue that future AI disruptions will become more frequent and worse over time. Cyber security professionals and #039; ideas can be used to improve AI security. While corporate cybersecurity breaches are just as important as narrow AI security failures, large-scale AI failures have a very different consequence. A highly intelligent system and a single failure can lead to a catastrophic scenario with no recovery. AI Safety aims to ensure that no attack ever escapes the system and its defences, while Cyber Security aims to reduce the number of successful attacks against the system. Unfortunately, such a thing is impossible to do at a certain level.

INTRODUCTION

The intelligence exhibited by machines is known as artificial intelligence or artificial intelligence. When a machine becomes aware of its environment and acts within that context to achieve a goal. When a machine behaves like a human when solving problems or learning, also known as machine learning, the term artificial intelligence is often used. Our laws, rules and policies have had to adapt and evolve as the information age progresses. However, policies, rules and laws have often found it difficult to keep up with the speed and intensity of technological development [1]. Delay Important policy decisions can be made in the creation of laws and regulations, changes, as happened with other rapid changes.

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A new method for identifying copy shop fakes in image forensics

Dr. Bright Anand D
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ABSTRACT:

Image forensic analysis plays an important role in digital image security due to forgery and forgery. Image forgery violates the authenticity and ownership of digital images. Copy-and-move speech is an important forensic image analysis algorithm. In this case, the forger copies a part of the original image and then pastes it in the same image at a selected location. The purpose of forgery is to hide or highlight a certain area of the original image. Copying and Moving There are two traditional techniques for detecting forgery: block-based and keypoint-based. The main disadvantage of keypoint-based technology is insufficient features for small and flat areas, which leads to imperceptible fakes. In contrast, block-based technology is processing intensive.

1. INTRODUCTION

Digital image forgery is a very complex field that deals with the hardening and manipulation of digital images. It has become a major concern of the whole society. Merriam-Webster described it as "the misleading and fraudulent alteration of a digital image", an idea dating back to 1840. It reproduces images with different parameter values [6]. Serious cases of image forgery are increasing and alarming the world's law and order systems [30]. There are many photo manipulation, enhancement, correction, editing and entertainment tools available that facilitate crime. In areas such as forensics, criminal investigation, intelligence systems, medical imaging, insurance claims and journalism, digital images become

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Exploring NANO Electronic devices: An Alternative to MOS Devices

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ABSTRACT:

Although most of the electronics industry depends on the ever-shrinking sizes of lithographic transistors, that scale cannot continue indefinitely. Nanoelectronics (circuits built with 10 nm components) appear to be the most promising successor to lithography-based microcircuits. Molecular devices such as diodes, bistable switches, carbon nanotubes and nanowires have been produced and characterized in chemical laboratories. Techniques to self-assemble these devices into various architectures have also been demonstrated and used to build small-scale prototypes. Although these devices and assembly techniques lead to nanoscale electronics, they are also error-prone and transient.

1. INTRODUCTION:

Electrochromic devices (ECDs) [1,2] have recently attracted much attention due to the modulation of their electrically responsive optical properties (absorption or transmission) and large potential applications such as functional energy storage devices [3], [4], [5], [6], sensors [7], [8], [9] and most importantly in Smart Windows [10], [11], [12]. As the name suggests, the main function of an ECD is a reversible color change when an electrical bias is applied. A typical EC device is often fabricated as a multilayer structure consisting of electrochromic layers containing redox-active materials, an ion transport layer (i.e., electrolytes), and sometimes a counterion layer that supports the redox activity of the active material.

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The influence of grinding conditions and strategy on Cutting edge quality

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ABSTRACT:

This article bargains with the exploratory pounding of cemented carbide cutting instruments. A few carbide processing instruments with the same geometry were ground beneath the diverse pounding conditions and procedure depicted in this inquire about. The most point is to decide the impact of the crushing handle on the quality of the cutting edge. Diverse crushing conditions and techniques were utilized in pounding of the essential outspread help on the fringe cutting edge. The cutting edge was examined after pounding by an optical-scanning gadget and an electron magnifying instrument to decide the quality of the cutting edge and outspread alleviation confront of the apparatus. EDX investigation was utilized for the chemical characterization of the ground surface.

1. INTRODUCTION

Cemented carbides perform astoundingly as a cutting fabric due to the combination of difficult carbide particles and an intense metallic cover. This composite fabric with extraordinary hardness, quality and fractural durability is an great choice for the generation of cutting apparatuses utilized in the machining of metal amalgams. The pounding handle is the primary handle within the generation of strong cutting tools to get the specified geometry of the cutting instrument. Amid pounding fabric is expelled by geometrically indistinct cutting edges. In addition to geometry, the surface judgment after crushing is additionally a critical calculate which influences the quality of the cutting edge and the cutting execution

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**Impacts of cooling rate in an inventive warm treatment
Course for high-strength steels**

Dr. Dillip Kumar Biswal
Professor, Department of Mechanical Engineering
Gandhi Academy of Technology and Engineering, Bhubaneswar, Odisha, India

ABSTRACT:

The prerequisite for tall quality and ductility is ordinarily related with martensitic microstructure with a certain sum of held austenite. One of the inventive warm treatment forms that can lead to such microstructure is the Q&P prepare (Extinguishing and Apportioning). It can deliver microstructures comprising of martensite and a certain sum of held austenite, which show qualities over 2000 MPa and prolongation levels of more than 10%. The objective of this inquire about was to investigate the impacts of the cooling rate within the Q&P prepare and assess the impacts of different microstructure constituents on mechanical properties of high-strength steels. Three newly-created exploratory steels, which contained 0.43% carbon and had diminished Ms Temperatures much obliged to

1. INTRODUCTION

Today's progressed steels are required to have tall quality and ductility. Tall quality is ensured in martensitic steels. On the other hand, it tends to be at the fetched of ductility in these steels. This insufficiency can be overcome by creating extra stages within the microstructure. In progressed high-strength steels, such a stage is held austenite which is show as foil-like particles along the boundaries between martensite strips. To keep held austenite steady, carbon is required to migrate from super-saturated martensite to held austenite, rather than shaping pearlite or carbides and clearing out held austenite exhausted.

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Integrated optimization model in wire electric discharge machining utilizing gaussian process regression and wolf pack algorithm technique while milling sic/pal composite

Dr. Ritnanjali Sethy
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Gandhi Academy of Technology and Engineering, Berhampur, Odisha, India

ABSTRACT:

To assist progress forecast precision and optimization quality of wire electrical discharge machining of SiCp/Al composite, trim cuts were performed utilizing Taguchi test strategy to explore the impact of cutting parameters, such as heat term (Ton), heat interm (Toff), water weight (Wp), and wire pressure (Wt), on fabric expulsion rate and three-dimensional surface characteristics (Sq and Sa). An optimization show to foresee fabric expulsion rate and surface quality was created employing a novel crossover Gaussian handle relapse and wolf pack calculation approach based on explore comes about. Compared with straight

1. INTRODUCTION

SiCp/Al composite may be a metal lattice composite (MMC) comprising of aluminum lattice and silicon carbide particles. Due to its fabulous characteristic, such as tall quality, moo thickness, warm soundness, and great wear resistance, it is broadly utilized in airplane components, space frameworks, and high-end hardware. In any case, its support particles make it difficult to be machined in conventional ways, which can cause tall device wear. The destitute machinability limits its encourage application, so an temperate machining strategy with a tall execution is in incredible require.

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Unmanned surface vehicle steering system with neural adaptive sliding mode controller

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Gandhi Academy of Technology and Engineering, Berhampur, Odisha, India

ABSTRACT:

Unmanned surface vehicle has the properties such as complexity, nonlinearity, time inconstancy, and vulnerability, which lead to the trouble of getting a exact kinematics demonstrate. A neural versatile sliding mode controller for the unmanned surface vehicle controlling framework is created based on the sliding mode control procedure and the spiral premise work neural arrange. Within the modern approach, two parallel spiral premise work neural systems are utilized to decrease the impact of the framework instabilities and kill the reliance of the controller on the exact kinematics show of the framework. Among these two

1. INTRODUCTION

Unmanned surface vehicles (USVs) pull in the consideration of numerous nations and ended up a hot inquire about spot within the field of marine hardware since of its moo labor cost and solid maneuvrability. Within the future, USVs will play a imperative part in anti-submarine fighting, mine countmeasures, environmental detection, water testing, faculty look and protect within the sea, and so on. As an cleverly surface body of independent route, an effective directing framework is an imperative issue. With the alter of the parameters such as cruising speed, water profundity, and dispatch sinking, the frame of the damp region and drag characteristics will alter essentially. This will lead to alter in different hydrodynamic coefficients of the USV demonstrate.

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Intelligent cross-coupled control of a unique two-axis differential micro-feed system

Dr. Soma Dalbehera
Professor, Department of Mechanical Engineering
Gandhi Academy of Technology and Engineering, Beharapur, Odisha, India

ABSTRACT:

Nonlinear contact in a customary drive bolster framework bolstering at moospeed could be a fundamental figure that contributes to nourish drive complexity. A novel two-axis differential micro-feed framework is created in this ponder to overcome the accuracy limitation of routine drive nourish framework. Rather than the screw-rotating-type ball screw received in routine drive bolster system, the transmission component of the proposed two-axis differential micro-feed framework may be a nut-rotating-type ball screw. In this setup, not as it were the screw but too the nut is driven by a servo engine. By superposing the two high-speed revolving movements (motor-drive-screw and motor-drive-nut) with a comparable tall speed and the same turning course through the novel transmission component, the nonlinear unsettling influence from the ball screw can be

INTRODUCTION

Nourish drive framework has gotten to be increasingly imperative within the areas of fabricating, review, and assembly. Be that as it may, grinding contains a noteworthy and negative impact on the situating exactness of a bolster drive framework. For a normal routine drive bolster framework (CDFS) prepared with straight movement (LM) guides and a ball screw, it is troublesome to realize exact and homogeneous relocation at moospeeds for the reason that contact habitually generates large following blunders, undesired stick-slip movements, and restrain

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Active suspension-based active tilt control in automobiles

Dr. Bhabani Prasanna Pattanaik
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ABSTRACT:

The rolling control of a car that centers on lessening the roll point latently has constrained execution of expanding dealing with softness, passing speed, ride consolation, and rollover anticipation whereas turning. This venture presents a strategy for controlling a car to tilt toward the turning heading utilizing dynamic suspension. A 6-degree-of-freedom vehicle show with a 2-degree-of-freedom controlling demonstrate and a 4-degree-of-freedom tilting show is built up. The dynamic tilt sliding mode controller, which causes zero steady-state tilt point mistake, is set up after the required tilt point is decided by energetic examination.

INTRODUCTION

Conventional detached suspension (PS) avoids vehicle roll by improving suspension firmness and introducing a stabilizer bar but diminishes vehicle ride consolation and is incapable to avoid rolling and move forward ride consolation at the same time. Dynamic or semi-active roll control can illuminate this inconsistency. A control strategy performs dynamic or semi-active control by introducing an actuator in arrangement with a stabilizer bar, and another strategy conducts damper control on the vehicle body to control rolling through dynamic or semi-active suspension. Dynamic or semi-active suspensions can moreover be utilized to control rollover; in any case, this control methodology isn't the same as the anti-roll control when the vehicle voyages regularly. In expansion, powerfully interconnected suspensions too have a great impact on anti-roll.

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A steering model for an articulated tracked vehicle that takes soil deformation into account during track-soil contact

Dr. P Palupandian
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Gandhi Academy of Technology and Engineering, Behanapur, Odisha, India

ABSTRACT:

With the advantage of controlling execution, verbalized followed vehicles have great versatility in off-road application. In any case, in current models for directing execution, soil distortion on the interaction between track and soil cannot continuously be taken under consideration. Hence, directing execution cannot continuously be calculated precisely. In arrange to fashion the issue, it is fundamental to propose a directing show which can take the impact of soil distortion on track-soil interaction into thought. In this article, a controlling demonstrate of enunciated followed vehicle is proposed on track-soil interaction.

1. INTRODUCTION

In later a long time, the investigates on controlling execution have made significant accomplishments. At to begin with, Steeds proposed skid-steer concept1 and after that a parcel of work had been explored from all aspects. In any case, not at all like a skid-steer vehicle, a verbalized vehicle uses an verbalized component to attain a directing way. Which means for a skid-steer vehicle, the proficiency of controlling execution will be debased due to the slip and slide wonder. Be that as it may, for a verbalized vehicle, the proficiency will not be debased since of enunciated instrument. In addition, followed vehicles have great.

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Theoretical and experimental comparison of axial thrust variation for high-speed mine submersible pumps

Debasish Panda
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Gandhi Academy of Technology and Engineering, Berhampur, Odisha, India

ABSTRACT:

In this article, three sorts of high-speed mine submersible pumps were planned and tested. Aimed the unswerving quality execution test, the hub pushed adjusting gadget of GFQ150-700 was over-burden and harmed due to an unacceptable planned esteem of hub pushed. The outlined water powered hub pushed with the genuine esteem is compared in this article, and the reason for hub pushed deviation is talked about. Comes about appear that hub pushed of the hypothetical calculation is near to the numerical recruitment esteem at a certain degree. GFQ100-1000 gets the greatest hypothetical hub pushed, whereas the most extreme recreated esteem is delivered in GFQ150-700, which is confirmed by tests.

1. INTRODUCTION

The avoidance of mine water catastrophe is one of the critical issues for the security and productive generation of coal mine, and the level of anticipation depends on water control innovation and equipment. When mine water intrush happens, the capacity of momentary spouting water will be more than the greatest waste capacity of the pump house, which is able because flooding mishap. High-power submersible pump is the major hardware of coal mine profitable waste rescue. With tall stream rate and head, high-power submersible pump can rapidly deplete the water within the mine. Due to the overwhelming and huge measure of the pump and the limitation of the mine shaft cage estimate and underground

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Investigate the driving strategy of a heavy-haul train using an enhanced genetic algorithm

Dinesh Kumar Bal
Professor, Department of Mechanical Engineering
Gandhi Academy of Technology and Engineering, Behanpur, Odisha, India

ABSTRACT:

The driving security of heavy-haul train is influenced by the train's footing weight, the length of train, the line profile, the line speed constrain, and other components. For the most part, when the train is running on a persistently long and soak downsize line, it needs utilizing the circulating discuss braking to alter speed. When it is braking, the brake wave is transmitted non-linearly along the course of the train. When it is diminished, it must be guaranteed that there's adequate time for the train to be swelled. Hence, it is troublesome to guarantee the secure operation of the heavy-haul train. In this article, a modern strategy of the train's driving methodology based on progressed hereditary calculation is proposed.

INTRODUCTION

Amid the driving prepare of the heavy-haul train, the train will be subjected to the joint drive within the transverse, longitudinal, and vertical bearings within the course of operation, and the constrain condition is more complicated.1 Sidelong flow basically affects the solidness of train's operation. The drive within the vertical heading is basically the back drive of the train. The secure operation control centers on the relationship between the drive and the increasing speed amid the train's operation, so the longitudinal push of the train along the track heading is basically considered.

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A systematic review of studies on heavy-duty machine tool foundation Systems was conducted

Aurobindo Panda
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Gandhi Academy of Technology and Engineering, Berhampur, Odisha, India

ABSTRACT:

The quality of heavy-duty machine apparatus establishments can radically influence the working life and working accuracy of the device, and the toll taken a toll of make has drawn a parcel of consideration. This article summarized the investigate status of the important writing on the characteristics, vibration confinement, establishment optimization, and quality review of heavy-duty machine tool-foundation framework, actuated the affecting laws of the impacting variables of the framework, checked on the highlights and accomplishments within the investigate of overwhelming machine tool-foundation framework at display, and put forward a few issues and development headings existing within the inquire about of overwhelming machine tool-foundation framework.

INTRODUCTION

The quality of establishments supporting heavy-duty machine devices can radically influence the working life and exactness of the apparatus. Strict measures exist for the most extreme secure vibration plentifulness of overwhelming machine tool-foundation frameworks and greatest possible distortion, in both the transverse and longitudinal planes. Subsequently, it is essential, and basic, to consider the impact of establishments on the characteristics of heavy-duty machine devices. Hypothetical and down to earth importance can be ascribed to progressing the advancement and plan of overwhelming machine instruments. As of 12 September 2017.

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Indian hotel industry branding
(With Use of Digital Marketing)

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Professor, Department of MIA,
Gandhi Academy of Technology and Engineering, Berhampur, Odisha, India

ABSTRACT:

Because technology is raising consumer expectations, it will be vital to establish a great hotel brand. The hotel's success will be determined by how much it invests in and customizes digital marketing methods to improve every area of its brand, because how your customers perceive the hotel is vital for businesses. Aside from that, the choice of other customers might be put up as a preference on their decision rather than a hotel among brand customers. Intangible assets that serve to accomplish strategic benefits and provide financial value for their ability to generate income are referred to as brands. A well-known brand arose from the brand of marketing efficiency and performance associated with that brand.

1. INTRODUCTION

The brand's value to potential purchasers and investors is considered. Hotel firms such as Marriott, Hilton, and InterContinental Hotel Group are merging, resulting in worldwide brands. A hotel brand can consist of five or more hotels that all have the same brand personality. A sub-brand is a brand that is related to the parent brand but has a different brand name. Customers choose branded hotels because they provide a consistent guest experience regardless of location. Managers must understand how passengers see their brand, how the competition perceives the competition, and which work and investment must be made to develop a dependable, distinctive brand.

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**Exploring employee engagement:
It's impact in the world of constant disruption**

Dr. Sitnath Raiguru
Professor, Department of MBA
Gandhi Academy of Technology and Engineering, Berhampur, Odisha, India

ABSTRACT:

The purpose of this study is to show employee engagement in the current scenario continuous disruption and its positive impact on employee performance and retention. Make them, forethem still carry values and are they still needed in an ever-turbulentworld? To understand this, this study examines the factors of employee engagement and their importance to find out their meaning in the current environment. The review methodology used review articles. Different factors at organizational and individual levels were studied. This study is useful for all organizations create effective and robust employee policies based on employee involvement and leaders can work with a more satisfied workforce

1. INTRODUCTION

In the field of personnel (human resources), employee engagement practices have been established for a long time. All types initiatives have different practices and policies to promote commitment and engagement their workforce. Employee engagement involves the extent to which employees are fully engaged yourself in your work and the strength of your commitment to the organization. Employee engagement is a management tool in addition to modern management practices. Measuring employee engagement in an organization requires validation and standardization measurement method and/or tool.

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PRESENTED PAPERS

Chemical kinetics study through observation of individual reaction events with atomic-resolution electron microscopy

Dr. Girija Prasad Saboo¹, Dr. Manoranjan Samal²
¹Professor, Department of Chemistry, Gandhi Academy of Technology and Engineering, Bhubaneswar, Odisha, India
²Asst. Professor Department of BSH, Capital Engineering College, Bhubaneswar

ABSTRACT
 Single-particle nuclear goal ongoing electron minute film imaging is an arising new apparatus for acquiring dynamic underlying data on particles and atomic gatherings. This strategy gives an until now unavailable chance to in situ notice the time development of synthetic occasions at different temperatures from the very start till the end, as exhibited for the energy investigation of [2 D 2] cycloaddition of [60] fullerene atoms, which was found to happen by means of an invigorated state or through extremist cation relying upon the temperature. One extraordinary component of this strategy is that, by noticing straightforwardly the response occasions, one can get data on the recurrence of occasions unperturbed by atomic dissemination.

Keywords: SMART-EM imaging, molecular movies, conformational changes, quantum mechanical transition state theory, excited state reaction

1. INTRODUCTION
 Visual perception of atomic responses and movements at an atomic level has been an incomprehensible dream for researchers for quite a while. Empowered by transmission electron microscopy (TEM), we showed nuclear goal films of the conformational change of hydrocarbon atoms interestingly in 2007, which denoted a sign of the possibility of satisfying this dream.1) A new paper from our research center in 2017 in light of the second phase of the investigation of response energy by direct visual perception of individual response occasions is one bit nearer towards visual perception of atomic reactions.2) Since the law of mass activity was proposed by Peter Waage and Cato M. Guldberg in 1864,3) the traditional change state hypothesis of substance energy, which gives data on pieces of substance processes, response instruments and progress states, has depended solely on naturally visible information arrived at the midpoint of over atoms and time.

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New FPG probe chemistry for direct detection of recombinant¹ polymerase amplification on lateral flow strips

Dr. Sunita Bal¹, Dr. Shubhangi Gopalrao Patil²

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ABSTRACT

Fast, cost-effective and delicate discovery of nucleic acids has the capacity to progress upon current houses utilized for pathogen location in conclusion of irresistible malady and nourishment testing. Besides, in the event that test complexity can be decreased, nucleic corrosive enhancement tests can be sent in resource-limited and domestic utilize scenarios. In this consider, we created a novel Fpg (Formamidopyrimidine DNA glycosylase) test chemistry, which permits horizontal stream discovery of enhancement in unaided recombinant polymerase intensification (RPA) responses. The model nucleic corrosive sidling stream chemistry was connected to a human genomic target (rs1207485), *Campylobacter jejuni* IS4 dDNA and two secondary markers of the critical zoonosis pathogen *E. coli* O157:H7. All four measures have an explanatory affectability between 10 and 100 duplicates DNA per enhancement. Besides, the measure is performed with less hands-on steps than utilizing the current RPA Nfo lateral flow strategy as weakening of amplicon isn't required for horizontal stream examination.

1. INTRODUCTION

Discovery of DNA/RNA targets speaks to the foremost delicate and particular implies of diagnosing irresistible illness in healing center and pen-side testing, in expansion to testing of food/feed for pathogenic life forms. Until as of late, its utilize was restricted to research facilities, as PCR-based tests required highly-trained staff, in expansion to costly and complex instrumented to perform. While PCR diagnostics have gotten to be more quick and illustrate tall affectability, the issue with distinct reasonableness to non-laboratory settings remains, as the necessity for warm cycling proceeds to keep instrument fetched tall. More as of late, isothermal nucleic corrosive enhancement tests (NAATs) have demonstrated themselves to be exceedingly reasonable for utilize exterior of the research facility, due to the constrained and low-cost instrumented required (warm squares, single-use radiators, body contact) and the reality that numerous isothermal tests are tolerant to restraint, evacuating the require for complex test planning strategies [1].

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High bio-content polyurethane (PU) foam made from bio-polyol and cellulose nanocrystals (CNCs) via microwave liquefaction

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ABSTRACT

In this work, both thebio-polyol and cellulose nanocrystals (CNCs) used to produce highbio-content polyurethane (PU) foams were prepared from microwave oven liquefaction of rape straw. As high as 40 petro- grounded polyol was replaced bybio-polyol and thebio-foam containing 40bio-polyol (PU40) were further combined by incorporating 1 to 6 CNCs. GC – MS, 1 H NMR and FTIR compliances demonstrated that thebio-polyol is a hydroxyl-rich source conforming of C5, C6 sugars and aromatics. The maximum physico-mechanical performance of biofoam without CNCs was observed from thebio-foam containing 20bio-polyol. When further adding bio-polyol content from 20 to 40, these panels dramatically dropped. This result was conceivably due to the complex polyurethane crosslinking responses with C5, C6 sugars and aromatics. As compared with reference (PU40), the Young's modulus and compressive stress in the optimal 4 CNCs combinationbio-foam increased by 590 and 150, independently. It was noteworthy that these values were largely superior to those of the petro-grounded foams.

1. INTRODUCTION

Rigid polyurethane (PU) foams are one of the most prominent polymer accoutrements and have been used for construction segmentation, due to their excellent thermal insulation and mechanical panels, presently, the rigid PU auxiliary is still largely dependent on petro-grounded chemicals due to its two major feedstocks including polyols and isocyanates. With the growing concern of environmental protection and rapid-fire reduction of reactionary energy, multitudinous efforts have been concentrated on the negotiation of petro- grounded polyols within bio-based polyols similar as vegetable oil painting (1) andbio-polyol deduced from lignocellulosic biomass (2). Liquefaction is one of the most promising thermochemical conversion routes to convert lignocellulosic biomass into precious chemicals (3,4). Through liquefaction, the high molecular weight factors of biomass are broken down to low molecular weight foams, liquids, and solid remains. In general, the foams are neglected because the yield of gassy products is negligible. The liquid portion is the most generally employed liquefaction product.

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Atmospheric pressure plasma directed assembly during photoresist removal: A new route to micro and nano pattern formation

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ABSTRACT

We propose a new route for pattern conformation grounded on atmospheric pressure tube directed assembly during photoresist junking. Atmospheric tube drawing of AZ5214E resist carpeted on Silicon leads to the conformation of periodic, oxygen tube resistant residuals on the underpinning substrate. The O₂ content in the He O₂ gas feed was set up to play significant part on the size and viscosity of the formed structures. Fourier analysis of the spatial morphology of shells, verified quantitatively the approximate periodicity and its dependence on O₂ content. XPS analysis revealed the conformation of sulfur containing composites coming from DNQ moieties of AZ5214E, which signify to drawing resistant moieties due to the synergistic effect of drawing and radiation from the radio frequency (RF) discharge. Eventually, we applied anisotropic tube etching grounded on a palladium-gas interspersing tube process in low pressure to transfer the atmospheric tube conformed pattern on the underpinning Silicon substrate fabricating quasi-ordered Si pillars.

1. INTRODUCTION

Operations of ultramodern nanofabrication are veritably broad ranging from photonics and electronics to bioelectronics, nanofluidics and face nanostructuring with contemporaneous functionalization. Nanofabrication is generally targeting the precise description of periodic nanostructures (blotches, pillars, cables, helixes) with high tunability, reproducibility, over potentially large area, amenable to mass product with low-cost. Towards this direction, several 'bottom-up' and 'top-down' as well as cold-blooded nanofabrication ways have been proposed (1,2). Pattern description followed by tube drawing is considered the crucial top-down technology for micro and nanofabrication (3 - 7). Well established lithographic ways are generally used to define the asked nanopattern (8 - 11), and also anisotropic tube drawing is applied to transfer the patterns to the underpinning substrate frequently leading to high aspect ratio (HAR) nanostructure (7,12).

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Assessment of the nuclear medicine personnel occupational exposure to radioiodine

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ABSTRACT

To physically and cytogenetically screen medical labor force of Department of Endocrinology and Nuclear Medicine, Holy Cross Cancer Center, Kielce, Poland (DENM) who are occupationally exposed to ¹³¹I. Accommodations and styles The exposure was covered by whole-body and caeter tag dosimeters. The thyroid iodine input was measured by a whole-body spectrometer equipped with two semiconductor gamma radiation sensors. A cytokinesis-block micronucleus assay and the unsensitized chromosome condensation fashion were used to assess the aberration score. Cytogenetic analyses were carried out on a group of 29 workers and were compared to 32 controls(healthy benefactors), matched for gender and age. Results On average, the exposed group showed a significantly advanced frequency of inheritable damage and a advanced proliferation indicator compared to the control group. Smoking status, age and duration of exposure told the observed goods in both groups. No differences in measured biomarkers were observed after position of the exposed group into two groups grounded on the measured ¹³¹I excretion below and over 6 Bq.

1. INTRODUCTION

Former studies using a whole-body spectrometer at Institute of Nuclear drugs, Polish Academy of fores in Kraków (IJ viasz) have shown that the drug staff may have inductably absorbed different bobases of iodine-131(¹³¹I, radioiodine) in the thyroid depending on their profession (1-6). Iodine-131 is an important radioisotope that's widely taken up by the thyroid gland and is popularly used in medical diagnostics and treatment procedures with a short radioactive half-life decays(¹³¹I $T_{1/2} = 8.03$ (2) 3.4). In the course of their duties, workers can be externally exposed to iodine when the source of radiation is the case; radioactive iodine is generally taken in foreign form(infrequently as a result) and is internally over taken by breathing air that's exhaled by cases treated with these radiopharmaceuticals(3).

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Examining the Influence of Digital Payments on the Indian Economy with Special Reference to Covid-19

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ABSTRACT

This viewpoint looks at how digital payments might affect the Indian economy, specifically how the COVID-19 pandemic has affected consumer spending. In India, cash has always dominated payment methods, with bank accounts accounting for a very small portion of digital transactions. To minimise direct contact with merchants and lower the risk of viral transmission, there has been an increasing reliance on mobile applications as a result of the virus's rapid national expansion. Examining the financial effects of these transactions is now possible thanks to the shift to digital payments. The essay also looks into the different ways that transactions are settled in the economy and evaluates the importance of digital transactions in the payment business. Every bank in the nation has adopted digital payment methods to safeguard neighbourhood shops, grocery stores, and other societal groups. The viewpoint also looks at how the countrywide lockdowns affected India's GDP growth rate. It examines the impact on the nation's economic growth of the limitations put in place during the lockdowns.

1. INTRODUCTION

India's banking industry has a long history that dates to the late 1700s. The Indian government nationalised major private banks in 1969 and 1980 after the Reserve Bank of India was founded in 1955. In the Indian economy, these nationalised banks are essential for the provision of financial services. But in India, traditional banking has a reputation for having a lot of paperwork and lengthy lines. Online banking was first introduced as a result of the significant impact the IT revolution had on the Indian banking sector. Banks started utilising technology to increase consumer happiness, expedite transactions, lessen employee workloads, and promote digitalization nationwide. In India, cash has long dominated payment methods, accounting for most of the country's transactions. Nonetheless, the acceptance of digital payments has been rising over time. The most popular cashless payment methods, credit and debit cards, have only been accessible for the last thirty years because of infrastructure and connectivity issues.

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Problems and Prospects of Small Scale Industries
A Study of selected Units in Telangana

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ABSTRACT

Small scale industries play a vital role in the development of economy, mainly in developing countries. If population of India is taken into consideration it can be said that this sector has a wide scope in India. If small scale industrial sector is developed other economy related problems can be dissolved automatically. But these have to face so many problems while competing with other large scale industries. If these problems are solved or efforts are taken to foster these challenges this sector can prove itself as a developing engine. The role of small scale industries in the economic development of India in recent years is critically analyzed in this paper. Small scale industries play a vital role in the development of economy, mainly in developing countries. If population of India is taken into consideration it can be said that this sector is developed other economy related problems can be dissolved automatically. The contribution, export promotion and other economic indicators are discussed. During last 60 years, the limit of investment has changed from Rs. 5 lacs in the sixties to Rs. 5 crores in 2010. If the problems are solved or efforts are taken to foster these challenges this sector can prove itself as a developing engine.

Keywords: Small scale industries, growth rate, promotion, Problems

1. INTRODUCTION

Lack of capital, excessive dependence of agriculture and abundant supply of manpower are the characteristic features of many developing countries in Asia. Happily these economies have been realizing that agriculture is which cannot meet their local requirements and therefore, that the pressure on land could be substantially reduced through the development of small scale industries. Small scale is the most suitable type of the developing countries. The role of industries is also one of the characteristics and has different types of units functioning in the field of an economy. Therefore, the present study through some light on their problems. The small scale industries have a crucial role in a developing economy like India. They play a strategic role in progress of the country. These industries by and large represent a stage in economic transition from traditional segments to modern segments. The traditional nature of this process is reflected in the diversities of these industries.

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Impact of Social Media on Branding of Product and Economy

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ABSTRACT

These days, social media serves as more than just a communication tool thanks to technological advancement. It can also produce vast amounts of data, which marketers use to analyse and research their markets. This phenomenon is known as big data. Since its introduction in India a few years ago, social media has developed remarkably. Nearly all of its potent marketing capabilities fall within its purview. Even the segments of consumers at the grassroots level are involved. Social media appears to have influenced consumers in rural areas as well. The results of the most recent elections show that political parties use social media to connect with potential voters. Social media is being used by all kinds of marketers—big or small, domestic or foreign, in the service sector, etc.—to establish their brands and boost the efficiency of their marketing campaigns. It aids businesses in influencing and persuading customers to make purchases. Researchers' focus has been drawn to the effects of social media. They are looking at it from different angles. Numerous studies on consumers in India have already been done, as well as studies in other countries.

Key words: buyer, viewpoint, financial, investment, economy, social media, purchase and environment.

1. INTRODUCTION

These days, with so many variables interacting, marketing work can become extremely difficult. Associations face challenges from shifting consumer behaviour, stagnant finances, environmental degradation, rapid technological advancement, unstable political environments, the effects of a cyclical economy, and other social issues. As a result, rivals are now more aggressive than ever. They have some marketing strategies prepared. The idea of coming up with a winning formula that might win over clients' trust intrigues them all. One of the most important developments in marketing since social media marketing first emerged as a separate field of study. Social media became a powerful tool for fostering human connections, which altered marketing from all angles. With over 1.5 billion users across various social media platforms, social media has outperformed all developmental models. More than one-third of all people on Earth have joined the network.

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A Comparative Study of the Public and Private Sector Bank with Special Reference to Bank of Baroda and HDFC Bank

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ABSTRACT

The economic development of a country largely depends upon the effective banking system because they play key role in the effort to obtain stable pricing, high level of employment and sound economic growth. Hence, banking can best be defined as the kingdom of the chariot of economic advancement. In recent years, there have been tremendous challenges on the profitability of banks. Profitability is regarded to be a measure of financial strength. Profitability is a critical performance metric in banking sector, which represents optimal exploitation of all resources in a firm. The present research paper is an effort to make a comparative analysis between the Growth rate in Bank of Baroda and HDFC Bank since both the banks are large banks in public and private sector. As a study of Growth analysis of both the banks for a period of 5 years, i.e. from 2016 to 2021 is made. The primary measures of growth in banks are Net profit growth, Net assets growth, and NPA.

Keywords: Growth, Compound Annual Growth Rate (CAGR), Net Assets, Net Profit, Non Performing Assets (NPA)

1. INTRODUCTION

Banking sector plays a significant part in economic development of a country since it is one of the primary financial pillars of the financial sector, which plays a key part in the running of the economy. The banking sector's performance is considered as the replica of economic activity of the nation since a sound banking system functions as the base of social, economic and industrial growth of a nation. Banks are considered to be very significant financial mediators or institutions because they result into welfare of savers as well as investment. In modern economy banks play the role as leaders of development. They play a vital role in mobilization of deposits and delivery of credit to various sectors of economy. Hence, banking can best be defined as the kingdom of the chariot of economic advancement. The banking system of India is featured by a huge network of bank branches, supplying different sorts of financial services of the population.

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A linguistic analysis of Cypriot Greek- English Compound Verbs

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ABSTRACT

Attested in numerous language contact situations and characterized as a implicit "universal of code-switching" (Edwards and Gardner- Chloos, 2007/94), bilingual emulsion verbs (BCVs) remain perplexing constructions for numerous scholars. Drawing from a dataset of 338 cases, and from a language brace that has noway been studied in- depth before, this paper examines Cypriot Greek- English emulsion verbs. Cypriot Greek is non-standardized Greek, verbal variety, and the native language of Greek Cypriots living on Cyprus and overseas. These bilingual verbs are comprised of the verb *kanno* ('do'), or *lower* sometimes *jinome* ('come'), and more frequently than not an Englishian-finite verb form. This study examines this construction so as to uncover its characteristics and the part that each part in the construction plays; the study shows what kind of conformation made with *kanno* or *jinome* as English language element have been set up in the data, and whether they're all cases of bilingual emulsion verbs. It also aims to explain how their conformation is possible since neither Greek nor English has this construction in monolingual context(Gardner- Chloos, 1993), and why BCVs arise in the first place given that Greek has another way to use verbs from other languages.

1. INTRODUCTION

The way languages use foreign verbs has entered considerable attention in the literature(e.g. Myshen, 2005, Wahlgenoth, 2009). One similar way is by forming periphrastic verbal constructions conforming of two rudiments, each taken from a different language a light verb which bears the necessary grammatical bows, and another element responsible for the semantic content of the construction, the so-called bilingual emulsion verbs. herafter, (BCVs).2 One similar illustration is3 BCVs have "no typological or geographic limits" (Myers- Scotton, 2002/23). They're reported for numerous language dyads(e.g., Assyrian- English(McChen, 2001), Chinese- English(Sinang, 2010), Hmong- English, Shona- English, Myers- Scotton, 1993), Spanish- English(Jenkins, 2003, Balam et al., 2014).

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Selfie video based continuous Indian sign language Recognition system

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ABSTRACT

This paper introduces a new system to bring sign language closer to real time operation on mobile platforms. Selfie captured sign language videoframe is reared by constraining its computing power to that of a smart phone. Pre-filtering, segmentation and joint both on videoframe frames creates a sign language point space. Minimum Distance and Artificial Neural Network classifiers on the sign point space is trained and tested iteratively. Sobel edge driver's power is enhanced with morphology and adaptive thresholding giving a near perfect segmentation of hand and hand portions compensating for the small climate of the selfie stick. Word matching score (WMS) gives the performance of the proposed system with an average WMS of around 85.58 for MSC and 90 for ANN with a small variation of 0.3 in bracket times. Neural network classifiers with fast training algorithms will clearly make this new selfie sign language recognizer operation into app stores.

1. INTRODUCTION

Subscribe language is a computer vision grounded complete intricate language that engages signs shaped by hand movements in admittance with facial expressions and hand shapes. subscribe language is a natural language for communication among people with low or no hail sense. mortal speech prisoner in digital format generates a 1D signal for recycling whereas mortal sign language generates 2D signals from image or videoframe data. Basket of gestures can be linked as both static and dynamic stationary gestures involve a time steady cutlet exposures whereas dynamic gestures support a time varying hand exposures and hand positions. The proposed four camera model for sign language recognition is a computer vision grounded approach and doesn't employ stir or colored gloves for gesture recognition. An effective sign language recognition system requires knowledge of point shadowing and hand exposures. Experimenters around the world approached gesture bracket in two major ways - videotex glove grounded and vision grounded. The former styles uses radio frequency gloves to attack the problem. The system is less complicated and fast to apply on movable has with complex tackle problems to attend. Computer vision requires no electronic tackle where advanced image processing algorithms can do hand shape matching and hand shadowing on the captured videoframe data.

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Comparison of Mathematical and Controlled Mechanical Lung Simulation in Active Breathing and Ventilated State

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ABSTRACT

Respiratory maladies are omnipresent among European citizens and their predominance is expanding consistently. More profound understanding into the respiratory prepare can be picked up by demonstrating the locale of intrigued within the human body. The displayed lung test system xPULM bridges the crevice between in-silico (scientific), in-vivo (cell culture based) and mechanical models of the respiratory tract. By receiving chosen numerical models of the human respiratory tract two scenarios were mimicked. The direct scientific single compartment demonstrate was utilized for recreation of the human breathing design at rest. Higher complexity non-linear numerical demonstrate reflecting differing nature of the human respiratory tract was utilized as a premise for reenactment of an misleadingly ventilated quiet. The time-flow characteristics of the scientific models have been executed into the control computer program of the mechanical lung test system - xPULM. The test system was at that point arranged to reproduce these required breathing designs utilizing input control circle. The wind current was measured over the course of breathing recreation.

1. INTRODUCTION

Respiratory illnesses are omnipresent among European citizens. The number of affected individuals is expanding relentlessly. A EU wide wellbeing study of the OECD/EU (2016) has appeared that 6.1% of the populace in Europe matured 15 a long time or more seasoned endure from asthma. Moreover, 4.0% of the same populace bunch were detailed to endure from COPD. These numbers ensure that by and large more than 10% of the populace within the EU with an age of 15 a long time or more seasoned endure from extreme respiratory infections. More profound knowledge into the respiratory process might offer assistance to extend advancement possibilities for respiratory care. Modelling of the region of intrigued within the human body could be a state of the craftsmanship strategy to extend information and permit overviews for specific research questions. Over the course of time several areas of recreation like in-vivo, in-vitro, in-silico and mechanical models have been created within the inquire about field of respiratory science grounded and vision grounded. The former styles uses radio frequency gloves to attack the problem.

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Fire Risk Assessment of High-rise Buildings Based On Gray-FAHP Mathematical Model

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ABSTRACT

Fire hazard evaluation is the essential way to decrease and control the fire of high-rise buildings. In this paper the components that influence the fire of high-rise buildings are analyzed to set up appraisal fire framework of the fire risk for high-rise buildings whose primary variables are fire security equipment office, fire security clearing capacity, building fire avoidance capability and building fire security administration status. The gray chance degree strategy, AHP and the fuzzy evaluation method are utilized to set up the numerical show. This show is connected to analyze and compare the fire hazard of 5 high-rise buildings, such as Shantui Data Building, Zhongnancun Science and Innovation Building and so on. The comes about appear that the fire security level of the high-rise buildings with work of office spoken to by the Shantui Data Building is "good", but the fire quenching framework and the fire risk gear still ought to be checked and kept up routinely, whereas the fire security level of the high-rise buildings with the capacities of shopping shopping centers and private buildings is "medium", which needs reasonable divisions of fire and smoke segment and advancement of the crisis reaction capability.

1. INTRODUCTION

With the quick advancement of China's economy, the high-rise buildings and super tall buildings have expanded significantly. The building tallness is rising, the volume span is developing as well. High-rise buildings are for the most part coordinate buildings, with broadened structures and capacities, different offices, high-density work force, and complex fire motivating forces. In expansion, due to high-altitude wind speed, the quick spread of the fire, the momentous chimney impact, the trouble of staff departure and spurring of the high-rise buildings, once fire occasion shows up, individual security and social property will cause awesome misfortune. In any case, the sum of variables that influence the development of fire is more, it is troublesome to evaluate the variables, and each calculate are not fire free from each other. A degree of equivocality exists, so fire issue has been a around the world issue for high-rise building [1]. Tian Y. M. et al [2]

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**For the nonlinear Analytical and numerical solutions Burgers
And advection-diffusion equations by using
a semi-analytical iterative method.**

Dr. Chetan Kumar Sharma¹
¹Professor, Department of Mathematics
Gandhi Academy of Technology and Engineering, Bhubaneswar, Odisha, India

ABSTRACT

This paper, correct arrangements have been gotten for 1D, 2D and 3D nonlinear Burgers' conditions and frameworks of conditions by executing an exact semi-analytical strategy. This strategy, initially proposed by Temimi and Ansari and in this named TAM, demonstrated to be proficient and solid for tackling diverse sorts of straight and nonlinear issues. This strategy is characterized by not requiring any prohibitive suspicions for the nonlinear terms. The meeting of the strategy is effectively displayed and numerically demonstrated. In expansion, the advection-diffusion condition is additionally followed by utilizing the TAM to illustrate the proficiency of this strategy. A few cases are illuminated either logically or numerically, where the exactness of the numerical arrangement has been illustrated by assessing the outright and relative mistakes to expose the precision of the proposed strategy. The program utilized within the current work is Mathematical CR.

1. INTRODUCTION

The Burgers' condition was firstly presented by Harry Bateman in 1915 [1] and it was hence renamed as the Burgers' condition [2]. The Burgers' condition has numerous applications in science and building, particularly in issues that have the frame of nonlinear conditions. The applications of Burgers' condition by scientific researchers and analysts have ended up more responsive and curiosity. It has been known that this condition depicts distinctive sorts of marvels such as modeling of elements, warm conduction, acoustic waves, turbulence and numerous others [2-8]. In most cases, this kind of nonlinear PDE ought to be followed by utilizing uncommon strategies since it does not concede explanatory arrangements. In later decades, a few researchers and analysts utilized expository strategies to unravel these sorts of issues such as Adomian decay strategy (ADM), Variational emphasis strategy (VEM), Homotopy iteration strategy (HIM), Homotopy examination strategy (HAM) and Differential change strategy (DTM) [9-13]. Temimi and Ansari have as of late proposed a semi-analytical iterative strategy to unravel straight and nonlinear Tributes and PDEs [14,15].

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Results of Single Sculling Technique Analysis Using 1D Mathematical Model:

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ABSTRACT

Sports come about in paddling depend on two the foremost imperative variables: the competitor physical highlights and the motion's strategies. Both evaluation and enhancement of paddling procedures are conceivable as it were when one arranges the solid numerical show predicting the regatta comes about, that's the time to cover the assumed separate. A single scull taking an interest within the 2000 meters distance's regatta is our subject. The reason of this consider is to form a streamlined scientific demonstrate to recreate the paddling boat dynamics. The boat-cover framework is treated here as a fabric point here. The paddle features an endorsed precise movement vs. outkick depending upon the time. The way of hydrodynamic drive created on the out's edge was demonstrated here. At that point the vessel movement, with the impact both of wind and water current, was portrayed by a single nonlinear conventional differential condition (1D). The utilized straightforward show gives the conceivable outcomes of quick and dependable reenactment of the single-sculling procedure and of estimating the result of paddling regatta. The parametric affectability coefficient was characterized here, as well the proficiency coefficient of sculling.

1. INTRODUCTION

A single sculling could be a paddling with two paddles, one in one hand. This discipline includes passing a particular distance within the most brief conceivable time and so the proficient sculling procedure is of a foremost significance. This paper endeavors to create the numerical show of a paddling to be valuable for investigation, learning, change and movement strategies optimization. Concerning to Zaitsevsky and Yakunin (1991) "In spite of relatively numerous considers, the biomechanics of paddling remains ineffectively sought out". These creators were among the primary who had endorsed paddling numerical depiction. A parcel of creators have managed with comparative subjects, Pullman, C. (yet to 2014), among others, given an intensive depiction of the marvels concerning distinctive angles of a paddling. A few creators such as: Findlay, M. and Yarnos, S. R. (2010), Kinoshita et al. (2008), and Millar S. K. et al. (2015) have dealt with the comparative issues, a extraordinarily the hydrodynamics wonders related to the stream past the paddle.

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Radiation dosages and procedure phase-specific radiation dispersion for endovascular aortic repairs using mobile and stationary C-arm fluoroscopes

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ABSTRACT

Objective: The objective of this ponder was to analyze radiation chance to patients amid endovascular aneurysm repair (EVAR) utilizing portable C-arm (MA) or fixed C-arm (FA) fluoroscopes and to portray the measurements conveyance amid the distinctive stages of the strategy.

Methods: Patients treated with EVAR employing a single stent unit framework between November 2009 and June 2016 were included in this think about. The patients were partitioned into one of two bunches (MA or FA) concerning to the sort of C-arm utilized within the strategy. Information with respect to patients' socioeconomics and the overall sum of different specialist (CA) utilized, dose-area item, and fluoroscopy time for the methods were tentatively recorded. Based on the measurements report from the FA framework, five standard and two discretionary stages of the strategy were identified to decide the measurements dispersion.

Keywords: Endovascular, Multipositivity, Radiation assurance, Aorta, Cross breed room

1. INTRODUCTION

Amid the final few a long time, the expansion of fluoro- scopically guided mediations has drastically changed vascular issue. Vascular issue have had to measure modern surgical and endovascular abilities, and the working environment has too required to evolve.1 The creation of contained cross breed rooms coordination fixed imaging hardware in an working room (OR) reflects these changes. Not at all like portable imaging frameworks, fixed frameworks have expansive farther generators that are able to supply more control for way better tissue infiltration and progressed imaging quality. In any case, a more effective radiation source increments the chance of pointless radiation exposure for both patients and administrators. In this manner, the right utilize of assurance frameworks is basic, in conjunction with the proper setup of collimation and utilize of the apparatus, advertised on the foremost progressed frameworks, with these instruments, measurements can be ceaselessly checked. rely the hydrodynamics wonders related to the stream past the puddle.

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Alloy fracture behavior for a novel laser-range satellite

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ABSTRACT

A novel laser-ranged adherent called LARES 2 (Laser Relativity Adherent 2) has been as of late planned for exact tests of Einstein's hypothesis of Common Relativity and space geodesy. A few mill thickness combinations (8.5-9.3 μm) have been considered and characterized for creating the LARES 2 inactive fawing. The considered materials were Copper and Nickel based combinations that have been created and characterized. Point of this work was to dissect their break conduct that's a prerequisite for materials to be utilized for space applications. Break tests have been carried out on a few examples and break surfaces have been examined.

1. INTRODUCTION

LARES 2 could be a detached laser-ranged toady planned and created for tests of Einstein's hypothesis of Common Relativity and space-geodesy (Ciufolini et al. (2017a, 2017b and 2017c)). In specific LARES 2 will give the foremost precise estimation of frame-dragging or Lense-Thirring impact (Ciufolini (2007)), a crucial and interesting marvel anticipated by Common Relativity with essential astrophysical application such as the era of gravitational waves by two colliding dark gaps measured by the LIGO laser interferometric. A fundamental necessity in planning LARES 2 is the minimization of its cross-section-to-mass proportion to decrease as much as conceivable its orbital annoyances due to the non-gravitational powers acting on the adherent. The plan of LARES 2 incorporates the choice of the base fabric made as it were on the bases of its thickness, whereas the particular combination is chosen to meet the other prerequisites and limitations related not as it were to logical issues but too to the certifications required for boarding the adherent on the launcher.

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Evaluation of vehicle light weighting to reduce greenhouse gas emissions with focus on magnesium substitution

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ABSTRACT

Goal: Reducing the weight of vehicles is a practical way to comply with stricter regulations intended to cut down on fuel usage and manage greenhouse gas emissions. The purpose of this paper is to provide an empirical and comparative analysis of magnesium materials that are lightweight and can be used in place of traditional steel in passenger cars that have internal combustion engines. Magnesium is a material that can be used for lightweighting because of its extremely low density. It is one-third lighter than aluminum and three-quarters lighter than steel.

Results: The Wipacod car's rocker beam width/thickness (b/t) ratio was problematic, suggesting that yield failed rather than buckling. It was discovered that the specified material, magnesium EN-AM102G, could replace aluminum alloy 6061-T61, reducing the vehicle's mass by an estimated 110 kg and increasing fuel efficiency by 10%. However, unless the current design is altered, this would require a compromise in mechanical performance.

Keywords: Greenhouse gas emissions, Emission reduction, Lightweight materials

1. INTRODUCTION

Passenger cars have historically been propelled by internal combustion engines that run on fossil or alternative fuels with varying degrees of CO₂ emissions. However, lowering greenhouse gas emissions and environmental pollution is currently a global challenge for passenger cars (Lewis et al., 2014; Palencia et al., 2012). Stricter laws have been imposed in the USA, Europe, and other nations and regions to control the development and sale of passenger cars with lower vehicle masses and, as a result, lower CO₂ emissions. (Palencia CO₂ emissions (Kim et al., 2010; Elgortway et al., 2010). Research on vehicle weight reduction (achieved by either component downsizing or materials substitution) has become more popular for passenger transportation vehicle development as a response to these challenges (Kawlin, 2017). The substitution of materials will be the main topic of this study.

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Smart Drip Irrigation System

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ABSTRACT

Water is necessary for crops and plants because it cuts down on the amount of time and water used for irrigation. In this farming, traditional agricultural systems waste a lot of water and take a long time to irrigate the croplands. Drip irrigation systems are introduced to prevent these issues. The best and most effective method of irrigation is drip irrigation, which is appropriate for monoculture-based agricultural lands, desert farms, and farmers with both large and small land holdings. When using drip irrigation, water is sent under pressure to plants and crops in an efficient way. Our Internet of Things (IoT) smart and automated drip irrigation system offers farmers numerous features while also fixing issues with current systems. The Wemos D1 ESP 8266 is used in this system to send and receive commands, control all of the sensors, and pump water into every drip. Fertilizers are combined with water and injected into plants using modern technology. It will also enable parallel access while cutting down on time and labor. Using this technique, water is injected directly into the root structure drop by drop. By using water sensing valves via the internet, mulching sheet technology lowers water waste. This paper describes the general setup, architecture, and operation of the system.

Keywords: Wemos D1 ESP 8266, IoT, OTA

1. INTRODUCTION

For crop growth, drip irrigation is the most effective way to deliver nutrients and water. It provides precisely the right amount of water and nutrients at precisely the right times to the roots zone of each plant, ensuring that every plant receives what it needs to grow at its best. Drip irrigation allows farmers to save money on energy, fertilizers, crop protection products, and water while still producing higher yields.

It's easy to see why. Compared to other irrigation techniques, drip irrigation not only yields a higher return on investment, but it also provides farmers with an easy-to-use and effective means of managing their farms.

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Strengthening of the structures by using CFRP and its effect to the various structural members

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ABSTRACT

A very strong and lightweight fiber-reinforced polymer with carbon fibers is called carbon fiber reinforced polymer, or carbon-fiber-reinforced plastic. Up to 10% more stiffness and 3000 MPa ultimate tensile strength—more than ten times that of mild steel—are achieved with it. Carbon fiber sheets are used in construction to reinforce the members, improve the structure's ductility and stiffness, and increase its serviceability. It is frequently used in situations requiring greater rigidity and strength. This paper's primary goal is to critically examine how CFRP strengthens structures and how it affects different structural members.

Keywords: Retrofitting, Flexural Strength, Carbon fiberrereinforcedpolymer, stiffness, deflection.

1. INTRODUCTION

Retrofitting is a technique used in rehabilitation and repair to alter pre-existing structures to increase their resistance to ground motion, vibration, seismic activity, etc. Many materials are used to reinforce the structures that have been weakened by earthquakes and other events. The different materials, such as steel plates, glass fiber reinforced polymer, carbon fiber reinforced polymer, etc. Compared to other fiber-reinforced polymers, carbon fibers have advantages of their own. Because of its low weight, great strength, excellent durability, high fatigue endurance, competitive cost, and ease of installation, carbon fiber is recommended. This paper's goal is to examine how CFRP strengthens structures and how it affects different structural members. Initially, engineers and scientists employed carbon fiber reinforced polymer (CFRP) to reinforce reinforced concrete beams, based on its effects. Considerable investigation has been done into the application of composites to shield concrete from impact force.

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Structural and Other Applications of Steel Fiber Reinforced Concrete – A Review

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ABSTRACT

Because of the increased frequency of large-scale disasters worldwide over the past few decades, researchers have become increasingly interested in enhancing the energy absorption capacity to withstand impact, seismic, blast, and fatigue loadings. The ductile capacity of the concrete was increased by the addition of short fibers, both synthetic and steel, however, steel fiber-reinforced concrete (SFRC) is the concrete that is exhibiting the most noticeable effects. Despite the fact that SFRC research has been conducted for more than 60 years, there are very few design guidelines available for SFRC structures. In order to create design guidelines for SFRC structures, researchers are becoming increasingly interested in its structural behavior. The effectiveness of SFRC in structural member applications has been the subject of multiple attempts in recent years to confirm, and it has been shown that applying SFRC in structural members reduces the length, spacing, and width of the cracks as well as their propagation. Furthermore, the structural member's ultimate flexural strength capacity, ductility, flexural toughness, and elastic deformation were all improved by the SFRC.

Index Terms: Energy absorption capacity, Fatigue loadings, Ductile capacity, Fiber reinforced concrete, Literature review, SFRC member, Steel fiber

1. INTRODUCTION

In light of the numerous disasters that have struck the world, scientists are focusing more on improving concrete's ability to absorb energy and withstand fatigue, impact blast, and dynamic loads. The energy absorption capacity and tensile strength of the concrete need to be increased because it is brittle and has a low tensile strength. In order to increase the concrete's ability to absorb energy, fibers—both steel and synthetic—were added, leading to the development of a new type of concrete known as fiber-reinforced concrete in the 1960s. Over the last few decades, fiber-reinforced concrete has advanced dramatically, and a variety of fiber-reinforced composites have recently entered the market.

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Conference in Multi-Party Computation for Privacy-Preserving Using Machine Learning

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ABSTRACT

The investigation of secure multi-party computation-based privacy-preserving machine learning (PPML) systems is the main focus of this paper. It examines PPML systems and evaluates the aims and purposes of its use. A PPML architecture generalized model that reflects the key building blocks of these kinds of systems is put out. The problem formulation of secure multi-party computation is examined. The explanations of the protocols and cryptographic primitives used to carry out multi-party secure computation protocols, includes homomorphism encryption, secret sharing plans, and jumbled circuits. We investigate the existing PPML systems based on secure calculations that are two-, three-, and four-party. The primary focus is on algorithmic components of information security systems, procedures, and protocols. Consideration is given to systems safe from both active and semi-honest opponents, both based on both general-purpose modules for safe multi-party computations and specialized modules made to protect the privacy of particular machine learning algorithms, like convolution neural networks.

1. INTRODUCTION

The quick development of artificial intelligence (AI) systems and technologies is one of the most important developments in contemporary computer science and information technology. AI's role as the central component of a new technological order is a topic of much discussion. It progresses from theoretical development, experiments, and prototypes to broad deployment in numerous commercial domains, much like any other complex of new technologies. Of course, trust is one of the key requirements for new technology to be accepted by society. One of the key components of information trust Security of information is a technology. Artificial Intelligence (AI) technologies encompass a diverse range of techniques and algorithms, including search, optimal control, and logical conclusions.

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Dynamic Security Defense System Based On TCP-REPAIR and Deep Learning

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ABSTRACT

A honey pot is an active defense mechanism that draws in attackers by imitating real-world scenarios and setting up fictitious targets. This prevents real resources from being harmed, gathers the attack procedures of attackers, and examines potential security holes in the system to proactively counteract similar attacks. The inability to deploy specific honey pots to incite attacks based on complex attacks, the inability to choose the best honey pot for dynamic response based on honey pot deployment and maintenance costs during attack interactions, and the inadequate ability to identify variants of known attack methods are all due to flaws in the current honey pot system.

1. INTRODUCTION

The Internet is growing more and more vulnerable to security threats as a result of its ongoing development. Traditional network defense technologies, like firewalls, intrusion detection systems (IDS), intrusion prevention systems (IPS), and other passive defense techniques, struggle to keep up with the sophisticated and evolving attack methods. Honey pots are categorized into two types based on how they interact with attackers: High-Interaction Honey pots (HIH) and Low-Interaction Honey pots (LIH). Low-interaction honey pots are typically built using virtual simulation software, which isolates the real environment and is less capable of creating complex honey pot environments with decoy functions than high-interaction honey pots, which are typically built using real system environments. Straight forward and less expensive to construct, but because of its own virtual environment, attackers can detect it more easily. The fundamental concept behind hybrid honey pots is to set up a lot of low-interaction honey pots at the front end and a few high-interaction honey pots at the back end in order to capture and analyze attacks through traffic migration. However, the coarse-grained data control of the traditional honey net causes a number of shortcomings in hybrid honey pots.

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Data Mining Ancient Script Image Data Using Convolution Neural Network

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ABSTRACT

Image image libraries of ancient texts are the result of the recent surge in ancient scripts. The evolution of these ancient scripts can be studied through data mining of the gathered images. The origin of the Indus Valley script, in particular, is a hotly contested topic. We test which Phoenician alphabet letters and Brahmi symbols are closest to the Indus Valley script symbols using convolution neural networks. Our analysis surprisingly reveals that overall, the Phoenician alphabet is much closer to the Indus Valley script symbol than the Brahmi script.

1. INTRODUCTION

The Indus Valley Civilization flourished in north western South Asia, encompassing parts of modern-day India, Pakistan, and Afghanistan, between 3200 and 1300 BCE [14]. There are many different theories explaining the origin of the Indus Valley Civilization and its script, ranging from diffusion list explanations to antecedent indigenous roots. With thousands of inscriptions, mostly on seals, and over 400 distinct symbols, the Indus Valley script is an undeciphered writing system. Regrettably, conventional decipherment methods cannot effectively decipher the short inscriptions. The most common symbols in Indus Valley script are displayed in Figure 2. Bilingual inscriptions are usually helpful in deciphering texts, but they have not yet been discovered. One more way to identify a script could be to compare the unknown symbols with an existing, recognizable script. This matching can provide a rough phonetic value for unknown script symbols.

Phoenician alphabet: Because it spread over a significant portion of Eurasia, the Phoenician alphabet is the first known script that we attempt. It is regularly studied. Written from right to left, the Phoenician alphabet is an abjad writing system made up of the Brahmi syllabary. The Brahmi script, the second-oldest script in South Asia, is the second known script. There is debate regarding the Brahmi script's origin. It is said that the Phoenician alphabet is where the Brahmi script originated

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Reference in Neural Networks For Real World Problems

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ABSTRACT

Building practical computers for real-world issues is the aim of artificial neural networks, which are functional imitations of reduced models of biological neurons. The use of artificial neural networks (ANNs) in a wide range of applications, both theoretical and practical, has grown significantly in recent years. A synopsis of the ANN theory is given, along with a discussion of possible directions and future developments.

1. INTRODUCTION

Deep learning systems are composed of neural networks. Reviewing the architecture, node kinds, and techniques for "teaching" one networks is the first step towards mastering deep learning. We will start with a comprehensive synopsis of neural networks and their underlying principles, along with their connection to the human mind's biology. Next, we will talk about feed forward neural networks, which are the most often used architectural type. The idea of neural learning will also be briefly covered, along with how it relates to the methods we use to train neural networks.

Large data sets should be processed using optimization techniques. Recurrent SVMs offer fresh insights into nonlinear modeling and time-series prediction.

Using the Infinite Impulse Response Locally Recurrent Neural Network (IR-LRNN) modeling approach, it is possible to predict the reliability and the failure time of different hardware components. The production performance and engine failure process are investigated using a variety of learning models, including ARIMA, RBF, MLP, and others. In terms of performance, IR-LRNN is superior to ARIMA and RBF. Financial time series prediction based on empirical error and a risk function with a regularized term, as well as the structural risk reduction principle, may also be accomplished with SVM. The notion of structural risk reduction lowers the upper bound of the generalization error, whereas conventional techniques lower misclassification.

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Conference in Database Replicas in a Replicated Database Environment

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ABSTRACT

In a replicated database environment, requests are randomly distributed to database replicas, which results in a situation where some databases are significantly overloaded while others remain idle. In a replicated distributed database design, intelligent load balancing is crucial to achieve a better throughput while ensuring that no one database is overutilized and so enhancing the system's overall throughput. Many load balancing techniques have been proposed or implemented, but the majority of them still fall short of the ideal standards for equity or fairness due to a number of limitations, including the small number of parameters taken into account, the inability to reassign running processes on downed servers to ones that are active and suitable, and the neglect of issues pertaining to replicated databases of which cause the system's procedures to take longer to complete. This article presents a proposal for an enhanced intelligent load balancing (ILB) model for a replicated database environment. By distributing requests evenly among the database copies, ILB seeks to provide equity for all databases.

1. INTRODUCTION

Data and information are heavily relied upon in today's society; everyone gets their information from one database or another. Without this information, most businesses cannot run even for a little while. Not even our hospitals and schools are excluded. The extent to which society depends on data has been demonstrated by recent ransomware attacks in several nations. The ransomware locked down patient records in multiple hospitals' computers, forcing them to be cancelled.

While it is still possible to have all databases concentrated on a single computer, with authorized users having access to them from anywhere via a network, including the Internet, both locally and globally, and while managing such centralized databases can be done with ease and has many advantages, there are also many drawbacks. The clients are cut off from the databases, for example, in the event that the central server fails. Additionally, there may be significant expenses associated with communications from the many clients to the central server.

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Operating System UAV Cloud

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ABSTRACT

Unmanned aerial vehicle (UAV) is a subset of mobile ad hoc networks (MANET) that is gaining interest from researchers due to its potential for use in both military and civilian contexts. The trend of cloud computing in conjunction with UAVs also draws attention to this area of study in many ways, but the operating system for the cloud is the most important area of study. In order to choose the operating system to be used based on actual scientific results, this paper explores the UAV cloud operating system, displaying the throughput (bits/Sec) for the system implemented when using both Windows and Linux.

1. INTRODUCTION

In The Art of War, published some 2,500 years ago, Sun Tzu stated, "If you are far from the enemy, make him believe you are near." To reflect the fact that these intricate systems consist of components other than the actual aircraft, such as a ground control station, the term "unmanned aerial vehicle" was changed to "unmanned aircraft system." Mobile ad hoc networks are gaining popularity because they enable the realization of network services for mobile users in places lacking an existing communications infrastructure. Wireless ad hoc networks are made up of a group of wireless nodes that communicate with a common wireless medium [1]. Ad hoc networks allow separate wireless nodes with varying transmission and processing capacities to work together to provide greater networking coverage and processing power. The nodes can also be linked to a dedicated gateway device or fixed-backbone network, allowing IP networking services in places where there isn't currently any infrastructure to support Internet access. The performance of these systems has to be more accurate due to the extensive and varied use of ad hoc networks in many fields, including complex military systems like Unmanned Aerial Vehicles (UAVs). For this reason, cloud computing has been added to the UAV's infrastructure. By offering a perspective study on cloud computing and shedding light on the vague understanding of cloud computing, this field of research helps us cover the power of cloud computing. One of the key features that draws users and businesses to the cloud's significance is its ease of expansion and contraction. These days, military applications emphasize the value of UAVs in reconnaissance and attack roles in an effort to save money, time, and lives.

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Data Management System BESIII

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ABSTRACT

Effective management and conditioning of the approximately 1PB raw and 1PB DST data that the BESIII experiment has collected since 2009 is crucial. The BESIII data management system has been operational for a decade, providing BESIII offline and physics users with a fully Functional and tried-and-true method. We created a nearly flawless system architecture and implemented a strong backup and maintenance plan.

1. INTRODUCTION

BEPC, or the Beijing Electron Positron Collider, is situated in Beijing, China [1]. Operating at the Beijing electron-positron collider (BEPC) II for physics at tau-charm energy region, the third generation of the Beijing Spectrometer (BESIII) is a multi-purpose detector. The Drift Chamber (DC), Time-of-Flight counters (TOF), Electromagnetic Calorimeter (EMC), and Muon Counters (MC) are the four sub-detectors that make up the BES III detector. It is crucial to manage these data and condition data properly because there are roughly one PB of raw data and one PB of DST data from 2009.

The original raw data from DAQ, Monte Carlo (MC) simulation data, and reconstruction data are stored in a disk or tape file system for the BESIII data management system; all simulation.

Construction data are generated using BES III offline software. Three different types of data are kept in the My SQL database: user-customized information, calibration constants, and data from the Slow Controls and DAQ databases.

The DAQ server's hard drive contains files containing the original raw data from the DAQ. After that, these files are quickly copied to tapes, which are then written to the offline servers' disk file system so that offline and physics users can access the data.

The complete consider within the paper between 2006 and 2018 carries a record of 8510 diary papers and 14775 conference continuing papers that examine the Web of Things. The article Web of Things starts from the taking after three conference papers (Adhikaram et al., 2006; Bernard, 2006; Rammig et al., 2006).

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Examining Novel Computer Architectures

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ABSTRACT

The six components of a traditional computer architecture are the input, output, memory, controller, arithmetic unit, and storage. Although the memory has a small capacity and loses data when the power goes out, the access speed is quick. When a computer loses power, any data stored in large-capacity storage is not lost, but access is sluggish. Therefore, memory and storage are essential components of traditional architecture. These days, the introduction and advancement of non-volatile random access memory offers a crucial promise: two different types of memory combined into one. This serves as the foundation for a novel dual-space memory-based computer architecture. The hardware shift latch implements the new architecture, enabling random access to data stored in terabytes of storage. This paper provides a detailed description of the new architecture's operating principle. Lastly, the benefits of the new computer architecture over the old are highlighted.

1. INTRODUCTION

In 1945, John von Neumann introduced the notion of a "stored program" and listed the five main parts of a computer system: input, output, memory, controller, and arithmetic unit. Stated differently, a memory must exist in the computer. The issue that storage devices, like hard drives, have slower access speeds than CPUs is addressed by memory during the memory development process. Non-volatile random memory has recently surfaced as a result of new memory development, allowing us to create dual-space storage by combining the external memory and current memory into one [1]. We built a new computer architecture with internal and external memory, which is distinct from the existing setup, based on this dual-space storage.

utilized in the 1960s and is still in widespread use today. As mentioned above, memory has changed over many generations. Due to its improved performance, semiconductor memory started to progressively replace magnetic core memory in the middle of the 1960s. Nonetheless, internal memory—also referred to as main memory—is employed in the aforementioned memory in the form of the semiconductor memory, magnetic core, and mercury delay line.

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IOT based Waste Management System in Developing Nations

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ABSTRACT

Waste management is one of the essential issue that the world faces independent of the case of developed or developing nation. The key issue within the waste administration is that the garbage container at open places gets overflowed well in development some time recently the graduation of the following cleaning handle. It in turn leads to different risks such as terrible odor & offensiveness to that put which may be the root cause for spread of different infections. To maintain a strategic distance from all such perilous situation and keep up open cleanliness and wellbeing this work is mounted on a smart trash framework. The most subject of the work is to create a savvy cleverly garbage caution framework for a legitimate trash administration. This paper proposes a savvy alarm framework for garbage clearance by giving an alarm flag to the civil web server for moment cleaning of dustbin with legitimate confirmation based on level of waste filling.

1. INTRODUCTION

The generation and transfer of waste in expansive amounts have made a more noteworthy concern ever time for the world which is unfavorably influencing the human lives and natural conditions. [1] Waste are the one which develops with the development of the nation. Isolation of waste is critical for appropriate transfer of endless sum of trash present day society produces in an ecologically sensible mode. Individuals got to be adjusted to hurling things absent and never realize the results of their activity. The common strategy of transfer of the mechanical squander is by uncontrolled and impromptu and uncovered dumping at the waterway locales and open ranges. This strategy is harmful to plants human wellbeing and creature life. Control side collection is the foremost common strategy of transfer in most nations in which squander is collected at standard interim by specialized trucks. Squander collected is at that point transported to an fitting transfer range. Presently days cities with creating economies involvement digital squander collection administrations in satisfactorily oversee sludged controlled dump locations and the issues are declining. Waste collection strategy in such nations is an continuous challenge and numerous battle due to powerless educate and quick urbanization.

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Exploration of Virtual Synchronous Machine Control for The Grid-Side Converter of Wind Turbines with Permanently Excited Synchronous Generators

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ABSTRACT

As the share of Renewable Energy Sources (RES) in the electric power supply continues to grow, distribution operators face significant challenges in integrating RES and providing ancillary services. The virtual synchronous machine (VSM) is a grid-forming control method proposed in the literature for power electronic converters. It emulates the operational behavior of conventional synchronous generators connected to the utility grid. This study applies the VSM control method to the grid-side control of a wind turbine with a permanently excited synchronous generator and a back-to-back voltage source converter as the grid interface. The proposed control structure, including models of the converter, generator system, a simplified mechanical drivetrain, and a detailed wind rotor model, is validated through simulation results. The operational behavior of the wind turbine under VSM control is analyzed, with a particular focus on interactions between control systems and their effects on the mechanical drive train.

Index Terms - Wind turbine, virtual synchronous machine, synchronverter, permanently excited synchronous generator, RES.

1. INTRODUCTION

In pursuit of a more sustainable electric power supply, there is a continuous increase in the share of Renewable Energy Sources (RES), such as wind turbines and photovoltaic systems. RES are typically connected to the grid through power electronics, exhibiting different operational and transient behaviors compared to conventional power plants, particularly in terms of lacking inherent inertia provided to the grid. Various control strategies have been proposed in the literature to address the evolving requirements of grid operators and electric grids with reduced system inertia. A review of strategies for low-inertia systems is presented in [1]. According to [2], control strategies for the grid-side converter can be categorized into grid-following and grid-forming methods.

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Design and Implementation of a Low-Power Synchronous Motor for High-Efficiency Applications

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ABSTRACT

This paper presents the design of a low-power synchronous motor intended for driving centrifugal loads such as fans or pumps. While induction motors have traditionally been employed in such applications, recent efficiency standards advocate for more energy-efficient solutions, considering the entire system from electrical input to hydraulic output. Variable speed solutions have become imperative, making synchronous machine driven more viable, especially when inverters are required for induction motors. The paper includes experimental tests conducted on a prototype for validation.

Index Terms—Design of synchronous motors, electric drives, high-efficiency motors, no tooling cost, variable speed fan.

1. INTRODUCTION

In this paper, we present the design of a small-power synchronous motor with a required mechanical power of approximately 180 W. The motor is specifically designed to drive a centrifugal load such as a fan or a pump. Traditionally, constant-speed induction motors (IMs), typically 2-pole IMs, have been the norm for such applications, with a motor speed of 3000 rpm. Recent efficiency standards are driving manufacturers to seek more energy-saving solutions for the entire system, considering both electrical input and hydraulic output. This industry trend has prompted electric motor manufacturers to enhance their designs. However, achieving energy-efficient management of fans and pumps necessitates variable speed operation. This is particularly crucial for applications like water flow control in pumps or air flow control in fans, where variable speed solutions are required to match the maximum efficiency of the impeller and, consequently, the overall system.

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Advanced Synchronous Power Controller for Enhanced Performance in Distributed Generation Units

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ABSTRACT

Renewable energies have emerged as a promising solution to enhance the energy supplied to the electrical network. However, the inherent lack of inertia in these systems has been identified as a factor affecting grid stability. As these technologies operate as current-controlled sources, they do not provide essential grid support functionalities. To address this challenge, new control strategies are being developed to enable power plants to offer coordinated support, incorporating inertia and damping into the system. Synchronous controllers have demonstrated effectiveness for distributed renewable generation, allowing the emulation of synchronous generators' inertia and facilitating better interaction between the power converter and the electrical grid. However, implementing such control strategies requires smarter power converters with advanced control algorithms. This paper introduces a novel control strategy for coordinating different distributed generation units to interact harmoniously with the electrical grid.

Keywords— Renewable energy, synchronous control, power converter

1. INTRODUCTION

During the past decade, the integration of renewable energies into the grid has witnessed significant growth, primarily driven by the decreasing costs associated with PV and wind power. However, this evolution has introduced challenges, notably the reduction of overall inertia in electrical networks with a substantial share of these technologies. The decline in system inertia weakens grid stability, raising concerns about its long-term stability. There is a critical need for solutions that can introduce some level of inertia into renewable energy systems, ensuring the compatibility of green energy development with grid stability. Numerous studies have proposed solutions to facilitate the integration of renewable energy into the electrical grid, including control strategies, legislations, and components.

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Sizing a hybrid renewable energy system to reduce energy costs at varying degrees of intensity for an industrial park.

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ABSTRACT

Rising energy costs in Australia are driving the industry to look for energy sources other than the conventional grid. The industry has been slow to adopt non-dispatchable renewable sources, partly because of their inherent variability, but their inclusion could reduce greenhouse gas emissions and energy costs. Using an alternative fuel production facility as a case study, the installation of a hybrid renewable energy system is explored. This paper separately studies the effects of different design strengths on load variability and renewable energy. A lithium-ion battery is also included to act as a buffer in the system. The baseline is modeled using a robust mixed-integer linear programming (MILP) framework and the potential savings are quantified at varying levels of robustness. General sizing guidance is derived from the results of the case study and will provide a robust power supply.

Keywords: Hybrid Renewable Energy System, Industrial Microgrid, Renewable Energy, Robust

1. INTRODUCTION

Electricity generation accounts for approximately one-third of Australia's total energy consumption. Given Australia's heavy reliance on fossil fuels to produce electricity, this means there is huge potential to reduce greenhouse gas (GHG) emissions if alternative means of production are used. The energy payback period for solar installations is currently 4 years or less with an expected lifespan of 20 years. Wind systems also have high energy payback, requiring just 6 months to pay back the energy investment with an expected lifespan of 20 years, making both feasible primary energy producers. Additionally, wind and solar technology are on par and in many cases cheaper than conventional fossil fuel generation when it comes to levelized cost of energy (LCOE). However, total renewable energy sources only account for 17% of Australia's total electricity production. One of the main obstacles to widespread adoption is the reliability and an dispatchable nature of renewable energy.

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Sizing renewable energy sources to support distribution Network resilience

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ABSTRACT

Microgrids can help researchers analyze the performance of large-scale power systems. The article uses Ungrid to maximize the resilience of unbalanced distribution networks through optimal sizing and placement of renewable energy sources. Ungrid is a miniature IEEE 13 standard microgrid designed to analyze power system behavior. The research methodology includes assessing the penetration of non-traditional renewable energy generation into the distribution network at different nodes and different injected energy values. The first scenario is to connect the microgrid to the electricity system of Providencia (Colombia), a network with low inertia. The second scenario is connecting to the La Guajira network, whose high inertia is included in the National Interconnection System "NIS". Connecting the generators to unique sources allows determining the percentage of unique penetration sources of the modified IEEE 13 network in two scenarios in Colombia. The results lead to candidate nodes for connecting renewable sources at 632 and 671. In summary, low inertia systems require higher penetration than high inertia systems.

Keywords: Dynamic-state study, microgrid, PV system, resilience, steady-state study, wind turbine.

1. INTRODUCTION

Photovoltaic (PV) systems are a very mature technology and tend to have low manufacturing costs, making them an increasingly competitive option in the market. On the other hand, 2015 was a record year for wind energy with annual installed capacity exceeding 63 GW. Photovoltaic systems and wind turbines are technologies that increase grid penetration, causing a transition in grid structure from a centralized generation model to a distributed generation model. In distributed generation (DG), the model includes small power plants near energy demand centers. The closeness between energy production and demand brings benefits such as increased power system reliability and reduced losses in distribution and transmission systems. DG systems can also help the environment because most of the primary sources used have low levels of pollution. According to, production based on unconventional renewable sources is mainly connected to distribution networks.

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Analysis and optimization of Heliostat field size and thermal energy storage for tower solar power plants

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ABSTRACT

Optimal sizing of solar tower plants (STPs) with thermal energy storage (TES) is essential to increase system reliability and reduce investment costs. However, it remains difficult to determine key design parameters for STP system sizing, including direct normal irradiance (DNI), solar multiple (SM), and TES hours. In this study, thermal economic analysis of the impact of these parameters on the capacity factor and levelized cost of energy (LCOE) of a 50 MW STP plant is presented using the System Advisor model. The optimal combination of these parameters was achieved for minimum LCOE at two locations in China. The results show that the optimal DNI design depends on both the annual irradiance level and the solar radiation distribution, which differs from the recommended values obtained from traditional methods. It turns out that the radiation received by the heliostat under optimal design conditions represents a specific percentage of the annual radiation. This rate was nearly 73% for the cases in this study, and the optimal SM and TES hours were 2.7 to 2.8 and 15 to 16 hours, respectively. The results can provide theoretical reference for the optimal size of STP system with TES under different solar energy sources.

Keywords: Solar tower power plants; Design DNI; Solar multiple; Thermal energy storage; Thermo-economic analysis.

1. INTRODUCTION

Solar tower power plants (STPs) with thermal energy storage (TES) are considered a very promising alternative for power generation systems. Proper sizing of the heliostat field and TES for the STP system is essential to reduce capital costs and increase annual income from power generation. For a particular STP with a TES system, determining the optimal size of the heliostat and TES fields necessarily involves deciding on the appropriate design of the direct normal radiation (DNI), multiple solar (SM) and TES hours. The DNI design refers to a specific DNI at which the solar field produces rated thermal energy.

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Optimized Virtual Synchronous Generator Integrated Microgrid with Distributed Secondary Control

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ABSTRACT
In this study, we delve into an islanded microgrid featuring integrated virtual synchronous generators (VSGs), exploring the dynamic model of VSGs under dq reference. Our focus extends to the design and allocation of distributed secondary controllers across the microgrid, leveraging the streamlined structure of the Extremum Seeking algorithm. This allocation aims to collectively adjust the microgrid's frequency to its nominal value in response to disturbances. The analysis encompasses the dynamic behavior of the proposed two-layer system. To enhance frequency restoration, adjustments are applied to the variable Extremum Seeking convergence gain and the virtual synchronous generator inertia constant, altering the frequency change pattern. Simulation results offer insights into the frequency dynamics within the physical network of the microgrid, as well as the allocation and control of active power among distributed generators.
Keywords: Micro grid, Virtual Synchronous Generator, Distributed Secondary Control, Extremum Seeking.

1. INTRODUCTION
The microgrid, a pivotal small-scale power system operating at low to medium voltage levels, holds a crucial role within the modern smart grid framework, facilitating the seamless integration of diverse distributed generators (DGs) into a unified physical network. DGs within the microgrid possess the capability to function in both grid-connected and islanded modes, ensuring a robust and reliable supply of electric power. This flexibility allows the microgrid to disconnect from the utility during events like frequency droops or voltage collapses, and it can also autonomously reconnect based on preset schedules. Among various control architectures for microgrids—such as circular chain control, master-slave control, and peer-to-peer control—the droop control method, particularly in this context, stands out due to its seamless mode switching and automatic power allocation between DGs, sans the necessity for direct communication links.

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Enhanced Traction Application Synchronous Machine: Electrically Excited with Additional Permanent Magnets

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ABSTRACT
This study introduces a pioneering hybrid synchronous machine design, combining permanent magnet and electrically excited systems tailored for practical traction applications. This innovative concept capitalizes on the strengths of interior permanent magnet synchronous machines and electrically excited synchronous machines across both base load and flux weakening operational ranges. Leveraging magnets enhances overall efficiency within the base load spectrum, resulting in a remarkable 0.6% efficiency boost specifically during the WLTP cycle.

Keywords: electrically excited synchronous machine, hybrid excited synchronous machine, traction drive

1. INTRODUCTION
In the propulsion systems of battery-operated vehicles, interior permanent magnet synchronous machines (IPMs) reign supreme. Compared to induction motors (IMs) or electrically excited synchronous machines (ESMs), IPMs boast superior power density and efficiency within the base load region due to their rotor field being solely generated by permanent magnets. However, when operating in the field-weakening region, efficiency diminishes as the rotor field requires reduction via an opposing stator field, necessitating increased current. In contrast, ESMs demonstrate higher efficiency in this region by enabling active control of the rotor field through field current modulation. This research explores enhancing the operational performance of ESMs by incorporating supplementary permanent magnets into the rotor. To merge the benefits of IPMs in the base load region with the strengths of ESMs in the field-weakening area, this paper proposes a Hybrid Excited Synchronous Machine (HSM) primarily based on an ESM architecture with a minimal number of magnets. The primary objective revolves around determining the optimal magnet positioning for maximal effectiveness.

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Synergistic Impact of Active and Reactive Power Controls on Synchronous Stability of VSGs

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ABSTRACT

The ascent of the virtual synchronous generator (VSG) signals a potential shift away from traditional synchronous generators within advanced power systems. Its primary function revolves around regulating active and reactive power to manage voltage and frequency. Typically, VSGs incorporate closed-loop controls for both active and reactive power to ensure precise regulation. However, this study uncovers the significant impact of interdependence between active and reactive power controls on the synchronous stability of VSGs.

This coupling effect notably alters the VSG's synchronous stability, leading to a reduction in the maximum transferred active power and its associated power angle. To assess this effect, a small-signal model of a grid-connected VSG is developed, enabling a detailed analysis of critical operational points. A comparison is drawn between the power angle curves of VSGs with fixed reactive power output and those with a constant output voltage amplitude. Furthermore, this paper explores the influence of reactive power droop control in expanding the stable operational range of VSGs.

Keywords: virtual synchronous generator, power regulation, coupling effect, synchronous stability.

1. INTRODUCTION

Renewable energy systems have gained prominence in contemporary power grids, fostering reduced carbon emissions and bolstered energy sustainability. These systems typically rely on grid-tied power converters, serving as interfaces for renewable energy sources and storage units. As the prevalence of power electronic converters surges, the presence of synchronous generators (SG) in modern power setups diminishes. This trend impacts the inertia response, crucial for frequency stability, with power converters lacking this inherent characteristic, thereby escalating the risk of frequency irregularities and grid instabilities.

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Developing a Parameter Identification Method for Permanent Magnet Synchronous Machines Using VMD

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ABSTRACT

The exploration of mathematical models and parameters for synchronous machines holds paramount importance in machine design, operation, and control. This paper introduces the application of variational mode decomposition (VMD) for identifying transient parameters in permanent magnet synchronous machines (PMSMs). By leveraging VMD's capability to segment signal frequency bands, it achieves effective separation of individual harmonic modes within the PMSM's short-circuit current. Consequently, through an amalgamation of the distinctive characteristics exhibited by various harmonic components within the short-circuit current, this method conducts exponential function curve fitting for the fundamental frequency and the envelope of the double-frequency component isolated by VMD. Subsequently, it derives transient parameters, such as sub-transient reactance and time constant. Overall, through a comparison between the original short-circuit current waveform and the waveform generated by the identified parameters, the remarkable alignment confirms the validity and viability of this identification approach.

Keywords: variational mode decomposition, permanent magnet synchronous machine, parameter identification, curve fitting

1. INTRODUCTION

Precise determination of synchronous machine parameters is fundamental for analyzing its behavior. Among these parameters, transient parameters stand as crucial elements for forecasting both static and dynamic machine characteristics, garnering substantial attention from the academic community. The conventional approach to calculating transient parameters, primarily conducted through three-phase short-circuit tests, involves segregating non-periodic and periodic components by manipulating upper and lower envelopes within the short-circuit current waveform. However, this method often lacks the requisite precision.

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MSPA with slotted ground structure for Ultra wideband mixing

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ABSTRACT

In this paper, a compact dielectric resonator antenna (DRA) with band-notched characteristics for ultra-wideband applications is presented. A comprehensive parametric study was carried out using CST Microwave Studio Suite TM 2011 to analyze and optimize the characteristics of the proposed antenna. Three shapes for the coupling slot were investigated. Simulation results show that the proposed DRA had a -10 dB impedance bandwidth of 23%, from 9.97 GHz to 12.558 GHz, and a maximum gain of 7.23 dBi. The antenna had a notched band centered at 10.57 GHz, which increased the reflection coefficient by 23.5 dB, and reduced the gain by 6.12 dB. The optimized designs were verified by experimental tests on fabricated samples.

Keywords: Dielectric resonator antenna (DRA), compact, Band-notched characteristic, Ultra-wideband applications.

1. INTRODUCTION

The interest in dielectric resonator antennas (DRAs) for a variety of wireless communications systems has grown in the last few years [1-8]. Dielectric resonators (DRAs) are fabricated from low-loss dielectric materials, for which the resonant frequency is predominantly a function of size, shape and permittivity. DRAs offer the advantages of small size, low profile light weight, and high radiation efficiency, which make them attractive for many wireless applications [9-13]. A recent trend for DRA design has been in meeting Ultra-Wideband (UWB) specifications, and high data-rate wireless LANs, as well as applications in radar and imaging systems [14-17]. Various bandwidth enhancement techniques have been applied within DRAs using different excitation mechanisms to excite several modes covering wider bandwidths. In the last decade, there has been a growing need for broadband antennas that can satisfy the entire frequency range of future UWB systems with a reasonable performance.

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A Study of Private Key Cryptography

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ABSTRACT

Cryptographic methods have been extensively employed in various systems to address security objectives, such as data confidentiality, authentication, and secure communication, to name a few. Keys are the most critical parts of any cryptographic system safeguarding the whole underlying infrastructure. Based on the underlying algorithm design, there might be various stages of key generation, exchange, and storage to fulfill an algorithm requirement. In this research, we studied cryptographic techniques along with requirements and corresponding key management systems. Having scrutinized best practices, a taxonomy has been proposed for the key management systems based on the algorithm's requirements, key stages, and applications. This study is a comprehensive literature review on cryptographic key management systems to provide a complete guideline in key management solutions.

Keywords: Encryption, Public, Generators, Elliptic curves

1. INTRODUCTION

Very year, data breaches are on the rise, and they cost millions of dollars [1]. A strong encryption mechanism, where plaintext is converted into ciphertext, is crucial for safeguarding data. Data exists in three states, data in transit, data at rest, and data in use [2]. Depending on the different states of the data, the encryption strategy varies. In the data in transit state, data travels through different communication channels. During this stage, the data security is handled by Transport Layer Security (TLS), Secure Sockets Layer (SSL), Internet Protocol Security (IPsec), and Secure Shell (SSH) protocol providing security through mutual authentication [3], [4], [5], [6], [7]. However, TLS, SSL, and other schemes are not sufficient in this state. TLS or SSL do not encrypt metadata during data transmission, and they are vulnerable to man-in-the-middle attacks [2], [8]. In the data at rest state, data is stored physically on different storage mediums, such as clusters, file systems, cloud environments, and databases. During this stage, data is not accessed by any program or application. When an application or a user accesses the data and performs some operations on the data, the state changes to the data in use, and different encryption schemes, such as symmetric, asymmetric, or hybrid encryption techniques, can be employed for data security.

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Disposable Protective Glove for Women

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ABSTRACT

About 3.6 billion people worldwide lack access to safely managed sanitation service. To bridge service gaps, informal sanitation businesses have emerged as alternative service providers to meet the sanitation needs of underserved populations. Informal sanitation workers include persons who empty septic tanks, clean toilets, sewers, and manage public toilets. They provide a fundamental public service particularly in areas where access to municipal sanitation service is limited. Through qualitative methodologies, this paper explores the lived experiences and associated health risks of women working in the informal sanitation sector in urban Ghana and Kenya. Our findings show that female informal sanitation workers were exposed to injuries and infections, stigma and discrimination, emotional and psychological distress, sexual harassment, and unhealthy coping strategies. Distinctively, younger female participants were more likely to experience sexual harassment. Because of social stigma, many of the women developed unsafe work practices such as refusal to wear PPE and working at night. By paying close attention to the embodied effects of informal sanitation work, we can better comprehend the daily politics, lived experiences, and urban social infrastructure regimes that have a significant impact on the quality of life of informal sanitation workers.

Keywords: Informal work, Qualitative approach, Sanitation, Health

1. INTRODUCTION

Improving access to safe sanitation is critical for human health. Interventions to provide improved sanitation can significantly reduce global disease burden, particularly diarrhea diseases (Bazra et al., 2019). Global estimates show that about 3.6 billion people lack access to safely managed sanitation service, defined as improved sanitation facilities which are not shared with other households, and the excreta produced is safely managed (WHO and UNICEF, 2021). Aside from lack of access to safely managed sanitation, some households rely on shared or public toilets facilities to meet their sanitation needs. Most of the people who remain without access to improved sanitation are inhabitants of Sub-Saharan Africa (SSA).

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Block chain in Healthcare: An Overview

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ABSTRACT

We can't consider block chain only as a change, but as a fast phenomenon that is already on the move. It is a new wave of disturbances that has come to redesign the interaction that involve any form of exchange of value. It brings a new perspective on security, resilience, and effectiveness of systems. It initially became popular with the emergence of cryptocurrencies. Currently, it is more than just a fad for this type of coins, since its materialization it has already made inroads in different areas and industries, which we can highlight the area of health and healthcare. It was originally designed to hold transaction data, however, there is growing interest in providing analytics capabilities. The stored data can be used to respond to organizational needs such as providing provenance histories, predictive planning, fraud identification, regulatory compliance, etc. In this article, in section 2, an overview of blockchain technology will be presented. An introduction to the topic Business Analytics will be carried out in section 3, so that it can later be related to the topic under study.

Keywords: Block chain, Block chain Analytics, Block chain Analytics in Healthcare Business Analytics

1. INTRODUCTION

Digitization of healthcare has brought countless benefits to the industry, but despite the benefits of digital transformation in healthcare, there are some risks associated with its implementation. We are currently living through the digital transformation of healthcare and there are some risks involved in adopting it. We are now witnessing the rapid and increasing adoption of new information and communication technologies in the health sector, especially in the services provided by health professionals to patients who do not require physical therapy, communication between parties (patients and health professionals). Multi-channel communication of health services is only one of the areas of digitization of health services showed enormous potential in its implementation for both patients and health professionals as well as the health organization itself. Despite the many possibilities of multichannel communication in healthcare, it has created more problems related to security and privacy in multichannel health communication. In multi-channel communication Patients are offered a variety of communication channels to communicate with healthcare professionals.

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Monopole antenna for wlan, X- Band and ITU With Bandpass Filter

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ABSTRACT

In recent decades, there has been rapid development in the field of ultra-broadband technologies. A new ultra-wideband (UWB) antenna with single-band notch characteristic and CPW feed line is proposed by this manuscript. Single-band rejection is presented and analyzed at the WLAN frequency. The bandwidth of voltage-standing-wave ratio (VSWR) of the proposed antenna was initially 10.6 GHz in the frequency range 3.05-13.65 GHz. To achieve blocking of the WLAN band at 5.5 GHz, an arc-shaped gap is introduced into the geometry of the radiating strip. The dimensions of the designed antenna are 27 × 27 mm². It also shows that VSWR ≤ 2 in the operational UWB band except for the 5.16-6.7 GHz stopband for WLAN signal filtering. There are a variety of UWB antenna applications in medical and radar imaging, as well as in higher data rate personal area networks (PANs). The proposed antenna is simulated on a low-cost FR4 glass epoxy substrate with a dielectric constant of 4.4 and a thickness of 1.6 mm. The performance parameters of the proposed antenna such as VSWR, radiation pattern and gain are analyzed using HFSS V13 simulator.

Keywords: Monopole printed antenna; UWB (Ultra-wideband); Notched band; Varactor.

1. INTRODUCTION

The ultra-wideband (UWB) method was originally adapted for military use in the United States, but after a while it was released for commercial use. In 1898, Oliver Lodge introduced the first broadband half-wave antenna. In the initial stage, the antennas are three-dimensional and very large. G. Dubost introduced the metal strip monopole antenna in 1976 with advances in design technology. The demand for small-sized ultra-wideband antenna is increasing with the rapid growth of wireless technologies [1]. In 2002, the Federal Communications Commission (FCC) released an unlicensed frequency band (3.1 to 10.6 GHz) for commercial use. This reserved frequency is now well suited for both UWB systems and antenna designers. UWB antenna with omnidirectional coverage are a key requirement for commercial services and military applications. These applications require an antenna with a thin geometry and compact size. Therefore, different values of planar monopoles are presented for the geometry.

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Single Feed Dual Band circularly Polarized Patch Antenna for Wi-Max Application

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ABSTRACT

In this paper, a high-power dual-band circularly polarized coplanar waveguide (CPW) chip antenna with a metasurface reflector was proposed and demonstrated. Using an FR4 substrate with a thickness of 0.8 mm, an asymmetric, lossy plate was fabricated for the CPW chip antenna. The dual-band characteristics of the proposed antenna with reflection coefficient (S11) were below -10 dB from 1.70 GHz to 3.02 GHz with a bandwidth of 52.38% and from 4.59 to 6.09 GHz with a bandwidth of 42.16%. The average gain was 3.2 dBi in the lower band and 2.5 dBi in the upper band with an axial ratio of 3 dB and 27.1% bandwidth in the lower band. To increase the gain and bandwidth, a metasurface reflector was placed closest to the proposed antenna, with foam insulation in between. The antenna with the metasurface reflector reached an impedance bandwidth of 37.8% in group 1, 63% in group 2, and both groups have a circular polarization of 3 dB with an axial ratio of 57% in group 1 and 33.02, % on track 2. The average gain was 7.4 dBi and the maximum gain was 7.9 dBi at 2.4 GHz. A prototype of the antenna and metasurface reflector was fabricated and the measured results were good compared to the simulated results.

Keywords: Microstripantenna, Microstrip, Dualband, Patchantenna, Antennameasurements, Antenna radiation pattern.

1. INTRODUCTION

The recent development of wireless communications opens new challenges for researchers to design low profile, polarization diversity, dual polarization and low cost antennas for the 3600 coverage area of the communication system. Circularly polarized (CP) antennas are best suited for today's wireless communication systems because they reduce multipath reflections and offer antenna placement flexibility at both the transmitter and receiver ends. These antennas are recommended for use with GPS and other navigation satellites. The field of CP antennas can be rotated in two possible directions, i.e. LHCP (left-handed ring polarization) and RHCP (right-handed ring polarization).

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SAC OCDMA System performance Analysis on Free Space Optical Media using MIS Codes

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ABSTRACT

Spectrum Amplitude Coded Optical Code Division Multiple Access (SAC-OCDMA) technology has become an important research field in optical communication. OCDMA allows multiple users to access the media simultaneously without contention. It is able to work asynchronously, providing privacy and security, and reducing the interference of multiple users. In this paper, the performance of SAC-OCDMA with multi-diagonal (MD) code and double-diagonal-weighted (DDW) code with FSO communication system is presented and compared under different rain and fog conditions. The system is rated for 10 simultaneous users with 5Gbps data. The effect of transmitted power and radiation scattering is also investigated. Results are formulated based on eye diagrams and Q factor and BER values. The simulation results show that the DDW code is better than the MD code at longer distances under rainy and cloudy conditions. The DDW code can work very well with low input power.

Keywords: Bit error rate, Rain, Attenuation, Correlation, Scattering, Optical transmitters

1. INTRODUCTION

Free space optical communication uses light to transmit data through the atmosphere instead of fiber. It finds many applications in the field of communication. FSO can be used in many optical links such as building-to-building, ship-to-ship, aircraft-to-ground and satellite-to-ground. It is the best solution for communication in areas where fiber installation is difficult work. It is the best choice for wireless communication systems to transmit high data rates. In addition, it offers license free operation. However, communication via FSO has the disadvantage that it is affected by weather conditions [5]. Rain, fog and mist can reduce visibility and affect field of vision. Atmospheric attenuation of the FSO system is usually dominated by fog, but also depends on rain and dust. Total attenuation is a combination of atmospheric attenuation and geometric losses. Scattering caused by atmospheric particles can be thought of as a type of energy dissipation that causes the signal to deviate from its original purpose. Geometric scattering is the result of raindrops and snow made up of larger molecules, which has a similar effect to Rayleigh scattering.

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2D Behavior of Electrical Transport in GAAS MESFETS Using the Ensemble Monte Carlo method

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ABSTRACT

An ensemble Monte Carlo method is used to compare the potentials of zinc alloy and wurtzite GaN in field effect transistor applications. First, we compare the electron transport properties of the bulk material and find that zinc alloy GaN has the advantage of mobility, rate balance, and rate overshoot. Zinc alloy GaN and wurtzite GaN MESFETs with ultra-short gate length ($l_g = 0.12 \mu\text{m}$) are then investigated by 2D Monte Carlo device simulation. Zinc alloy GaN MESFET achieves a 50% gain compared to wurtzite. A zinc alloy AlGaInGaN HEMT with a current density of 900 mA mm^{-1} , a transconductance of 480 mS mm^{-1} and a cutoff frequency of 180 GHz is also simulated.

Keywords: 2DSIMULATION, ELECTRONIC TRANSPORT, MONTE CARLO METHOD

1. INTRODUCTION

III-V nitrides have recently received considerable attention for their use in short-wavelength optoelectronic devices. They are also very attractive because their thermal stability, high breakdown voltage due to wide band gaps, and high electron velocities make these materials suitable for high-power, high-temperature electronic devices. Wurtzite (hexagonal) is the natural crystalline phase of III-V nitrides, especially on sapphire or SiC substrates, but when grown on Si or GaAs substrates, a zinc alloy phase (cubic) with better electronic transport properties can be obtained [1]. Recently, microwave heterojunction field-effect transistors (HFETs) in the wurtzite form have been introduced, showing interesting results in terms of current density, transconductance and current gain-cutoff frequency [2, 3, 4]. The aim of this work is to use Monte Carlo simulation to compare the potential of wurtzite GaN (W-GaN) and zinc blende GaN (Z-GaN) at very short gate lengths.

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Low Power MCML- Based Digital Circuit Research in 16 NM Technologies NODE

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ABSTRACT

Shift Register, which is a cascade of flip flops shares the same clock and the outputs are connected to the data input of the next one in the chain. Linear-feedback shift register or shortly LFSR is one such shift register whose input is a linear function of its previous state. Exclusive-OR (XOR) is the most commonly used linear function. LFSR's help in generating pseudo-random numbers, fast digital counters, pseudo-noise sequences and whitening sequences. LFSR's can be realized both using hardware and software. When it comes to hardware implementation, MOS current mode logic (MCML) method can be used for designing the LFSR. There are lots of drawbacks with the traditional MCML method including the static power dissipation, more power consumption at low frequencies as compared with CMOS circuits, inappropriate for large systems involving power-down modes and it's not a cost effective solution either. To overcome these issues and to achieve the high speed characteristics of MCML, we present the modified dynamic current mode logic and is a good solution for battery-powered systems and portable solutions. Our simulation results also confirm the same where a 16 bit adder circuit fabricated using CMOS technology has only a delay of 1.22 ns and dissipates 19.9 mW at 400 MHz.

Keywords: Low power MCML-based digital circuit research in 16 nm technology node.

1. INTRODUCTION

A common way of generating a pseudorandom sequence uses a linear feedback shift register, which is easy to implement in hardware. LFSR is a shift register with input value driven by XOR value of the overall shift register. The positions of the bits that affect the state of the system are called as taps. LFSR's are a series of flip flops which are connected serially with feedback taps well-defined by the polynomial generator. The operation by itself is deterministic as the values produced is determined by the current state and starts with the initial value called as a Seed. This value is loaded into the flip-flop outputs. Each seed produces a different pseudorandom sequence, but is much smaller than the sequence itself.

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Optimization of a battleship formation air defense combat model based on dynamic resource scheduling

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ABSTRACT

Pointing at the issue of constrained assets and operational time combat discuss defense combat, maritime combat arrangement investigation energetic assets planning needs, on the premise of the foundation of transport energetic planning demonstrate of warship arrangement combat assets energetic combat arrangement asset planning, the operational assets and operational goals, relationship between sensible assignment of assets to play the warship arrangement combat operation the most extreme proficiency. The plan of three sets of discuss defense command models: centralized stage five assault mode, command mode, risk assault mode of discuss defense procedure, put forward the energetic planning crossover calculation for understanding the show, concurring to the maritime armada discuss defense combat situation illustration for reattachment. The reattachment comes about appear that the discuss defense technique with the risk assault mode can have impacts on multi-target assaults beneath the shared combat circumstance, and the cross breed calculation based on combat asset energetic planning can meet the real-time operational prerequisites.

1. INTRODUCTION

The planning issue of warship arrangement discuss defense combat assets is the optimization arrange for the ponder of the target of interference approaching discuss defense weapon assets. This issue can be portrayed as the combat errand of warship arrangement in discuss defense operations is separated into four stages: early caution, fire battling, electronic sticking and move evasion. There's a certain time limitation and asset imperative between different operational assignments, and each combat mission should accomplish corresponding combat capability. Armada discuss defense combat assets to supply the combat mission total certain operational capability, but discuss defense assets are constrained, and since the electromagnetic compatibility and capability compatibility limitations of respective discuss defense can as it were be designate handling assets at the same time a combat mission, how to rapidly and successfully distribute discuss defense combat assets, the most extreme operational

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The indentation rolling resistance of a belt conveyor was investigated using Hertz contact theory and compared to a one-dimensional Winkler foundation

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ABSTRACT

Based on Hertz contact hypothesis and one-dimensional Winkler establishment combination with viscoelastic hypothesis, the creator inferred hypothetical equations of space rolling resistance, individually. Utilizing the laboratorial device of space rolling resistance, the creator basically concentrates on the mistake investigation almost two sorts of hypothetical equation which bear on space rolling resistance compared with explanatory result. The reason why creator utilizes Hertz contact hypothesis to talk about space rolling resistance is that space rolling resistance could be a sort of contact resistance. As a result, Hertz contact hypothesis is by and large pertinent to ponder it. On the other hand, since transport belt has viscoelastic property, it is fitting to utilize viscoelastic hypothesis by the help of three-parameter Maxwell viscoelastic demonstrate combination with one-dimensional Winkler establishment. Eventually, this article debunks that hypothetical equation based on the Hertz contact is brief and clear compared with one-dimensional Winkler establishment in guideline. Be that as it may, it is discernible that when the belt is at tall speed, the unwavering quality of equation based on Hertz hypothesis has diminished clearly.

1. INTRODUCTION

Belt transport acts as the foremost common transport apparatus of bulk strong, particularly with the improvement of belt transport plus innovation, the pipe belt transport has continuously picked up ubiquity of designing. Beneath this circumstance, space rolling resistance which makes up a generally noteworthy share (61%) among the running resistance of belt conveyor includes a requirement for advance consider to attain vitality saving. As appeared in Figure 1, when transport belt passes over an arrangement of idlers, space rolling resistance is characterized on account of distortion and space of backing fabric that has viscoelastic property. As a result, the key to examine space rolling resistance is how to successfully portray viscoelasticity. Speed control acts as a successful strategy to move forward vitality productivity of belt conveyor.

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Based on empirical mode decomposition and kernel function, we developed a deep feature extraction approach for bearing defect diagnostics

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ABSTRACT

To dodge disastrous disappointments in pivoting machines, it is of incredible noteworthy to ceaselessly screen and analyze the running state of rolling bearing. In this article, a profound highlight extraction strategy for rolling bearing blame conclusion based on experimental mode decay and part work is proposed. To begin with, the vibration signals beneath distinctive states of rolling bearing are deteriorated by observational mode decay. Moment, to extricate more agent high-level highlights, the gotten natural mode capacities are preprocessed with solitary system decay to procure solitary system parameters, which are reported as the inputs of the proposed stacked-part scanty autoencoder organize. The proposed strategy does not depend on earlier information of blame determination and indeed does not require the flag denoising handling, rearranging the conventional prepare of include extraction of rolling bearing blame determination. To approve the predominance of the proposed conclusion arrange, tests and comparisons have been made as well.

1. INTRODUCTION

As the center component of pivoting machines, rolling bearing isn't as it were concerned with major financial benefits but too contains a far-reaching affect on social security. Hence, it is of extraordinary centrality to screen and analyze the running state of rolling bearing. Due to the complexity work environment of rolling bearing, the collected building vibration signals often contain a parcel of noise. As a result, in arrange to set up a strong establishment for the afterward blame conclusion of the judge, the primary step for bearing's blame conclusion is to diminish the commotion blended within the unique flag.

Observational mode deterioration (EMD), as a sort of versatile flag preparing strategy, can visibly diminish the blended clamor within the flag by remarking parts of the gotten natural mode capacities (IMFs), and a few researchers have accomplished fruitful applications.

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Based on combined isotropic and kinematic hardening laws, we investigated spring-back in U-draw bending of DP350 high-strength steel sheets.

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ABSTRACT

In this article, a numerical show for foreseeing spring-back in U-draw bowing of DP350 high-strength steel sheet was displayed. To begin with, the solidifying models were defined based on combined isotropic-kinematic solidifying laws, beside the conventional unidirectional isotropic and kinematic solidifying laws. A recommended strategy was proposed for deciding the fabric parameters. Comparison of stress-strain bands of uniaxial tests at different pre-strain anticipated by the numerical models and try appeared that the combined isotropic-kinematic solidifying demonstrate may precisely depict the Haasch finger impact and transitory behavior subjected to cyclic stacking conditions. At that point, a limited component demonstrate was made to retrace the U-draw bowing prepare utilizing ABAQUS. Remnants were at that point conducted to foresee the spring-back of DP350 high-strength steel in U-draw twisting with geometry given within the NUMSHEET 2011 benchmark issues.

1. INTRODUCTION

Spring-back cannot geometric alter to a portion happened at the conclusion of the shaping prepare, which subsequently influences the dimensional exactness of a wrapped up portion. As a result, the metal shaping industry has been confronted with a pivotal issue: foreseeing the ultimate portion geometry after spring-back. These days, spring-back is still one of the major issues in metal shaping and fabricating, which has pulled in noteworthy researchers' consideration. Progressed high-strength steels are being utilized progressively in car and other stamping applications to supplant customary steels since of the expanding prerequisites in light-weighting, security execution, and vitality sparing items. Progressed high-strength steel sheets have higher quality, lower weight, and more fetched adequacy in generation compared to other amalgams of the same thickness, which can be utilized in car applications.

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The effect of cutting settings on the residual stress distribution generated by 2219 aluminum alloy pocket milling

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ABSTRACT

This work depicts the exploratory examination of the leftover stretch dispersion within the square take processing of 2219 aluminum combination. The comes about uncover that the pivotal depth of cut is the foremost imperative calculate affecting the remaining push dispersion of the machined take surface, and the more malleable stretch states are found with the increment in pivotal cutting profundity due to the warm distortion. The overwhelming mechanical distortion at all axle speeds tends to deliver the compressive remaining stretch. Modified bobber rate and radial profundity of cut appear small changes within the remaining stretch dispersions and the normal values. In expansion, the design of remaining stretch dispersion of the square stank surface is significantly changed and the more pliable stresses are delivered as the processing operation advance continues. From this examination, it is recommended to abbreviate the cutting time by raising the cutting parameters such as the bobber rate and the outspread profundity of cut to attain the compressive push and the great surface usefulness.

1. INTRODUCTION

2219 aluminum amalgam has been broadly utilized within the fuel and oxidizer tanks within the Saturn V rocket and Boeing Delta IV rocket since of its combination of high strength, stress-corrosion-cracking resistance and sturdiness. In arrange to play down the weight, the stank processing operation is ordinarily required for the fuel tank which is more complicated. It is known that the remaining stretch convergence of the machined surface have noteworthy impacts on the benefit quality of the component, such as the weariness life, tribological properties and distortion.1,2 In this manner, it is exceptionally vital to optimize the dissemination of the leftover stresses by controlling the cutting parameters.

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Design optimization for foam-filled double cylindrical tubes subjected to repeated lateral impacts

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ABSTRACT

These days, thin-walled foam-filled structures have as of now been too much utilized in vehicle industry due to the prevalent vitality retention capacity and moderately light weight. The components in vehicle likely subject to sidelong affect at any position in home; in any case, most of the past writing centered as it were on the bowing behavior of structures beneath horizontal affect at the mid-span. In this paper, a cross broad structure of the auxiliary epoxy froth Tecovore® and two round and hollow tubes is comprehensively examined beneath different horizontal affect positions. The limited component show of the crossover structure is set up and after that approved by the test comes about. From a numerical think about, a few plan parameters, counting the thicknesses of external and inward tubes, the distances across of internal tubes, and the froth densities, are investigated to display awesome impacts on the bowing resistance of the half broad structure. To discover the ideal plans of the half broad structure beneath distinctive stack cases, a framework strategy, which is developed by ideal Latin hypercube examining, spiral premise work demonstrate and multi-objective molecule swarm optimization algorithm, is executed.

1. INTRODUCTION

The expanding necessities in vehicle security and outflow have driven to a arrangement of examinations into energy-absorbing structures with light weight. Thin-walled tubes have been broadly utilized as the key auxiliary components of the lane's share of transportation vehicles since of the exceptional vitality assimilation (EA) effectiveness and light weight. Within the genuine world, almost 90% of the included basic individuals forced in bowing collapse mode. For this reason, it is essentially noteworthy to think about the bowing behavior of thin-walled structures beneath horizontal impacts. Previous researches of the buckling behavior of thin-walled tubes under lateral impacts have been limited. The concept of a superfilling is introduced to the case of bowing and...

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Mechanism investigation of the slip effect between frictionally laminated beams

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ABSTRACT

For covered bars associated by Coulomb grinding, interlayer slippage happens when interfacial shear push surpasses the safe contact push. At that point, the physical properties of the covered pillars will alter and may indeed cause basic harm. In this article, the law of interlayer slippage of covered bars is gotten by mechanical determination, and the limited component show is utilized for comparison confirmation. To begin with, the inside shear constrain calculation equation of the covered pillar considering the interlaminar grinding is determined from the fragment micro-element strategy. Moment, interlayer slippage laws of the frictional covered bars in both flat and longitudinal course are inferred concurring to the various leveled slip assurance conditions. Third, agreeing to the state amount of distinctive boundary conditions, the exchange framework strategy is utilized to illuminate the longitudinal length of interlayer slip. At that point, the plan of the calculation program is completed by MATLAB. At last, based on the comparison between the limited component demonstrate calculation comes about and the calculation comes about of the calculation program, the exactness of the proposed strategy is confirmed.

1. INTRODUCTION

For bridge structures, the most portion is the bar. The bar can be considered as a covered structure with hoede of fine fiber layers. The bowing instrument of bar is rise to the joint shear resistance of each fiber layer. When the interlayer shear constrain of Coulomb's frictional covered bar surpasses the most extreme grinding resistance between layers, the interlayer slippage will happen. Taking this into thought, the slippage wonder of covered structures in down to earth building can be clarified. As slippage wonder is one key issue for bridge structures, numerous analysts within the field of respectful designing center on this issue.

In arrange to ponder the interlayer slippage marvel of the covered bar, the analysts did parcels of work from two points of view, one is the hypothesis approximately pillars and the other is the remanence show around bars.

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Efficiency enhancement and assessment of a vanned diffuser centrifugal pump

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ABSTRACT

In arrange to improve the productivity of centrifugal pump, the structure of a centrifugal pump with vanned diffuser, whose particular speed is 190, was numerically progressed by trimming back-blades of impeller and smoothing sharp corner in annular chamber. The vandy execution, the inner stream field, the outspread drive, and the weight throb of the pump were analyzed. Comes about appear that effectiveness of the progressing compote 1 beneath the plan stream rate is 77.47%, which can adjust 69.82% of the hub drive, whereas proficiency of the making strides plot 2 beneath the plan stream rate is the most extreme, which may still adjust 82.74% of the hub constrain. The weight throbs of the progressing plot 2 at the corresponding observing focuses are less than that of the making strides compote 1 and the first compote. The contrast of the outspread constrain top-between the moving forward compote 1 and the making strides plot 2 is exceptionally little. The vector conveyances of the spiral drive of the progressing compote 1 and the progressing plot 2 are more uniform than that of the first plot. Considering the effectiveness, weight throb, and pivotal constrain, try estimations on the progressing compote 2 were carried out to confirm the viability of the enhancement result.

1. INTRODUCTION

Centrifugal pump could be a kind of pressure driven apparatus broadly utilized in horticulture, industry, atomic control, and other areas. It is of incredible commonsense noteworthy to move forward the productivity and optimize the execution of the centrifugal pump. Dasakhan et al. overhauled the edge shape of a centrifugal pump to move forward its pressure driven productivity by employing a gradient-based optimization calculation coupled with a three-dimensional (3D) Navier Stokes stream solver. Yang moved forward the water powered proficiency by optimizing the impeller of high-specific-speed centrifugal pump. Cao et al. examined the impact of hub clearance on the productivity of a covered centrifugal pump with show tests and numerical recreation. They found that the volumetric proficiency is the key figure why the net effectiveness changes with pivotal clearance. Lipci et al. considered the impact of divider unplanarities on the proficiency of centrifugal pump.

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The thermal performance of a household condensing heat recovery air conditioner was investigated experimentally

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ABSTRACT

A test was carried out on a household condensing warm recuperation air-conditioner. The working guideline was presented in this article. And warm execution and hypothetical examination of the energetic behavior of the framework were conducted taken after by test examination. The results about outlined that the working parameters of different modes were palatable. Within the summer and winter seasons, the space cooling execution (COP_{sc}) and space warming execution (COP_{sw}) values were 2.85 and 3.37, individually. Within the condensing warm recuperation for water warming mode, the normal COP_{wh} was found to be 2.58, and the COP_{wh} was watched to be 2.84 with an generally coefficient of execution (COP_{wh}) of up to 5.42; the crucial warm recuperation rate was almost 95%. In water warming as it were mode, the warm capacity was declining with a normal COP_{wh} esteem of 3.04.

1. INTRODUCTION

Air-conditioners have gotten to be family necessities in most nations. In spite of the fact that the indoor environment is moved forward when the air-conditioner is in utilize, the operation is went with by a squander of the condensing warm. The sum of such vitality wastage isn't as it were critical around the world but too leads to warm contamination. Besides, the requirement for hot water in family units denotes a huge sum of other shapes of vitality (power and gas), hence accumulating contamination. An inventive concept or innovation that might considerably decrease the costs for space cooling and water warming would hence be exceedingly respected. Such a innovation would not as it were create impressive financial benefits but too include natural points of interest. The idea and tests concerning air-conditioner squander warm recuperation for water warming were at first proposed within the 1960s. The hot water created can be utilized to meet the everyday necessities of a household family, such as the hot water required for baths and washbasin which utilized in kitchen and washing machines.

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Impact of Covid-19 on Marketing Strategies of Retailer's for Enhancing Profitability and Customer Satisfaction

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ABSTRACT

The COVID-19 pandemic which emerged during the beginning 2020 has influenced the world-wide Economy and human life. The goal of this study is to find out the impact of COVID-19 in the retail sector with the various aspects. The research highlighted use of digital tools to enhance profitability and customer satisfaction. There was a wide scope in the retail sector which can be explored. Therefore the study recommended the use of various rethink strategies such as growth, expansion, diversification, product renewal and up gradation strategies. By personalized experience and target marketing the consumer attention can be attracted which will eventually result in higher profitability and enhanced customer satisfaction. This study is based on quantitative approach resulting in fact.

Keywords: Pandemic, Covid-19, Research Methodology, Retail Marketing, Strategies, Digitalization, Social Media, Chatbot.

1. INTRODUCTION

The COVID -19 pandemic which started in 2020 has spread in all over world, has affected and changed the whole world scenario. The Global Economy as well as human life both got affected. The impact of these crisis was seen in various sectors including retail sector. This crisis compelled us to think differently and select various strategies according the need of the hour. During the COVID-19 phase online shopping has boost 74% in all over world. In India Digitalization of retail sector also boost up. After Lockdown mostly retailers were also aware and precautions about digitalization and went on digital platform, and want to go to every social media platform.

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Work life imbalance-Its Causes & Impacts: An Overview

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ABSTRACT

Work life balance refers to how people combine work with life's other responsibilities. This issue is important both for organizations & employees. This issue has emerged due to variety of changes in the work place, in employee demographics and in the family sphere. Issues related to work life balance constitute an area of human resource management where the employer's twin goals of a productive organization and a highly motivated staff and the government's dual policy objectives for a high value added, high employment economy and a fair and just society, confront each other.

The paper reviews progress from the literature published concerning the impacts and causes of work family conflict and its organizational and individual perspective. From the comprehensive review presented here, it is concluded that work family conflict has not left anyone untouched be it a male or female. But studies revealed that females are much prone to conflict as they have dual roles to play. However, variables and dimensions proposed up to now present various limitations that restrict their application in practical approach. The review process was adopted by surveying the research in last 20 years related to 2 sub-issues on the basis of individual and organizational level.

Keywords: Work Life Balance, Work to Family Conflict, Family to work interference.

1. INTRODUCTION

Mental health is a balancing act that may be affected by four factors: the influence of unfavorable genes, by wounding trauma, by private pressures and most recently by the stress of working. Many people expose themselves unsolicited to the so-called job stress, because the "hard worker" enjoys a very high social recognition. These aspects can be the cause of an imbalance in the areas of life. But there are also other reasons which can lead to such an imbalance.

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Air-assisted liquid-liquid micro extraction: principles and applications with analytical instruments

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ABSTRACT

Air-helped fluid micro extraction is an example planning strategy having high extraction recuperations and advancement factors with related low natural dissolvable utilization. This strategy has tracked down wide acknowledgment among analysts because of various benefits, like effortlessness, minimal expense, what's more, availability in most scientific research centers. The current survey centers on improvements of the strategy since its creation in 2012. The utility of created strategy related to gas chromatography, oil extraction fluid chromatography, nuclear ingestion spectrometry, and bright noticeable spectrometry is portrayed. The utilization of various solvents like ionic fluids, profound eutectic solvents, and natural solvents are thought of. Additionally, derivatization and rotate low strategies are evaluated. The overview of writing demonstrated the way that the strategy can be utilized as a proficient and strong method for extraction of various mixtures. The distributed reports on assurance of the extracted analytes by the strategy are basically investigated. Future patterns are additionally referenced.

1. INTRODUCTION

Prior to playing out an instrumental investigation, test pretreatment is a huge step. Test planning is for the most part performed to kill impedances and non-target compounds, or to coordinate the properties of the example to the prerequisites of a particular logical instrument. Ordinarily, preconcentration is required, especially when the grouping of analytes is exceptionally low. To accomplish these objectives, a basic way is to extricate the analytes from the grid. Fluid extraction (LLE) generally has been a favored technique for pretreatment of various examples in many fields. Attributable to low advancement factors (EFs) and utilization of broad dangerous natural solvents, need was felt throughout an opportunity to supplant it by effective techniques. Starting today, LLE stands overshadowed by strong stage extraction (SPE), which deals with primary burdens of LLE. In most SPE systems, the analytes are adsorbed onto a sorbent set in a cartridge. The adsorbed analytes are eluted utilizing a reasonable natural dissolvable and exposed to examination by a fitting procedure. SPE cartridges too have a few downsides, similar to they are costly and non-reusable. To conquer these downsides, a large portion of the new exploration exercises have zeroed in on minimization of extraction process by presenting strong stage micro extraction (SPME).

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Selected Organ metallic Compounds for Third Order Nonlinear Optical Application

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ABSTRACT
In this paper, we present the third symphonious age reaction of Zn₂ (Bis-(8-hydroxyquinolato)zinc), Cu₂ (8-Hydroxyquinoline copper(II)), and Al₃ (Tris-(8-hydroxyquinolato)aluminum) organometallic compounds. An investigation was directed for a furthermore, p polarizations of epoxide shells, utilizing the Creator borders strategy. The third request nonlinear powerlessness (3) was assessed utilizing the Kubodera and Kobayashi relative model, on the grounds that introduced intensities display high straight retention of the created third symphonious frequency (335 nm). These edifices were saved as filmy movies utilizing the actual fume affidavit (PVD) technique. Examined edifices change as far as the coordination community and number of quinoline ligands, which apparently impact their nonlinear reaction. The wideband cross broad BSLYP utilization with the premise set 6-31G(d) was utilized in processing the straight and non-direct optical properties. The processed child entree (8765.36 10¹⁰ esu for Cu₂) is better than that of methylene blue (= 32.00 10¹⁶ esu). The determined hypothetical qualities were viewed as in great arrangement with the trial results.

Keywords Organometallic compounds; nonlinear optic (NLO); physical vapor deposition (PVD); third harmonic generation (THG); coordination complexes; DFTB3LYP/6-31G(d) calculations

1. INTRODUCTION
These days, an extraordinary number of scientists focus on the metal edifices that address promising possibility for nonlinear optics (NLO) [1]. These sort of mixtures pulled in colossal consideration because of their applications in various fields, for example, medication natural light-transmitting diodes (OLED) photovoltaic ... and photonics and optoelectronics. Organometallic compounds show potential as a third request nonlinear material, because of the significant charge move between the ligands and the metal, as well as the switchable nonlinearity that is connected with different electronic states of the focal metal ions. Numerous isothermal tests are tolerant to restraint, evaluating the require for complex test planning strategies [1].

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Synthesis and Glycan-Protein Interaction Studies of Se-Sialosides by ⁷⁷Se NMR

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ABSTRACT
To extend the capability of Se-sugars for multifunctional mimicry of sugars, thus we tended to the amalgamation of the exceptionally difficult and organically huge Se-glycosides of sialic corrosive (Se-sialosides). A *o*-sialyl selenonate anion created in situ flawlessly responded with electrophiles to give *o*-Se-sialosides as single stereoisomers. A Se-sialoside was successfully complexed with selenium, delivering a triseleno-sialoside. This particle was utilized as a ⁷⁷Se NMR-dynamic handle for contemplating glycan-protein communication, uncovering different restricting profiles of sialic corrosive restricting proteins.

1. INTRODUCTION
The compound combination of seleno-glycosides (Se-glycosides) has been getting expanding consideration due to their adaptable biochemical potential.1 Se-Sugars, containing Se-glycosides, have prime restorative importance and act as key biosensors of ligands to starch restricting proteins.2 Their use as working atoms in the X-ray crystallographic examination is an essential device for contemplating carbohydrate-protein complexes.3 In expansion, the utility of Se-glycosides and glycosylselenides as NMR-dynamic handles and correspondents for concentrating on sugar conformities and carbohydrate-lectin communications by NMR spectroscopy has been as of late demonstrated.4 In any case, to completely saddle the capability of this class of carbs, the extent of accessible engineered strategies should be extended to permit the readiness of complex and organically huge Se-carbohydrates. Furthermore, the advancement of systems for the consolidation of numerous selenium molecules into glycans is of prime significance to explain carbohydrate-protein connections including numerous collaborations between their utilitarian gatherings. Sialic corrosive containing glycans (sialoglycans) are suitable for their changed bioactivities.5 and the present concentrate on addresses the union of Se-sialoglycans, which have never been incorporated. We report in this the combination of Se-sialoglycans by means of stepwise fuse of a selenium iota into a Se-sialoglycan.

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Analytical methods in food additives determination: compounds with functional applications

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ABSTRACT

Biomolecules are in constant movement. To comprehend how they capably, and why breakdowns can cause infection, it is important to portray their three-layered structures as far as unique conformational isomers. Here, we exhibit how nuclear magnetic resonance (NMR) spectroscopy gives a fundamental, dynamic perspective on primary science that catches biomolecular movements at nuclear goal. We center around models that stress the variety of biomolecules and biochemical applications that are amenable to NMR, for example, explaining utilization elements in huge atomic machines, describing transient conformations emerged in the beginning of illness, and getting nuclear level portrayals of characteristically cluttered districts that make final connections engaged with fluid stage partition. At long last, we examine the significant job that NMR has played in driving forward how we might interpret the biomolecular elements capably worldwide.

Keywords: Food additives, Analytical methods, Spectroscopy, Chromatography, Electroanalysis, Food control.

1. INTRODUCTION

Somewhat recently, the expanded populace and way of life changes advanced impressive changes in the definition of food items. Moreover, the change of the dietary patterns and adjustment in the nourishing requests caused a significant change in the food enterprises, which included the consolidation of extra food fixings to food items. The motivation behind these mixtures (food added substances) is to add dietary nourishment (fortifiers) (Martins, Franco, Muñoz, and De Souza, 2017), increment the time span of usability and additionally to work on the physicochemical, sensorial and microbiological properties of the industrialized food varieties (Damasaram and Perkin, 2017). A huge assortment and amount of synthetic added substances are utilized in industrialized food sources, to keep up with and additionally work on the organic, physicochemical, rheological and sensorial properties, like pH, surface, homogeneity, variety, flavor, pleasantness, crunchiness, in general quality and steadiness, and to expand the expiry date. A plenty of compounds introducing explicit usefulness is utilized to accomplish these targets, advancing separated quality in industrialized food varieties.

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Metal-Organic Frameworks based Gas Chromatographic Separation

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ABSTRACT

Metal-organic structures (MOFs) as novel permeable materials, have applied in different fields in light of their interesting designs and great properties. MOFs go about as fixed progressively cases in gas chromatography (GC), which has driven up to remarkable enhancements of execution. We synopsis the use of MOFs in GC in light of the grouping of analytes. The benefits and detachment instrument of MOFs as fixed progressively cases in GC are additionally talked about in the blend with the qualities and designs of MOFs. The constraints are additionally summed up in this audit, which can give possibilities on additional exploration to the uses of MOFs.

1. INTRODUCTION

Metal-organic systems (MOFs) are new practical materials with exceptionally systematic structure structures framed by self-assembling coordination between natural linkers and inorganic metal ions.[1-3] MOFs are brilliant permeable materials with the natural and inorganic properties, which not just show adsorption-based properties, yet in addition have the adaptability and designability of designs. The different designs and interesting properties make MOFs alluring for insightful applications. Customary inorganic permeable zeolites by and large have actually steady, and long-lasting permeable designs. In any case, the designs and geographies of zeolites, which are fundamentally made out of tetrahedral AlO₄ and SiO₄ units[4] are exceptionally restricted. Additionally, as partition media in logical science, zeolites are difficult to be adjusted with various pore sizes and chiral gatherings. Accordingly, the use of zeolites is hampered in logical science in light of their straightforward constitution units. Contrasted and traditional inorganic permeable materials, MOFs offer the special properties with the most reduced thickness (0.13 g cm⁻³),[5] the most elevated explicit surface region (10,400 m² g⁻¹)[6] and the biggest pore opening (9 Å)[7] because of the blend between inorganic bunches and natural ligands. Also, MOFs give an anticipated possibility that varieties of huge quantities of natural linkers and metal hubs offer custom-made materials through self-gathering, which is past the range of regular permeable materials. For instance, in the equivalent geography of design, the pore sizes of MOFs are by and large not entirely set in stone by the length of the natural linker, and different pores of MOF materials can be altered utilizing different natural gatherings while keeping up with similar geographies of structures.[8]

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Analysis of Women Entrepreneurs in India

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ABSTRACT

Women entrepreneurship is gaining importance in India in the wake of economic liberalization and globalization. "In Indian mythology, woman is an incarnation of Shakti-the Goddess of Power. We believe women empowerment is vital to our development" Honorable Prime Minister of India. The policy and institutional framework for developing entrepreneurial skills, providing vocation education and training has widened the horizon for economic empowerment of women. However, women constitute only one third of the economic enterprises. In today's world, women entrepreneurs are playing very vital role and they have become important part of the global business environment and it's really important for the sustained economic development and social progress. In India, though women are playing key role in the society, but still their entrepreneurial ability has not been properly tapped due to the lower status of women in the society.

Keywords: Introduction of Women Entrepreneurs, Reasons for the rise of Women Entrepreneurs, Government support schemes, Problems of Women Entrepreneurs in India, Reasons for women to become entrepreneurs, Conclusion.

1. INTRODUCTION

"In Indian mythology, woman is an incarnation of Shakti-the Goddess of Power. We believe women empowerment is vital to our development" Honorable Prime Minister of India, Women entrepreneurship is gaining importance in India in the wake of economic liberalization and globalization. The policy and institutional framework for developing entrepreneurial skills, providing vocation education and training has widened the horizon for economic empowerment of women. However, women constitute only one third of the economic enterprises. Women Entrepreneurs may be define as the women or a group of women who commence and operate a business venture. Like a male entrepreneurs a women entrepreneur has many functions. They should explore the prospects of starting new enterprise, undertake risks, introduction of new innovations, coordination, administration and control of business and providing effective leadership in all aspects of business. Government of India has described women entrepreneurs as an enterprise/venture owned and controlled by women having at least financial interest of 51% of the capital and giving at least 51% of employment generated in the organization to women.

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Effect of Customer Relationship Management in Banking Sector, Bangalore Region

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ABSTRACT

Driven by challenges on competition, rising customer expectation and shrinking margins, banks have been using technology to reduce cost. Apart from competitive environment, there has been deregulation as to rate of interest, technology intensive delivery channel like Internet Banking, Tele Banking, Mobile banking and Automated Teller Machines (ATMs) etc have created a multiple choice to user of the bank. The banking business is becoming more and more complex with the changes emanating from the liberalization and globalization. For a new bank, customer creation is important, but an established bank it is the retention is much more efficient and cost effective mechanism. CRM is a sound business strategy to identify the bank's most profitable customers and prospects, and devotes time and attention to expanding account relationships with Banking Industry in India has undergone a rapid changes followed by a series of fundamental developments. These customers through individualized marketing, reporting, discretionary decision making, and customized service-all delivered through the various sales channels that the bank uses. Under this case study, a campaign management in a bank is conducted using data mining tasks such as dependency analysis, cluster profile analysis, concept description, deviation detection, and data visualization. Crucial business decisions with this campaigns are made by extracting valid, previously unknown and ultimately comprehensible and actionable knowledge from large databases.

Keywords: Customer Management, Banking sector, CRM

I. INTRODUCTION

Today, many businesses such as banks, insurance companies, and other service providers realize the importance of Customer Relationship Management (CRM) and its potential to help them acquire new customers retain existing ones and maximize their lifetime value. At this point, close relationship with customers will require a strong coordination between IT and marketing departments to provide a long-term retention of selected customers. This paper deals with the role of Customer Relationship Management in banking sector and the need for Customer Relationship Management to increase customer value by using some analytical methods in CRM applications.

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Financial Sustainability of Indian Banking Sector

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ABSTRACT

The banking sector underwent paramount transformations since decades. It dates back to post first phase of Economic Liberalization of 1991 and NPA emerged as an upsetting intimidation in the nation sending adverse signals on the sustainability and insurability of the debt burden banks. Among many desirable well-functioning characteristics of the financial system, management of NPA is a significant one. The aggravation in the asset quality deterioration of the Indian banking sector came to the lime light gradually post financial crisis 2008 and by virtue of time span it touched the peak level. The story not being new, Government and RBI initiated multiple steps to curb down the upsurge in NPA, but did not result expectedly. The two concepts of Gross NPA (GNPA) and Net NPA (NNPA) are indicative of further slippages. Higher slippages can be compensated by proper provisioning norms and these being higher the profitability becomes a question.

Keywords: NPA, GNPA, Liberalization, RBI.

1. INTRODUCTION

Indian banking system is plagued by the surge in Non-Performing Assets (NPAs) since 2009, post global financial crisis. Repeated measures taken by the Government and Reserve Bank of India (RBI) collaboratively or individually did not bring the expected outcomes and moreover it exacerbated to the core and heightened the level of deterioration of asset quality of Indian banks. Prominently the public sector banks are worse hit than its private counterparts, though the latter made entry into the world of devastation in the recent years and thereby added to the exponential growth of stressed assets. The paper has attempted to focus on the vulnerability of the Indian banks, both public and private sector towards its burgeoning NPAs post 2008. The study revealed that the sustainability of the Indian banking sector became troublesome as disadvantages in uncontrollable asset quality deterioration, growth outpaces the advantage of the remedial measures. The banking sector underwent paramount transformations since decades. It dates back to post first phase of Economic Liberalization of 1991 and NPA emerged as an upsetting intimidation in the nation sending adverse signals on the sustainability and insurability of the debt burden banks.

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Labour Problems Experienced by the Retail Entrepreneurs in Indian with Special reference to Delhi NCR

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ABSTRACT

This study examined the labour problems experienced with respect to the demographic variables of the retail entrepreneurs in NCR Region, India. A sample size of 410 retail market entrepreneurs was selected for the study by using a pre-tested questionnaire which was customized and designed by the researcher and the research supervisor. The statistical tools namely, descriptive statistics, one-way analysis of variance, and independent sample 't' test, analysis were applied. The findings of study are given in detail.

Key words: Retail Market Entrepreneurs, Labour Problems

I. INTRODUCTION

The word "Retail" originates from a French-Italian word. Retailer is someone who cuts off or sheds a small piece from something. Retailing is the set of activities that markets products or services to final consumers for their own personal or household use. It does this by organizing their availability on a relatively large scale and supplying them to customers on a relatively small scale. Retailer is a person or agent or agency or company or organization who is instrumental in reaching the Goods or merchandise or services to the end user or ultimate consumer. Structure of Retail Industry The retail industry continued in India in the form of Kiranas till 1980. Soon, following the modernization of the retail sector in India, many companies started pouring in the retail industry in India like Bhatnagar Dyeing, Giram etc. As has been mentioned earlier the retail sector in India can be widely split into the organized and the unorganized sector.

After 50 years of unorganized retailing and fragmented Kiranas stores, the Indian retail industry has finally begun to move towards modernization, Systematization and consolidation. Today, modernization is the catch phrase and the key to understanding retail in the next decade and the key to understanding retail in the next decade. Traditionally retailers have had localized operations. This localized nature of the industry is changing as retailers face lower growth rates and decreased profitability in home markets.

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Register analysis and ESP pedagogy: Noun-phrase modification in a corpus of English for military navy submariners

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ABSTRACT

Research in Maritime English (ME) has paid no attention to the range of textbooks and language to which Navy submariners are exposed during their training and professional careers. This exploration looked at Noun Expression (NP) revision patterns in a longitudinal corpus of Submarine English (SE) professional textbooks in the Cartagena Military Submarine Corpus (CMSC). Using a combination of quantitative and qualitative analyses, we set up that SE is characterized by heavy nominal premodification, low adjective premodification, low prepositional expression post modification and by the predominant use of appositive nouns in postmodifying places. These distinctive features of SE call for a register-sensitive pedagogy that unloads these characteristics and present them in environment. We argue that the donation of corpus linguistics is essential to explore registers which, for different reasons, haven't been addressed or described linguistically in the history. Also, we maintain that the examination and testing of NPs is essential to understand current trends in professional jargon and communication.

1. INTRODUCTION

Little is known about the range of language registers to which the service are exposed when they're trained in warfare, submarines across-English speaking countries. There is still a variety of handbooks and accreditments that address the requirements of transnational forces. Tickl (2006) developed one-learning English Language Teaching (ELT) course grounded on the NATO Formalized Language Profile (SLP) for the Hungarian service. Oona-Montesinos (2016) created English language literacy accreditments drawing

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Linguistic and ethnic media stereotypes in everyday talk: Humor and identity construction among friends

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ABSTRACT

This study explores humorous intertextual media references in the audio-recorded everyday talk of a European American friend group, fastening on conceptions of ethnically-pronounced kinds of American English in media references. I dissect talk where white speakers perform African American English appropriated from an internet meme and "Hollywood lingo English" as portrayed in television homilies. I also examine post-recording playback interviews in which speakers admit and note on the problematic source textbooks and their performances. I illustrate how speakers construct their individual humorous individualities and their participated artistic and ethical individualities through the "others" they state, while contemporaneously cranking and buttressing the social conceptions represented in the media they source. While these speakers don't continuously notice these conceptions, in playback interviews they repel the individualities formerly performed, with their statements ranging from adulous evaluation to deconstruction of the media and the references. This study contributes to understanding how and why speakers bring media-bekled verbal and artistic conceptions for humorous individual and group identity construction, and how humorous media references serve as a point for cranking, buttressing, and deconstructing media conceptions about verbal and artistic individualities in everyday commerce.

1. INTRODUCTION

Experiments file media as a point for their (n) product of verbal and artistic conceptions (Bacholz, 2011a; Bacholz, 2011b; Bacholz and Lopez, 2011; Dragojevic et al., 2016; Lippi-Green, 2012), and scholars have examined how media is appropriated in everyday talk (Beers-Figueras, 2012; Daff, 2002; Sierra, 2016a; Sierra, 2016b; Toares, 2006; Toares, 2007; Toares, 2012), yet no exploration has shown how specific media conceptions circulate in everyday commerce. Conceptions are reproduced in everyday talk for colorful interactive functions, similar as defying participation in stereotypical conditioning (Robles and Kurylo, 2017), justifying stereotypical gate working interactional problems, scapegoating (Kurylo, 2013), bullying, shocking, claiming the bottom, conciliating the informal tone of social handles, creating closeness and solidarity, entertaining, and managing a variety of particular and social individualities (Conder 2006).

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A general mathematical model for two-parameter generating machining of involutes cylindrical gears

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ABSTRACT

Rather of the common logical model for involutes gears machining, a general mathematical model for two-parameter generating machining is developed in this study with exposing separate boxing to increase its robustness and generality for called profile computation and instant contact analysis. The geometric parameters and stir relation vessels are integrated according to the cross-axis gear entrapping at first, and the enveloping proposition for two-parameter generating process is automatized compactly with involving middle gear rack. By transmutating the multiple slice edges relative to the gear blank according to the generating movements, a numerical algorithm is proposed to distinguish the external boxing profile on the shaft section, also the derivate of instant contact points via the inferred time sequences of profile points is introduced. Eventually, the match trans conformations for the spatial line of instant contact points relating and the engaged cutting edge parts distinguishing are derived. At last, a non-involutes profile skiving is performed to corroborate the generality and the robustness of proposed system, and several general generating machining operations for spherical involutes gear are dissembled numerically to evidence the delicacy of the proposed model by chancing the diversions from the standard involutes angles and the shapes of the instant contact points.

1. INTRODUCTION

Respiratory illnesses are omnipresent among European citizens. The number of affected individuals is expanding relentlessly. A EU wide wellbeing study of the OECD/EU (2016) has appeared that 6.1% of the populace in Europe mutated 15 a long time or more seasoned endure from asthma. Moreover, 4.0% of the same populace bench were detailed to endure from COPD. These numbers ensure that by and large more than 10% of the populace within the EU with an age of 15 a long time or more seasoned endure from extreme respiratory infections. More profound knowledge into the respiratory process might offer assistance to extend advancement possibilities for respiratory care. Modelling of the region of intrigued within the human body could be a state of the craftsmanship strategy to extend information and permit overviews for specific research questions.

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Mathematical simulation of nonlinear oscillations of viscoelastic pipelines conveying fluid

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ABSTRACT

A fine model of the problem of nonlinear oscillations of a viscoelastic channel conveying fluid is developed in the paper. The Boltzmann – Volterra integral model with weakly singular kernels of heredity is used to describe the processes of channel strain. Using the Babitskiy – Gerasimov system, the fine model of the problem is reduced to the study of a system of ordinary integro-differential equations, where time is an independent variable. The result of integro-differential equations is determined by a numerical system grounded on the elimination of the oddity in the relaxation kernel of the rate gradient. Using the numerical system for unknowns, a system of algebraic equations is attained. To break a system of algebraic equations, the Gauss system is used. A computational algorithm is developed to break the problems of the dynamics of viscoelastic channels with a flowing fluid. The algorithm of the proposed system makes it possible to probe in detail the effect of rheological parameters on the character of vibrational strength of viscoelastic channels with a fluid inflow, in particular, in the study of free zitter oscillations of channels grounded on the proposition of immutably elastic shells. On the base of the computational algorithm developed, a set of applied computer programs has been created, which makes it possible to carry out numerical studies of channel oscillations.

1. INTRODUCTION

Mathematical simulation of dynamic problems of oscillations and the stability of viscoelastic systems is also a veritably relevant problem due to the fact that, on the one hand, the possibilities of using accretions with pronounced viscoelastic properties in oil painting and gas assiduity and other branches of engineering are expanding and, on the other hand, when using hereditary models for describing the internal damping of material, the oscillation equations of elastic systems are written in the same form as for viscoelastic systems. Frequently when considering elastic systems, the internal dissipation of material is taken into account by the Voigt model, although it's known that indeed in systems with a finite number of degrees of freedom lesser than concavity, it leads to incorrect results, since for utmost accretions the internal dissipation is nearly independent or, at least, weakly depends on the haste of oscillations in a sufficiently wide frequency range. In this sense, a model that reflects hereditary parcels (4) is more preferable.

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A mathematical model of optical instability and the multiplicity of its solutions

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ABSTRACT

The problem of high-intensity ray palpitation commerce with a semiconductor under the condition of the light energy nonlinear immersion is considered. Mathematical model of an optic instability grounded one-normalization of interrelated energy zone of a semiconductor because of the convinced electric field is presented. The multifariousness of the problem results at the Neumann boundary conditions statement is handled and ways of its prostrating are proposed. The effective system for the numerical result of the problem is developed and computer simulation results are presented.

1. INTRODUCTION

The ray palpitation commerce with a semiconductor is a ultramodern problem and has the enhancing expansive operation. This process accompanies by numerous nonlinear goods and the miracle of an optic instability (OI) is among them. As it's well known, the OI miracle consists in actuality of two intensity values of the ray palpitation transmitted through a semiconductor for the certain intensity of the incident palpitation, numerous experimenters pay attention to studying of this miracle (1 - 7) in connection with a consummation of the optic analogues for colorful electronic bias for illustration, each-optic switching bias, optic data storhouse, each-optic computer. One of the physical mechanisms for the OI consummation is grounded on a light energy nonlinear immersion in a semiconductor. This process can be described by the set of nonlinear on-stationary PDEs in 1D, 2D or multidimensional cases with the corresponding boundary conditions (BCs) and original conditions. For numerical result of similar complicated nonlinear problem it's necessary to use an effective finite-difference scheme (FDS), which possesses a high delicacy and parcels of the traditionalism, and asymptotic stability, as well as an occasion of using rather big meshsteps. With this purpose we had developed the conservative FDS, 8) applicable for this problem with the arbitrary BCs. This FDS is a nonlinear implicit base, so for its consummation we proposed an original replication process, allowing achievement of the asymptotic stability property

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A mathematical model and algorithms for the aircraft hangar maintenance scheduling problem

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ABSTRACT

An aircraft hangar conservation scheduling problem is studied, motivated by the aircraft heavy conservation conducted in a hangar operated by an independent conservation service company. The aircraft hangar conservation scheduling problem in similar environment consists of determining a conservation schedule with minimal penalty costs in fulfilling conservation requests, and a series of hangar parking plans aligned with the conservation schedule through the planning period. A mixed-integer direct programming (MILP) calculation empirical model, integrating the interrelations between the conservation schedule and air craft parking layout plans, is presented at first. In the model, the variation of parking capacity of the conservation hangar and the blocking of the aircraft rolling in and out paths are considered. Secondly, the model is enhanced by narrowing down the sphere of the time-related decision variables to the possible rolling in and out operations time of each conservation request. Thirdly, to gain good quality double results for large scale cases, a rolling horizon approach incorporating the enhanced fine model is presented.

1. INTRODUCTION

The rapid-fire development of air transport has led to significant profitable growth, and the demand for marketable air transport has been increased [1,2]. This rapid-fire growth of air transport has assessed numerous challenges on planning and pieces tions conditioning in the aeronautics assiduity [1,3]. numerous airline companies have been redefining their operations practices in conducting conservation conditioning on their line, in order to insure aircraft conservation, form and overhaul (MRO) pieces tions continue to conform with the regulations specified by aeronautics authorities, while maintaining minimal conservation cost [4,5]. rather of conducting the heavy conservation taking significant input in terms of the hiring of certified engi neers, holding conservation accommodations and operating a conservation hangar within the airline company, outsourcing of MRO the proposed conservation scheduling and parking layout planning problem is studied from the perspective of an aircraft conservation service company furnishing heavy conservation service. The aircraft conservation, form and overhaul (MRO) conditioning are critical for aircraft safety, and periodic conservation checks need to be carried out on each aircraft upon matching operating for a specified number of flying hours.

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Electromagnetic fields' influence on transportable, Implantable medical devices

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ABSTRACT

This paper suble elements numerical computation of initiated abstractions voltage inside a pacemaker due to exposure to electromagnetic (EM) field spresentintrain. The goalisto verify whether electro magnetic field sources poses potential threat to passengers with an embedded pacemaker. A disassembled human body show with a bipolar lead setup pacemaker was situated within the region of an electric dissemination box - the source of an 50 Hz electric field affecting the pacemaker. Two positions were examined, each set in two diverse separations from the source of the electromagnetic (EM) field. The most extreme calculated interference voltage in all simulated cases is within the 0.29V/m range. This value corresponds to the input filter attenuation band and speaks to a secure esteem for prepare travelers with an embedded pacemaker, subject to undamaged dispersion box and is in compliance with security necessities.

1. INTRODUCTION

As of late, American and European specialists unveiled data that cardiovascular infections are on a rise, in accordance with the world wide WHO organization report of 2018 published by Benjaminet al.(2018). Cardiovascular malwares of cardio-electrical beginning may be treated by embedding an dynamic cardiac device-also called a pacemaker. Generally, a pacemaker comprises of a metallic casing, a connector and a lead (one to three, based on setup thereof). Electronic circuits and a battery are encased inside the metallic lodging. The pacemaker performs incitement or discovery of heart movement through the said leads. Two distinctive sorts of location are utilized - either unipolar or bipolar. In the unipolar configuration, the etalic casing itself acts as an electrodeandthe lead speaks to the moment cathode (cathodes). In bipolar mode, both leads act as terminals (Gercek et al., 2016; Galoviet al.,2014-2018). The latter is most commonly used in European din North America and is detailed in EN50527-2-1 (2016).

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Black phosphorus's optical anisotropy as determined via Total internal reflection

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ABSTRACT

In spite of the fact that copious investigate on the anisotropy of van der Waals (vdW) materials has been distributed, we undertake an in-depth think about of their optical properties as they have a critical directing part for light control in two-dimensional (2D) nanospace. As an case, we ponder the reflectance of few-layered black phosphorus (BP) within the add up to inside reflection (TIR) mode in detail. We illustrate that its optical anisotropy can be changed on a huge scale by changing the occurrence points, polarization states, and the in-plane turn points of the BP layer. Hypothetical investigation shows that the wonders watched are common to all the atom-thick biaxial gems, so these conclusions can be broadly connected to other anisotropic 2D materials. This inquire about assists the current understanding of the properties of BP more comprehensively, and gives direction for creating modern opto- electronic applications, particularly when BP and other atom-thick biaxial gems are coordinates with TIR gadgets.

2. INTRODUCTION

The optical anisotropy characteristics of materials, such as dichroism and birefringence, are omnipresent in nature since of the discrepant spatial dispersion and interaction strength of molecules along diverse ori- entations in precious stones. This may give successful strategies for tweaking the transmission behaviors of light [1,2]. In common, these significant anisotropic properties require successful optical ways, such as by expanding the test estimate in three-dimensional space; this limits the advancement of such materials for utilize in coordinates applications. Artificial materials (metamaterials) can dodge this issue by planning the uncommon di- verse- ity parameters and microscale structures required to coordinate the solid light-matter interaction, but this happens at the taken a toll of expanding the complexity of the tests [3-5]. Hence, it is essential to find and make a comprehensive analysis of the appropriate substitute that provides both solid anisotropy and flexible arrangement, such as a normal van der Waals (vdW) gem, which encourages the balance property and the appropriateness for micro/nano gadget creation [6].

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Effectiveness of Connections Type on Vibration Response of Steel Beam

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ABSTRACT
Selecting the type of connections in an architecture is one of the most crucial factors to take into account. This paper has examined the effects of connection type on steel beam vibration. The connection type that reduces beam vibration the best has been highlighted. Several finite element models were used in the study to simulate each kind of connection. First, the model's validity was confirmed by contrasting its output with the outcomes of the analytical method. The beam natural frequency was calculated using a linear frequency analysis in the numerical model, and it was then compared to the value obtained using the Euler-Bernoulli approximations for simply supported beams. Following that, the steady-state analysis and the transient analysis processes were carried out. A harmonic load with various frequencies was applied to the beam mid-span in the steady-state analysis, whereas an impulsive load was used in the transient analysis. The findings show that employing one of the moment connections rather than the conventional shear connection can reduce the deflection by 72% and the beam's steady vibration by 81%.

Keywords: Vibration Analysis; Steel Beam; Finite Element Modeling; Steady State Analysis; Transient Analysis.

1. INTRODUCTION

Structural engineers have long been captivated by the possibilities presented by material structures. Modern building methods allowed for the highest strength to weight ratio to be used. Due to this new design trend, there is a direct increase in unwanted floor vibration-related problems. As a result, impacts and other causes of excessive vibrations expose the structural floor systems [1]. The main objective of this study is to show that connection type can significantly reduce beam vibration. On the other hand, a serviceability problem in a steel building could arise from choosing the wrong connection type. As a result, this work has identified the connection that minimizes beam deflection during oscillation. The investigation was carried out by thorough finite element modeling using ABAQUS software.

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Experimental and Numerical Investigations of Composite Concrete-Steel Plate Shear Walls Subjected to Axial Load

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ABSTRACT

To determine the impact of the wall's aspect ratio and concrete compressive strength on the axial capacity, lateral displacement, and axial shortening of the walls, this study presents experimental and numerical investigations of composite concrete-steel plate shear walls under axial loads. As part of the experimental program, two groups of walls with different aspect ratios will be cast and tested. The first group's aspect ratio (H/L) was 1.667, whereas the second group's was 2. Three composite concrete-steel plate walls with three cube compressive strength targets of 39, 54.75, and 63.3 MPa make up each group. The tests' findings indicate that a rise in the compressive strength of the concrete raises the wall's ultimate axial load capacity. Therefore, as the compressive strength increased from 39 to 63.3 MPa for the case of the composite wall with aspect ratios H/L-1.667 and H/L-2, respectively, the failure load, the corresponding lateral displacement, and the axial shortening increased.

Keywords: Composite Concrete-Steel Plate Shear Walls; Axial Load; Compressive Strength; Aspect Ratio; Lateral Displacement; Shortening; Failure Mode.

1. INTRODUCTION

Because of its advantages in terms of high load bearing capacity, good seismic behavior, and speed of construction, concrete-filled steel tubes have been utilized extensively in high-rise structures and bridges. A novel type of composite wall structure has recently been developed that combines steel plates with concrete. It is mostly used in missile defense and super-high rise buildings, as well as plate resistance walls due to its high bearing capacity and decreased thickness. The relative motion that occurs between the facplate and the infill concrete makes the axial compression loading a significant condition. Conversely, the axial performance of composite walls can be significantly impacted by weak cooperative action resulting from the local instability of the steel plate. Recently, a few related investigations have been conducted on the axial performance of composite walls that feature integrated connections.

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Footing Soil Pressure from Biaxial Loading

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ABSTRACT

Soil pressure shifts in response to a symmetrical isolated rectangular foundation with centered biaxial overturning, counterbalancing the stresses. At a corner is where the soil pressure is maximum. The aim of this study is to record a straightforward and comprehensible method for directly calculating the form of the soil pressure distribution, as well as to expand the uniaxial soil pressure solution to include biaxial stresses. Making the solution automation-ready is another goal. There are two transition shapes in uniaxial overturning: trapezoidal and triangular. There exist three transition shapes in biaxial overturning, which result in 4-, 5-, and 6-sided polyhedrons. The characteristic shape of the soil pressure distribution is ascertained by computing these volumes and comparing them with the design vertical load. Subsequently, the computation advances towards the exact form, determining its centroid and moment capacity. All of the soil pressure shapes are modeled using tetrahedron assemblies.

Keywords: Footing; Soil Pressure; Biaxial; Tetrahedron; Determinant.

1. INTRODUCTION

Retrfitting is a technique used in rehabilitation and repair to alter pre-existing structures to increase their resistance to ground motion, vibrations, seismic activity, etc. Many materials are used to reinforce the structures that have been weakened by earthquakes and other events. The different materials, such as steel plates, glass fiber reinforced polymer, carbon fiber reinforced polymer, etc. Compared to other fiber-reinforced polymers, carbon fibers have advantages of their own. Because of its low weight, great strength, excellent durability, high fatigue endurance, competitive cost, and ease of installation, carbon fiber is recommended. This paper's goal is to examine how CFRP strengthens structures and how it affects different structural members. Initially, engineers and scientists employed carbon fiber reinforced polymer (CFRP) to reinforce reinforced concrete beams, based on its effects. Considerable investigation has been done into the application of composites to shield concrete from impact force.

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Investigated of Desalination of Saline Waters by Using *Dunaliella Salina* Algae and Its Effect on Water Ions

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ABSTRACT

Current water resources are insufficient to meet human requirements because of population growth, city expansion, and the world's diminishing freshwater resources. Biological techniques such as desalination, or the reduction of salinity in water, can be achieved by employing bacteria, algae, or plant species in combination. Investigating the desalination of saline waters using *Dunaliella salina* algae was the aim of this study. The factorial experiments were conducted using a completely randomized design for this reason. For ninety days, the anticipated experiments were carried out in a laboratory with controlled humidity, light, and temperature. Every day, the Electrical Conductivity (EC) was measured for this study. The findings demonstrated a considerable difference in the way that *Dunaliella salina* algae absorbed salt. *Dunaliella salina* exhibited a high degree of salt absorption at a concentration of 130mS.cm-1. In laboratory settings, salt removal from saline water was detected because of the constant humidity, light, and temperature. According to the study's findings, *Dunaliella salina* algae were used to significantly lower the levels of salt, chlorine, and bicarbonate.

Keywords: Bio-desalination; *Dunaliella Salina*; Saline Water; Dry Weight

1. INTRODUCTION

Desalination from sea water has become increasingly crucial as a result of the world's freshwater sources being depleted and the use of drinking water for purposes other than agriculture and industry. As a result, the human race will face a water crisis in the near future. Desalination process development and selection is a crucial necessity that is both less expensive and more efficient than current techniques. The water crisis that arid nations are currently experiencing will only worsen due to population growth, industrialization, and agricultural development, as well as increased water consumption at varying costs and increased competition among varied applications. Because of the soil, land, climatic, and dearth of surface and subsurface freshwater resources in dry and semi-arid regions, as well as the desalination of salty water (rivers and seas).

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**Analysis of what sets off an agile transformation:
A central bank's example**

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ABSTRACT

For many major enterprise IT departments, one of the main subjects of discussion is agile transformation. Large businesses have adopted these strategies at the level of all information system initiatives, persuaded by their advantages. However, practitioners are mostly ignorant of the process by which a business moves from the experimental stage to the generalization stage. Our study seeks to provide a response to the following question: given that agile methods lead to many changes in roles, procedures, and culture, what are the decision triggers that will allow an organization to transition from agile method experimentation to a broad implementation of the technique? Using a case study and a qualitative research approach, this intricate phenomena is being attempted to be explained. We looked into how the IT division of the French central bank had used agile techniques during the previous 13 years. A major public organization was able to coordinate the introduction of agile methodologies thanks to the contributions and practical consequences highlighted.

1. INTRODUCTION

Information systems (IS) projects are still being influenced by agile methodologies more and more, even after the agile manifesto was published over 20 years ago [1]. Agile techniques are recognized for being somewhat codified approaches that enable taking into account requirements and solutions that change as a project progresses. Their development method is gradual, adaptable, and iterative, and they rely on diverse teams that adhere to self-management principles [2].

Many techniques have emerged and gained acceptance among practitioners since the 2001 release of the Agile Manifesto, mostly because of the advantages associated with them. Consequently, a lot of big businesses are starting to use agile methods widely [3]. There are still a lot of questions on this subject, even though information technology (IT) departments are typically the first organizations to use these techniques. One of them is about how a company will handle the integration of non-IT departments in the adoption, adaptation, and use of agile methodologies. Numerous writers in the field of information systems refer to the adoption process as an agile transformation [4]. Nevertheless, agile transformation involves more than just implementing agile methods.

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Application of project management software in medium and large project-based enterprises: an empirical investigation in Poland

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ABSTRACT
Information technology equipment (computers and related hardware), communication equipment, and software are the three parts of ICT (Information and Communications Technology). Information systems and information technology together make up IS/IT. The body of literature reveals that while many studies describe the use of IT in various sectors, very few of them concentrate on PBOs (project-based organizations), and those that do are mostly restricted to the construction sector. The paper's major goals are to present and debate the results of empirical investigations on software adoption and its difference in PBOs of different sizes and sectors. The study focuses on middle-sized and big PBOs that are active in Poland. The study's key conclusions include that PBOs typically use well-known software, including the office suite, and IT tools to integrate different parts of businesses, like ERP (Enterprise Resource Planning) systems.

1. INTRODUCTION
The state of the market today and the rapid development of new technological solutions have led to a wide range of uses for ICT (information and communications technology), which facilitates management and company operations. Information technology equipment (computers and related hardware), communication equipment, and software are the three parts of ICT, according to the OECD (Organization for Economic Co-operation and Development) [1]. Information Systems and Technology, or IS/IT, is made up of them.
The rise in popularity of Industry 4.0, a trend of automation, robotization, and data interchange in industrial technologies or service delivery, is evidence of the growing importance of ICT [2]. The widespread use of the Internet determines living standards and organizational possibilities. The following factors primarily determine the benefits: the extent to which an entity is open to IT; the functionalities of the chosen IT solutions (hardware and/or software); the quality of the final IT solutions delivered.

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Using Block chain Technology in Logistics

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ABSTRACT

This study examines blockchain technology's decentralized data storage capabilities and the potential applications it may have in supply chain management and environmentally friendly transportation. Major logistical difficulties including order delays, products damage, mistakes, and multiple data input may all be reduced by implementing blockchain technology, even though its advantages have been extensively studied in the banking industry. An extensive analysis of the emerging and present applications of blockchain technology in supply chain and logistics management is presented in this study.

1. INTRODUCTION

The production and distribution of commodities include intricate procedures that are linked to the supply chain, various stages, various locations, several accounts and payments, multiple people, companies, and modes of transportation can all be a part of the supply chain, depending on the product. Consequently, the purchase of goods may take many months to complete. The parties engaged in the logistics process have a vested interest in introducing and developing blockchain technology to improve the supply chain's logistics procedures and make them more sustainable due to the intricacy and opaqueness of traditional supply networks. Although blockchain technology is most frequently discussed and utilized in relation to cryptocurrency, there are a lot more potential uses for it. Blockchain is a distributed ledger with a wide range of possible uses. It may be used for any kind of data sharing, including financial transactions (payments), contract tracking, and shipment tracking. The system is transparent since every operation is recorded in the block and the data is spread among several nodes, or computers. Because each block is connected to the ones that come before and after it, the system is safer.

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An outline of the NFAIS Conference: Artificial insights: Finding its put in investigate, revelation, and insightful distributing

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ABSTRACT

Theoretical: This paper offers an outline of the highlights of the NFAIS Conference, Artificial Insights: Finding Its Put in Investigate, Revelation, and Academic Distributing, that was held in Alexandria, VA from May 15-16, 2019. The objective of this conference was to investigate the application and suggestion of Artificial Insights (AI) over all divisions of grant. Points covered were, among others: the sum of information, computing control, and the specialized foundation required for AI and Machine Learning (ML) forms; the challenges to building effective AI and ML models; how distributors are utilizing AI and ML to arrange to make strides revelation and the generally client look involvement; what libraries and colleges are doing to cultivate an mindfulness of AI in higher instruction; and an genuine case ponder of utilizing AI and ML within the improvement of a suggestion motor. There was something for everybody.

Catchphrases: Insightful distributing, artificial insights, machine Learning, AI models, tall dimensional information, wikipedia, overfitting, TreadMD, suggestion motors, AI labs, AI centers, Amazon SageMaker.

1. INTRODUCTION

"Just as power changed nearly everything 100 a long time prior, nowadays I really have a difficult time considering of an industry that I don't think AI (Artificial Intelligence) will change within the another a few a long time [1]. The scientific distributing industry is no special case to the over cite. This conference gives a see as to how the utilize of Artificial Insights (AI) and Machine Learning (ML) are permitting inventive distributors to mine their data and give data searchers with information instead of a list of answers to questions. Luckily for me, this was not a conference for the AI computer-savvy, or maybe it was for non-technicians who needed to memorize how ML and AI are being utilized inside the Data Community - by distributors, custodians, and merchants - and as you studied this article I trust simply will concur with me that the objective was met.

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**Architectural learning in digital era computing applications:
between academia and practice**

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ABSTRACT
Architecture is a technology-intensive discipline. It uses technology both in design and manufacturing. Digital information technology is likely to have a strong impact on architectural design, architectural education and practice. Image architecture, digital simulation and virtual scene among other applications gradually become progressive expressions of architectural design. Architectural education is necessary to adapt to such changes.
Due to the rapid development of computer applications in the architectural profession, there is an increased need to find a framework for integrating computer applications into the architectural curriculum. Therefore, it became imperative to study the effects of computer integration on schools of architecture and at the same time identify the needs of the architectural profession to find an effective framework for architectural education. This article examines the integration of computer applications with the top 20 international schools of architecture and eight departments of architecture in Egyptian universities to understand the current state of education at the national and international levels.

KEYWORDS: Architectural education; Computer applications; Curriculum; Architectural profession

1. INTRODUCTION
Information technology offered architects new opportunities and began to displace traditional design techniques. Clarity, efficiency, control and intelligence have been made possible by computer tools. These methods are increasingly considered indispensable in architectural practice. However, it is less clear how this technology has influenced the practice of architecture, the society it serves, and thus the education of architects. According to Oqash and Hanna [27], information technology includes all computer applications, whether integrated in a design studio or in independent courses; in both architectural design and urban planning courses.

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A New Architecture for the Cognitive Internet of Things
And Big Data

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ABSTRACT

Big data and the Internet of Things (IoT) are the most important paradigms in defining new information architecture projects. Therefore, the technologies that make up these solutions can play an important role in the information architecture of a company. Solutions that approached Big Data and the Internet of Things because unique technological initiatives struggle to find value in such efforts and the technology itself. Combining requirements (volume, speed and variability) is imperative to achieve potential business goals. In this regard, we propose a new architecture for the Cognitive Internet of Things (CIoT) and Big Data. The proposed architecture benefits computational mechanisms by combining a data warehouse (DWH) and a data lake (DL) and defining a tool for heterogeneous data collection.

Keywords: Internet of Things, Big-Data, Architecture, Cognitive, Data-flow.

1. INTRODUCTION

If we look around, technology affects almost every object in the world and it extends to all fields. Thus, information processing and communication technology became the most possible era of the era. Any object associated with the word "intelligent" can communicate at a high level not only with humans, but also with other intelligent things. Therefore, the Internet of Things seems to change our world and also create more opportunities. This new paradigm aims to provide online connectivity between physical and virtual objects anywhere, anytime, for everything. It refers to a world where networking and data processing capabilities provided by sensors and other physical objects enable communication between devices to reduce human activity. The increasing volume, variety and velocity of data generated by the IoT continues to fuel the explosion of data volume. Another important impact of technology is that it empowers and empowers people to analyze data and make decisions based on quantitative analysis.

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Limitations of Triangular Networks

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ABSTRACT

In a graph G , suppose S is a subset of vertices that are all colored and the remaining vertices are uncolored. Dynamic grain coloring is defined such that at each discrete time interval a colored vertex forces exactly one colorless vertex to be colored. This process continues to color all the vertices. A subset S is called a forced set of G . The limit $L(G)$ of a graph G is the minimum cardinality of a set S with colored vertices that force the set $V(G)$ to be colored after some time. If a subset S has the additional property that it induces a subgraph of G whose components are all edges, then S is called a Q_2 -forced set of G . The minimal cardinality of a bounded set G with a is called P_2 . $-G$ is a forced number and is denoted by $Q_2(G)$. Analogously to the limit set P_2 , we define a set S as the limit set P_3 if all components of S are non-uniform paths of 3 vertices. The minimum cardinality of the P_3 imposed set is called the P_3 imposed number G and is denoted by $Q_3(G)$. We calculate the force P_2 and the force P_3 of the triangular mesh.

Keywords: dynamic coloring; Triangular network; forcing set

1. INTRODUCTION

In the power grid, power companies must regularly evaluate or control power parameters, which is very important. An effective way to solve this problem is to place phase measurement units (PMU) in the necessary places. The number of phase and voltage meters can be reduced without compromising its ability to control the entire plant. The potential system monitoring problem presented in [1] allows to minimize the number of measuring devices and their location to monitor the entire enterprise. Haynes et al., [6] methodically formulated this problem as the dominant problem of graph theory. This type of dominance is more different than a normal dominance type problem because the rules of dominance can be executed multiple times.

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An environment-based approach to ant colony convergence

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ABSTRACT

Ant Colony Optimization (ACO) algorithms are biologically influenced solutions that have been very successful in solving combinatorial problems, also known as NP-hard problems, including transportation system optimization. Unlike exact methods, which could provide the best results for the problem under test, this meta heuristic is based on stochastic logic, but not on theoretical mathematical proof (or only for certain well-defined applications). According to this, the weak point of this meta heuristic is its convergence, its termination condition. Many different termination criteria can be found in the scientific literature, but most of them are resource intensive and not suitable for solving practical problems. On the other hand, based on the fact that ACO is a stochastic approach, it seems difficult to decide whether to terminate the algorithm to obtain an optimal result for the tested problem. Therefore, the thesis of this paper is to propose an environment-based approach to determine the best ACO termination criteria for an optimized solution.

Keywords: Ant Colony, Environment approach, Dynamic convergence

1. INTRODUCTION

Ant colony-based algorithms were developed by Colomni, Dorigo and Manizero [1], [4], [5] in the early 1990s and are now very common in the scientific literature. This meta heuristic is based on biological inspiration characteristics. Later it was used to solve combinatorial optimization problems called NP-Hard, and it was used for the first time to solve the Traveling Salesman Problem (TSP). Later, compared to other traditional optimization methods, it quickly spread and was adopted in problems such as task sequencing [2] or graph coloring [3], which benefit from the use of intrinsic properties. Moreover, due to its retro properties (positive and negative), preserving its past experiences in the form of pheromones and adapting to the evolution of its model, this meta heuristic is particularly suitable for solving dynamic combinatorial optimization problems. Determining the termination criteria of the ant colony algorithm is still a sensitive research topic in practice.

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Weighted random algorithms for efficient load balancing in distributed computing environments

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ABSTRACT

When selecting resources, randomized algorithms use information about the distribution of their key information using random samples. This can effectively improve resource utilization, but naturally can cause load imbalance due to the randomness of the input state. For certain problems, it is useful to use a helper to point the solution space in the right direction. This paper proposes a weighted randomized allocation algorithm to achieve efficient resource utilization with optimized load balancing. Simulation results using standard workload format data sets show that the proposed algorithm outperforms existing solutions in terms of average resource utilization by 8-12 percent and improves load balancing by 5-11 percent.

Keywords: Grid computing, Load balancing, Randomized algorithms, Resource utilization, Task scheduling

1. INTRODUCTION

In grid computing, the heterogeneity of network resources (or resources) creates a challenge when implementing load balancing. Better load balancing systems avoid redistributing users' work and further overloading network resources to improve resource utilization. Existing works use a sequential approach to making, which fails to evenly distribute the workload across all resources. Grid computing has become one of the most abstract buzzwords used in the field of computer science. From loosely connected computers used to perform non-essential tasks with an idle CPU to tightly coupled clusters of servers used in data centers in advanced cloud environments, the keyword network-based computing fits anywhere.

The challenges of the entire complex were shared computing resources used in vertical or horizontal domains seem to evolve every day with new applications. From the latest content delivery networks to legacy high-performance scientific testing environments, the need for grid computing systems is to adapt to the needs of applications. Service providers always need better ways to satisfy customer needs by limiting quantity of resources.

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Testing and Evaluation System for Cloud Computing Information Security Products

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ABSTRACT

Due to the lack of a professional testing and evaluation system for cloud information security products, the basic security of cloud service information security products cannot be guaranteed. In order to promote the development of cloud technology and information security, the creation of a testing and evaluation system for information security products of cloud services is proposed, and the system is used in actual product testing.

Keywords: Cloud Computing, information security, testing, evaluation

1. INTRODUCTION

Cloud computing is a style of computing where dynamically scalable and often virtualized resources are made available as a service over the Internet.

The National Institute of Standards and Technology (NIST) has defined cloud computing as a model that enables ubiquitous, convenient, on-demand access to a shared set of network-configurable computing resources (such as networks, servers, storage, applications and services) that can be quickly provisioned and released with minimal administrative effort or service provider interaction. The range of applications for different cloud computing services is increasing and its impact is immeasurable.

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Analysis and Evaluation of Low-Pressure Circuit Operations in Heat Recovery Steam Generators

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ABSTRACT

The paper illustrates the utilization of contemporary software for executing thermal computations. It analyzes and juxtaposes the integral features of a high-pressure heat recovery steam generator with those of a standard 3-pressure heat recovery steam generator, commonly employed in high-capacity combined cycle gas turbines. The comparison underscores that heightened pressure results in an augmented heat transfer, evidenced by an increase in the heat transfer coefficient. Moreover, the article delves into the reliability issues concerning heat recovery steam generators, particularly focusing on concerns related to flow-accelerated corrosion within pipes.

Keywords: Heat recovery steam generator, HRSG, low-pressure evaporator, natural circulation circuit, flow-accelerated corrosion, Boiler Designer software

1. INTRODUCTION

The primary aim of thermal calculation involves acquiring parameter values pertaining to the medium within components of calculated heat-generating equipment. These parameters include the adiabatic furnace outlet temperature, exit gas temperature, and the inlet or outlet temperature of the medium within the heating surface, among others. Thermal calculations encompass two distinct types: engineering thermal calculation and verification thermal calculation.

Engineering thermal calculation comes into play during the design phase of new heat-generating equipment. Conversely, verification thermal calculation occurs after the equipment has been calculated and placed into operation. Situations necessitating the latter may include replacing damaged or worn-out equipment or evaluating existing equipment for use under new conditions. In such cases, known medium parameters need to be matched with other unknown parameters, vital for configuring the existing equipment operation scheme. Both forms of thermal calculation demand meticulous attention and diligence.

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Development and Evaluation of Superconducting Synchronous Generators for Wave Energy Conversion

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ABSTRACT

An innovative approach for designing a superconducting synchronous generator intended for wave energy conversion is proposed to surpass the output capabilities of conventional permanent magnet synchronous generators. This generator leverages the robust magnetic field generated through the remarkable magnetic field capturing abilities of superconducting bulk magnets. As a result, the output performance of the superconducting synchronous generator, encompassing induced voltage, power density, and efficiency, surpasses that of its permanent magnet synchronous counterpart. The generator's design is rigorously assessed using finite element analysis to confirm its accuracy and feasibility.

Keywords: superconducting bulk magnet, superconducting synchronous generator, wave power generation

1. INTRODUCTION

As global non-renewable energy sources diminish and environmental issues intensify, there's an urgent need to explore clean, sustainable alternatives to replace depleted fossil fuels. Consequently, considerable research attention, both domestically and internationally, has shifted towards renewable energy sources, encompassing wind, solar, and ocean energy. Ocean energy, in particular, holds substantial promise due to its extensive reserves and widespread distribution. Among ocean energies, wave energy stands out for its concentration, durability, and predictability, offering a resource more concentrated than wind or solar power. Global data estimates wave energy resources surpassing 1 terawatt (TW), with an annual potential energy output of 200 terawatt-hours (TWh).

China, situated in the western Pacific Ocean, boasts abundant marine energy resources. Relevant statistics indicate that China's potential for wave energy development exceeds 100 million kilowatts.

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Short Circuit Analysis at the Self-Excited Synchronous Generator Outlet

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ABSTRACT

The occurrence of a short circuit at the generator outlet stands as a severe fault, generating significant electromagnetic impact on both the rotor and the associated generator outlet equipment. Consequently, comprehending the short circuit current at the generator outlet holds paramount importance in power plant design.

The study delves into the implications on dynamic and thermal stability pertaining to relevant electrical equipment, juxtaposing these findings with the traditional curve method employed in power plant design codes. It is discerned that the short-circuit current of the self-excited generator is notably lower than that of the externally excited counterpart. This leads to the recommendation that the classical curve method not be applied to self-excited generators. Instead, simulation modeling analysis is proposed as a more cost-effective and rational alternative.

Keywords: self-excited generator; generator outlet short circuit current; stability assessment

1. INTRODUCTION

Initially, synchronous generators were primarily excited by independent DC excitors. However, the evolution of modern power electronic technology has introduced the self-excited system, leveraging Silicon Controlled Rectifiers (SCRs). This system offers rapid response, lacks rotating equipment, boasts a simple structure, and ensures stability and reliability, making it the preferred excitation method for large synchronous generators. Yet, an inherent challenge emerges: the power supply for the self-excited system derives from an excitation transformer parallel to the generator outlet. During a short circuit at the generator outlet, this setup encounters power loss, leading to rapid decay in the residual current of the excitation circuit. Consequently, the short-circuit process at the generator outlet differs from other excitation unit scenarios.

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Computational Framework for Investigating Heat Transfer in High-Pressure Heat Recovery Steam Generators

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ABSTRACT

This article outlines the key phases involved in developing a computational model for conducting Computational Fluid Dynamics (CFD) research centered on High-Pressurized Heat Recovery Steam Generators (HPHRS). This project aims to address the challenge of swiftly decommissioning and replacing energy equipment, featuring a unique structure designed explicitly to reduce reconstruction costs in existing units. Employing the ANSYS CFX software, a comprehensive model has been constructed, validated through various approaches to ensure accuracy. The model enables rapid alterations in geometric and physical properties, facilitating the examination of diverse heat transfer effects. Particular emphasis is placed on selecting appropriate mathematical models to analyze flow dynamics and heat transfer processes. The Reynolds Averaged Navier-Stokes equations (RANS) method emerges as the most practical approach for solving engineering tasks.

Keywords: power generation, steam boiler, heat recovery steam generator, HIRSG, combined cycle gas turbine, combustion products high pressure, steam turbine, Boiler Design, ANSYS, Solid Works

1. INTRODUCTION

The adoption of combined-cycle power plants, with natural gas as the primary fuel, aligns with the Russian energy development strategy until 2020. However, a significant challenge arises due to the deterioration of existing power plant energy units, with over 60% of heat power equipment having surpassed its operational lifespan. This situation necessitates prompt decommissioning and replacement of energy equipment, a process that significantly inflates project costs due to various factors.

An innovative solution involves employing the high-pressurized heat recovery steam generator (HPHRS) alongside the existing turbine and heat recovery system (depicted in Fig. 1, a). Notably, all heat transfer characteristics of the high-pressurized heat recovery steam generator, including the heat-transfer coefficient and specific heat flow density, surpass those of conventional power boilers with common furnaces and burners, often by a factor of 3-4.

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Electricity and Energy performance development of a solar pushed tri generation system using particle swarm optimization set of rules

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ABSTRACT

On this paper, a solar micro blended Cooling, Heating, and electricity (mCCHP) device primarily based on ORC cycle is thermodynamically and economically analyzed. The version of conservation of mass, energy, and linear momentum is used to strength analysis of the system. However, a model based totally on the first and the second one laws of the thermodynamics is used to energy analysis of the device. Sensitivity evaluation of the inlet temperature, returned turbine strain, turbine inlet strain, and evaporator temperature are considered as the decision variables of the optimization algorithm. The overall performance of the mCCHP gadget is decided via some important indices which includes energy performance, energy efficiency, and investment cost charge. Consequently, the 3 noted indices are taken into consideration because the goal capabilities of the optimization. The Particle swarm optimization (PSO) set of rules is used for each unmarred- objective and multi-objective optimization of the machine and its code is developed in MATLAB software. The implementation of the multi-goal optimization the use of PSO for R123 working fluid improves 27.65% thermal efficiency, 27.46% energy efficiency and reduces 11.98% of the machine cost charge.

1. INTRODUCTION

In latest years, rising strength call for, national electricity protection, and strengthening environmental guidelines had been the maximum crucial elements for implementing sustainable, efficient and economically viable strength-conversion technology. Solar energy as a kind of clean and on hand electricity is considered as one of the maximum crucial approaches of supplying strength using green technology. One of the maximum promising solar strength conversion technologies is the CCHP system. Trigeneration electricity flows have grown dramatically in current year's way to advance together with increasing power performance, reducing greenhouse emissions, and financial benefits. CCHP technology becomes first used in large dimensions, consisting of commercial and industrial homes.

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Lithium-ion Battery market analysis for Hybrid, Plug-in and Sun-Powered electric powered motors

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ABSTRACT

Currently, the world is combating with diverse types of challenges related to climate exchange and fuel fees. But, the research subject of the electric cars has given a tremendous alternative for traditional motors. Further more, the global involvement within the development of Hybrid electric powered cars (HEVs) and Plug-in Hybrid cars (PHEVs) is getting higher. The mountain climbing costs and decreasing oil below the earth is distressing the sector's economic system adversely. In 1991, the battery market inside the international changed into anticipated to be at \$21 Billion dollars yearly by S.I. Doshiyandi anticipated. As of this present day, electric powered and hybrid electric cars have grow to be extra protuberant and extensively widespread by means of the public, this indicates the battery marketplace could be more than double the 1991 price by now. Due to the boom inside the variety of car customers, the price of CO2 emission has risen, appreciably.

I. INTRODUCTION

Till now, the development achieved inside the area of combustion motor is the peak of generation. In these days's world, the advancement in the motor automobile has fulfilled the primary need of emerging, a better societal and ethnic generation, and it offers a facility for the transportation of the goods and those. There exist many causes and elements which ignite humans to reflect on consideration on strength assets. In a meantime, the sensational topic of discussions in the colleges and research corporations is grow to become towards renewable assets and methods for green recycling. The running down of assets is up surging rapidly which will become a effective purpose to find out new resources, nonetheless, the usage of those sources is inadequate. Electricity consumption is going in a one-manner irreversible course wherein fuel on electricity can't be replenished as rapid enough because the rate of intake. Those, being a real trouble has been the idea for quite a few research on alternative power resources that may be used collectively with already developed electricity resources like fuel, crude oil and coal (fossil fuels) [3-4].

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CFD Analysis of solar chimney Energy plant – Effect of Chimney peak, Shape & Collector Size

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ABSTRACT

This paper affords computational fluid dynamics (CFD) simulation of the sun chimney power plant to research buoyancy-nature of heated air through harnessing sun strength. ANSYS Fluent a finite quantity code has been used for axis symmetric model of the solar chimney power plant (SCPP) prototype in Manzanares, Spain thinking about updraft tower. A fashionable ok-E turbulence model and Boussinesq approximation for buoyancy driven glide is considered. Small pressure distinction is reason of herbal draft in the chimney all through day time has been determined due to sun radiation. The numerical outcomes received for average speed and temperature at chimney inlet are established with the experimental results of the prototype. It's been determined that each the velocity and temperature of air inside the SCPP will increase considerably with the increment in sun radiation. Increase within the chimney peak and collector radius additionally will increase the electricity output of the plant. The impact of chimney convergence with different ratio on the power output of SCPPs has been analyzed.

1. INTRODUCTION

Present day power generation from the petroleum derivatives like flammable gas, oil or coal are damaging to the earth by exposing the impediments that rely on the sustainable electricity resources. Most of the developing countries cannot afford the price of those conventional energy assets, and inside the number of these areas nuclear electricity has been viewed as in-adequately dangerous. Solar electricity plays a exceptional position in components of power conversion variety and aid accessibility. Non-traditional power resources are the pleasant options for fixing problems related to CO2 emissions enhancing environmental pollution. but, the contemporary scientists are seeking out controlled use of fossil fuels to counteract the inevitable scarcity of strength assets SCPP is one of the non-conventional energy structures and the fine alternative to analyze the characteristics of the sun chimney electricity plant with extraordinary geometrical and operational parameters. within the mid 1900s, Spanish Colonel Cabanys proposed that the energy from the air could be applied to generate energy. Researcher attempted Cabanys hypothesis within the 1980s, by way of constructing a solar chimney energy plant prototype.

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A High performance on-board Charger for Solar powered Electric Automobiles the use of a Unique Twin-output DC-DC Converter

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ABSTRACT

Solar powered electric powered automobiles (SPEVs) price their strength storages from photovoltaic (PV) panels through on-board charger. The battery charger for these vehicles is specifically depending on the DC-DC level. Accordingly, this paper proposes an on-board battery charger using a unique twin-output isolated DC-DC converter to feed battery and super capacitor (SC) concurrently. This topology makes use of impedance quasi-Z supply community and also integrates each switched-capacitors and paired-inductor techniques to gain better voltage advantage ratio. Moreover, compared to the traditional battery chargers, because of the use of only switches, the quantity of addtives, the device length and the corresponding price can be decreased. The consequences obtained through ps simulation reveal that the excessive voltage advantage is obtained for each battery and SC parts at decrease values of obligation ratio with as performance of extra than ninety four.5%. Sooner or later, experiments with a 150W prototype are confirmed inside the laboratory to research the performance and effectiveness of the proposed SPEVs charger

1. INTRODUCTION

Growing environmental issues coupled to the decreasing of fossil fuel strength resources stimulate highly research on new automobile technology: sun powered electric powered vehicles (SPEVs) and hybrid electric powered vehicles (HEVs) appear like one of the most promising technologies for decreasing fuel consumption and pollutant emissions. In SPEVs, the sun power absorbed from the sun by the sun panels is transformed into chemical electricity, and stored in rechargeable batteries. Also, these styles of vehicles require a bigger battery with a great deal better capacity. Without a doubt, the primary obstacle in SPEVs advancement is the supply of green, strong and enough electric strength for the electric motor.

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**Optimal coordinated control of OLTCs using the Taguchi method
To improve power system voltage stability**

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ABSTRACT

On-load tap converters (OLTCs) play an important role in regulating the voltage of the power system. Although some times the secondary voltage of the OLTC is lowered when the taps are increased to restore the voltage level. This condition can eventually lead to stress collapse. To solve this problem, the tap setting operation of OLTC was studied, the critical transformer and its allowable tap setting range were determined in the paper. This paper also proposes a Taguchi-based method to find the optimal output settings of the OLTC, including the critical transformer, to improve the voltage stability margin and reduce the actual power loss of the system. The proposed method is tested on IEEE 30 bus system to verify its applicability.

1. INTRODUCTION

Present power systems are operated under stressed condition. As light disturbance at this stage results in reduction in EHV level voltages which is reflected finally in the distribution system network. The action of on-load tap changer (OLTC) helps to restore the voltage at previous levels. With each tap changing operation, the line current would increase, thereby increasing the reactive power loss of the system. As a result the reactive power output of the generator increases gradually and generator may reach to their reactive power capability limit. Beyond that generator loses their capability to support the system voltages, thereby causing the problem of voltage instability. Therefore, operation of OLTCs is critical for voltage stability and line losses of the system. Numerous studies have been carried out in this area remedied the voltage collapse phenomenon by co-relating non-linear dynamic models of impedance loads, OLTCs and de-coupled reactive power-voltage relation investigated the effect of dynamic tap changer on voltage stability using eigen value analysis proposes a method for modeling, analyzing and designing slow distributed voltage control schemes. In the stability region around the stable equilibrium is derived through nonlinear analysis of the continuum model discussed the reverse effect, whereby the transformer secondary voltage is lowered as the tap-changer terminal position as the load increases to increase the secondary voltage.

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Electrical architecture for integrating photovoltaic generation systems into DC micro grids

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ABSTRACT

This paper describes a preliminary analysis on the integration of renewable energy systems in smart micro grids. The initial theoretical evaluations are referred to the case study of a laboratory DC micro grid interconnecting electric mobility, stationary storage systems and renewable energy sources in a smart grid scenario. Specific power architectures for the integration of a 7.5kW solar generation system with the considered micro grid are analysed and compared, in terms of efficiency and costs, in order to support the choice and the design of optimal solutions. Modelling and simulations of the related components are carried out in Matlab-Simulink environment in order to evaluate the performance of different embedded maximum power point tracking techniques, working in balanced and unbalanced irradiance conditions for the considered PV generation system. The promising results and the considerations reported in this paper highlight the importance of using the proposed smart power architectures and the related control techniques to support the optimal use of sustainable energy generation systems.

1. INTRODUCTION

In this context, the smart grid concept plays an important role as it is expected to support the electrification of the transport sector through the efficient integration of stationary energy storage systems and other sources. In particular, smart grid scenarios have been widely studied in the literature as a way to improve electricity generation and distribution networks, achieving high flexibility, efficiency, reliability and security. Starting from the above considerations, various papers reported in the scientific literature have mainly focused the attention on the optimal integration of renewable energy sources and sustainable mobility in a smart grid scenario. In particular, the first series of articles analyse and propose electrical architectures used for the optimal design of smart PEV charging stations and the integration of renewable energy sources. In the authors the consideration of electrical architectures for grid integration of renewable energy systems was analysed, with a particular focus on multilevel modular converters.

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Active Power Regulation of Hydro Electric Power System using IDD optimized FPA

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ABSTRACT

In this paper an attempt is made to propose the different models of control and design such as integral derivative (ID), proportional integral derivative (PID) and integral double derivative (IDD) effectively optimized through flower pollination algorithm (FPA) for active power regulation of modern energy system having hydro dominating area. At first, the performance of FPA-ID, FPA-PID and FPA-IDD founded LFC are evaluated for standard load change in one control area and their performance for system model is judged on the basis of inverse time multiplied absolute error (ITAE). The results obtained show the advancement of FPA-IDD over other designs for hydro dominating energy system. The performance of the control lacks in minimizing system overshoot, oscillations and settling time due to large responding time of hydro turbines.

Keywords: AGC, Flower pollination algorithm, FPA-ID, FPA-PID, FPA-IDD, REB, UPFC

1. INTRODUCTION

As electricity generation shifts to hydropower, regulating active power will become a challenge for power companies because the response time of hydroelectric turbines is much longer than that of thermal turbines, regulating this will cause performance degradation and system instability after rapid load changes. Hence, it is always welcome step in the AGC studies to come up with some strong optimization techniques such as flower pollination algorithm (FPA) to evaluate the gains of conventional controllers as well as to explore the different structures in order to achieve the standards of AGC. Further, most of AGC studies are related to thermal power plants and very less efforts are made to study hydro dominating models due to large turbine time constants resulting in loss of system stability. Unified power flow controller (UPFC) is also a member of FACTS family which is much cheaper in cost and installed in series with the tie-line to enhance the performance of hydro dominating power system.

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The Brain Computer user Interface: the Next Generation of Thought-Based Technology

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ABSTRACT

Brain computer interface technology represents a highly growing field of research with application systems. Its contributions in medical fields range from prevention to neuronal rehabilitation for serious injuries. Mind reading and remote communication have their unique fingerprint in numerous fields such as educational, self-regulation, production, marketing, security as well as games and entertainment. It creates a mutual understanding between users and the surrounding systems. This paper shows the application areas that could benefit from brain waves in facilitating or achieving their goals. We also discuss major stability and technical challenges that face brain signals utilization in various components of BCI system. Different solutions that aim to limit and decrease their effects have also been reviewed.

Keywords: Brain Computer Interfaces, Brain signal acquisition, BCI applications, Mind commands, Brain monitoring, BCI challenges.

1. INTRODUCTION

Brain Computer Interface (BCI) technology is a powerful communication tool between users and systems. It does not require any external devices or muscle intervention to issue commands and complete the interaction [1]. The research community has initially developed BCIs with biomedical applications in mind, leading to the generation of *assistive devices* [2]. They have facilitated restoring the movement ability for physically challenged or locked-in users and replacing lost motor functionality [3]. The promising future predicted for BCI has encouraged research community to study the involvement of BCI in the life of non-paralyzed humans through medical applications.

However, the scope of research has been further widened to include non-medical applications. More recent studies have targeted normal individuals by exploring the use of BCIs as a novel input device and investigating the generation of hands-free applications [1, 2]. The use of BCI interfaces for healthy users has been subject to some doubts as discussed in [4]. The problem of poor information transfer rate (ITR) of BCIs and its effect on reducing the commands user can give has been addressed as one of those issues.

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Hybrid RF/MIMO-FSO Relay Systems over Gamma-gamma Fading Channels

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ABSTRACT

This paper presents a new architecture for hybrid radio frequency (RF) / free space optical (FSO) communication systems. RF and FSO connections based on an adjustable gain AF relay are connected in series. The proposed method uses RF-FSO or FSO-RF paths for data transmission. Fading of RF and FSO systems is modeled by Rayleigh and Gamma-Gamma distributions. FSO links are expected to use direct detection (DD) intensity modulation and heterodyne detection techniques. This paper presents new closed-form expressions for the outage probability (OP) and the bit error rate (BER). The performance of the proposed system is compared with a single RF-FSO system under different atmospheric disturbance conditions. Numerical results show that the new RF-FSO/FSO-RF system has a significant improvement over the single RF-FSO system. For dB, we get the outage probability and RF-FSO of our proposed system, and , respectively.

1. INTRODUCTION

In recent years, Free Space Optical (FSO) communication systems have been considered as a promising solution for many applications. This is due to the availability of bandwidth, low energy consumption and affordable implementation. In addition, direct communication between sender and receiver can achieve high link protection [1]. The advantages of the FSO system make it a low-cost alternative for fifth-generation (5G) backbone in high-demand applications such as metropolitan areas [2]. However, the implementation of the FSO system has serious challenges due to the use of the free space channel, which significantly reduces the connection quality [3]. Atmospheric turbulence and visibility limitation caused by airborne particles, heavy snowfall and fog are also the most important challenges for the FSO system [1]. In addition, strong winds and weak earthquakes can cause vibrations in buildings or towers where the transmitter and receiver are installed. These phenomena can cause an error of indication [4], [5]. The authors of [1] claimed that a hybrid RF/FSO system reduces the aforementioned negative effects on the FSO system.

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A New Voltage- State Configuration for a First-order all-pass filter with one Active Element and All Grounded passive Components

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ABSTRACT

This research paper presents an analysis of mixed user diversity radio frequency (RF)/spatial diversity free-space optics (FSO). With multi-user diversity (MUD), an RF link is modeled using χ^2 distribution, while the FSO link spatial diversity statistic is derived using a gamma-turbulence mixture model that also takes pointing errors into account. Exact closed-form expressions for the outage probability and bit error rate (BER) were derived for the considered system model. In addition, a high signal-to-noise ratio (SNR) analysis was performed to provide asymptotic expressions for the outage probability and BER. Finally, numerical examples verified by Monte-Carlo simulations are shown.

1. INTRODUCTION

The lack of bandwidth in radio frequency (RF) communication systems has led researchers to wireless optical signal transmission using free-space optical (FSO) communication systems. Although affected by atmospheric turbulence and pointing errors, FSO systems are capable of receiving high data rates for a wireless user [1]. Furthermore, to overcome the challenges of turbulence-induced scintillation and pointing errors, the authors of [2] proposed collaborative RF/FSO relay systems as a mitigation technique. Such systems have the ability to combine the advantages of RF systems, such as mobility and slow fading, with the advantages of high bandwidth and fast installation provided by FSO technology. Multi-user diversity (MUD) is recommended in [3], [4] to improve RF link quality in mixed RF/FSO transmission systems. Bidirectional transmission was studied in [3], where a multi-user RF link is modeled by Nakagami-m fading model, while the FSO link is modeled by the Gamma-Gamma turbulence model. On the other hand, the authors in [4] presented an improvement resulting from the use of MUD on a functional RF link fading while the FSO link suffers from the Malaga turbulence model. It is worth mentioning that the authors of [3] considered decoding and forwarding (DF) and [4] analyzed amplification and forwarding (AF).

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A Multi-output multi-mode Biquadratic Filter With All Passive Components Grounded

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ABSTRACT

The paper presents a multiple-output multiple-mode biquad filter (MMBF) using two differential difference dual-X second generation current conveyor (DD-DXCCII) and six grounded passive components. Presented MMBF simultaneously delivers five voltage-mode outputs and two trans-admittance mode outputs with different filter functionalities like low pass (LP), high Pass (HP) and band pass (BP). This filter possesses some promising analog signal processing attributes such as simultaneous availability of multiple outputs, K^2 realization suitability due to the use of grounded passive components, single input multiple output (SIMO) configuration, great sensitivity performance and high frequency of operation. Non-ideal analysis is also presented to highlight the MMBF's acceptably good performance under practical adversities. PSPICE simulations are carried out to verify the functionality of proposed filter that are conveyed by the theoretical analysis.

Keywords: band-pass filters, biquadratic filters, current conveyors, high-pass filters, SPICE.

1. INTRODUCTION

Filters are analog signal processing circuits and used for frequency selective transmissions. Enhancing the versatility of these filters has always been the primary objective of research works related to frequency selective circuits. A multiple output filter is capable of delivering more than one output at a time. When such a 2nd order filter accepts a voltage-current signal and delivers its multiple frequency selective voltage and current versions at the output. Hence, the filter is termed as multiple-output multiple-mode biquad filter. Various multiple-output filters reported in the [1] - [18] are quite promising but suffer from one or more of the below mentioned negative traits.

Circuit complexity due to excessive use of active elements [1]-[8], [17]-[18] use three active element each and [9]-[10] use four active element each. Excessive use of passive components: [3] employs eight passive components and [4] employs nine passive components.

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Facial Recognition Technology: Enhanced Security to The ATM

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ABSTRACT

Automated Teller Machine (ATM) has been convenient approach than ever before for accessing bank's account from anywhere anytime. Being an electronic telecommunication device, it helps customer to perform transactions/withdraw cash, make deposits & transfer funds by simply touching few buttons on screen without need for a cashier or bank teller. A survey showed that there is no proper security in withdrawing cash from ATM's. There are no proper authentication methods applied for security during ATM transactions. In this paper, security approaches of ATM have been focused on, and has been improved using biometric based authentication technique i.e., face recognition from 3 angles. One of the main motive is to diminish and tranquilize the effects of attacks to ATM by use of biometrics. The end result is strengthened biometric ATM system that will be a defending approach in coming year and will escalate the confidence of customer's in banking sector.

Index Terms- ATM system, Security, Strength, Biometric Authentication.

1. INTRODUCTION

In modern world, numerous of people are dependent on computers for keeping major record of data. Data are transferred in a cost-effective manner across wide area. ATM is one of the automatic systems being used since 1967 by many of us. ATM was invented by John Shepphardson on June 1967 at United Kingdom [3]. It first came in India in 1968. Today, many people have PIN's and password for opening multiple devices like car, mobile, ATM machines. Hence using PIN's without safety results in a major difficulty faced by customers like usability, memorability and security [5]. Some people used to write their PIN and password on some paper or diary which is not at all secure. As, it can be easily attacked and hacked by someone, resulting the account holder can suffer. With the growing sector of banking, everyone is using ATM machines as these machines are located in different places and the customer can access his account anytime anywhere. A customer holding a bank account can access the account from ATM systems by getting a PIN or password confidentially from bank. By scratching the ATM card into the machine and entering PIN number, one can easily perform transaction, transfer money, etc. PIN number is a crucial aspect used to secure information of customer's account, thus should not be shared with others.

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Energy – Efficient Techniques For 5G Cellular Networks in WSN

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ABSTRACT

A wireless sensor network is the smallest unit of a network which supports large scale deployment, reliability, mobility etc. WSN has various nodes which are connected by radio frequency or any other medium without wire. These nodes are sensor nodes which gather information and transmit the data to the user. This transmission requires energy. With the advancement of technology from 4G TO 4GLTE in mobile communication, the no. of users have been increased which requires communication without break. This results in power drain of mobile batteries. So, in order to enhance the longevity of mobile batteries, a scheme should be introduced to minimize the energy consumption which will result in prolonged battery life. In this paper we discuss and compare various schemes which have been proposed to reduce the energy consumption and establish an energy efficient securecommunication scheme in wireless sensor network and mobile ad-hoc network.

Keywords: Wireless sensor networks, Energy consumption,5G mobile communication, Wireless networks, Wires, Urban areas, Energy efficiency.

1. INTRODUCTION

The rapid growth of cellular network is primarily influenced by tremendous growth in wireless user devices. By the end of 2020, the fifth generation (5G) mobile network is expected to be launched. However, 5G requires the features like secure communication, infrastructure, energy efficiency, low cost, zero latency and high speed connections [1]. Wireless sensor networks typically characterized by battery powered sensor devices. As it is practically not possible to change the batteries of devices frequently, we need some scheme to enhance the battery life of smart devices. A wireless sensor network is a network consisting of spatially distributed autonomous devices using sensors to co-operatively monitor physical environmental conditions such as temperature, sound, vibration, pressure, motion/pollutants at different locations. User satisfaction and quality of experience are significantly important non-a-days. [2] WSNs often involve battery powered nodes which are active for a long period in absence of human control.

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Battery less Phone

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ABSTRACT

If the date is January 9, 2007, that is the date the world saw the first smart phone, and in fact the first "touch screen phone". Mr. Jobs, the owner of Apple Incclusive, launched the "I phone" which aims to make everyone's life easier. And then ten years have passed since the launch of the Smartphone, and in those 10 years, the world has experienced a revolutionary change in the age of Smartphone. One of the most drastic changes was seen in the batteries of these Smartphone, which ranged from an average of 1000 mAh to 5000 mAh. Over the past few years, intensive use of Smartphone for various purposes has led to rapid battery drain. Various studies have been done to find the exact cause of rapid battery drain and its solutions, although none of them have been able to produce anything concrete and thus instead of finding a solution to long battery life, came up with a different solution, and that was to build phones that could be used without batteries. This research paper focuses on "Battery Saving Smartphone" apps and its advantages and disadvantages. It also outlines some of the financial and potential changes that can be made based on our research.

Keywords: Invention, Advantages, Disadvantages, Incentives, Economy Factor, Astonishing Technology, Computer Science, Battery drain.

1. INTRODUCTION

Smartphone today are indeed smart, but are they really as smart as the companies claim? The answer to that question is yes, but aren't they really stupid when it comes to battery life? Yes, they are. Even companies that sell Smartphone at phenomenal prices have problems with battery performance [1]. The performance is better compared to others, but it is still a mystery when it comes to longevity. The idea of battery-free Smartphone was started by a group of researchers at the University of Washington who invented a phone with dial keys, and the next surprise was that the phone was designed so that it could collect energy from "radio signals". The developed phone has a dial pad, a small LED light and also an E-ink screen.

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Fast Non-Volatile Optical Memory

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ABSTRACT

We proposed, fabricated and studied a new high-speed optical non-volatile memory structure. The proposed memory recording mechanism uses the reversal of the magnetization of the nanomagnet by spin-polarized light flux. It was experimentally shown that the operating speed of this memory can be very fast above 1 TB/s. The challenges of implementing both fast storage and fast read are discussed. The memory is compact, integrable and compatible with current semiconductor technology. If realized, it will push computing and computing technology to higher operating speeds.

Keywords: fast optical memory, spin transfer torque, ferromagnet-metal/semiconductor hybrid, nanomagnet, spin-polarized current, fast electron transport.

1. INTRODUCTION

Data processing and transmission require ever faster operating speeds. A transmission speed of 25.4 TB/s through a single optical fiber has been demonstrated [1]. However, due to the speed limitation of current electronic components, data is transmitted through multiple channels at different optical frequencies. Since each channel requires individual electrical and electro-optical components, such a system is complex, expensive, and high in power consumption. Due to the presence of ultra-fast optical non-volatile memory, the high bandwidth of optical fibers can be used in more applications, and it can be expected that the energy consumption of data processing will be significantly reduced. High-speed data processing, optical links between chips, and optical buffer memory are some possible applications of high-speed non-volatile memory. High-speed non-volatile optical memory is an essential component to achieve the required high-speed data processing. This memory has two main applications. The first major application of fast memory is the chip-to-chip interface [2,3], its purpose is to transfer data from one silicon chip to another in the shortest possible time. On-chip electrical memory such as dynamic random access memory (DRAM), static random access memory (SRAM), phase shift memory (PRAM), flash memory, resistive random access memory (ReRAM) [4] and magnetoresistive random access memory.

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A Gesture-based Robotic Vehicle that Uses Sixth Sense Technology

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ABSTRACT

The way humans and robots interact has been developed using various technologies. Using gestures controlling the robot vehicle is the main way to improve the interaction. The user does not need to be in physical contact device in this interactive technology. It helps fill the technology gap for interactive systems. A robot can The purpose of this process is to define the real-time motion commands of users, which are realized by image processing algorithms and integrated methods.

KEYWORDS: Robotic vehicle, Gesture, Image processing algorithms.

1. INTRODUCTION

The power of human gestures improves human-robot interaction, making it independent of input devices. The use of gestures gives a more modest way to control and offers a rich and natural interaction with the robot. The goal of gesture recognition research is to recognize a certain human gesture and possible information for the user complexity for a single gesture. A specific gesture of interest can be identified by a gesture question and. Based on this, the robot system can receive a quick command to perform an action. An important advantage is that it presents a natural way to send information to the robot, such as forward, backward, left and right movements, etc. Transitivity to the user-friendly interface, the user can give commands to the wireless robot with hand gestures. An early device it was mainly to count the dead and control the robot without a natural carrier. This article is about the user interface robots that use gesture control technology, but far from the user. This can be achieved through image processing technique.

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Biometric functional surface of 65Mn steel for Minimizing soil adhesion

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ABSTRACT

The wonder of soil attachment happens when soil-tillage actualizes associated with soil, which regularly increments the working resistance and vitality utilization. It was found that the membranous leaf sheath of *rhizoma imperata* can carry in soil, owing to not as it were it's porous development constrain, but too the anti-adhesion work due to the hydrophobicity and uncommon surface. In this article, the microstructure and surface wettability of membranous leaf sheath were considered to uncover its anti-adhesion property by testing. The anti-adhesion instrument of the hydrophobic surface for the inactive and energetic state was analyzed. The biomimetic examples were planned and created utilizing 65Mn steel propelled by film leaf sheaths. The hydrophobic surface was gotten on 65Mn steel by the most free vitality adjustment with myristic corrosive ethanol arrangement. For comparison, a 65Mn steel test without alteration was moreover arranged.

1. INTRODUCTION

Soil-engaging instruments are basic for field operations in farming and respectful engineering.1 For the soil-engaging components of rural apparatus, soil grip has been an critical issue influencing rural production,2 which expanded the working resistance and vitality utilization of these machines.3 Making strides the productivity of rural operations has continuously been critical for agriculturalists and engineers.4

For the purpose of diminishing cement powers between soil and surfaces of soil-engaging devices, numerous researchers have attempted distinctive ways to unravel the issue, such as optimizing the structure of instruments, surface coating, surface shape adjustment, vibration, oil, warming, a adaptable structure, electro-osmosis, and magnetization have been investigated.2,3 For occurrence, ultrasonic and mechanical vibration were connected to decrease soil adhesion.5-7 The alteration to the wrinkled lines by ultra-high atomic weight polyethylene (UHMWPE)

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**Model predictive control for a micro-turbo shaft
Engine design and verification**

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ABSTRACT

In this article, a nonlinear demonstrate prescient control calculation for a micro-turboshaft motor is outlined. The control impact is confirmed by a seat test. To begin with, a micro-turboshaft motor test seat is built, and the open-loop control try was carried out on it. Based on explore information, a direct parameter changing forecast show is built up. At that point, by online rolling optimization based on multistep yield expectation, beside input adjustment, a nonlinear demonstrate prescient control calculation is gotten. The impact of calculation parameters on the control impact is examined, and sensible expectation period M, control period N, and control coefficient R are outlined. At long last, the application of nonlinear show prescient control in micro-turboshaft motor is confirmed by seat test

1. INTRODUCTION

Demonstrate prescient control (MPC) could be a model-based closed-loop optimization control procedure, which has been utilized for more than 15 years within the industry as a successful implies to bargain with multivariable complicated control issues. Its essential role is to utilize expectation model to foresee the yield of controlled protest at different minutes within the future agreeing to chronicled data of control framework and future control amount and after that calculate the ideal control amount within the expectation period by rolling optimization strategy. MPC has accomplished much advance on online optimization, solidness, and execution issues for nonlinear frameworks and appears great vigor within the genuine complex control process. In use of unavoidable presence of numerous physical imperatives and vulnerabilities in aero-engine control frameworks, and the expanding requests for exactness and execution of aero-engine control frameworks, increasingly analysts pay consideration to MPC in aero-engine control field. At show, MPC calculation investigate is basically for turbojet and turboprop motors, and ordinary control of turboshaft motors still employment cascade proportional-integral (PI) control.

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Enhanced heat transfer in working fluids with ramped-wall Nan particles: Uses in engine oil

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ABSTRACT

The reason of this article is to examine the stream of Maxwell liquid with nanoparticles, that's, molybdenum disulfide and graphene with inclined temperature condition at the boundary, and motor oil is considered as base liquid. Besides, molybdenum disulfide and graphene nanoparticles are uniformly disseminated within the base liquid. The issue is modeled in terms of half-way differential equations with physical beginning and boundary conditions. To form the framework of overseeing conditions dimensionless, we presented a few appropriate non-dimensional factors. The gotten dimensional framework of conditions is furnished utilizing the Laplace change strategy. From graphical investigation, it can be taken note that the speed is tall with isothermal divider temperature and lower for sloped divider temperature. These arrangements are confirmed by comparing with the well-known distributed comes about. In expansion, the material science of all parameters of intrigued is examined through charts.

1. INTRODUCTION

The subject related to nanofluids is getting more consideration within the final three decades within the field of science as well as in designing and natural sciences. The routine base liquids, for illustration, lamp fuel oil, motor oil (EO), water, polyethylene glycol, and ethylene glycol, are utilized for warm transport reason. They have less warm conductivities as a result of which the warm exchange rate is reduced. The primary logical attempts have been examined by Maxwell who clarified the method of suspending a few micro-sized strong particles within the base liquid. In any case, there were a few restrictions in Maxwell's handle of suspended micro-sized strong particles. Afterward, Choi presented the concept of nanofluid which was acknowledged, and presently nanotechnology is utilized in organic and building sciences. Nanoparticles are scattered consistently completely different base liquids to extend the warm exchange rate of the base liquids. The scattering of nanometer-sized particles is superior than micro-sized particles because of a few substantial reasons such as nanoparticles are sturdier as compared to micro-sized particles. Nanofluids have numerous valuable applications in physical marvels due to tall warm conductivities.

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Estimation of an interval for the contact stiffness of a bolted joint with undetermined parameters

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ABSTRACT

Bolted joints are components utilized to form safe congregations within the mechanical framework, who's by and large execution is enormously influenced by joints' contact firmness. Most of the investigation on contact solidness are based on certainty hypothesis while in genuine applications the vulnerability characterizes the parameters such as fractal measurement D and fractal hardness parameter G. This article presents an interim estimation hypothesis to get the solidness of catapulted joints influenced by questionable parameters. Geology of the contact surface is fractal included and decided by fractal parameters. Joint firmness demonstrates is built based on the fractal geometry hypothesis and contact mechanics. Geology of the contact surface of catapulted joints is measured to get the interim of dubious fractal parameters. Conditions with interim parameters are followed to procure the interim of contact firmness utilizing the Chebyshev interim strategy.

I. INTRODUCTION

Bookkeeping for up to 50% of the overall solidness of the mechanical framework, the solidness of bolted joint can influence the generally execution of framework. A few models of Bolted joint based on the certainty hypothesis have been displayed to consider the characteristics of joints. In any case, instability exists in parameters such as the fractal measurement, fractal unpleasantness parameters, and job pre-tightening drive. Machining mistake and estimations make fractal measurement and fractal unpleasantness dubious. The certainty hypothesis may result in a greater blunder when the number of questionable parameters is raised or the instability extend expanded. Hence, building up a steady hypothetical foundation and modeling is vital for anticipating the firmness of the bolted joints precisely. Fractal contact hypothesis has been broadly connected to the examination of the joint surface issues for the self-similarity and self-affinity of machined surfaces.

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The stability of a high-order splitting approach for incompressible flow based on discontinuous velocity and continuous Pressure is evaluated

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ABSTRACT

In this work, we deal with high-order solver for incompressible flow based on velocity correction scheme with discontinuous Galerkin discretized velocity and standard continuous approximated pressure. Recently, small time step instabilities have been reported for pure discontinuous Galerkin method, in which both velocity and pressure are discretized by discontinuous Galerkin. It is interesting to examine these instabilities in the context of mixed discontinuous Galerkin-continuous Galerkin method. By means of numerical investigation, we find that the discontinuous Galerkin-continuous Galerkin method shows great stability at the same configuration. The consistent velocity divergence discretization scheme helps to achieve more accurate results at small time step size. Since the equal order discontinuous Galerkin-continuous Galerkin method does not satisfy inf-sup stability requirement, the instability for high Reynolds number flow is investigated. We numerically demonstrate that fine mesh resolution and high polynomial order are required to obtain a robust system.

1. INTRODUCTION

Irregular Galerkin strategy (DGM) is one of the foremost potential high-order discretization strategy among the state-of-the-art strategies, such as limited distinction strategies and limited volume strategy (FVM). DGM has pulled in parcels of consideration from both scholarly and industry community for the ease to realize high-order extraordinary joining rate, geometrical adaptability, numerical soundness, and great extensibility. On the contrary, the numerical recreation of incompressible Navier-Stokes (NS) conditions may be a key issue within the regime about of DGM but still distant from completeness. This article is committed to talking about the solidness DGM coupled with continuous Galerkin (CG) within the recreation of NS issues. For the recreation of NS conditions, coupled solver fathoms all components of speed and weight in a solid way, which require the arrangement of saddle point issue and non-linear cycle. Due to the complexity, the coupled solver has as it were been connected in little scale scholarly cases.

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Aerodynamic performance of energy ball wind turbines investigated experimentally and computationally

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ABSTRACT

Small-scale wind turbines with imaginative plan are presented for little applications, giving clean renewable vitality to country homes, road lighting, and half breed frameworks. Vitality ball wind turbine, known as Venturi wind turbine, has untraditional blades' shape and extraordinary streamlined behavior that makes a venturi impact on the discuss stream passing through its spherical shape. This article speaks to an integration of computational liquid flow and wind tunnel experimentation to think about the streamlined execution of a fabricated demonstrate of vitality ball wind turbine. Physical models with diverse turn points were manufactured and tried in a little wind test segment. In these tests, energetic torque, precise speed, and coefficient of execution values were measured at diverse speeds. The exploratory control coefficient comes about were examined appearing the best-tested turn point. Liquid stream reenactment has been created in ANSYS Familiar program.

1. INTRODUCTION

A modern era of small wind turbines showed up after the oil emergency. Wind turbine innovations, as of late, have essentially progressed the increment in turbine size, effectiveness, and ease of establishment. In expansion, turbine proficiency has expanded due to modern edge plans and present day inventive shapes and strategies. Small-scale wind turbines (SSWTs) work with generally high rotational speed due to the small sweep so that there's no require for a gearbox. This approach decreases the fetched, support, and progresses the unswerving quality and productivity at low wind speed operation.

Small wind turbines have less creating capacity than the colossal commercial turbines found on wind ranches. In any case, their diminished costs and included flexibility permit wind control to be utilized in a more extensive set of applications rather than working 80% of the time due to its low cut-in wind speed. These small turbines are utilized basically for conveyed generation—generating power for utilize on-site—rather than transmitting vitality over the electric lattice from central control plants or wind ranches.

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Investigating the use of wind power in moving reference frames for automotive applications

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ABSTRACT

The plausibility of extracting wind control from one of a kind arrangements inserted in moving vehicles utilizing microturbine gadgets has been examined. In such situations with moving outlines or stages, fueled either by people like bikers or by chemical responses like automobiles, the particular control of the discuss movement is much more prominent and less discontinuous than in stationary wind turbines secured to the ground in open air conditions. In a translational outline of reference, the rate of work done by the drag constrain acting on the wind tackling gadget due to the relative movement of discuss ought to be taken under consideration within the generally excessive assessment through an vitality adjust. A gadget with a veering tube has been tested that interfaces a high-pressure stagnating stream locale within the front of the vehicle with a low-pressure locale at its raise.

I. INTRODUCTION

As the global energy economy transitions away from conventional advances to renewables, wind vitality has ended up a promising elective vitality source over the a long time, particularly with the plan and development of expansive wind ranches in which each person wind turbine is secured to the ground. One major impediment of this setup is the downtime of control yield when there's no wind blowing. In differentiate, in case one considers the stream environment around moving vehicles, there's always wind vitality accessible, which can be extracted with fittingly planned vitality converter/generators. The major advantage of such a framework is the accessibility of high-velocity discuss nearly all the time. Wind turbines are exceptionally seldom uncovered to 26.7 m s^{-1} (60 mph) wind, and when they are, most closed down to ensure their basic autonomies. The major challenge in conceiving and planning such a moving framework is to tackle this plentiful wind vitality with least conceivable vitality misfortune due to the extra drag punishment caused by the generator's introduction to wind.

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Improved thermo hydraulic performance, heat transmission, and pressure loss in a channel with a sinusoidal-wavy surface

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ABSTRACT

Warm productivity improvement in a square channel warm exchanger jointed with sinusoidal wavy surface is deployed numerically. The nonreciprocity of stream smooth points ($\alpha = 30^\circ, 45^\circ,$ and 60°), stream bearings or sinusoidal wavy surface courses of action (V-apex coordinating downstream named "V-Downstream" and V-apex showing upstream named "V-Upstream"), and planifoliness proportions (blockage ratios = 0.10, 0.15, 0.20, and 0.25) for warm exchange and stream structure are inspected for laminar stream administration ($Re = 100-1000$). The physical demonstrate for the show examination is approved with the relationship information. The current issue is settled with the limited volume approach (semi-implicit strategy for pressure-linked conditions calculation). The computational data is outlined in shape of stream topology and warm exchange component within the square channel warm exchanger. The understanding of stream topology and heat exchange component within the square channel warm exchanger is important knowledge to create the warm exchange coefficient within the warm exchanger.

1. INTRODUCTION

The improvement for warm viability in a few sorts of warm exchangers and numerous building gadgets had been performed by numerous analysts. The warm execution and warm exchange improvements in heating/cooling frameworks can be partitioned into two ways: inactive and dynamic procedures. The dynamic method is the expansion of the vitality such as vibration into the framework to develop warm exchange coefficient and effectiveness. The detached strategy is the arrangement of the vortex generator or tabulator such as wing, winglet, confine, and so on. into the framework to make the vortex/swirling stream, which hinders the warm boundary layer on the exchanged surface. The vortex stream and warm boundary layer unsettling influence are causes for warm transfer coefficient and effectiveness advancements within the warming unit.

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Packets of Wavelet to identify damaged bearings, transform processing and genetic neuro-fuzzy classification are used

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ABSTRACT

An incredible venture is made in upkeep of apparatus in any industry. An enormous rate of this is often went through both in specialists and in materials in arrange to avoid potential issues with void gadgets. In arrange to maintain a strategic distance from superfluous costs, this article presents a shrewdly strategy to identify beginning issues. Especially, this think about centers on heading due to the reality that they are the mechanical components that are most likely to break down. In this article, the proposed strategy is tried with information collected from a quasi-real mechanical machine, which permits for the estimation of the behavior of flawed heading with nascent surrenders. In a moment stage, the vibrations gotten from sound and imperfect pieces are prepared with a multi resolution analysis with the reason of extricating the foremost causally characteristics. Especially a Wavelet Packets Change handling is carried out. At long last, these parameters are utilized as Genetic Neuro-Fuzzy inputs; this way, once it has been prepared, it'll demonstrate whether the analyzed mechanical component is flawed or not.

1. INTRODUCTION

Machinery may be a essential part of any industry; in this manner, any breakdown might suggest an broken period of time and in this way financial misfortune. Thus, upkeep plans are a crucial portion of conventions in building. Analyzing basic components includes getting to know their inner state, which, in turn, permits for an early detection of early flaws. One of the foremost basic components in any mechanical machine is rolling bearing, which suggests that foreseeing any potential blame or breakdown is basic. In this sense, by knowing the ordinary state of the apparatus, its checking seem offer assistance to anticipate a breakdown since any apparatus would appear a flag some time recently coming up short. As a result, condition checking permits for the discovery of beginning defective mechanical components, which is why this strategy is such a broadly explored research field. A vital perspective of this work is that the experimental laboratory bench used to gather information incorporates a spiral stack due to the truth that usually the foremost critical constrain for which rolling bearings are outlined.

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A Study on Customer Preference towards Lens kart Online Shopping

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ABSTRACT

A retailer or shop keeper is a business that presents a selection of goods or services and offers to sell them to customers for money or other goods. Shopping is an activity in which a customer browses the available goods or services presented by one or more retailers with the intent to purchase a suitable selection of them. People purchase things what they need. The various types of shopping available for customers are: Shopping hubs, or shopping centres, are collections of stores; that is a grouping of several businesses. Typical examples include shopping malls, town squares, flea markets and bazaars. Stores are divided into multiple categories of stores which sell a selected set of goods or services.

Keywords: Big-box stores, hypermarkets, convenience stores, department stores, general stores, dollar stores etc

1. INTRODUCTION

Online shopping or e-shopping is a form of electronic commerce allowing consumers to directly buy goods or services from a seller over the internet using a web browser. Alternative names are e-web-store, e-shop, e-store, internet shop, web-shop, web-store, online store, online storefront and virtual store. Mobile commerce (or m-commerce) describes purchasing from an online retailer's mobile optimized online site or app. An online shop evokes the physical analogy of buying products or services at a brick-and-mortar retailer or shopping centre; the process is called business-to-consumer (B2C) online shopping. In the case where a business buys from another business, the process is called business-to-business (B2B) online shopping. The largest of these online retailing corporations are Alibaba, Amazon.com, and eBay. Retail success is no longer all about physical stores. This is evident because of the increase in retailers now offering online store interfaces for consumers. With the growth of online shopping, comes a wealth of new market footprint coverage opportunities for stores that can appropriately cater to offshore market demands and service requirements.

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ICT and Rural Development in India

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ABSTRACT

Remarkable societal changes and transformation brought about by information and communication technologies (ICTs), or synonymously new technologies (NTs), since 1970s are now having significant effects on the way the people live, work, and play in contemporary society but, more often than not, greater attention concerning their impacts is given to the urban, rather than to the rural, segment of this contemporary society, specially that in India. It is needless to say that though the ICTs are impacting both urban and rural sectors of Indian society, yet it must be admitted that the potential role and scope of the NTs to transform and develop rural India into a modern society is much larger in comparison than is the case with regard to urban India. The reason is that Indian society is basically consisting more than 630,000 villages, where, according to the census of 2011, 70% (743 million) of the Indian population live. Furthermore, the importance of rural; development derives from the fact that from 65 to 70 percent of the Indian population is dependent on agriculture for their livelihood.

1. INTRODUCTION

Development can also include improvements in the capabilities of the population, such as education health and nutrition, independently of any direct or indirect economic impact. The ability to participate in democratic decision-making also falls into this category. In the rural context, development involves use of physical, financial and human resources for economic growth and social development of the rural economies. The term rural development also represents improvements in the quality of life of the rural people in the villages. As per the Chambers (1993) "Rural development is a strategy to enable a specific group of people, poor rural women and men, to gain for themselves and their children more of what they want and needs". "Sustainable Rural Development can make a powerful contribution to four critical goals of Poverty Reduction, Water Shared Growth, Household, National, and Global Food Security and Sustainable Resources Management".

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Airborne particulate matter emissions from vehicle brakes in micro- and nano-scales: Morphology and chemistry by electron microscopy

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ABSTRACT

Brake wear particles comprise a critical piece of the non-exhaust related particulate matter (PM) related to traffic. These particles get from different parts of the vehicles' stopping mechanism and were perceived as an significant contamination source as of late. In the current review, electron microscopy was applied to explain brake wear molecule morphology and related compound arrangement. Inspecting was completed on a brake test seat. Particles were gathered on 13 progressive polycarbonate foil sacks and a reinforcement channel through a Dekati Low Tension Impactor (DLPI), in light of the same streamlined molecule distance across. The outcomes uncovered a expansive size range from the miniature to the nano-scale, as estimated on electron magnifying lens pictures, including coarse (2.5-10 µm), fine (0.1-2.5 µm) and ultrafine ones (< 0.1 µm), down to a couple of nanometers. It can't be inferred with conviction how much the molecule size range recognized under the exploratory states of the present concentrate rigorously applies to certifiable circumstances. The singular constituents of the totals have different sizes and compound arrangement.

1. INTRODUCTION

Particulate matter (PM) discharges connected with street traffic stay a huge wellspring of contamination of specific worry for the climate what's more, human wellbeing, particularly in metropolitan regions (e.g., Meiser et al., 2012; Pope, 2006). Toxicological and epidemiological examinations uncover a connection between traffic toxins and unfavorable wellbeing impacts (Hoffmann et al., 2007; Maynard et al., 2007; Pope et al., 2002). The strong portion of PM discharges from engine vehicles gets from three fundamental sources: (i) burning and hence connected with the vehicle's exhaust (basically ash); (ii) wear processes inconsequential to burning, characterized as non-exhaust PM; this PM type begins fundamentally from brake and tire wear and (iii) re-suspension of a combination of existing PM worked up from the street surface (Thorpe and Harrison, 2008).

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New spectral resolution techniques for resolving and determining the components in binary fixed-dose combinations

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ABSTRACT
Four spectrophotometric approaches were performed to determine a double combination of Phenazone and Benzocaine in pure groundstate form and in pharmaceutical conformation. This dissertation submits the operation of four ways contingent on the presence of the extended area of the gamut of one emulsion in the double admixture; these styles include Absorptivity Centering(a-centering), Absorbance Subtraction(AS), breadth Modulation(AM) and attention Value(CV). The linearity range for the below-mentioned approaches was set up to be 0.0 - 15.0 µg/ml for Benzocaine iso-centering system and 0.0 - 30.0 µg/ml for Benzocaine and Phenazone in other advanced styles. The four ways were estimated as per ICH criteria and were successfully employed for the determination of Phenazone and Benzocaine being in pharmaceutical preparations. All results gained by the submitted approaches were statistically compared with a preliminarily published system, and no important differences were detected.

1. INTRODUCTION
In this dissertation, four spectrophotometric approaches were used for the contemporaneous quantification of double medicine combination, containing two partial lapped gamuts where one of them has extended area than the other. The presence of this further extended area of the dispersion has the advantage that no hindrance from the lower extended one, which permits the contemporaneous quantification of the double medicine combination. Phenazone and Benzocaine were chosen for this study since they are the stylish diapsone model for applying these spectrophotometric styles when Benzocaine dispersion is extended over Phenazone, and Phenazone doesn't show any detour at another wavelength. Phenazone PIN[1,2- Dihydro -1,5-dimethyl-2-PH(N)-3H-pyrazol-3- one]Fig. 1, has also another name antipyrine which is considered as anesthetic(1), while Benzocaine BENFig. 1(ethyl 4-aminobenzoate) is used as topical anesthetic(1).

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Applying green analytical chemistry (GAC) for development of stability indicating HPLC method for determining clonazepam and its related substances in pharmaceutical formulations and calculating uncertainty

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ABSTRACT

Clonazepam contains one benzodiazepine ring in its chemical structure which makes it vulnerable to degradation. In this study, green logical chemistry approach was applied in attempts for the development of validated stability indicating RP-HPLC system for determining clonazepam and its affiliated substances in pharmaceutical expression. Confirmation has been performed according to ICH guidelines. Assay was able of contemporaneous monitoring of the complete medicine in the presence of its affiliated substances within the same run. HPLC assay involved an ODS column and a mobile phase composed of 2 sodium dodecyl sulfate, 0.05 M sodium acetate buffer pH3.5 and isopropanol in ratio 25:50:20 at a flow rate of 1.5 mL/min and discovery was carried out at 254 nm. HPLC system allowed good resolution between the peaks that corresponded to the Clonazepam contains one benzodiazepine ring in its chemical structure which makes it vulnerable to degradation.

1. INTRODUCTION

Due to scientific and public concern about the terrain pollution, environmentally friendly practices have been introduced in different areas of society and exploration. In green corpus lical chemistry, sample medication and LC analysis need special attention because dangerous detergents are frequently used. European drug agency (EMA) mentioned that detergents like methanol and tetrahydrofuran are ranked by as dangerous detergents (ICH Content Q1C1 R4, 2009) and because of their essential toxin, safe detoxification of the waste detergents is essential, which may lead to high to variety high disposal cost. Possibilities toward green LC include reducing solvent use, switching to further benign detergents and/or barring organic detergents (Amenta et al., 2009; Kerton and Marriott, 2013; Taylor, 2010; Clark and Travers, 2006). Clonazepam (5-(2-Chlorophenyl)-1H-imidazo[5,1-b]pyridin-3-amine) is substantially used as anticonvulsant, muscle relaxant and anxiolytic agent.

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The effect of Equal Channel Angular pressing on the stress corrosion cracking susceptibility of AZ31 alloy in Simulated body fluid

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ABSTRACT

Despite the great eventuality of Mg and its blends as material for biodegradable implants, their low resistance to the contemporaneous action of erosion and mechanical stresses in the mortal body have hampered their use. Stress corrosion Cracking has been reported as one of the most critical failure modes to overcome to allow similar metals to be clinically applied. therefore, in this paper we probe the effect of Equal Channel Angular Pressing (ECAP) on the Stress corrosion Cracking(SCC) vulnerability of the AZ31 Mg amalgamation. To do so, AZ31 amalgamation has been subordinated to 1, 2 and 4 passes of ECAP, and the samples so attained have also been tested by means Slow Strain Rate Test(SSRTs) in Simulated Body Fluid(SBF) at 37C. Samples subordinated to one pass of ECAP are shown to be less susceptible to SCC compared to the material in the untreated condition, while further ECAP processing (2 and 4 passes) are set up to worsen the SCC vulnerability. To understand the different SCC vulnerability shown by the else ECAPed samples, microstructural analysis, potentiodynamic polarization angles, hydrogen liberation trials and Scanning Electron Microscopy(SEM) analyses of the fracture shells were carried out.

1. INTRODUCTION

In the once times, the quantum of people witnessing surgical pro cedures involving the implantation of medical bias is continuously growing (Ginebra et al., 2006). In particular, orthopedic surgery is the most important, with the associated healthcare system costs estimated to increase by 26 in 2030 compared to 2019 in Europe(share.iofbone health). The accoutrements presently used in orthopedic surgery are per manent metallic accoutrements , similar as pristine steel, titanium, and cobalt-chromium blends(Chen and Thomas, 2015). In particular, these inert accoutrements are used as cargo-bearing implants for relief of diseased or damaged upkint(Hanawa, 2010; Albrektsson et al., 1981; Rossi et al., 2014), still, two main disadvantages are linked to the perpetration of these accoutrements .

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Improving Photo electrochemical Performance of PbX (X=S, Se, Te) thin Films by Electro-oxidation for Cu²⁺ Detection

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ABSTRACT

This paper proposes an electro-oxidation system to ameliorate the photoelectrochemical performance of PbX (X = S, Se, Te) thin films electroplated onto indium-doped tin oxide (ITO)-coated glass. The PbX/ITO electrode was electro-oxidized using cyclic voltammetry scanning in the implicit range of 0-1 V in NaNO₃ solution. The photocurrent improvement was observed in the electro-oxidized PbS/ITO, PbSe/ITO, PbTe/ITO electrodes. Among these three electrodes, the electro-oxidized PbSe/ITO electrode displayed the strongest, most stable and reproducible photocurrent. The morphology and composition of the electro-oxidized PbSe/ITO electrode were studied by scanning electron microscopy (SEM) and X-ray diffraction (XRD). These results indicate that Se was formed on the face of the PbSe thin film after the electro-oxidation. The improvement of photocurrent of the PbSe/ITO electrode could be attributed to the conformation of Se-PbSe interface. In a HAc-NaAc buffer (pH 5.0), the Se-PbSe/ITO electrode displayed a good photocurrent response to Cu²⁺ ions, with a dynamic range from 10 nM to 100 μM and the limit of discovery of 2 nM.

1. INTRODUCTION

Photoelectrochemical (PEC) sensing is an arising technology grounded on the photoelectroconversion characteristics of the semiconductor species. PEC sensing uses direct/indirect relationships between the analyte and the photoelectrochemically active substance, or the photocurrent (or photovoltage) changes generated ahead and after a natural recognition process for quantitative discovery. The background signal of PEC sensing is lower than that of electrochemical styles. Compared with generally used spectroscopy styles, the merit of PEC sensing is simple, affordable and easy to miniaturize. Due to these advantages, PEC sensing has attracted more and more attention and has shown promising operations in bioanalysis (1-3), water splitting (4-6), and solar energy conversion (7-9).

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Problems and Prospects of Rural Development in Assam

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ABSTRACT

Rural development is the process of improving the quality of life and economic well-being of people living in relatively isolated and sparsely populated areas. Rural development has traditionally centred on the exploitation of land-intensive natural resources such as agriculture and forestry. In the socio-cultural and economic history of Assam the issue of rural development is a glorious chapter of our discussion. Especially, due to the arrival of the British a new era came into existence in the Assam province after 1826. Under the British colonial government till 1947, people of rural areas of Assam improved their conditions through the policies of the government. Without proper study on these social welfare activities, we can't understand the actual development of our country under colonial rule.

Keywords: Rural Development, Colonial Assam, Government

1. INTRODUCTION

Assam is an underdeveloped economy. It has still excessive pressure of population on land, problems of chronic unemployment and poverty, un-utilized and under-utilized resources, low level of technology, so on and so forth, which suggest that the economy of Assam is an underdeveloped one. It is endowed with very rich natural resources which, if exploited to their full potentialities, can raise its economy to much higher level of development than what it is now. Human efforts for development through structural transformations of various sectors and factors are much more important than mere presence of untapped natural resources. Therefore, it is very important to understand those problems which have been retarding the growth of the state and the measures to eliminate such problems. At the same time, they must also be able to discover the prospects of the development of the economy with the available resource base of the state.

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Problems Experienced By the Retail Entrepreneurs in India with Special Reference to Delhi NCR

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ABSTRACT

This study examined the personal problems experienced with respect to the demographic variables of the retail entrepreneurs in NCR Region, India. A sample size of 410 retail market entrepreneurs was selected for the study by using a pre-tested questionnaire which was customized and designed the researcher and the research supervisor. The statistical tools namely, descriptive statistics, one-way analysis of variance, and independent sample 't' test, analysis were applied. The findings of study are given in detail.

Key words: Retail Market Entrepreneurs, Personal Problems

1. INTRODUCTION

The word "Retail" originates from a French-Italian word. Retailer is someone who cuts off or shods a small piece from something. Retailing is the set of activities that markets products or services to final consumers for their own personal or household use. It does this by organizing their availability on a relatively large scale and supplying them to customers on a relatively small scale. Retailer is a person or agent or agency or company or organization who is instrumental in reaching the Goods or merchandise or Services to the end user or ultimate consumer. Structure of Retail Industry The retail industry continued in India in the form of Kiranas till 1980. Soon, following the modernization of the retail sector in India, many companies started pouring in the retail industry in India like Bombay Dyeing, Grasim etc. As has been mentioned earlier the retail sector in India can be widely split into the organized and the unorganized sector. Organized Retail Sector After 50 years of unorganized retailing and fragmented Kiranas stores, the Indian retail industry has finally begun to move towards modernization, Systematization and consolidation. Today, modernization is the catch phrase and the key to understanding retail in the next decade and the key to understanding retail in the next decade. Traditionally retailers and the key to understanding retail in the next decade. Traditionally retailers have had localized operations. This localized nature of the industry is changing as retailers face lower growth rates and threatened profitability in home markets. New geographies help them sustain top line growth in addition to enabling global sourcing and encasing on global advantages of getting the best products at optimum prices.

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Impact of Service Quality Dimensions on Customers' Satisfaction, Retention and Loyalty: Empirical Evidence from Commercial Banks in Kerala

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ABSTRACT

The performance of service organization should be measured continuously to achieve competitive edge and this is possible through providing quality service by any organization. The quality of customer service determines the extent of customer satisfaction. The customer satisfaction leads to customer retention and loyalty. This paper attempts to assesses the quality of service, from the perspective customers and analyse its impact on customer' satisfaction, retention and loyalty from commercial banks in Kerala. And also determine the main factor that effects the customer satisfaction towards banking service. SERVQUAL model introduced by Parasuraman et al in 1988 has been used to measure service quality. This study is of descriptive in analytical nature based on the primary data collected from customers of commercial banks (public and private sector) in Kerala.

Keywords: Service-quality, customer satisfaction, customer retention, customer loyalty

1. INTRODUCTION

In the current scenario, the service sector plays a vital role in the development of economy of nation. The new economic has drastically changed conventional patterns of business in all sectors. Banking sector is of no exemption. With the opening up of economy a number of private sector banks have joined the fray and offering a plethora of products and services rechristening themselves as a financial boutiques, so banking sector become more competitive. The quality of service will be the dominant primary factor in ensuring the success and survival of service provider in the Indian banking sector. The quality of customer service determines the extent of customer satisfaction. The customer satisfaction leads to customer retention and loyalty. Banking is a major part of the service sector in India. Quality management and quality maintenance are mandatory for success of the banking sector and for our economy. Every banking organization tries to understand the needs of customers with respect to the service and aims to satisfy its customers to a great extent. The real victory of service provider based on the extent of customer satisfaction, it will influence customer retention and loyalty. In the banking industry, similar products are available to customers.

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Study of Bullying in Banking Industry

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ABSTRACT

Work is a central part of well-being but it may become a problem when people experience workplace bullying, which includes psychological, physical, and sexual abuse or harassment. Workplace bullying is an important organization and social concern. The success of any organization depends upon the performance of its employees and the success of the employee's performance depends upon two parties one is the organization and second is the employee himself, in short, they are interdependent on each other for their success. The paper also focuses on the consequences of workplace bullying and various relevant legislations. This paper also reviews the various initiatives taken by the international and national government regarding workplace bullying. The data has been collected from 100 respondents and interpretation has been made for the same.

Keywords: Workplace Bullying, Productivity, Organization, Sampling method, Banking Industry.

1. INTRODUCTION

The present world might be characterized by innovation, technological advancement and accelerated progress and development in all most every possible field, likewise, the organization is now characterized by bullying practices. With the emergence of new technology, innovation organization has huge target to achieve in order to survive in this competitive world. The success of any organization depends upon the performance of its employees and the achievement of these employees' performance depends upon two parties one is the organization and second is the employee himself, in short, they are interdependent on each other for their success. Workplace bullying destroys the person in every sense, it not only affects their career but it also puts their health at risk. Workplace culture matters a lot as it has a direct impact on the employee's performance. If the organization culture is healthy, positive, an employee will be able to give his/her best in an organization but if the work culture is not healthy it will affect his/her performance in an organization and also in his/her family.

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Deep Text Summarization using Generative Adversarial Networks in Indian Languages

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ABSTRACT

Abstractive Text Summarization (ATS) is a task of landing information from different sources and condense it similar that, content is represented well and there's no loss of information. It has been an active area of exploration for quite eventually now. ATS is more near to mortal generated summaries and have the capability of representing and combining multiple information. With arrival of deep literacy infrastructures, numerous tasks relating to natural language processing have achieved patient and similar high performances. It has proven profitable and showed promising results in machine- restatement, speech recognition, image captioning and numerous others using sequence to sequence models. Language tools similar as Part of Speech taggers, Named Entity Recognizer for Indian languages aren't veritably competitive and hence, language specific- ways don't perform veritably well for Indian languages. Deep literacy ways are language agnostic and hence can overcome these failings. In this paper, Generative Adversarial Networks(GAN s) are assimilated to produce got for longer piece of textbook in confluence to translation discovery.

1. INTRODUCTION

Summarization is the process of condensing a source textbook into a shorter interpretation conserving its information content (4). With evolutionary growth of social media, it has come important to dissect the information present on it. In recent times, automatic textbook summarization has becketed the interest among- exploration areas of natural language processing, textbook mining and numerous other fields. colorful traditional machine literacy grounded approaches have explored this- sphere in the history, in addition to many deep literacy grounded approaches. In this paper, a deep literacy grounded approach has been explored which uses a generative model to produce summaries from the input data sets. preliminarily, Generative inimical Networks have been used for caption generation(15), generating images from textbook, face generation. A GAN can be periled into two adversaries, a discriminator and a creator. The probability distribution literacy problem is answered using the minimax algorithm.

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A Novel Content Detection Approach for Handwritten English letters

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ABSTRACT

The rise of Artificial Intelligence technology along with machine and deep literacy are opening up nearly measureless possibilities. There's also an element of fear towards this exponential growth. But it's the humanization of our machines and their infrequently handled or reported. But we suppose it respectable to nominate an unfortunate levy to retype notes scribbled on bitsy pieces of paper so they can shoot to other in rate of vaticination of the individual characters is been increased and it could be inferred to digitalize attendees. formerly again we need to ask ourselves if this is the most effective system of managing our workload in this digital age. In order to break this problem, we're proposing a result to break this, rather of prognosticating by word, then we will be separating the curvive English letter to individual characters and prognosticating it via trained Convolutional Neural Network(CNN) model. By using this methodology, increase the forms in companies which will be a lesser position of robotization.

1. INTRODUCTION

Digitizing important paper documents creates a subscate of Security, and frequently convenience, scrutinized dupes of the original document provides a fallback option in case the papers are lost or damaged, whereas controlled access to systematized storehouse of the digital clones makes it important, handy, easier and safer to find. Also, use the needed documents, without physically touching demanding the original paper. Computer can reuse the script and honored the characters former inquiries are state that there was a limitation of classical segmentation due to crimes in fitting unconstrained characters [10]. latterly the extension of Optical Character Recognition(OCR) was applied in published pattern which causes roughly 0.5 distance crimes [11].

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A Mathematical Model for the 3D Location Estimation of 2D Echocardiography DATA

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ABSTRACT

The recuperation of 3D cleared out ventricle(LV) shape utilizing 2D echocardiography is exceptionally attractive point within the field of ultrasound imaging. In this paper, we propose a numerical demonstrate to decide the 3D position of LV forms extricated from different 2D echocardiography pictures. We define the proposed show as a non-convex compelled minimization issue. To fashion it, we propose a proximal substituting minimization calculation with a solver OPTI for quadratically obliged quadratic program. For approving the proposed demonstrate, numerical tests are performed with genuine ultrasound information. The exploratory comes about appear that the proposed show is promising and accessible for genuine echocardiography information.

1. INTRODUCTION

In company with the rise of real-time 3D echocardiography(RT3DE), the requests for investigation instruments to evaluate the LV work utilizing RT3DE are relentlessly expanding [1,2], be that as it may, RT3DE has issues of generally tall taken a toll as well as destitute transient and spatial resolutions compared to 2D echocardiography. For this reason, 2D echocardiography is more ideal in clinical home in spite of the convenience of the RT3DE and subsequently most of investigation apparatuses are still performed based on the estimations in 2D cuts. Later considers on ultrafast ultrasound imaging method are anticipated to make strides the destitute resolutions of RT3DE and to vigorously analyze the LV movement [3,4].

We consider the remarking of 3D LV shape utilizing 2D echocardiography. This point is exceptionally attractive since energetic 3D visualization of the heart is permitted without a 3D imaging scanner. There have been a few considers to recoup the 3D shape of LV from 2D echocardiography information [5-7]. The most issues are the securing of different sees and their introduction for speaking to cardiac chambers in 3D. Hence the 3D representation of the LV shape needs the position data of the different 2D pictures.

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Integration of a Case Study into Learning Factory for Future Research

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ABSTRACT

the concept of Industry 4.0 is right now the driving investigate theme, and the learning production line (L3) gives a stage for instruction and investigate in both scholastic and industry field. The basic objective of this paper is to update the existing lab office at the college to learning production line setting for tending to the nearby small-to-medium undertaking (SME) challenges in Industry 4.0. Taking into thought the nearby angle preparing plant (APP), one of the basic challenges is their cleaning of hardware, and this paper conceptualizes a portion of the learning manufacturing plant for inquire about within the automated cleaning arrangement. It moreover presents a inquire about extend of an as of now approved model of automated cleaning arrangement and examines the opportunity of coordination it within the learning production line for exhibit and educating, with assist optimization utilizing Industry 4.0 approaches.

I. INTRODUCTION

In 2016 and 2017, the trade esteem raised to 65.2 and 67.2 billion NOK, individually, concurring to the Norwegian fish board [1]. Keeping in intellect the expanding drift in request, by the year 2030, the show generation capacity of the angle handling plant (FPP) will increment by 40% [4]. In this manner, it is fundamental to address the challenges confronted by this division to reflect its significance within the a long time to come. There are various challenges confronted by angle preparing plant related to way better prepare, taken a toll, support, and establishment of machines, supportability, natural challenges (deadliness), and quality and security of item [1][5] [6]. Norway may be a high-cost nation. Hence its proceeded survival and development intensely depend on investigate and innovation, especially in aquaculture. With the wave of industry 4.0 that's rising among the European nations, request for change is unavoidable. In this manner, it is imperative that the college ought to come forward to back neighborhood businesses and their benefits for instruction, investigate, and development. Norges teknisk-naturvitenskapelige Universitet (NTNU) campus Ålesund, offers engineering courses, and the workforce regularly include in mechanical collaboration ventures to set up an environment for learning manufacturing plant (Manulab) and to progress their networthiness.

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Sept Approaches for Education and Training using a Learning Factory

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ABSTRACT

Experiential learning approach has been created within the School of Building Home and Innovation (SEPT) at McMaster College in Canada. This paper centers on the instructive models utilized for educating undergrad and graduate undergrads, and on the forms utilized to create mechanical and community supported ventures within the SEPT Learning Production line. The models through which learning is finished within the Learning Factory are displayed. Undergrad learning approaches through capstone ventures created within the SEPT Cyber Physical Frameworks Learning Middle that incorporates the SEPT Learning Plant as the center to back these ventures are portrayed. Cases of undergrad ventures created and completed within the Learning Plant are displayed. Inquire about ventures created by design forms will be pushed to be progressively interconnected, data based on a genuine time premise and, essentially, much more productive.

1. INTRODUCTION

This paper portrays the approaches utilized to teach undergrad undergrads; carry out inquire about exercises by graduate undergrads; prepare representatives from pertinent businesses; and create and test inventive thoughts in participation with the mechanical and community accomplices. These approaches are actualized in a Learning Plant (LP) as of late created in Canada by the School of Designing Home and Innovation (SEPT) at McMaster College. An vital characteristic of the SEPT LP is the usage of Cyber-Physical Frameworks (CPS). CPS are frameworks of collaborating substances associated with the encompassing physical world and its progressing forms; they utilize data-accessing and data-processing administrations accessible on the web [1]. For generation frameworks, the execution of components from CPS innovation leads to cyber-physical generation frameworks. The association between the physical and cyber world is finished by sensors and actuators that permit information procurement from physical to cyber components and a input from cyber to physical components [2]. Berger et al. [1] characterize a cyberphysical sensor framework and characterize the details of the sensor framework.

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Analysis of Additive manufacturing Contents in mechanical Engineering Degrees at Spanish Universities

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ABSTRACT

This work points to appear the current level of spread of Added substance Fabricating (AM) advances (moreover known as 3D Printing) within the syllabus of mechanical engineering education, by examining the most designing colleges in Spain. The comes about of this consider will characterize the current state of the matter and, consequently, the beginning point for any adjustments that syllabuses must experience for building students to procure the information and abilities required within the future to utilize Added substance Fabricating in their proficient careers. The comes about of this survey will contribute to profiling how Added substance Fabricating can be included within the syllabus and when teachers accept that this alter ought to take put.

1. INTRODUCTION

Added substance Fabricating may be a term that characterizes a set of fast-developing innovations [1] that are able of revolutionizing [2] the current fabricating scene as a result of their highlights. This change influences the planning of pieces empowering customized models [3], generation strategies, materials, repetitive, item life expansion [4], and indeed the coordinations and conveyance channels of the made pieces [5] giving challenges and openings rising from dispersed fabricating. Its potential focal points over conventional fabricating [6] will empower the creation of unusual commerce models [7]. In arrange to confront these changes, ventures will require competent staff able of carrying out important changes of utilizing Added substance Fabricating innovations solely. This work points to appear the current level of dispersal of Added substance Fabricating (AM) technologies (also known as 3D Printing) within the syllabus of mechanical building instruction, by testing the most building colleges in Spain. The comes about of this consider will characterize the current state of the matter and, subsequently, the beginning point for any alterations that syllabuses must experience for designing undergrads to procure the information and abilities required within the future to utilize Added substance Fabricating in their proficient careers.

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Dynamic fluid flow properties in the transverse fuel-injected hydrogen-fueled scramjet combustor

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ABSTRACT

The standard $k-\epsilon$ turbulence demonstrate, two dimensional NavierStokes conditions along side whirlpool- dissipation/finite-rate response show has been connected to analyze the flow flow of the scramjet combustor with the cold-flow and touched off motor conditions. Within the display work, all the recreations have been carried out by utilizing ANSYS Fluent code. At the same time, the approval of the display work is completed by comparing its result with accessible test information which is accessible within the writing. It is watched that the computational comes about are in great subjective understanding with the exploratory information. The significance of infusion temperature, weight and the development of the shock-wave prepare are analyzed utilizing reconnections. It was gathered that the mode move may be accomplished through expanding the infusion weight and diminishing the infusion temperature. Be that as it may, at higher infusion weight, the shock-wave prepare got moved towards the external fringe of the isolator coming about in inlet-flow un-start. Compared to infusion weight, infusion temperature displayed lower significance over mode move.

1. INTRODUCTION

Within the mid nineteenth century,[1] NASA had outlined, created and analyzed the cooled scramjet motor with hydrogen as the fuel that illustrated the warm efficiency, basic assistance, motor framework integration etc. [2]. It was too detailed that the hydrogen can too be utilized as a cryogenic fuel to supply combustion chamber cooling [3-5]. The other characteristics of Hydrogen fuel incorporate fast atomization and vaporization, speedier scattering rate. This account to the security of travelers and group individuals in case of hypersonic vehicle umashes [6]. The specific drive of the hydrogen fuelled scramjet motors will be more comparal with other Hydrocarbon fuelled motor having similar Mach number.

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Wave propagation across lattice structure surface contacts

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ABSTRACT

Inside the grid elements detailing, we display an correct arrangement for anti-plane surface waves in a square cross section strip with a surface push of fabric particles of two sorts isolated by a direct interface. The considered issue could be a discrete analog of an flexible half-space with surface stresses displayed through the simplified Gurtin-Murdoch demonstrate, where we have an interfacial line separating areas with diverse surface versatile properties. The most consideration is paid to the transmittance and the reflectance of a wave over the interface. The displayed comes about shed a light on the influence on surface waves of surface inhomogeneity in surface flexible properties such as grain and subgrain boundaries.

2. INTRODUCTION

These days the intrigued in application of the surface versatility models keeps developing with later accomplishments within the nanotechnology, see, e.g., (Duan, Wang, & Karabalo, 2008; Eromeyev, 2016; Javili, dell'Isola, & Stimmann, 2013; Javili, Mellisio, & Stimmann, 2013; Wang et al., 2011) and the reference in that, in specific, these models can figure size-effect watched at the nanoscale and other marvels related to tall ratio of fabric particles within the region of a surface interface to ones within the bulk. Having an root within the seminal works by Laplace (1805, 1806), Youngfield (1805) and Poisson (1831) and Gibbs, see Longley and Van Talle (1928), inside the finite versatility the first show of surface flexibility was proposed by Gurtin and Murdoch (1975, 1978). The proposed show depicts finite distortions of an versatile among body with an versatile layer stuck on its surface. The most expansion of the Gurtin-Murdoch demonstrate was proposed by Steigmann and Ogden (1997, 1999) who considered moreover a twisting firmness of a surface structure. A few assist expansions of the surface versatility were proposed by Phalaki, Rani, Giorgio, and Madeo (2014), Lurie, Volkov-Bogorodsky, Zubov, and Tachkova (2009), Belov, Lurie, and Golovina (2019) and Eromeyev (2019).

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Numerical Investigation of the Behavior of Reinforced Concrete Beam Reinforced with FRP Bars

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ABSTRACT

The behavior of reinforced concrete beams reinforced with fiber-reinforced polymer (FRP) bars was examined in this work. Based on the finite element software (ABAQUS), seventeen models in all were executed. The modeling of concrete damage plasticity was taken into account. For the longitudinal reinforcement of a concrete beam, two varieties of fiber polymer bars—CFRP and GFRP—were utilized. Following experimental results that validated the numerical results, a parametric analysis was carried out to assess the impact of varying various parameters, including diameter size, number of bars, kind of FRP bars, and longitudinal arrangement of FRP bars. Using a load-deflection diagram and the difference parameter under consideration, all of the results were examined and discussed. According to the findings, adding FRP bars to rebar concrete beams increases their stiffness and increases the cracking stress. When CFRP bars were employed, the load capacity increased by 7.88–64.82 percent.

Keywords: Reinforced Concrete Beam; FRP Reinforcement; Finite Element Analysis; Load-deflection Curve.

1. INTRODUCTION

Modern Fiber Reinforced Polymer (FRP) bars have become increasingly popular in recent years for use in deep beams, slabs, columns, and other structural components that require reinforcement and repair. The durability of the reinforced concrete element is a serious issue since steel reinforcement corrodes in concrete structures exposed to seawater and de-icing chemicals. Nevertheless, poor bonding behavior between steel and concrete as well as a lack of mechanical strength in reinforced concrete structures are commonly caused by corrosion of the steel reinforcement. FRP reinforcing bars are a desirable alternative for reinforcement in concrete structures because of their great strength-to-weight ratio, exceptional level of durability, and fatigue resistance Carbon fiber reinforced polymer (CFRP).

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Numerical Study on the Effect of Concrete Grade on the CFT Circular Column's Behavior under Axial Load

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ABSTRACT

Since concrete-filled tubular (CFT) columns enhance the structure's characteristics in varying force patterns, current design methods, such as the Finite Element approach (FEM) and analytical approach (guideline equation), should be used to design them under the two primary load patterns (static and cyclic). This study uses ABAQUS finite element software to model a CFT column with precise dimensions. Its goal is to do a pushover analysis as well as a hysteresis analysis under cyclic loading. In order to gauge the safety level of analytical equations, the concrete grade and percentage of column reinforcement were then changed using the FEM and subsequently compared with the results. The CFT columns with the C20, 30, 40, and 50 concrete cores were modelled employing and the impact of concrete grade on column capacity was investigated.

Keywords: CFT Columns; AISI Guideline; ABAQUS Software; Cyclic and Pushover Analyses.

1. INTRODUCTION

The steel sections filled by various grades of concrete with different heights and various compounds are used as column and beam-column in different types of structures. The concrete-filled tubular (CFT) column can improve the structural properties under the earthquake, so that it could develop the same seismic resistance in two perpendicular directions. The composite hollow-section CFT columns show complex stiffness and behavior as a result of the concrete-core and the interaction between the two materials. The modulus of elasticity, moment of inertia and effective surface in tensile loading are quite clear in steel, while it is difficult to estimate these parameters in concrete because of heterogeneity. The concrete strength, tensile cracking and prolonged loading effects, among others, have a greater effect on the concrete specifications [1].

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Performance of Circular Footing on Expansive Soil Bed Reinforced with Geo cells of Chevron Pattern

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ABSTRACT

This research presents the findings from laboratory model experiments conducted on circular footing to comprehend the functionality of geocell reinforced expansive soil. The subsoil utilized in this investigation was expansive dirt that occurs naturally. The soil bed was reinforced with chevron-patterned geocells constructed of polypropylene geotextile. The depth of the geocell mattress placement, the geocell mattress pocket size, and the geocell mattress height were the characteristics examined in this testing program. In contrast to the findings of other researchers, the enhanced performance of reinforced beds is assessed at a settlement level equivalent to the unreinforced soil bed's failure settlement. The two non-dimensional bearing capacity improvement factor (IF) and settlement reduction factor (PRSF) are used to assess the performance of reinforced beds.

Keywords: Circular Footing; Expansive Soil; Geocell Mattress; Chevron Pattern; Bearing Capacity

1. INTRODUCTION

The urge to build on large soils derives from the fast urbanization of the world. But because of the soil's tendency to shrink and swell, it is challenging to construct any kind of infrastructure on top of such soils. Any area's ability to develop is reliant on the expansion of its infrastructure, which mostly consists of buildings, roads, and railroads. Due to the extremely low shear strength of these soils, substantial consolidation settlement and bearing capacity failures are possible, making it difficult to maintain the stability of buildings built on them. Expanding soils underneath must be treated to increase their bearing capacity before safe and sturdy structures can be built. Since reinforcing soils increases bearing capacity & stability, it is one of the most efficient and dependable ways to increase soil strength. Nowadays, a wide variety of materials and construction methods are employed in civil engineering projects. It has been established that using fibers such as polyesters, polypropylene, glass fibers, steel bars, and natural fibers like jute, coir, sisal, palm, etc.

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Reactive Powder Concrete with Steel, Glass and Polypropylene Fibers as a Repair Material

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ABSTRACT

The construction industry is currently facing a significant difficulty in repairing reinforced concrete structures, which are being put back into service with a minor reduction of load carrying capacity. Numerous variables can lead to damage that compromises the strength and durability of concrete structures. Examining the compatibility of three different types of reactive powder concrete—steel, glass, and polypropylene—in repair materials and substrate concrete with normal strength is the goal of this article. Three stages of research were done on compatibility. First, certain characteristics of the substrate concrete were examined. These included the compressive strength, splitting strength, flexural strength, and slump test. For the repair material, the standard. The flexural strength and compressive strength were evaluated using ASTM test procedures. Second, a slant shear test was used to assess the bond strength of a composite cylinder for substrate concrete with various repair materials. Third, under two-point loading, compatibility was examined using composite prisms of substrate concrete with various repair materials (flexural strength test).

Keywords: RPC, Bond Strength, Compatibility, Steel Fibers, Glass Fibers, Polypropylene Fibers, Slant Shear Test, Composite Prisms.

1. INTRODUCTION

Deterioration can define the process of degeneration or degradation of quality to an inferior state of a material. There are many causes of deterioration, which are physical, chemical, mechanical and reinforcement corrosion. Any concrete structure when damaged must be repaired to return its function. It is important to determine causes and the degree of the problem, so that repair adopted must be effective. Repairing concrete can define replacing process, process or correcting deteriorated, damaged or faulty material, components or element of structure. The composite system consists of three components: substrate concrete (previous concrete), repair material (overlay) and bond region. Bond region means the interface and nearness of bond surface.

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Key Openings and Challenges of Data Relocation in Cloud

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ABSTRACT
Cloud information relocation is the method of moving data nearby have applications administrations and information to the dispersed cloud computing foundation. The victory of this information relocation prepare is depending on a few viewpoints like arranging and affect examination of existing undertaking frameworks. One of the foremost common operations is moving locally put away information in a open cloud computing environment. This paper through a multi vocal writing audit distinguishes the key preferences and results of moving information into the cloud. There are five distinctive cloud relocation strategies and models endorsed to assess the execution distinguishing security prerequisites choosing a cloud supplier calculating the fetched and making any necessary organizational changes.

Keywords: Information Relocation Cloud computing Multi vocal literature review Cloud Sellers.

1. INTRODUCTION
Cloud computing may be a business show for an venture and it is presently quickly changing our lives with its affect on way of life. Organizations are presently more centered on a centralized and cost-effective arrangement with the greatest uptime. Everybody who may be a portion of the internet is portion of cloud computing either he or she is mindful or not mindful. The developing number of versatile clients don't have to be spare their portable information physically any longer and cloud computing is making it simple presently. The success behind cloud computing is that it offers your trade with many administrations like business progression unwavering quality adaptability work from anyplace and versatility. The long run, commerce world will be considering the significance of the "4C": Cloud Clients Fetched and Convenience. As a result of the consideration to the wonders by industry and governments alike the scholarly world is additionally analyzing the subject from a panoply of viewpoints being these days one of the foremost imperative inquire about topics in computing science and data frameworks.

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A Fog Computing Design for Security and Quality of Service

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ABSTRACT

The Fog Computing paradigm is an rising design and centers on optimizing assets for the Web of Things environment bringing to the Edge Cloud's characteristics. The request produced by the number of conceivable gadgets in this arrange draws in issues related to quality of benefit security among others pulling in analysts from the foremost different regions. In our work in expansion to performing a think about on cluster works in a mapping process identifying patterns within the utilize of Mist models. The most commitment is displayed by a security-based Mist Computing design utilizing QoS for adaptable situations with Docker holders for coordination and arrangement of security with SDN.

1. INTRODUCTION

The innovation advancement of embeddel gear has empowered virtual communication with certain objects so that able to oversee and work them at a remove through the Web. With a certainty of increment the interactional capacity in frameworks a named worldwide called nonexclusively Web of Things (IoT) has been rising [1]. Through the integration of the foremost skilled advances it points to empower organize communication between individuals objects and things with distinctive levels of independence existing and / or giving administrations and information among themselves or to other gadgets through the Web. The IoT engineering can be treated as a physical virtual or crossover framework being able to create utilize of advances such as Cloud Computing [2] able to overcome the impediments of computing and capacity in cleverly gadgets other than giving flexible assets to them [3]. Agreeing [3] [4] and [5] due to the have to be back veratility geological dispersion area acknowledgment and more alidness request for a few applications the Cloud meet with a few troubles. To overcome these challenges Cloud highlights were brought to the edge of the organize [6] [7] and [8] hence shaping Haze Computing or basically Mist which as a connect between IoT and Cloud actuates the additional functionalities required for particular preparing of applications such as sifting and accumulation some time recently exchanging the information to the Cloud [9].

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Uncertainty-aware fuzzy multi-agent monitoring of SMEs' sustainable SC

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ABSTRACT

The concept of sustainability has grown in significance within the decision-making methods of Small and Medium Enterprises (SMEs). In order to discover the optimal techniques for achieving sustainability—which is concerned with integrating environmental, social, and economic goals across a supply chain process—decision makers must also consider the competitive and uncertain nature of the environment. In order to highlight the evaluation process of the triple bottom line performance from a small scale (SMEs) to a large scale supply chain under uncertainty, this paper proposes an intelligent dynamic system driven by agents that integrates Fuzzy Logic (FL) and Multi-criteria/multi-objective decision making (MCMODM) methods.

1. INTRODUCTION

According to Hartmann and Mueller (2014), small and medium-sized enterprises (SMEs) are increasingly held responsible for the economic, social, and environmental problems brought on by their internal and suppliers' operations. Using sustainable methods has become essential to ensuring improved supply chain monitoring during the last 20 years.

To achieve this, it will take a team effort to accomplish several sustainable goals, many of which will be in conflict (Zhou et al., 2008), with an emphasis on the social, economic, and environmental aspects (Securing and Gold, 2013). Actually, in order to minimize sustainable problems, many autonomous actors within a cluster of SMEs must work together to accomplish shared goals and then coordinate their actions inside the network to attain the supply chain's global goal. The impact of sustainable problems on the evaluation of a SMEs' cluster performance is our focus in this paper. To address this, we have suggested a monitoring system that incorporates social, environmental, and economic factors into the estimation and evaluation of sustainable global performance. The SMEs in our study—which comprise decision-makers, manufacturers, suppliers, and customers—are dispersed throughout several geographic regions. As a result, they are unable to see the complete supply chain.

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Big Data Solutions' Security Considerations

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ABSTRACT

Adoption of Big Data Solutions (BDS) needs to take into account a number of factors, including security and privacy concerns, which could have an impact on how well BDS is implemented. This paper uses a single case study of a Malaysian banking institution to highlight security-related considerations made by enterprises adopting BDS. Technology, organizational, and environmental security considerations emerged as the three primary themes. The following sub-themes were found: employees' perceptions of the sensitivity of information assets; regulatory compliance; the standing of BDS vendors; managerial security awareness; top management support; SETA; security personnel skills; and environmental uncertainties. The study's conclusions add to the field of current research on big data, information security, and technological adoption. Additionally, it could give businesses vital data to use when creating securitystrategiesrequired inbigdataenvironment.

1. INTRODUCTION

Organizations can now find information useful to their operations through a variety of analytical opportunities provided by the vast volume of data being generated and collected on a regular basis. The phrase "big data" originated as a result of this enormous volume of data and its many analytical opportunities. The three "Vs" of volume, variety, and velocity of data are frequently used to characterize big data. Additionally, some academics have proposed the fourth "V" to describe the validity of data. Companies in the current turbulent market environment are constantly striving to implement cutting-edge technologies that will help them become more inventive and acquire a competitive edge. Big data technologies have the potential to provide companies with the necessary solution by enabling faster and more accurate analysis of larger volumes of data than was previously feasible. These days, a wide range of disciplines – not only business – recognize its use and importance, as do other industries including healthcare and government.

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The opinion of medical professionals regarding the use of artificial intelligence in Brazil's video-based tuberculosis treatment regimen

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ABSTRACT

One of the top 10 infectious diseases that kills people worldwide is tuberculosis (TB), an illness that primarily affects the lungs. Patients may die as a result of non-adherence to TB therapy, which can also raise the chance of drug resistance and extend transmissibility. The use of cellphones to track drug ingestion via video is a positive step (VDOIT). The VDOIT alternative is more affordable and favored over the regular DOT (in-person) method. But according to the VDOIT system, every day all drug intake must be verified by a qualified individual. Relying on an initiative to replace the verifying agent with an artificial intelligence tool capable of automatically validating it through computer vision techniques (known as AI-based VDOIT). The primary objective of this work is to assess Brazilian health professionals' acceptance and perception of AI-based VDOIT prior to its implementation using a quantitative questionnaire as an instrument. In order to do this, we have created a study protocol proposal that outlines the procedures for designing, carrying out, and validating this research.

1. INTRODUCTION

One of the top 10 infectious diseases that kills people worldwide is tuberculosis (TB), an illness that primarily affects the lungs. Globally, an estimated 10 million persons contracted tuberculosis in 2017; 1.6 million of those cases resulted in death [1]. The population of Brazil, which is estimated to be 209 million, recorded 91,000 cases, with 7,000 deaths. Even though TB is curable if treated with antibiotics adequately, treatment typically lasts six months; for individuals with drug-resistant TB, it may even take longer than 24 months. The Directly Observed Treatment, Short Course (DOTS) technique is the preferred method for treating the patient. This approach entails routine medication administration along with daily patient monitoring. Between 2000 and 2017, it's projected that 54 million fatalities may have been avoided if tuberculosis had been properly diagnosed and treated. The time between diagnosis and treatment is somewhat long. Patients may die as a result of non-adherence to TB therapy, which can also raise the chance of drug resistance and extend transmissibility.

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Preventing Insurance Fraud: A Blockchain-Powered Approach for the Automobile Industry

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ABSTRACT

Blockchain is a relatively new technology that was first developed to keep transaction records for Bitcoin. Because of the system's extreme redundancy and dispersion, fraudulent financial transactions are exceedingly difficult. Though blockchain technology is most commonly associated with cryptocurrencies, this is not to say that blockchain technology is only used in the financial sector. In fact, a wide range of blockchain use cases are being created at the moment. Smart contracts are a new blockchain-related technology that has emerged as a result of the intricacy of some operations. The main distinction between these digital contracts and regular contracts is that the former are automatically executed. In this post, we'll talk about how smart contracts and blockchain technology can work together to enhance organizational processes. More particular still, We give an example of how these technologies could be applied to create a system that prevents specific kinds of auto insurance fraud.

1. INTRODUCTION

Right now, there are a lot of people who have very high expectations for blockchain technology. While the main Information and Communication Technologies (ICT) corporations are investing enormous amounts of resources to secure their place in this market, several startups are being formed specifically with the goal of developing blockchain technology, on fact, McWaters [1] reports that businesses globally are investing as much as \$1.3 billion on blockchain technology.

The insurance industry produces a large amount of operational data and has many intricate business procedures, making it a significant economic sector. The situation gets more complicated in the particular instance of auto insurance since every owner of a car is required by law to have insurance on their vehicle.

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Using Secure Software Engineering Labs to Implement NICE Job Tasks in Cyber security and Software Assurance

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ABSTRACT

The National Center for Academic Excellence was jointly formed by the Department of Homeland Security and the National Security Agency to address the rising need for cybersecurity specialists in the US job market. Up until recently, network security was the main goal of cybersecurity operations. Still, a number of investigations have shown that serious flaws in the software code have been discovered. Having safe software engineering labs is essential for teaching programmers and software engineers. The cornerstone of cybersecurity education is experiential learning. Students receive crucial value from their laboratory exercises. Malicious actors in the real world employ a variety of strategies and methods to launch cyberattacks. This dynamic should be reflected in laboratory settings, and students should be given exposure to a range of instruments and mitigating techniques.

1. INTRODUCTION

Malware like Flame, Shonnet, WannaCry, and SQL Slammer have been used in recent years to take advantage of software vulnerabilities [1]. Every day, new malware varieties are developed, and the rate of growth seems to be exponential [6]. In computer science, computer engineering, and information systems curricula, software assurance should be given priority due to the expected shortage of over 1.5 million cybersecurity workers by 2019 and the estimated 6 million need for cybersecurity specialists [3,12]. Three initiatives centered on safe coding practices are covered in this paper. The University of Missouri in St. Louis used these exercises to teach software assurance classes. For later use, the labs can be expanded upon and copied.

According to research from Cisco Systems, 99 percent of physical devices are not connected [4]. However, the amount of skill displayed by modern hackers and attacks is astounding. In order to gauge the scope of the issue, we can make comments on a few numbers. As per reference [5], the approximate cost of cybercrime in 2017 is 400 billion dollars, signifying approximately 0.8% of the world's gross domestic product.

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Engaging Visual Analytics to Make Sense of Large Text

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ABSTRACT

When performing sense making tasks on collections of textual information larger than can be reasonably analyzed without computational assistance, analysts face many steep challenges. New techniques are required to interactively integrate machine learning and human cognitive sense making activity in order to scale up such sense making tasks. In order to achieve that, we present a computational model of the human-in-the-loop, which consists of sub-processes for synthesis and foraging and mimics the human sense making process. We model the foraging loop as an interactive relevance ranking coupled with topic modeling, and the synthesis loop as an interactive spatial projection. Using semantic interaction, we combine these two aspects of sense making so that automated foraging and synthesis of new relevant information is produced from the spatial synthesis actions of the human. In the end, the model's capacity to forage as a result of the synthesis activities of the analyst facilitates analysts' sense making abilities by making interacting with big text data easier and more efficient. We talk about our interactive sense making model's interaction design and theory.

1. INTRODUCTION

The main objective of this research is to enhance human sense making abilities through computation when dealing with large-scale text analysis issues. Intelligence analysis is required to sift through extensive text collections in search of pertinent information and piece together a cohesive narrative from disparate sources. Pirolli and Carl's "sense making loop" [1], which consists of the foraging loop and the synthesis loop as its two main, interconnected sub-loops, serves as a model for these sense making activities. Traditionally, human cognitive intelligence has been needed for a large portion of this sense making process, particularly synthesis. However, more semi-automated augmentation is required to scale sense making to big data efficiently. It is critical that the automation blends seamlessly into the workflow of human sense making in order to support human cognitive activity. One type of cognitive model is the sense making loop. Therefore, one task is to formalize the sense making loop into a computationally-oriented model with defined sub-components in order to facilitate automation.

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Urban Data Science Models and Methods at Scale

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ABSTRACT

A wide range of sensing technologies can be used to observe cities, including digital traces like mobile phone records and social media posts, as well as physical sensors placed in the streets, socioeconomic reports, and other sources that can depict the behaviour of the populace. In this paper, we propose a conceptual framework that applies spatial and temporal analysis over heterogeneous streams of data in a unified way, making this variety of Big Data sources useful. The conceptual grids (composed of cells) over the city space serve as the foundation for our definition of spatial analysis. From there, we examine time series of signals at both the grid and cell levels, correlations between signals and between cells, multiple signal-based city dynamics prediction, and anomaly identification based on discrepancies between predicted and observed dynamics.

1. INTRODUCTION

Cities have emerged as a source of diverse Big Data in recent years. Mobile phone records and social media posts have made it possible to observe the digital footprints left by residents and visitors since the mid-2000s [1]. However, it is only recently that cities have been outfitted with a wide range of sensing technologies that enable the observation of residents' and visitors' physical behavior.

We can now take an ever-clearer picture of our cities and follow changes in their dynamics with only a few seconds' notice thanks to big data technologies. Furthermore, we can now analyze at scale our cities' digital reflections as well as their actual physical businesses because of Data Science techniques. Investigating 21st-century cities is a fantastic way to learn about the rapidly changing nature of contemporary society. In actuality, half of the world's population lives in urban areas, and cities are drawing more and more people every year [2]. Moreover, cities serve as both physical and virtual hubs for social media interaction and message exchange between people and communities [3]. This intricate web of interactions allows for the tracking of large amounts of data, or "Big Data" [4].

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Hybrid Indexing for the Visual Examination of Geo located Time Series

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ABSTRACT

Time series that are geo located are those that match particular locations. For instance, they could show visitor check-ins at specific locations or sensor readings from different locations. Over the past few years, the quantity and importance of these time series have grown in numerous fields. Nevertheless, while there are a number of works for visual analytics and time series visualization in general, there aren't many effective methods for visual exploration and analysis of geo located time series specifically. In this work, we introduce two methods for map-based visual exploration and summarization of geo located time series data that make use of hybrid spatial-time series indices. Specifically, we employ the HFSR-tree index and present a novel iteration of the ISAX index, dubbed geo-ISAX. By preserving bounds for the time series indexed at each node, the former hybrid index preserves spatial order and expands the R-tree. Geo-ISAX is a time series-first hybrid index that preserves the spatial MBRs of the geo located time series indexed in every node, based on a similar logic.

1. INTRODUCTION

Numerous industrial and research applications, such as the Web and the Internet of Things, public utilities, finance, astronomy, biology, and many more, generate and store time series at a rapidly increasing rate. A large fraction relates to geo located time series, or those produced at or connected to particular locations. The database and data mining communities have shown a great deal of interest in indexing, mining, and exploring time series data [1], [2], and [3]. However, studying geo located time series is still largely ignored. Applications and domains for geo located time series are numerous. For example, water consumption as reported by smart meters installed in urban homes can be represented, analyzed, and forecast using time series [4]. Such time series analysis can yield important insights into the trends and patterns of everyday consumer behavior.

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Frequency-shaped controller to reduce fluctuations between regions in the power system

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ABSTRACT

This paper discusses how to design an inter-area oscillations damping controller using a frequency-shaped optimal output feedback control approach. This control approach was chosen because inter-area oscillations occur at a particular frequency range, from 0.2 to 1 Hz, which is the interval the control action must be prioritized. This paper shows that using only the filter for the system states can sufficiently damp the system modes. In addition, the paper shows that the filter for the input can be adjusted to provide primary frequency regulation to the system with no effect to the desired damping control action. Time domain simulations of a power system with a set of controllable power injection devices are presented to show the effectiveness of the designed controller.

Keywords: Damping control, inter-area oscillations; optimal control, frequency shaping; power systems stability; smart grids; small signal stability; primary frequency regulation

1. INTRODUCTION

Safe operation of power systems requires that inter-zone oscillations be damped at all times. This paper uses the optimal frequency shaping control method to design a controller to reduce inter-zone fluctuations in a two-zone test power system. A set of controllable electro-mechanical devices is installed in the power system to serve as an actuator to provide damping action. Article presents the conditions for solving the optimal frequency shaping output feedback control problem and uses them to design an inter-region vibration damping controller. Since the optimal frequency shaping controller requires two filters, one to penalize states and another to penalize inputs, the paper shows how they affect the behavior control dynamics and overall system response.

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Plan Examination and Confirmation of PMSM Engine For Dishwasher Machine

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ABSTRACT

In this paper an inodes lasting magnet (IPM)synchronous engine (PMSM) is logically outlined andanalyzed by Ansys Maxwell 2D program, and created in Buder Engine Innovation Company Right now, single stage acceptance engines (IM) are utilized in dishwasher machine. Agreeing to client prerequisites, dusto controlling of speed, lower cost and higher effectiveness the PMSM engine are favored rather than single stage IM. In regard to client necessity the engine is outlined with 3400 rpm, 0.2 Nm and 0.5 Arms. The outlined motor is competent to function in (2000-3800) rpm extend of speed without applying field debilitating strategy. The planned engine is lighter0.50 kg lower than the IM engine and much obliged to productivity the unused engine proficiency is 12 percent higher than the ancient one. Astests, clamor, warning up and vibration issues of new-designed motor are less than IM.

Keywords: Changeless Magnet Synchronous Engine (PMSM), Ansys Maxwell 2D, Limited Component Strategy (FEM), Inodes Lasting Magnet (IPM)

1. INTRODUCTION

PMSM may be a sort of broadly utilized engine in mechanical. These are getting to be well known as a key innovation and are great choicem numerous applications, aerospace, electric vehicle, programmed generation frameworks within the industry and domestic apparatus applications such as dishwasher machine as appeared in. These engines are preferred rather than DC and acceptance engines in industry. The foremost vital focal points of such engines are; tall productivity, tall control thickness, moo support and moo frished. These engines are common reason and more valuable due to their moo splays, control thickness, moo rotor inactivity, life expectancy, torque versus speed characteristics, electromagnetic obstructions, communication and controlling. Ordinarily these engines are utilized at relent less state and appraised values. Speed of synchronous engines can be controlled by shifting the recurrence of the turning attractive field, which is called synchronous speed.

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Experimental results of a locally developed BLDC motor controller for an electric tricycle are presented in this study

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ABSTRACT

The surging popularity of battery-powered and plug-in hybrid electric vehicles is poised to significantly impact power networks, given their zero carbon emissions and widespread deployment. Over the years, DC motors, AC induction motors, and Brushless Direct Current (BLDC) motors have been utilized globally in electric vehicles. Among these, BLDC motors stand out for their increasing use in motion control applications, driven by factors such as high efficiency, excellent dynamic response, and low maintenance. Unlike DC and induction motors, BLDC motors require a controller, as they operate in three phases while receiving DC input. This paper outlines the design and development of a BLDC motor controller, offering a performance comparison with an existing imported BLDC motor controller. The controller circuit undergoes simulation in Proteus software, and the PCB design is executed in ARES.

Keywords Electric vehicle, BLDC motor controller, No-load test, Performance comparison.

1. INTRODUCTION

In the urban areas of Bangladesh, as per the Bangladesh Road Transport Authority (BRTA), the number of registered motorcycles on the road has witnessed a significant surge, reaching over 332,000 in 2016 and nearly doubling since then. This remarkable increase can be attributed to motorcycles being a convenient means of navigating through traffic, their cost-effectiveness compared to four-wheelers, and their fuel efficiency. Electric bicycles or e-bikes present an attractive option for both males and females, offering easy handling without the need for balancing, unlike traditional cycles or bikes. These electric vehicles contribute to green transportation by producing zero greenhouse gas emissions. Powered by stored electrical energy in a battery bank, they rely on a motor controller to manage speed and various other functions.

The market for e-bikes is expanding rapidly, yet there is a lack of local manufacturing or development facilities for e-bikes and their controllers. It is crucial to seize the opportunity to design, develop, and manufacture electric vehicles and their motor controllers locally, tailored to the ambient conditions of Bangladesh.

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Collaborative Optimal Dispatching Strategy for Island Microgrid with Multi-Distributed Power Generation across Various Time Scales

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ABSTRACT

The micro-grid, operating independently on an island, represents a sophisticated and self-sufficient power grid system. Managing its power dispatch involves addressing dynamic challenges characterized by nonlinearity, numerous constraints, and various time scales. Specifically tailored for multiple distributed power sources such as wind turbines, concentrating solar power (CSP), and diesel generation, this study tackles the intricate problem of optimally dispatching power in coordinated independent micro-grid systems. A strategic approach based on multi-time scale optimization is introduced, employing a "day-ahead optimization & intra-day rolling" methodology. This involves decision-making regarding the start-stop and output plans for each diesel generator set, as well as the power generation plan for CSP, subject to continuous revision.

Keywords: Multi-time scale, independent micro-grid, CSP, distributed power generation, collaborative optimization

1. INTRODUCTION

In our nation, numerous islands are surrounded by seas abundant in marine resources. However, due to their considerable distance from the mainland, these islands predominantly rely on diesel generation for power supply. This reliance significantly hampers efforts to enhance the quality and economic efficiency of power supply, thereby impeding the islands' sustainable and healthy development. Extensive research and practical experience indicate that an independent micro-grid, incorporating multiple distributed power sources, can effectively enhance system power supply reliability and quality while reducing costs. This approach not only proves effective in addressing and improving dispersed power demands in remote areas like islands but also serves as a viable method for enhancing power distribution network reliability.

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Enhancing Flexibility and Frequency Security in the Generation Expansion Planning Framework

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ABSTRACT

The conventional approach to generation expansion planning (GEP) primarily emphasizes system adequacy, ensuring that the generation portfolio can meet the growing peak demand while accommodating uncertainties. However, the imperative of transitioning to a low-carbon society has led to a rapid increase in renewable portfolios, encompassing solar, wind, hydro, biomass, and more. Regrettably, the influx of variable renewables (VR) such as wind, solar, and small hydro has disrupted the conventional power system planning paradigm. On one hand, dispatch characteristics necessitate highly flexible capacities to adapt to changes in the system net load. On the other hand, the dynamics of frequency may degrade due to the replacement of conventional generation with near-zero inertia generation and non-governor control.

Keywords: Adequacy, flexibility, frequency security, Generation expansion planning framework

1. INTRODUCTION

Traditionally, the focus of the generation planning framework has been on conducting adequacy studies to determine the type, location, timing, and quantity of generating capacities needed to fulfill the growing demand while adhering to planning criteria over an extended timeframe. However, in recent times, the global surge in renewable resources such as solar, biomass, biogas, hydro, wind, geothermal, and ocean energy has been significant. This growth is driven by factors like global warming concerns, escalating fossil fuel prices, and public resistance to nuclear power.

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Influence of Financial Incentive Levels in Demand Response Programs on the Generation Cost of Solar-Integrated Power Systems

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ABSTRACT

Financial incentives play a crucial role in demand response (DR) programs, yet determining optimal incentive levels for consumers remains challenging. This study explores the impact of increasing incentive levels for the load-shifting DR program on the generation cost of solar-integrated power systems, using the incentive level established by the peak-clipping DR program as a benchmark. Through simulation, various load profiles with both high and low daytime loads were examined, focusing on prioritized solar system conditions. The generation cost was dynamically modeled as an economic dispatch task utilizing particle swarm optimization.

Keywords: financial incentives, generation cost, demand response, load shifting, peak clipping

1. INTRODUCTION

In recent times, demand-side management (DSM) has gained significant importance in influencing consumers to align with the available generation resources, thereby playing a crucial role in power system operation. This shift is attributed to the various benefits of DSM, including enhanced integration of renewable sources, improved power system efficiency, and environmental damage mitigation. Fundamental DSM techniques encompass peak clipping, valley filling, and load shifting, designed to alter consumers' energy consumption patterns by encouraging load reduction during peak times. These fundamental techniques are commonly referred to as demand response (DR) strategies.

Advanced DSM methods include strategic conservations, strategic load growth, and flexible load shapes, collectively known as energy efficiency techniques. Their primary objective is to enhance power consumption efficiency through the application of advanced energy-saving technologies. DR programs employ stimulators, either price-based or incentive-based, to motivate consumer participation.

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Study on Energy Storage Configuration Method Considering Wind and Solar Variability

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ABSTRACT

The robust development of new energy sources stands as a critical initiative in our country's energy strategy realignment and the transformation of power development modes. However, the large-scale integration of these sources, such as wind power and photovoltaics, poses significant challenges to the grid due to their inherent randomness and volatility. To address this issue effectively and facilitate the widespread adoption of new energy, the incorporation of energy storage devices becomes crucial.

This study leverages historical data from the National Wind and Solar Storage and Transportation Demonstration Project to analyze the 15-minute and 10-minute fluctuation patterns in wind and solar power generation. The paper delves into the control methods of energy storage systems aimed at enhancing the compatibility of wind and solar power generation. Control strategies explored include the smoothing of new energy output fluctuations, aligning with planned power generation, peak shaving and valley filling, and active participation in system frequency modulation.

Keywords: Energy storage, wind and solar volatility, Configuration Method

1. INTRODUCTION

Energetically advancing the development of new energy sources has emerged as the sole path to ensuring energy security, addressing environmental concerns, and fulfilling our country's commitments to emission reduction. Over the past decade, the new energy power generation in our nation has experienced rapid growth, witnessing an over 100-fold increase in grid-connected capacities for wind power and photovoltaics. As per our country's development blueprint, new energy is projected to surpass hydropower by 2030, becoming the second primary power source, constituting 33.3% of installed capacity and contributing 15.7% to power generation.

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Flexible Silicon Hetero-junction Solar Cells On 40 μm thin Substrate

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ABSTRACT

Silicon hetero-junction solar cells have been manufactured on 40 μm thin substrate using well known industrial manufacturing process. As the thickness of substrate goes down, bulk Shockley-Read-Hall recombination is much less dominant and floor recombination becomes the most important loss mechanism at the maximum strength point. In this paper we document our contemporary accomplishments on forty μm skinny silicon hetero-junction solar cells. We have finished implied open-circuit voltages >760 mV and floor saturation modern densities $< \text{two } \text{A}/\text{cm}^2$. The pleasant mobile phone has an efficiency of 20.69%, with an open-circuit voltage of 776 mV, a short-circuit present day density of 37.17 mA/cm^2 and a fill thing of 75.6%. Replacing the thick ITO front layer with an SiO₂/ITO bi-layer led to a reap of 1.2 \pm 0.2 mA/cm^2 in modern-day density.

1. INTRODUCTION

The increasing demand to power portable and weight-sensitive applications is driving the development of thin and flexible solar cell modules [1]-[3]. Efficiencies greater than 21% have been achieved on sub-50 μm thin solar cells [4]. Various solar architectures such as perovskites, organic and inorganic thin films and epitaxially-grown silicon, are being explored to make flexible solar cells commercially viable [4]-[6]. Silicon hetero-junction (SHJ) solar cells, which offer superior surface passivation capabilities required for thinner wafers, are an interesting option for large scale and cost-effective manufacturing of flexible solar cells. Very high open circuit voltages [7], current densities [8] and record efficiencies [9] have already been successfully demonstrated using thin SHJ solar cells. Previously, we have demonstrated an efficiency of 19.2% on a 50 μm thin wafer [9].

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Multi-objective optimization of fuzzy MPPT using improved strength Pareto Evolutionary Algorithm

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ABSTRACT

With the exception of a few easy applications, all photovoltaic (PV) conversion systems have a maximum power factor tracking (MPPT) unit which lets in an optimal extraction of power. In this paper, the fuzzy good judgment controller and evolutionary strategies are mixed to achieve an efficient MPPT unit with a quickly response in transient state and minimal errors in steady state. The proposed mixture shows a good performance in simulation and affords a assorted set of MPPT controllers.

Keywords: Fuzzy MPPT, SPEA-2, objective functions

1. INTRODUCTION

Nowadays, electrical energy has become a fully-fledged consumer product that is essential, not only for everyone's daily life but also for the economy of countries. Unfortunately, most of this energy is now obtained by burning fossil fuels, and the consequence is the emission of large quantities of gas (CO₂) which directly affects the quality of air and climate. The production of electricity from "green" energies can slow the use of fossil energy and reduces gas emissions in air. Among green energies, photovoltaic energy has received considerable attention, and it suffices to see the number of applications and scientific papers around this topic to be convinced. The electrical energy is then obtained through photovoltaic effect without pollutant emissions and noise sound. Although there are different structures of photovoltaic systems (PV system with electrical storage, PV grid-connected system, PV system without storage), all these structures are equipped with an MPPT unit to cope with the energy losses that can be caused by the variations in climatic conditions [1].

In this study, in contrast to the previous works [7-9] with a single objective function, the design method of fuzzy MPPT is conducted through the minimization of two objective functions. The employed algorithm is based on Pareto dominance relation, avoiding any aggregation of objectives.

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Ripples Amplitude Minimizing of the Output Boost Converter Using MPPT Controller

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ABSTRACT

The goal of this paper is the enhancing of the PV machine overall performance by the improving of the PV and DC-DC increase converter output power. In the PV side, a new proposed MPPT method in [1] is used to using the available maximum power (MPP). On the different hand, in the enhance converter side, high ripples minimizing are received in the output power, cutting-edge and voltage. Next, three assessments simulation beneath steady and variable photo voltaic irradiation are carried out to have a look at and evaluate the monitoring effectiveness of the proposed MPPT method in contrast with the rejoice Increment of Conductance (INC) MPPT method. The simulation results show the high-quality performance and the exact ripples minimizing in the enter and output side of the improve converter the use of the proposed MPPT tactic, where the ripple amplitude can be reduced six instances compared to the INC MPPT method.

Keywords— MPPT, Boost converter, PV systems, INC, Ripples minimizing.

1. INTRODUCTION

Accelerated deployment of renewable energy promises multiple benefits, ranging from economic growth and job creation to the mitigation of climate change and the reduction of air pollution. The International Renewable Energy Agency (IRENA) analysis shows that a combination of renewable energy represents a safe, reliable, affordable and already deployable pathway capable of achieving over 90% of the energy-related CO2 emission reductions. However, to really be impactful, this energy transformation requires a global approach, engaging all levels of society – from communities, regions and governments to stakeholders from the public and private sectors

Extracting the maximum power from the photovoltaic (PV) installations requires specific components, hardware like solar trackers and software like maximum power point tracking (MPPT).

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Vehicle-Integrated 3D-PV Module with III-V and Si Solar Cells

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ABSTRACT

This paper introduces recent researches of vehicle integrated photovoltaics (VIPV), in which PV modules must be high efficiency, light weight, and compatible to three-dimensional (3D) curved surfaces. First, three approaches to improve the 3D compatibility of solar cells, i.e., switchable low-concentration PV, shape-tailored photo voltaic cells, and wafer thinning, are introduced. Second, the effect of growing the range of skip diodes in 3DPV module towards the non-uniform irradiation of 3D-PV module and are discussed. Finally, practicable purposes to the wireless power feeding and the optical communication are added as multi functionality of VIPV.

Keywords: vehicle-integrated PV, car-integrated PV, 3D-PV module, 3D surface, bypass diodes, wireless power transmission.

1. INTRODUCTION

The research and development of PV modules for automotive applications, i.e., vehicle-integrated photo voltaics (VIPV) is an emerging topic. High-efficiency thin-film III-V solar cells are promising for car body installation. Toyota and Sharp are testing a plug-in hybrid electric vehicle powered by a 8670W InGaP/GaAs/InGaAs film triple-junction module in the NEDO project [1], and demonstrating the solar-powered driving. VIPV has a potential to reduce carbon dioxide (CO₂) emissions in the transport sector and the frequency of refueling steps. However, there are challenging issues toward full-scale commercialization [2]. For example, high power generation must be achieved with a small area (Wh/m²), low weight (Wh/kg), and low-cost solar cells (Wh/\$). The VIPV module must meet the durability and standards required for automobiles. The performance evaluation method of VIPV modules could be different from that of ordinary PV modules. And in some cases, the VIPV module must be able to fit to 3D curved surfaces. If the vehicle body is flat like a truck and bus, there is not much problem on this matter. However, it becomes a problem if it is necessary to attach solar cells and modules to a 3D curved body.

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Flexible Electronic Skin

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ABSTRACT

Summary form only. Advances in electronic miniaturization have revolutionized computing and communications over the past half century. However, these advances have mostly come from high-performance electronics to planar and rigid platforms. This is insufficient for many new applications and interactive systems (eg, robots, wearables and vehicles, etc.) that require sensors and electronics embedded in soft and compact materials and flexible form factors. These requirements require new methods of applying electronics to unusual substrates such as plastics, paper and elastomers. In this regard, monolayer-efficient high-performance printed electronics has also brought a new dimension. This talk will present some of these advances, including hybrid integration of off-the-shelf devices embedded in soft materials, printed nanostructures and ultrathin chips, etc. leading to electronic skin for robotics, prosthetics and similar interactive systems. Such systems are also key to advancing emerging fields such as wearables and health technologies, and this talk will briefly address these potential future directions as well.

Keywords: Wearable computers, Skin, Robot sensing systems, Interactive systems, Flexible electronics, Substrates, Prosthetics.

1. INTRODUCTION

Electronics plays a very important role in developing simple devices for any purpose. Electronic devices are needed in all fields. The best achievement of integrated electronics and a future example in the field of medicine is Artificial Skin. It is an ultra-thin electronic device that sticks to the skin like a sock tattoo, which can measure the electrical activity of the heart, brain waves and other vital signals. The development of robotics requires a better understanding of the environment. Human skin senses temperature, touch/pressure and airflow. The goal is to develop sensors for flexible platforms compatible with curved surfaces. The goal of the scientist in the production of artificial leather is to make a revolutionary change in robotics, medicine, flexible electronics.

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Facial Liveness Detection

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ABSTRACT

Biometrics has evolved into an exciting but challenging field over the past decade. Although facial recognition is one of the most promising biometric technologies, it is vulnerable to fraud threats. Many researchers are focusing on facial liveness detection to protect biometric authentication systems against fabrication of printed photos, video replays, etc. Therefore, it is important to examine current research on facial liveness detection to see if recent advances can provide solutions to mitigate emerging impairments. challenges This study conducted a systematic review using the PRISMA approach, examining major electronic databases. The article selection process follows predefined inclusion and exclusion criteria. Conceptual analysis examines data obtained from selected articles. For the author, this is one of the main systematic literature reviews dedicated to the perception of facial liveness, evaluating the available academic material published during the past decade. The study discusses face spoofing attacks, different feature extraction strategies, and artificial intelligence approaches for face liveness detection.

KEYWORDS: artificial intelligence (AI); domain customization; explainable AI (XAI); Facial liveness detection (FLD)

1. INTRODUCTION

Biometric verification has consistently outperformed traditional password-based authentication methods [1]. Identification of a person was limited in prehistoric times. Today, computer vision and biometrics can be used to distinguish people without credentials or objects [2]. Biometric identifiers can identify people, not their registration, assets or confidential information. The need for accurate and machine-based identification has led to biometrics, which accelerates the identification and authentication of people through technology. Printed identification cards have been replaced by biometric features that allow you to prove who you are without a card or other document [3]. Authentication is an important step in allowing authorized users to access resources.

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A Geriatric Care System using an Electronically Controlled AIR Jacket

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ABSTRACT

Falls are one of the most common problems in older adults, leading to injury and lead for hospitalization. A fall in an elderly person is more likely to result in hospitalization compared to children. This fear prevents the elderly from becoming independent and does not allow them to continue a normal life like other people. The fear of falling later has dramatic psychological consequences for the older adult significantly weakens a person's self-confidence. This anxiety can also contribute to future falls serious consequences and the mental and physical health of a person. The consequences of a fall also depend delay the provision of appropriate medical care. Thus providing treatment process and effect fall-related events can be enhanced by having a framework for a fall event programmed exposure and creative methods to mitigate falls and fall-related injuries.

Keywords: GSM Network, Patient Monitoring System, MEMS Accelerometer, Acceleration, Solenoid Valve, GPS module.

1. INTRODUCTION

The elderly are the fastest growing part of the population. As reported by World Health Organization, 30% of the elderly fall at least once a year. Falls and fall-related injuries account for 70 percent accidental death of people over 75 years old. The fear of falling also has an emotional and mental side leads to the psychological well-being of an elderly person because it destroys a person's self-confidence. Falls and fall-related injuries are the third leading cause of chronic disability. With this rise, the shares the number of frail and dependent older adults is likely to increase significantly. Hence falls and fractures caused by falls is common among the elderly, this demographic change will lead to exponential growth individuals who experience injuries resulting from falls and fall-related situations. Hip fractures account for the majority of costs associated with falls and fall-related fractures older people.

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Hybrid Solar Energy

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ABSTRACT

This article examines the use of solar energy systems in various applications to determine the most suitable system that is highly efficient and reliable. Most of the urban and rural areas that suffer from lack of continuous electricity supply prefer to depend on hybrid systems such as solar/wind system, solar/geothermal system and solar/diesel battery system. Studies show that hybrid systems could meet the required loads in a different proportion compared to a stand-alone system, depending on the operating conditions and components of the hybrid system, but the complexity is high in terms of initial cost system components. In addition, the use of a hybrid solar/thermal system is more adequate than the aforementioned systems due to the improvements made in parts that increase the overall efficiency using phase change material (PCM), nanofluid or PCM - nanofluid mixture as cooling. A photovoltaic panel (PV) maintains the efficiency of solar cells and increases thermal energy.

Keywords: Radiation, hybrid system, PCM, Nano fluid

1. INTRODUCTION

The increase in population growth and the associated industrial revolution leads to an ever greater demand for energy, where fossil fuels are the main energy source, causing huge emissions of carbon dioxide in electricity production. . . Many feasibility studies have been conducted to determine systems that work as environmentally friendly systems (renewable energy systems) with long service life and high reliability and efficiency. These systems were chosen as an alternative to fossil fuel systems [1] that use alternative energy. Like non-traditional sources like wind energy, hydropower, biogas, biomass energy and solar electricity. The increase in electricity demand is also due to other reasons, such as increasing global warming and price fluctuations of oil and gas emissions [2]. In this context, new ecological systems are used, which called the hybrid system as a viable alternative to the single system, where the hybrid system has the appropriate capacity to cover the energy needs of consumers in isolated areas [3].

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Microwave Assisted Synthesis of Graphene / SnO₂ Nano composite and Its Structural, Dielectric and Electrical Properties

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ABSTRACT
Graphene-metal nanocomposites are the best candidates for greater sensitivity in various applications. U.S. prepared graphene tin oxide (G/SnO₂) nanocomposite using a simple eco-friendly Anne Furn Microwave Synthesis Reactor Method. X-ray diffraction patterns showed the formation of G/SnO₂ nanocomposite. Scanning electron microscope and transmission electron micrographs show a uniform distribution of nanorodules in graphene surface area and average particle size were found to be between 3-5 nm. The G/SnO₂ composite shows an improved optical property, i.e. frequency band tunability intact SnO₂ nanoparticles upon exposure to them graphene Dielectric properties of G/SnO₂ nanocomposite was measured in the frequency ranges 75Hz to 4MHz and the actual value of dielectric constant is 1200 was found, which is significantly higher than pristine SnO₂ nanoparticle of 12. In addition, AC conductivity analysis showed that G/SnO₂ is two times lead as pure SnO₂.
Keywords: Eco-friendly method, Graphene / Nanocomposite.

1. INTRODUCTION
Over the decade, graphene has emerged as a promising nano-platform with enormous potential for biomedical applications and translational research because of its excellent physical, chemical, and mechanical properties [1-4]. Graphene is a novel two-dimensional nanomaterial composed of sp²-bonded carbon atoms, possesses a number of extraordinary electronic, optical, and thermal properties. A lot of interesting work has been carried out to explore the graphene for widespread biomedical applications, ranging from drug-gene delivery, biological sensing and imaging, antibacterial materials, to biocompatible scaffold for cell culture [3-5]. It is also known to have tremendous kind of properties such as high mobility of charge carriers of ~2×10⁵ cm² V⁻¹ s⁻¹ with intrinsic biocompatibility, low cost and scalable production, and facile biological/chemical functionalization [6]. As a new kind of carbon material, graphene has shown a wealth of exceptional properties and a variety of promising potential applications.

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A Micro strip Antenna Bonded Between Non- Radiating Edges for Wireless Body Area Communication

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ABSTRACT

In this study, a 40 mm x 40 mm x 1.6 mm circular microstrip patch antenna with parallel CSRR is designed to operate in five different bands. The proposed antenna is designed using FR4 substrate. The entire structure is simulated using a computer simulation studio. The proposed antenna operates in five frequency ranges 2.31 GHz to 3.56 GHz, -11.86 dB, 3.89 GHz to 5.16 GHz, -18.28 dB, 7.82 GHz to 8.64 GHz, -17.28 - 17.11 GHz and 17.1 GHz to 21.9 GHz, 17.1 GHz to 13.78 GHz and -13.28 dB return loss. Production loss, gain, directivity, VSWR and radiation pattern are simulated with CST studio and presented. The presented simulated results show that the proposed structure exhibits multiband characteristics at five different resonant frequencies of 2.73 GHz, 4.46 GHz, 7.74 GHz, 9.56 GHz, and 13.55 GHz, which include S, C, X, and Ku-band applications.

Keywords: Micro strip antenna, interconnection, wireless backbone network (WBAN), trunk communication, applications, patch antenna

1. INTRODUCTION

In recent years, tremendous progress has been made in electromagnetism of body area network (BAN) and revolutionary functions for health monitoring, patient monitoring, physical therapy, battlefield survival, computing processes that can be achieved by mobile devices, Internet of Things (IoT) and so on. Thus, BAN technology has a promising effect in changing many aspects of people's daily life. In recent days, it has been possible to take care of health care online. Monitor and monitor patients in any situation, regardless of their location, such as in their own home, in intensive care units and also in hospital rooms. In the WBAN communication type, three modes can be classified: in-body, in-body and out-of-body communication. The required radiation pattern of the WBAN antenna must be normal to the body surface and smaller in size.

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Vehicle Theft and Engine Loss Alert ARM7 System

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ABSTRACT
Nowadays, the crime rate is increasing rapidly because it is a matter of course. thefts become routine. In particular, these vehicles can cause huge losses on the invested amounts these vehicles. There are many technologies available in the market to solve this problem, for example GPS, GSM and GPRS systems. Today, most vehicles are designed with GSM-based vehicle anti-theft systems that protect against theft, even when parked in a parking lot.

Keywords: ARM7, GSM, GPS, LCD.

1. INTRODUCTION
The purpose of vehicle theft/remote engine immobilizer notification is mainly to reduce vehicle theft to a great extent. Many vehicles are stolen nowadays and that is the reason why this system is introduced to prevent for a stolen vehicle, this system uses two modems and a theft mode. When the vehicle is in theft mode, this system sends a text message to the user if someone tries to steal the car. After that, the user must respond the message. This message gives tell the vehicle to lock the engine. Whenever a person tries to steal the vehicle, the ARM7 is interrupted. After that whose GSM modem is responsible for sending a text message to the user informing him that the vehicle has been stolen. ARM uses mechanism to stop the engine. The system uses motors to indicate the ON/OFF status of the vehicle. This project can be further enhanced with GPS, which also helps in finding the exact location of the vehicle. This information can then sent to the user via text message.

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Digital and Pulse Width Control of Satellites and space ROBOTS Orientation in Initial states

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ABSTRACT

Nonlinear digital and pulse width control problems in spacecraft orientation in the initial states are considered - always during their separation from the launch vehicle regular position stabilization in the orbital reference frame. Developed methods, algorithms and Results of a computer simulation of the initial orientation states of small satellites and space robots in non-synchronous orbit are launched.

Keywords: spacecraft, initial states, orientation, nonlinear control.

1. INTRODUCTION

We consider data satellites (Testeykov et al., 2017), Figure 1 and space robots (Flores-Abad et al., 2014; Somov et al., 2018a) with the attitude control system (ACS) which involves an inertial attitude system (ADS) con. 1. Information SC reception by signals navigation satellites and star trackers, until gyro angle rate sensors (ARS), magnetometer (MM) and also actuators - power unit (PU) is based on eight reaction engines (RE) and pulse width modulation (PWM) drive, a group of four feedback gears (RW) according to the system General Electric (GE) and magnetic station (MD) with digital control, after separates the SC launching the rocket and deploying its solar panel panels (SAP), the spacecraft (SC) begins to crash - rotate with the angular velocity vector so in any direction in the body reference frame (BRF). Purpose of ACS Initial Orientation Modes (IOMs) is to move the SC orientation to a certain position orbital reference frame (ORF). Solution here The problem of not using PU was brought up earlier (Somov and Batyrin, 2017; Somova, 2018) and includes the following steps: (i) relief (suspension SC rotation in inertial reference frame (IRF) with digital MD control via ARS hardware signals; (ii) ADS and RW group initialization; (iii) SC RW group spatial control and attitude control align the SC orientation to the given angular position in ORF; (iv) SC angle stabilization ORF prepares its equipment for on-flight inspection (Somov et al., 2018b) and operating in the main sites.

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Side-Channel Protected MPSOC with Secure Real-Time Networks

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ABSTRACT

The integration of Multi-Processor System-on-Chip (MPSoC) in the context of the Internet of Things (IoT) brings new opportunities, but also contains risks. Designing MPSoCs must simultaneously consider strict real-time constraints and security requirements. Network-on-chip (NoC) is particularly important to fulfill these two contradictory characteristics. For example, NoC design has a huge impact on system security. A significant threat to system security are so-called side-channel attacks based on observations of NoC communications. To this end, we propose a NoC security mechanism suitable for hard real-time systems where scheduling is an important design requirement. We present three contributions. First, we show the impact of NoC routing on system security. Second, we propose a packet route randomization mechanism to increase the resilience of the NoC against side-channel attacks.

Keywords: Side channel, MPSoC, NoC, Calling.

1. INTRODUCTION

The widespread use of the Internet of Things (IoT) is a driving factor for digitization in all areas, e.g. industrial automation, automotive industry, avionics, 4 and health care. The basis is increasingly complex and powerful Multi-Processor Systems on-chips (MPSoC) circuits connected by a NoC network. The semiconductor industry faces strict and 7 requirements for such applications. These requirements include e.g. 8 low power, short latency and high performance. When developing systems 9 for these hyper-connected environments, real-time constraints and security 10 are necessary considerations. 11 Network-on-Chips (NoCs) are the heart of the MPSoC. NoCs are shared 12 by different communication flows characterized by a wide set of require 13 ments, which include performance, reliability or security.

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Towards the combination of topology optimization based on lattice structures with additive manufacturing for the design of turbo machinery components

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ABSTRACT

Used in a few mechanical areas to make innovative designs, topology optimization could be a strategy to plan a structure characterized by greatest firmness properties and diminished weights. By coordination topology optimization with added substance layer fabricating and, at the same time, by utilizing imaginative materials such as grid structures, it is conceivable to realize complex three-dimensional geometries subordable utilizing conventional subtractive methods. Shockingly, the exceptional potential of topology optimization strategy (particularly when coupled with added substance fabricating and grid structures) has not however been broadly created to consider printing machines. Based on its over contemplation, the pertinence of topology optimization, added substance fabricating, and grid structures to the areas of turbo apparatus and rotor flow is here investigated. Such procedures are connected to a turbine disk to optimize its execution in terms of reverberation and mass decrease.

1. INTRODUCTION

Energetic optimization strategies are a gold standard within the turbo machinery field particularly committed to extend rotational speed and, at the same time, to reduce components mass. Besides, it is conceivable to extend the security net of a component beneath working conditions basically by changing its common frequencies. Optimization strategies are more often than not classified as takes after parametric optimization (where the estimate of considered components changes amid the optimization routine), shape optimization (where the shape of the structures is subjected to adjustments amid the optimization), and topology optimization. In spite of TO strategies are commonly utilized for respectful applications and for optimizing car components, they have not been completely investigated within the turbo apparatus field.

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The influence of different cutting speeds on the surface and edge characteristics of milled granite materials was investigated

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ABSTRACT

Robotized stone fabricating has experienced significant advancement in later a long time. Much obliged to worldwide investigate managing with the cutting, sawing and crushing of diverse characteristic stones, handling time abbreviates and tool-life protects. Be that as it may, the method of stone processing has not been broadly inspected however, fundamentally since of the oddity of this innovation. The point of the inquire about portrayed in this article is to look at how variable cutting speed influences the quality of work piece edges whereas processing stone materials. For the inquire about, test surfaces were shaped on five stone chunks with diverse normal grain sizes utilizing five cutting speed values. A while later, changes within the normal surface roughness and normal edge chipping rate were inspected. From the inquire about comes about, it can be concluded that, due to an increment in cutting speed, the normal edge chipping rate will diminish until reaching a borderline speed.

1. INTRODUCTION

Natural stones – in their capacity as crude materials – are regularly utilized within the development industry and in mechanical building innovation. Within the building industry, these materials are for the most part utilized for fabricating statues, tiles and tabletops, whereas mechanical designing innovation favors rock for fabricating beds and tables for arrange measuring machines and ultra-precision machine devices. The investigate portrayed in this article analyzes how changes in fabricating speed influences the normal edge chipping rate and surface quality of stone materials within the case of computerized stone processing forms. Within the scope of our research, within the to begin with arrange of our study, a test surface was created on rock materials employing a Praxair Brilliant Plus-type computer numerical control (CNC) machining middle. Within the case of each rock fabric, test surfaces were fabricated on five tables utilizing five different cutting speeds. Taking after the fabricate, the normal edge chipping rate of the exit edge of the surface was to begin with set up.

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Investigation of the flexible multi body dynamics of the neutron spectrometer sample table lifting mechanism

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ABSTRACT

To begin with, the lifting component of neutron spectrometer test table was planned. At that point, each single portion flexible multibody models and all parts flexible multibody show were built utilizing ANSYS and ADAMS. At last, the single portion flexible multibody models and all parts flexible multibody demonstrate were analyzed when lifting component come to the most noteworthy position and sliding table was moving along the X- or Y-axis with 1 ton stack. The results demonstrate that the normal distortion along Z heading is most extreme among all headings of sliding table center, which is 30.1 μm. External barrel takes up the biggest extent of the distortion in X heading, which is 75.8%, center barrel takes up the biggest extent of the distortion in Y course, which is 91.32%, and inward barrel takes up the biggest extent of the distortion in Z heading, which is 89.36%.

1. INTRODUCTION

Neutron diffraction can identify the profound push field of components without destructing the structure, and it has numerous points of interest in measuring profundity and measuring proficiency compared to other methods. Hence, the make of a high-performance neutron spectrometer is exceptionally imperative to materials arrangement and hardware fabricating. A test table is the key portion of the neutron spectrometer; it must meet multi-dimensional development and precise situating of the huge components. The lifting component of test table is required to meet expansive bearing capacity and long relocation, but the settled neutron bar stature limits the estimation space, so the plan of lifting instrument is amazingly thorough. In this way, it is exceptionally vital to consider the energetic execution of lifting component. In later a long time, numerous nations around the world have connected much significance to development of neutron spectrometer, and neutron spectrometer test table of each nation has its claim characteristics.

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A novel integrated numerical modeling technique for simulating piston diaphragm pumps: Simplifying three-dimensional models and analyzing their characteristics

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ABSTRACT

Piston diaphragm pumps are utilized around the world to transport abrasive and forceful slurries against full release weights within the mining, mineral handling, and control businesses. Discontinuous suction and waste of the stomach, in any case, can lead to throbbing yield weight, which has caused major issues within the application of these pumps. To progress the exactness of recreations of cylinder stomach pumps and to empower superior reenactment of their weight throb behavior, it is essential to carry out a three-dimensional fluid-structure interaction reenactment of the pump vacillation characteristics. This article proposes a streamlined reenactment demonstrate based on the occasional movement characteristics of a cylinder stomach pump, where a ZMR240 cylinder stomach pump serves as the investigate protee.

1. INTRODUCTION

Cylinder stomach pumps are broadly utilized within the mining, mineral handling, and control businesses to transport grating and forceful slurries against full release weights. In any case, the complex inner stream of a cylinder stomach pump can produce water powered excitation powers that cause weight throbs. Figure 1 appears the structure of a ZMR240 cylinder stomach pump. This pump comprises of a pump body, a side cover, a stomach, chammed and outlet valves, an offset shaft, a cylinder, a slider, and an discuss chamber. When the offset shaft pivots, the cylinder is at that point driven to respond by the slider. When the cylinder moves from heat dead center to foot dead center, a vacuum is shaped between the heat surface of the cylinder and the stomach. The diaphragm at that point misshapes within the heading of the foot dead center position of the cylinder, hence causing a vacuum between the side cover and the stomach. At this point, the fluid exterior the pump enters the pump chamber through the chammed pipe beneath the activity of harsometrical weight until the cylinder moves to foot dead center and the pump chamber at that point completes the pipe ting handle.

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An unconventional approach to the construction of cylindrical blades with tunable intake blade angles

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ABSTRACT

A modern approach for round and hollow blades plan is displayed in this article. Creators of this article analyzed the most reasons which are capable for the less productivity of uncurved blades and found out that the span misfortunes along the blade driving blades are much higher than those of turned blades. Moreover, based on the investigation, this article proposed a new plan approach that's distinctive from the conventional one. This modern approach can diminish water powered misfortunes at blade driving blades and improve performance and effectiveness of round and hollow blades. Within the conventional plan prepare, to draw blade projection in arrange see, an frequency at crossing point of blade driving blades and inward streamline on the meridional segment is chosen for calculating blade channel point precisely. Since the rate and the blade channel point at the crossing point of blade driving blades and external streamline are shaped naturally, the blade channel points at this point are not appropriate for oncoming stream heading, creating recognizable span misfortunes at this place.

1. INTRODUCTION

Round and hollow blade could be a principal blades frame connected to low particular speed impellers. Its pressure driven execution is fundamentally decided by the blade geometry. An expansive body of writing has detailed the strategies to diminish pressure driven misfortunes caused by the blades. JF Gillich and Lobanoff proposed rules to set up blades geometrical parameters for impellers of distinctive particular speeds and depicted airy gritty strategies to design single circular segments as the projection of uncurved blades in arrange see. For broadening tall productivity stack extend of a moo particular speed pump, J Pei et al. chosen distinctive extents of blades outlet width, blades outlet points, and blades wing points to arrange a few impellers and compared their execution. DS Zhang et al. connected the stream field inside 10 moo particular speed impellers and proposed arrangements to make strikes their efficiencies.

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The trifurcated waveguide's scattering study with Structural discontinuities

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ABSTRACT

The present article highlights the acoustic waves diffusing in a trifurcated waveguide containing compressible fluid beside step discontinuities and after of bounding fabric properties. The study is vital since of its applications in dynamic combustion control measures, particularly utilized to control the low-frequency clatter and related vibrations. The everesting boundary esteem issue is unraveled by utilizing the mode-matching strategy. The arrangement is created for the investigation of symmetric, uniform, and non-uniform cross-sections. The arrangement method starts by deciding the extended frame of field possibilities in different conduit locales of the waveguide. At that point, the weights and the ordinary speed modes over the waveguide districts are coordinated at interface. The vitality flux against recurrence and different channel setups is plotted. The arrangement is approved inside and out through the apt expository and numerical value.

1. INTRODUCTION

Over a long time, extent of curiously and challenging issues that include the wave diffusing investigation in bifurcated and trifurcated waveguide channels have been talked about by numerous analysts. The intrigued to play down the clamor contamination looming from the warming, ventilation, and discuss conditioning (HVAC) framework of buildings or car debilitate frameworks of vehicles or aircrafts has stipulated the proceeded integrated. The dissipative silencers containing complex geometrical shapes and bulk responding materials have been modeled to constrict the broadband clamor. A few explanatory and numerical methods have been created so distant to consolidate these hypothetical models. The point of these thinks about was to examine the sound constrictor locale against different setups of channels and fabric properties.

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Investigation of the adaptable multi body dynamics of the neutron spectrometer sample table lifting mechanism

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ABSTRACT

To begin with, the lifting component of neutron spectrometer sample table was planned. At that point, each single portion adaptable multibody models and all parts adaptable multibody demonstrate were built utilizing ANSYS and ADAMS. At long last, the single portion adaptable multibody models and all parts adaptable multibody show were analyzed when lifting component come to the most elevated position and sliding table was moving along the X- or Y-axis with 1 ton stack. The results about demonstrate that the normal distortion along Z heading is greatest among all bearings of sliding table center, which is 30.1 μm. External barrel takes up the biggest extent of the distortion in X heading, which is 75.8%, center barrel takes up the biggest extent of the distortion in Y heading, which is 91.32%, and internal barrel takes up the biggest extent of the distortion in Z course, which is 89.36%. Among the eight direct rails of lifting instrument, four direct rails between the inward and center barrels are beneath uniform stack, and the other four direct rails between center and external barrel are beneath non-uniform stack.

1. INTRODUCTION

Neutron diffraction can identify the profound push field of components without destructing the structure, and it has numerous focal points in measuring profundity and measuring productivity compared to other strategies. Hence, the fabricate of a high-performance neutron spectrometer is exceptionally critical to materials planning and gear fabricating. A test table is the key portion of the neutron spectrometer, it has to meet multi-dimensional development and exact situating of the expansive components. The lifting component of test table is required to meet expansive bearing capacity and long spreading, but the settled neutron bar stature limits the estimation space, so the plan of lifting instrument is amazingly thorough. Hence, it is exceptionally critical to consider the energetic execution of lifting component.

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Stability analysis for the deflection of a single-point Cutting tool during a turning process

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ABSTRACT

In this article, a modern demonstrate of regenerative vibrations due to the diversion of the cutting apparatus in turning is proposed. The past consider detailed chatter as a result of cutting a wavy surface of the part cut. The proposed demonstrate takes under consideration cutting strengths as the most calculate of tool deflection. A cantilever bar demonstrate is utilized to set up a numerical show of the instrument diversion. Three-dimensional limited component strategy is utilized to assess the device possible avoidance beneath the activity of the cutting stack. To analyze the framework energetic behavior, 1-degree-of-freedom demonstrate is utilized. MATLAB is utilized to compute the framework time arrangement from the beginning extent utilizing fourth-order of numerical integration. A straight difficult turning with negligible liquid application explore is utilized to get cutting powers beneath steady and chatter conditions. A single-point cutting apparatus made from high-speed steel is utilized for cutting.

1. INTRODUCTION

Turning operation is one of the foremost viable machining forms for the fabricating of metal and non-metal components utilized completely different businesses. In turning operation, a cutting apparatus is balanced into a turning workpiece to produce an outside or inner surface concentric with the pivot of rotation. Turning is carried out employing a machine, one of the foremost versatile conventional machine instruments. In turning, the cutting instrument is held in on a interrupting carriage or turret or within the tailstock. The carriage or turret voyages along the bed ways parallel to the portion hub (Z-axis) being machined. The movement opposite to the part axis is given by the X-axis or a cross slide mounted on the carriage. The workpiece is mounted on a pivoting shaft employing a chuck, collet, faceplate, or a mandrel, or between pointed cone shaped centers.

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Features of meshing a pair of sphere-face gears with Varying shaft angles

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ABSTRACT

This article presents a sphere-face equip match by substituting the archoid circular gear for the pinion of a routine face gear match. The sphere-face gear match not as it were keeps up the focal points of the face gear match with a longitudinally adjusted pinion but moreover permits variable shaft points or huge pivotal misalignments. Coinciding characteristics of the proposed gear match are examined in this article. The numerical models of the sphere-face gear combine are inferred based on machining standards. The tooth contact examination (TCA) and sbb and flow impedances check are conducted for the sphere-face gear match with variable shaft points. The stacked TCA is additionally actualized utilizing the limited component strategy. The results about numerical illustrations appear that proposed equip combine has the taking after highlights. Geometrical transmission mistake of steady shaft point or shifting shaft point is zero; contact focuses of the sphere-face equip set with variable shaft point are found close the center locale of face gear tooth surface; there's no sbb and flow obstructions in fitting; and transmission progression of the equip combine can be ensured in coinciding.

1. INTRODUCTION

The face gear drive is composed of a round and hollow pinion and a slope gear. It is more competent of taking care of bigger decrease proportions than the inline gear drive since of its geometry. The most advantage of such a gear drive is the plianability of part the torque and the diminishment in weight. Localization of the contact (point contact) is required to anticipate edge contact and partition of tooth surfaces, which may happen with the nearness of misalignment blunders. Hence, the confoint equip is a rate produced by a shape with an expanded number of teeth relative to the pinion. To progress the execution of face gear drives, a few alteration approaches of tooth shapes have been put forward. Litvin displayed the equip drive that contains a helical face gear and a customary involute helical pinion. The bearing contact way of the confoint equip in this plan is coordinated vertically.

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The Limitations Ascertained in realization of ICT Tools in Teaching & learning

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ABSTRACT

During Last couple of years ICT has justified its importance in almost all fields like hospitality, engineering, education, industry, research etc. Specifically, various ICT tools in the Education system can help improve effective teaching learning process. It also provides its contribution to evaluation part. However, there are still some challenges i.e. cost, internet access, trained staff, which we need to cooperate and try to overcome so as to implement it in real practice. This article focuses on these hurdles and their corresponding effects while including practical examples from various ICT tools in education system. Some criticism and considerations are also presented. This paper will not only provide the key references but also provide enough background to the use of it.

Keywords: Edmodo, Google Classroom, ICL, ICL Ran, SOE;

1. INTRODUCTION

Abbreviation of ICT is considered as an Information and Communications Technology. Birth of the ICT word is fully dependent from information technology (IT); its scope is more in a broader sense, ICT has more recently been used to describe the convergence of several technologies and the use of common transmission lines carrying diversified data and various communication types in different formats. According to Wikipedia "Information and communications technology (ICT) is an extended term for information technology (IT) which stresses the role of unified communications and the integration of telecommunications (telephone lines and wireless signals), computers as well as necessary enterprise software, middleware, storage, and audio-visual systems, which enable users to access, store, transmit, and manipulate information.

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A study of Women's Human Rights of Bodoand Territorial Council, Assam

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ABSTRACT

Human rights are those rights which are essential for all the individuals as they are consonant with their freedom and dignity and are conducive to physical, moral, social and spiritual welfare. Human rights are a birth right of an individual, and therefore inherent to all the individuals irrespective of their caste, creed, religion, language, sex and nationality. Attaining equality between women and men and eliminating all forms of discrimination against women are fundamental human rights and United Nations values. Women around the world nevertheless regularly suffer violations of their human rights throughout their lives, and realising women's human rights has not always been priority. Achieving equality between women and men requires a comprehensive understanding of the ways in which women experience discrimination and are denied equality so as to develop appropriate strategies to eliminate such discrimination. 'A Study of Women Human Rights of Bodoand territorial Council' is based on some important assumptions on the Study of Women's human rights especially in the BTC area. Bodoand Territorial Council is a Sixth Schedule area which was created on 10th February, 2003, and is basically a backward and one of the most conflict prone areas of Assam.

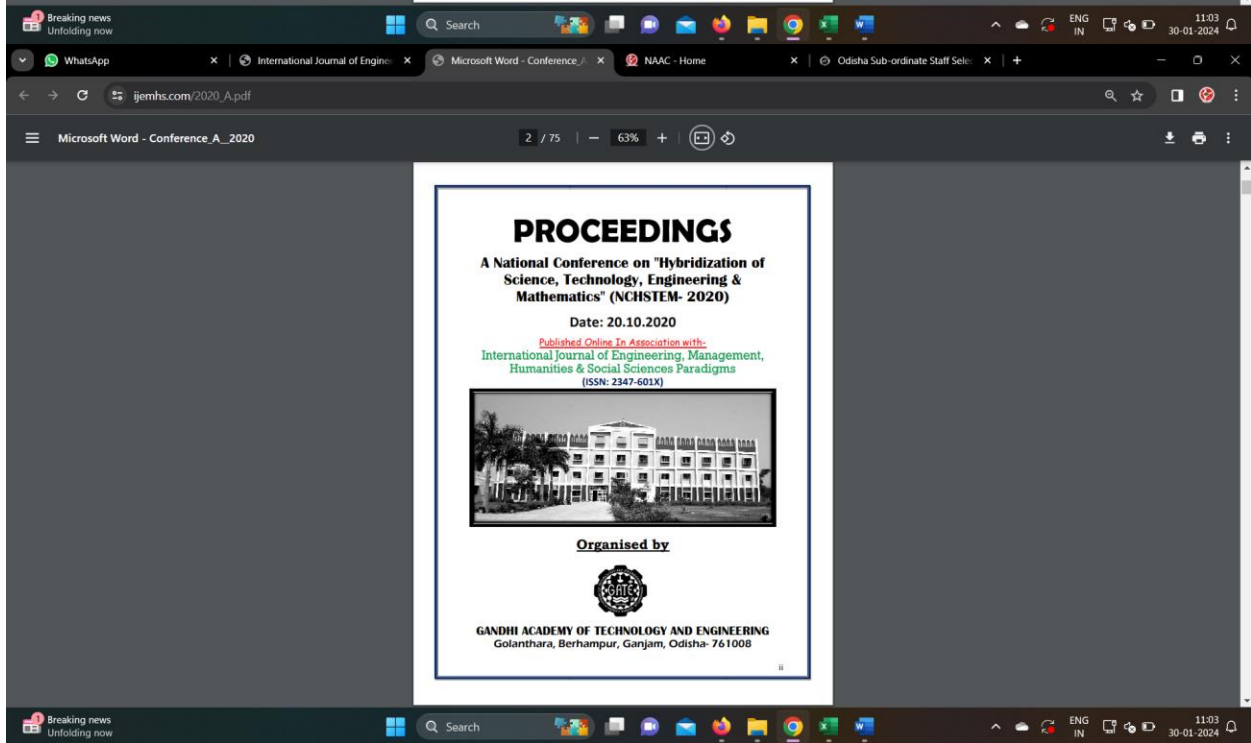
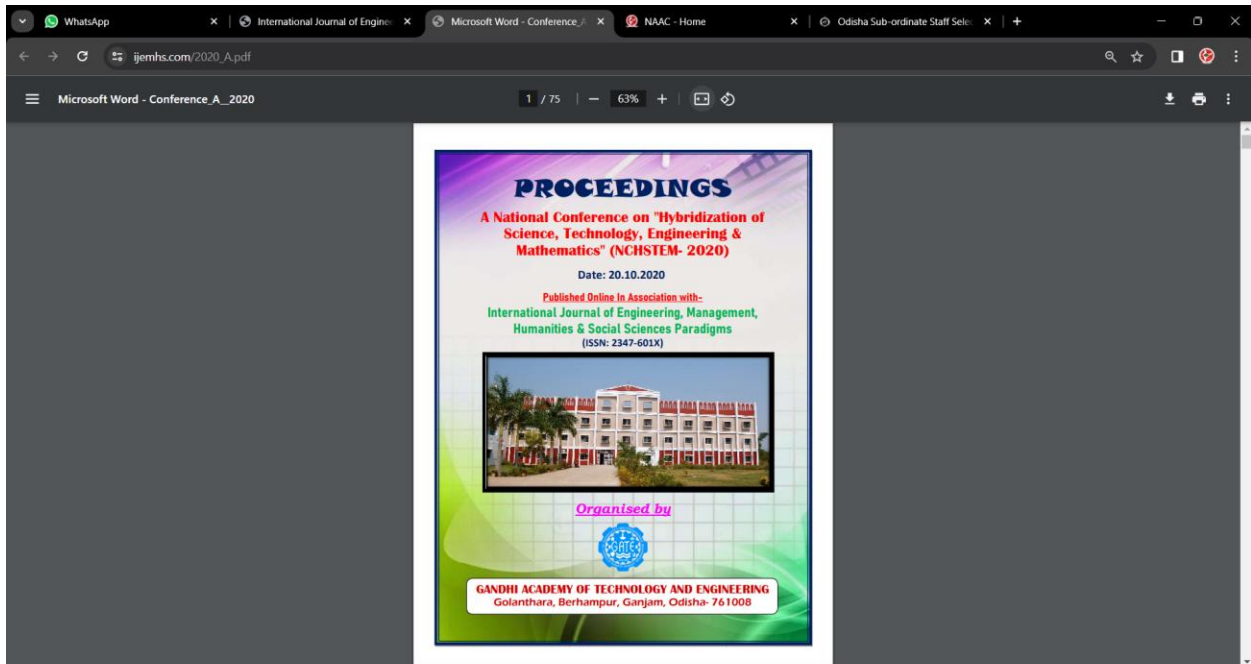
Keywords: Women, Rights, BTC, Health, Education, Human

1. INTRODUCTION

Women's and girl's rights are human rights. They cover every aspect of life – health, education, political participation, economic well-being and freedom from violence, among many other. Women and girl are entitled to the full and equal enjoyment of all their human rights and to be free from all forms of discrimination – this is fundamental to achieve human rights, peace and security, and sustainable development. The rights of Women and of the girl-child are an inalienable, integral and indivisible part of universal human rights. It is clear that the women's rights as define as the freedom, liberties and opportunities that women have, especially the opportunity to be treated equal to and given the same legal rights as men.

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Inter comparison of NO₂, O₄, O₃ and HCHO slant column measurements by MAX-DOAS and zenith-sky UV-visible spectrometers during CINDI-2

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ABSTRACT

In September 2016, 36 spectrometers from 24 organizations estimated various key air toxins for a time of 17 d during the Second Cabauw Intercomparison exercise for Nitrogen Dioxide estimating Instruments (CINDI-2) that occurred at Cabauw, the Netherlands (51.97 E). We report on the result of the formal semi-blind intercomparison work out, which was held under the umbrella of the Organization for the Discovery of Climatic Synthesis Change (NDACC) and the European Space Organization (ESA). The three significant objectives of CINDI-2 were (1) to portray and better grasp the distinctions between countless multi-pivot differential optical assimilation spectroscopy (MAX-DOAS) and pinnacle sky DOAS instruments and examination techniques, (2) to characterize a powerful technique for execution evaluation of all partaking instruments, and (3) to add to a harmonization of the estimation settings and recovery techniques. This, in turn, makes the capacity to create steady top notch ground-based informational collections, which are a fundamental necessity to produce solid long haul estimation time series reasonable for pattern investigation and satellite information approval.

1. INTRODUCTION

Inactive UV-visible spectroscopy involving dispersed daylight as a light source gives one of the best techniques for routine remote detecting of barometrical follow gases from the ground. While apex sky perceptions have been utilized for a very long while to screen stratospheric gases like NO₂, O₃, Broder and O₃D (for example Nason, 1975; Platt et al., 1979; Solomon et al., 1987; Pommeroy and Goustal, 1988; Richter et al., 1999; Liley et al., 2000; Hendrick et al., 2011; Yela et al., 2017), estimations examining the sky upward at a few fine points among skyline and peak have been laid out more as of late. Notwithstanding complete segments, the MAX-DOAS (multi-hub differential optical retention spectroscopy; Hönninger et al., 2004) strategy likewise permits the deflection of an upward direction settled data on various tropospheric species like NO₂, formaldehyde (HCHO), Broder, glyoxal, H₂, HONO and SO₂ (see, e.g., Hönninger furthermore, Platt, 2002; Witteck et al., 2004; Heckel et al., 2005; Lee et al., 2008, 2009; Smitich et al., 2010; Friedl et al., 2011; Hendrick et al., 2014;

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Organ metallic compounds in drug discovery: Past, present and future

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ABSTRACT
In this survey, we present an outline of a portion of the restructurally significant organometallic drugs that have been utilized previously or that are right now in clinical preliminaries as well to act as an illustration of mixtures that are presently in the underlying phase of medication advancement. Three primary classes of organometallic buildings have been picked for conversation: antimicrobial organometallics, antitumoral and anticancer ferrocene-containing compounds and anticancer energetic organometallic edifices. The motivation behind this audit is to give perusers with an emphasis on the huge advancement that has been made for each of these separate fields of medication.

1. INTRODUCTION
An organometallic complex is for the most part characterized as a metal-containing compound that has something like one immediate, covalent metal-carbon bond [1]. The most noticeable instances of this class of mixtures are generally presumably the (half)sandwich compounds and the charge metal carbenes, with ferrocene what's more, the Grubbs impurities being common instances of these two classes of organometallic buildings. Such mixtures have tracked down huge applications in analysis or biosensing at the same time, really astonishing for specific perusers of this article, too in medication [2-7]. At this phase of the survey, it is significant to feature that the well known platinum(II) anticancer medications cisplatin, oxaliplatin and carboplatin, the antiarthritic gold(I) auranofin or the X-ray specialists in light of gadolinium(III) are not organometallic edifices since they don't have a metal-carbon bond — they are characterized as coordination edifices. In this audit, we mean to provide the perusers with an outline of the (potential) utilization of organometallic interfaces in medication. We have picked a couple of models, chose by logical significance and individual liking to the field of exploration, to make sense of the ideas utilized such a long way with such buildings. More in particular, we are talking about under three principal classes of restructurally pertinent organometallic edifices, specifically (1) antimicrobial organometallics, (2) antitumoral and anticancer ferrocene-containing mixtures and (3) anticancer restructurant organometallic buildings.

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¹⁷O NMR studies of organic and biological molecules in aqueous solution and in the solid state

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ABSTRACT

This audit portrays the most recent improvements in the field of ¹⁷O NMR spectroscopy of natural and organic particles both in watery arrangement and in the strong state. In the initial segment of the survey, a general hypothetical depiction of the atomic quadrupole unwinding process in isotopic fluids is introduced at a numerical level reasonable for non-trained professionals. Notwithstanding the first-request quadrupole communication, the hypothesis likewise incorporates extra unwinding components, for example, the second-request quadrupole association also, its cross connection with protecting anisotropy. This total hypothetical treatment permits one to evaluate the cross over unwinding rate (hence the line width) of NMR signals from half-number quadrupolar cores in arrangement over the whole scope of movement. Based on this hypothetical system, we talk about general highlights of quadrupole-focal change (QCT) NMR, which is an especially strong technique for examining biomolecules in the sluggish movement systems. Then, at that point, we survey late advances in ¹⁷O QCT NMR studies of natural macromolecules in fluid arrangement. The second piece of the audit is worried about strong state ¹⁷O NMR investigations of natural and organic particles.

1. INTRODUCTION

Oxygen is quite possibly of the most widely recognized component present in natural what's more, natural particles like proteins, nucleic acids, lipids, and sugars. Oxygen-containing practical gatherings frequently play key jobs in keeping up with the two design and elements of biomolecules. The science including the oxygen component is rich, and in many cases oxygen is the point of convergence of numerous significant compound what's more, organic cycles going from breath to photosynthesis. In any case, according to the NMR viewpoint, oxygen is dependably an "revolving duckling" inside the group of components saw as in natural and organic atoms like hydrogen (H), carbon (C), nitrogen (N), what's more, phosphorus (P). The explanation that it is challenging to perform NMR tests for oxygen is on the grounds that the main NMR-dynamic stable oxygen isotope, ¹⁷O, has a few ominous atomic properties. As a matter of some importance, ¹⁷O has an extremely low normal overflow (0.037%). Subsequently, practically all ¹⁷O NMR studies require ¹⁷O isotopic naming for the atomic framework being scrutinized.

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Thermodynamic analysis of albumin interaction with monosodium glutamate food additive: Insights from multi-spectroscopic and molecular docking approaches

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ABSTRACT

Monosodium glutamate (MSG) is an illustration of food added substance, which is utilized as a flavor enhancer in different groceries. On account of its broad use in food creation, the toxicology what's more, conceivable adverse consequences of MSG added substance on egg whites should be all around explored. In this manner, interestingly, the limiting of BSA and MSG have been concentrated on utilizing multispectroscopic and atomic displaying approaches under physiological circumstances. BSA fluorescence force has been reduced upon the expansion of expanded MSG focuses. The Hamet Volmer extinguishing consistent (KSV) esteem increment with increasing temperature and bimolecular extinguishing rate consistent of protein (k_q) esteem was bigger than $2.0 \times 10^{10} \text{ L mol}^{-1} \text{ s}^{-1}$, which shows that the fluorescence extinguishing was both dynamic and static because of the BSA-MSG complex development. The positive qualities for both ASO (888.291 J.mol⁻¹K⁻¹) and ΔH0 (243.903 kJ.mol⁻¹) suggested that the hydrophobic powers assumed transcendent parts in the limiting of MSG to BSA.

Keywords: Monosodium glutamate (MSG); spectroscopic studies; bovine serum albumin; Thermodynamic parameters; circular dichroism.

1. INTRODUCTION

Food added substances play a critical part in food stuff and hazard evaluation of them are one of the vital worldwide test in nutraceutical science [1]. For a long time, food added substances as a characteristic or engineered substances have been utilized in limited quantities for seasoning, shading, pleasantness and expansion of the timeframe of realistic usability of food [2, 3]. Enhancing frameworks are extremely fundamental in flavorful food assembling and play a significant wholesome job, particularly in certain food varieties that are not exceptionally tasty through giving the beneficial allure [4]. Monosodium glutamate (MSG; Fig. 1) or monopotassium glutamate (MPG) as instances of flavors have been generally utilized in various fields, for example, bioprocess observing what's more, amino corrosive biosynthesis as well as in the food business and medication [5].

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Characterization of perceptual interactions among ester aroma compounds found in Chinese Moutai Baijiu by gas chromatography-olfactometry, odor intensity, olfactory threshold and odor activity value

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ABSTRACT

Ester fragrance intensities in Chinese Moutai Baijiu were extracted by fluid extraction (LLE) or headspace strong stage microextraction (HS-SPME) and distinguished and evaluated by gas chromatography-olfactometry (GC/O) furthermore, gas chromatography-mass spectrometry (GC-MS), and 13 of them were perceived as the significant smell intensities in view of their flavor weakening (FD) values and scent action values (DAVA). The perceptual cooperations of ethyl isobutyrate and ethyl isovalerate for the general esters smell in 5% watery ethanol arrangement were concentrated on through the scent power, olfactory limit and OAV. The Vector Model showed that smell fractional expansion had happened in the wake of blending. The Feller's added substance model and OAV investigation uncovered that different groupings of ethyl isobutyrate and ethyl isovalerate gave added substance or synergistic smell impacts for combinations. Specifically, as the convergence of ethyl isobutyrate was expanded prior to blending, the pattern of expanding level of collaboration was seen in the blend.

1. INTRODUCTION

Chinese Baijiu is perhaps of the most generally polished off cocktail in China, its yearly result has surpassed 7.8 billion liters in 2018, and comprises a significant piece of the Chinese food industry (based on information from the China Business Data Organization). Baijiu is an old Chinese alcohol and a notable refined soul that has been created for more than 2000 years (Liu and Sun, 2018). Based on smell, flavor qualities, Chinese Baijiu can be characterized into 12 smell types: sauce, areas of strength for fragrance, light smell, rice smell, feng fragrance, to smell, sesame fragrance, laobaijin smell, fuyu fragrance, natural fragrance, chi smell and blended fragrance (Liu and Sun, 2018). Among them, sauce smell type Baijiu, a regular delegate, has a place with the item of conventional strong maturation, and has particular flavor due to the extraordinary common habitat of Maotai town and unconventional cycle conditions (Li, Wei, Zhou, and Sun, 2008). Moutai Baijiu (or Maotai Baijiu) is a common sauce fragrance type Baijiu, and it has a full-bodied enduring sauce fragrance.

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A Comparative Analysis of 'The Theory of Reasoned Action (TRA)' with 'The Theory of Planned Behavior (TPB)' for the Objective of Understanding Students' Entrepreneurial Intention

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ABSTRACT

Career planning among students has reached epidemic proportions in several countries. Every psycho major knows how challenging it is to provide a satisfactory explanation for human behaviour. It can be studied on a wide range of depths, from the level of individual physiological processes to that of societal structures. There have been many successful interventions for many various behaviours, and they have all been planned and evaluated using TPB and TRA. The study's overarching objective is to teach students how to effectively use research material to draw conclusions, as well as how to apply research methods and procedures to solving practical problems. This study will address the benefits and limitations of using TRA and TPB theories, as well as their place in a praxis research paradigm. Focusing on answering the question "What Is TRA & TPB and How Does It Consume?" will be the key goal of this research.

Keywords: TRA; TPB; Attitudes; Behavioural Beliefs; Perception; Subjective Norms; Intentions; Motivation to Comply

1. INTRODUCTION

Predictions of future actions are often based on the notion of reasoned action (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). According to a recent meta-analysis by Sheppard, Hartwick, and Warshaw (1988), the model is helpful for pinpointing where and how to focus efforts to alter behaviour. The theory of reasoned action was both and tested on the premise that the behaviours under study were entirely governed by free will. The theory of planned behaviour, originally presented by Ajzen (1985), has been updated recently to include perceived behavioural control as an explicit antecedent to behavioural intentions. The current research aims to draw parallels between the predictions of behavioural intentions and target behaviour made by the theory of planned behaviour and those made by the theory of reasoned action. Ten behaviours were chosen to illustrate varying degrees of agency in bringing about their own performance, and the predictions derived from the two theories were compared across these behaviours.

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Entrepreneurship Development: A Study on Women Entrepreneurs of Gobardhana Development Block under Barpeta District

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ABSTRACT

Women entrepreneurship development is an essential part of human resource development. The development of women entrepreneurship is very low in North East India, especially in the rural areas. Here women have to face many constraints in carrying out economic activities or undertaking any entrepreneurial work. But today they have become aware of their existence, their rights and their work situation. They are now participating in large number in the present world of business. Today, more and more women are undertaking various economic activities. They are playing very important role in socioeconomic development of the country. This paper mainly focuses on women entrepreneur. It is an attempt to understand the prospects and challenges for women entrepreneurship development of Gobardhana Development Block. This paper is prepared to understand the various issues like importance of women entrepreneurship, constraints faced by the women entrepreneurs and a framework for encouraging women entrepreneurship. The paper also suggested some measures which may be viewed as challenges for the development of women entrepreneurship.

Keywords: Entrepreneurship, Women Entrepreneurship, Motivational Factors, Constraints

1. INTRODUCTION

The term „Entrepreneur“ has been derived from the French word *entreprendre* means to undertake. The term entrepreneur may be defined as “an entrepreneur is a person who combines capital and labour for production.” According to Cole, Entrepreneurship is the purposeful activity of an individual undertakes to initiate, maintain of aggregate profit by production or distribution of economic goods and services. Entrepreneurship is a turf where men are the major players, but, lately many women entrepreneurs have also prove their mettle. Women who were earlier the bread maker have now become the bread earners and they are doing a great job indeed. The Government of India has defined a women entrepreneur is “an enterprise owned and controlled by a women having a minimum financial interest of 51% of the capital and giving at least 51% of the employment generated in the enterprise to women.” Entrepreneurship is necessary to initiate the process of economic development of both developed and developing countries. It is also instrumental in sustaining the process of economic development.

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An Analytical Overview of Investment Strategies
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ABSTRACT
This paper inspects a bunch of investment strategies in light of past market data to assess execution and exchanging influence on the Canadian Market. In doing as such, we survey whether exchanging data enhances the adequacy of these strategies. Using variation models of four various approaches, we track serious areas of strength for down that upheld the Momentum Investment Strategy. The contention of whether the market is proficient has gone on for quite a while and it is fundamental for a financial backer to figure out what sort of investment methodology to pick confronting different market adequacy. It is significant to decide which sort of technique to use in various market stages.

Keywords: Investment Strategies, Industry, Market Stages, Investment Counsellors, Stock

1. INTRODUCTION
Research on decisions of investment strategies get from an intriguing contention between the intellectual circles and industry. Obviously, scholastic exploration continuously accepts that the market is totally wonderful while practically speaking, according to the viewpoint of industry, cost can't mirror all the data on the lookout and a forceful investment procedure could continuously bring a positive premium return. Subsequently, in light of the contentions over, two sorts of investment thoughts arose. Retail financial backers require general data about the monetary turns of events occurring in the economy, protections market conduct and explicit data about the organizations whose protection are under thought for investment. They additionally require data connecting with the new issues of the organizations, investment guidance and suggestion with respect to the purchasing, holding what's more, selling of specific security data about profit, extra, privilege issues, record date/book terminations of their property and so forth. The data required is acquired from Financial Press, Stockbrokers, Writing, Companies distributions and Advice and advising by Investment counsellors. Stock costs can't mirror all the data of the market, so the job of directors is connected considerably more significance. It means to surpass the typical return of the stock market by inside and out investigation and mastery and by taking full benefit of transient cost changes. Administrators ought to know when to move into or out of stocks, bond, or any resource. These portfolio chiefs attempt to decide when and where costs will change by considering subjective and quantitative factors.

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Emergence & Evolution of Small Scale Units: A Journey of Eighties
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ABSTRACT
The living standard of people among different countries varies considerably. Generally industrialized countries are termed as developed countries and the agriculturally pre dominated ones are referred as developing countries. Developing nations have normally traditional and conventional techniques to use whereas developed nations go for technological up gradation and expertise. Present study puts its focus on what type of growth pattern our small scale and tiny sector had in a period of industrial revolution. The president of World Bank once pointed out that around 40% people in developing countries live in absolute poverty. Their life is so degraded by disease illiteracy, malnutrition and hunger that the attainment of basic necessities seems to be attained difficult in near future. Agriculture supplies certain indispensable primary requires- food for the population, raw material for industries and surplus for exports. No country, which aspires to be self-supporting, can do without agriculture. At the same time no a nation has become rich through agriculture alone. With the growth of civilization and the multiplication of human wants, the opportunities associated with manufacturing industries have increased in importance and are found to be more remunerative. Industrialization has become a necessity. With this background, industrial revolution in India started after getting independence.

Keywords: Developol, Developing, Growth, Industrialization, Up-gradation

1. INTRODUCTION
Village and small industries in their different concepts are integral and continuing elements in the economic structure and in the scheme of national planning. The primary object of developing small industries in rural areas is to generate better employment opportunities, raise standard of livings and bring about a more balanced and integrated economy. The prevailing scarcity of capital for the promotion of large scale industries and lack of technical development favors the growth of small scale and tiny industries. Besides, the setting up of small but efficient units of production at suitable locations throughout the country would reduce the cost of transport involved in the haulage of raw materials on the one hand and provide employment to scattered unskilled population on the other.

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**Professional development among English language teachers:
Challenges and recommendations for practice**

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ABSTRACT

Professional development of language preceptors is one major measure to ensure that preceptors remain updated and avoid the threat of leaving the profession. Not all preceptors, still, attend professional development (PD) shops or engage in similar conditioning for the sake of developing professionally. Some preceptors attend PD courses on a routine basis with little knowledge of what capabilities they've anticipated to gain as a result, and simply because taking part in similar programmes is an institutional demand. To explore the type of PD conditioning English preceptors in Iran share in and also to understand the provocations behind their participation, the experimenters canvassed 24 English preceptors, with the age range of 24-50) working at private language institutes and public high seminaries. The study set up that public academy preceptors were engaged in verifiably many PD conditioning, and the type of PD conditioning private preceptors followed ranged from consulting online courses to watching educational vids to reading ELT handbooks.

1. INTRODUCTION

As Burns and Richards (2009, 1) point out, the English language skills of the citizens of a country are vital for its development and active participation in the global economy and central to this enterprise are English teaching and English language teachers. Freeman et al. (2015) estimate that there are currently about 15 million English teachers worldwide and that most of these are not native speakers of the language they teach. These observations imply that English teachers worldwide play a seminal role in the development of English competence among its learners, and for teachers to be able to deliver competent speakers, their own professional competence is also a priority. Although teachers are expected to be suitably qualified at the time of their recruitment, the changing and dynamic nature of the English teaching profession means that teachers have a need for on-going professional development, not only to keep up with changes and trends but also to address the high attrition rate among language teachers, with many leaving the profession after only a few years (Diaz-Maggioli 2003).

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English writing pedagogy at the crossroads: The case of Oman

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ABSTRACT

The purpose of this report is to examine English jotting pedagogy and factors affecting scholars' writing development in pre-degree General Foundation Program (GFPs) across Oman, where the boundary between English as a Foreign Language (EFL) and English as a Lingua Franca (ELF) is getting increasingly blurred. This report describes how mastery in English jotting has become an inestimable skill for scholars' academic, social and unborn professional mobility, as they attend English-medium societies and universities where writing plays a pivotal part across the class. Scholars also need to develop an capability to communicate in English, orally and in jotting, to secure an employment occasion at the multilingual and multilateral original job request. To meet this demand, the concerned educational and delegation bodies made necessary visits in terms of upgrading the class and establishing norms. Still, data collected from preceptors and scholars at different institutions using semi-structured interviews reveals that English jotting is nurtured through traditional pedagogical practices that don't have the influence to prepare scholars for grueling academic jotting tasks at degree programs.

1. INTRODUCTION

Furnishing perceptivity into L2 notation class and pedagogy in different educational surroundings; Al-Jarrah and Al-Ahmad, 2013; Cunnison and Reichelt, 2011; Essi and Mirre, 2013; Naghdi, 2016; Rusckert et al., 2014) has been a means of perfecting our knowledge of scholars' real needs in notation and of the most effective approaches, strategies and practices to address them. These studies described how contextual breakers and arising global developments shape the dynamics of English notation instruction in various international settings. Sharing L2 jotting resources and strategies is particularly important in this new period of diversity in communication modes, stripes and discourse, and corrective communities. This can help scholars develop their English notation and knowledge chops to come resourceful and competent members of the international community and in job request.

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Graph- Theoretical Derivation of Brain Structural Connectivity

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ABSTRACT

Brain connectivity at the single neuron position can give abecedarian perceptivity into how information is integrated and propagated within and between brain regions. Still, it is nearly insolvable to adequately study this problem experimentally and, despite violent of caudles in the field, no fine description has been attained so far. Then, we present a fine frame grounded on a graph-theoretical approach that, starting from experimental data attained from a many small subsets of neurons, can quantitatively explain and prognosticate the corresponding full network parcels. This model also changes the paradigm with which large- scale model networks can be erected, from using probabilistic/ empiric con sections or limited data, to a process that can algorithmically induce neuronal networks connected as in the real system.

1. INTRODUCTION

The brain is a complex organ composed by neurons, abecedarian units of this system; their connectivity has a pivotal part in determining the dynamics of both individual neurons and the whole network. The system can be considered a directed graph with the neurons soma as humps and synaptic connections among neurons as edges. The computational parcels of different neurons and sub networks depend on their topological association(1 – 3), and multitudinous brain diseases can be associated with abnormal topological structure(4,5). Although several important results on the computational parcels of neurons can be derived at the single cell position(e.g. to explain some chaotic action(6), or to suggest an empirical explanation for the storeroom capacity of an individual neuron(7,39), discovering the general rules underpinning the connectivity parcels of their networks is a abecedarian step to figure out how information is integrated and propagated within and between brain regions. The need to find a rule explaining how brain cells are connected can not be overemphasized. Any large action on brain exploration dedicates relatively significant sweats to this problem.

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Emergent models in a reinvention activity for learning the slope of a curve

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ABSTRACT

Introducing the pitch of a wind as the limit of the pitch of secant lines is a well-known challenge in mathematics education. As volition, three other approaches can be honored, grounded on direct approximation, grounded on multiplicities, or grounded on transition points. In this study we delved which of these approaches fits scholars most by assessing scholars' inventions during an assignment script revolving around a design problem. The problem is set in an environment that is meaningful to scholars and invites them to construct styles to construct a digression line to a wind as a perpetuation of the guided reinvention principle from Realistic Mathematics Education (RME). The tutoring script is grounded on the phased assignment structure of the proposition of Didactical Situations (TDS). The script was tested with 44 groups of three scholars in six grade 9 or 10 classrooms. We classified the strategies used by scholars and, using the emergent models principle from RME, delved to which of the four approaches the pupil strategies connect stylish. The results show that the groups produced a variety of strategies in each classroom and these strategies contributed to a meaningful institutionalization of the notion of pitch of a wind.

1. INTRODUCTION

The line notion of pitch of a wind is a mathematization of the common sense idea of the steepness of a path. Geometrically it's defined as the pitch of the digression line (if it exists). In practice, scholars' anticipations of what a digression line is do not match up nicely with the common description of a digression line as a limit of secant lines. For case, in a test by Orton (1977) 43 out of 110 math scholars had difficulty seeing the digression line as a limit of secant lines, and analogous compliances are set up in the work of Ferrar, Mandy and Reather (Graham 1991). Voutsas (1982) observed that early guests of the digression line in circle figure introduce a belief that the digression is the same as a bounding line a line that touches but doesn't cross the wind. A study among 196 Greek scholars (grade 12) for their understanding of digression lines reached analogous conclusions (Biza, Christou, & Zachariades, 2008). In the Greek class the first digression lines scholars encounter are all bounding lines (as in the case of circles and parabolas).

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Exact and explicit traveling wave solution to the time-fractional Phi-four and (2+1) dimensional CBS equations using the modified extended tanh-function Method in mathematical physics

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ABSTRACT

This current study's primary end is to discover new and exact traveling surge results to the time-fractional phi-four equation and the 2+1 dimensional Calogero-Bogoyavlenskikh CBS equation in the perspective of nonlinear traveling surge marvels. The modified extended tanh-function system is assessed on the phi-four and the 2+1 dimensional CBS equations in this case. Accordingly, lump, mixed lump, lump periodic, lump-periodic, kink, singular kink, kink soliton, periodic, and singular results are displayed in trigonometric, hyperbolic, and rational function results. To conclude, the underpinning traveling structures, achieved results are established by making their dynamic address of the exact results presented in three-dimensional (3D) figure, and two-dimensional (2D) map with computational software MATLAB in terms of amenable outgrowth, fractional traveling surge metamorphosis, and the applied procedure, all the exact results attained are considered to be new. To comprehend the physical processes, we've portrayed the numbers of the estimated results.

1. INTRODUCTION

Nonlinear fractional partial discrimination equations (FPDEs), whose description was first established in 1695, are presently among the swift-growing study fields. It's extensively used to observe the complex physical explanation of nuclear drugs, tube drugs, mathematical drugs, statistical drugs, solid-state drugs, astrophysics, me chemical engineering, biomechanics, fractional dynamics, strong state material wisdom, neural material wisdom, fluid mechanics, stochastic dynamics, geo-optic fibers, nonlinear optics, etcetera. Throughout this environment, colorful systems have been discovered and used to probe the exact result of FPDEs in multiple studies, similar as the streamlined simple equation approach, the Hirota bilinear approach, the first integral approach, the modified extended tanh function system, the expanded trial equation approach, the emblematic calculations, the converted rational function system, the ansatz scheme, the sine-cosine scheme, the new extended direct algebraic system, the G'/G expansion system, the advanced $\exp(-\phi(\xi))$ expansion system.

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Malaria and COVID-19 co-dynamics: A mathematical Model and optimal control

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ABSTRACT

Malaria, one of the longest-known vector-borne conditions, poses a major health problem in tropical and subtropical regions of the world. Its complexity is presently being exacerbated by the arising COVID-19 epidemic and the pitfalls of its alternate surge and impending third surge. We formulate and discuss a fine model incorporating some epidemiological features of the co-dynamics of both malaria and COVID-19. Sufficient conditions for the stability of the malaria only and COVID-19 only sub-models' equilibrium are deduced. The COVID-19 only sub-model has an asymptotically stable equilibrium while under certain conditions; the malaria-only could suffer the miracle of backward bifurcation whenever the sub-model reproduction number is lower than concavity. The equilibrium of the binary malaria-COVID19 model are locally asymptotically stable as global stability is forestalled owing to the possible circumstances of backward bifurcations. Optimal control of the full model to alleviate the spread of both conditions and their co-infection are derived. Pontryagin's Maximum Principle is applied to establish the actuality of the optimal control problem and to decide the necessary conditions for optimal control of the diseases.

1. INTRODUCTION

Malaria, a mosquito-borne contagious complaint, alone or in combination with other conditions kills millions of people in tropical and subtropical regions, causing an enormous impact on health systems and husbandry (1, 2). Humans acquire malaria infection from infected female Anopheles mosquitoes during blood feeding, especially from *Plasmodium falciparum*. The chain of transmission can be broken through use of mosquito treated nets and anti-malarial medicines as well as other control strategies, see (3) and the references therein. The emergence of malaria medicine resistance and the lack of an effective and safe mathematical models have been used to give a frame for understanding the dynamics of contagious conditions. Models of COVID-19 transmission dynamics are flourishing in the literature (12-15), and the reference therein. Weiss et al. (16) noted the huge implicit impact of COVID-19 affiliated dislocations in malaria intervention and control strategies.

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Railway ballast stone contact wear and friction

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ABSTRACT

Molecule grinding in railroad counterweight impacts emphatically the conduct of ballasted tracks. Modern challenges postured on railroad foundation increment the necessity for reenactments, which require the grinding coefficient as an input parameter. Measured contact coefficients of balance stone contacts were found as it were in two thinks about, both beneath consistent loads. In this work, two sorts of counterweight were examined in cyclic contact tests with incremental increment of the connected stack after a few cycles. Some time recently each stack increment, 3D-scans of a few counterweight stones permitted to calculate the contact region. Assessing the stretch within the contact, the stress-dependency of the grinding coefficient and wear were explored. These exploratory prescriptions are examined with respect to their impact for contact displaying within the reenactment of railroad counterweight.

1. INTRODUCTION

In railroads, ballasted tracks are the foremost common frame of track systems. One of the most assignments of the counterweight is to exchange powers (both within the vertical and horizontal bearings) from the wheel-rail contact to the ground. How these powers spread inside the counterweight for diverse sorts of operational conditions (e.g. speeds and pivot loads, digression vs. beaded tracks) is still not fully understood.

The Discrete Component Strategy (DEM), presented in [1], may be a broadly utilized instrument for the recreation of railroad counterweight and/or ballasted tracks, because it takes under consideration straightforwardly the granular nature of the fabric and hence gives knowledge into distinctive wonders happening at the molecule scale. The DEM recreation strategy too permits the impact of modern track components being presented to be anticipated, e.g. diverse sleepers sorts, [2]; beneath sleeper cushions, [3,4]; beneath balance mats, [4,5]; or geogrids, [5-8]. The settlement contact of railroad balance is of tall down to earth significance, but too challenging to demonstrate in DEM as a few impacts can contribute: frictional conduct and breakage of stones or wear.

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Experiments on dry and wet ice friction

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ABSTRACT

Tests on ice-on-ice contact both with and without water on the ice surface are displayed. The tests were conducted at -9.4°C on dry ice and at -2.8°C on both damp and dry ice. The sliding speed was shifted between 6 and 105 mm/s. The impact of scraped area of ice surfaces was found to be an critical marvel with respect to the grinding coefficient. Related to scraped area, the grinding coefficient expanded altogether in tedious tests particularly at warm temperature. Including water on the ice surface had as it were a minor impact on the grinding coefficient at sliding speed over 10 mm/s. In any case, at lower speeds, the grinding coefficient on damp ice was essentially higher than on dry ice.

2. INTRODUCTION

The grinding of ice is an critical marvel for case in car tire plan and different winter sports. Contact between ice and ice is an vital figure for case when assessing ice powers against ships and seaward structures (Tikamäki et al., 2011). The grinding of ice has been explored both hypothetically (e.g. Bärtle et al., 2007; Lozowski et al., 2013; Makkonen and Tikamäki, 2014) and tentatively. Exploratory inquire about has been conducted on wide extent of temperatures and speeds both utilizing common ice (e.g. Pritchard et al., 2012; Sakhoikov and Laset, 2013) and in research facility. In research facility ponders, both rotational and direct gadgets (e.g. Oksanen and Keisonen, 1992; Kennedy et al., 2000; Marmo et al., 2005) have been utilized.

In field considers, the exploratory setup might superior speak to the common behavior of ice. Be that as it may, in field thinks about, coming to comparable circumstances in terms of natural factors and the homo- geneity of ice is more troublesome, and the reproducibility of courses about endures from that reality. On laboratory-scale, it is more disable to control natural factors and create repeatability in ice surfaces. When planning any test setup for ice grinding it needs to be considered that the format of the exploratory course of action underpins catching the marvel of intrigued.

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Analyzing and Comparing Asphalt Mixtures with Additives and Carbon Reinforcement for Moisture Sensitivity and Mechanical Strength

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ABSTRACT

Bitumen and stone elements are the two components of asphalt that are weak, and this leads to structural weakness in asphalt. To establish a suitable binding between bitumen and aggregates, several fibers and additives have been utilized for many years. Adding substances that have increased interest from different researchers. One material that can be compared to bitumen quite closely is carbon. This material has been employed for concrete studies in both pure and fiber forms. Within this study, the material's addition to bitumen in the form of fibers and powder has been examined and contrasted.

Keywords: asphalt mix, carbon fiber, carbon powder, and functional qualities.

1. INTRODUCTION

Road surface design is based on the projected traffic for the design period and operation period [1-3]. Traffic parameters based on demand, safety, type of road operation, etc., predict the amount of traffic and the number of heavy and light vehicles in the coming years. Based on this forecast, determine the load on the pavement structure [4-8]. Vehicle safety is one of the most fundamental principles in traffic engineering and transportation planning in the world. Lack of safety principles in road engineering design, maintenance, and transportation planning of the country has caused heavy damage to society in recent years, so that every year part of the country's construction budget is spent on drawing.

The predicted traffic volume over the design and operation periods is the foundation for road surface design [1-3]. Traffic parameters forecast the volume of traffic and the proportion of heavy and light vehicles in the upcoming years based on factors such as demand, safety, type of road operation, etc. Calculate the load on the pavement structure based on this forecast [4-8]. One of the most important concepts in traffic engineering and transportation planning worldwide is vehicle safety.

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Building a Crash Prediction Model and Applying It to Two-Way Suburban Two-Lane Roads (Case Study)

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ABSTRACT

It is necessary to do research to determine how different factors affect the frequency of accidents and to implement realistic safety measures in order to raise the standard of road safety. In order to gather accident data for the years 2010 to 2012, the two inseparable axes of the Querin-Avij suburban line were originally chosen as a case study in this study. The number of access roads and intersections, the number of horizontal curves, and the hourly traffic volume were chosen as the independent factors for modeling, while the number of accidents was chosen as the dependent variable. Depending on the hours of spring and fall, the duration of the day and night was split into two sections: the night and the day, and a matching

Keywords: non-isolated two-lane roadways, suburban roads, accident prediction models

1. INTRODUCTION

Due to a lack of significant and ongoing research over the past few years, the rate of traffic accidents in developing nations, like Iran, is significantly higher than in nations that have given this topic enough attention and research. These statistics are based on the number of trips, number of vehicles, and length of roads. Heid [1-4]. Road, vehicle, and human accidents are sometimes separated into three groups [5-7]. Although road engineers will focus more on the road and its surroundings, each of these categories can be discussed [8-10].

The parameters of the road and environment subset include traffic characteristics, weather, road geometry, pavement quality, and road environment [11]. Traffic volume, the proportion of freight vehicles, lane and shoulder widths, curves that are horizontal or vertical, roadside circumstances, and route access density are examples of predictive variables. In crash prediction models, the base crash rate is determined by these models [13]. Pearson proposed the first crash prediction models for multi-lane roads in 1993. These models describe the relationship between traffic flow and crash statistics by hourly volume and daily average. The average hourly volume of daily traffic flow explains why the accident rate rises as traffic flow increases, according to the data [14].

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Concrete Beams with Post-Fire Tensioned Segmental Behavior under Monotonic Static Loading

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ABSTRACT

The investigation of the behavior of post-tensioned segmental concrete beams subjected to high temperatures is presented in this research. Twelve simply supported beams were made and tested as part of the experimental program. The beams were classified into three groups based on the quantity of precast concrete segments. Each specimen had the same length (3150 mm) but varied in the amount of beam segments that were included (9, 7, or 5 segments). Nine of the twelve beams were subjected to a high-temperature flame for an hour in order to replicate the real-world fire tragedies. The temperatures of 300°C (572°F), 500°C (932°F), and 700°C (1292°F) were chosen based on the standard fire curve (ASTM - E119).

Keywords: load capacity, segmental beam, post-tensioning, fire test, gradual cooling, and serviceability.

1. INTRODUCTION

The facilities provided during construction have led to a large use of post-tensioned segmental concrete girders in bridge engineering. Numerous benefits come with this construction method, significant cost savings due to the potential for weather-independent segment production and a shortened construction period, easy element assembly on the job site; the ability to replace deteriorating tendons; independent prestressing and concreting operations; small, light segments; easier verification of the main external steel profile; and potential reduction in friction. It is commonly recognized that exposure to a fire disaster reduces the strength of prestressed concrete and reinforced concrete members. Life safety and failure prevention are the two fundamental goals of fire safety. In the event that there is no collapse after a fire, fire-related damage might occur. It should be highlighted that determining whether a concrete building exposed to fire and its constituent parts survive structurally depends critically on the analysis of the heating history of the material. The visual examination of concrete for cracks, discoloration, and spalling is usually the first step in assessing structures for fire damage.

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Examining the Effects of Cement Kiln Dust and Fly Ash Mixture on the Compaction and Strength Properties of High-Plasticity Clays

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ABSTRACT

The impact of fly ash (FA) and cement kiln dust (CKD) on the strength and compaction properties of the high-plasticity clay that was taken from a northern Iranian forest road was investigated experimentally. In order to create mixtures, the soil was mixed with 15% CKD by dry weight, and 10%, 20%, and 30% FA were applied to partially replace the CKD. Specimens were cured for seven and twenty-eight days before being subjected to unconfined compressive strength tests. Using a scanning electron microscope (SEM), the microstructures of the treated and untreated specimens were also analyzed.

Keywords: Fly ash, cement kiln dust, soil stability, compressive strength, and high-plasticity clay.

1. INTRODUCTION

Due to their low carrying capacity, high-plasticity clays are found all over the world and seriously harm the pavements and buildings that are placed upon them [1, 2]. Depending on the kind of soil and the construction activity, several strategies are employed to improve the soil. Two types of soil stabilization are mechanical stabilization and chemical stabilization, and they are widely used in practically all building projects [3]. By adding fibrous and nonbiodegradable reinforcement or altering the soil's grade through compaction or induced vibration, mechanical stabilization can be accomplished physically [4]. The addition of chemically active compounds to soil can alter its properties, a process known as chemical stabilization. However, due to energy demand, resource conservation concerns, environmental issues related to CO₂ emissions from Portland cement production, and economic effects resulting from Portland cement production's high cost, cement stabilization is no longer desirable [6].

As a result, there has been a lot of work done recently to create non-traditional or alternative agents, especially ones that are more affordable and effective, for a long-term soil stabilization procedure [7-11]. As a by-product of making Portland cement, cement kiln dust (CKD) is made up of tiny particles that are collected from electrostatic precipitators while cement clinker is being produced [12].

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GPS is used to geocode a postal address online while synchronous database access is made.

Dr.Dhaneswar Parida
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Gandhi Academy of Technology and Engineering,Bhubaneswar, Odisha, India

ABSTRACT

In order to achieve corporate goals, postal addressing information is essential for any corporation, particularly in industrialized nations. Consequently, postal address data must be geocoded—a process that turns it into an absolute number similar to latitude and longitude coordinates. Discuss how to use map services to convert lengthy coordinates into a basic geocode in this article. In addition, run a smartphone application to save the geocode along with other pertinent data so that end users may utilize it as a GIS later on. Name, kind, phone number, and a brief remark about the address are included in the information. The app has the ability to search for certain locations, such as schools, restaurants, hospitals, etc.

1. INTRODUCTION

Huge amounts of data are created, manipulated, and consumed in the internet age, and they are regarded as "one of the essential value-added pieces of information" in the development of internet-based services [1-3]. Because of this, maps and location-based services and apps have become widely used recently [4-6]. As a result, location tagging is becoming a more common technique for many devices that employ GPS data [7-9]. More than 80% of these data include a geographic reference, or GIS, and spatial analysis is a technique that has been embraced by several areas [10,11]. Therefore, a process known as geocoding is needed to transform physical location data, such postal addresses, to absolute values, like latitude and longitude coordinates [12, 13]. A postal address is a compilation of knowledge that includes several elements, including different nations have different postal addressing systems, each having its own unique component ordering, forms, and components [16]. Additionally, a postal address reflects the various grammar and languages used in various nations. A webpage with map services is being used by people to look for a certain location [17]. In online and global business procedures, the mailing address should be precise, current, user-friendly, and adaptable [18].

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Internet of Things Network Security and Uses with Long-Range Technology

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ABSTRACT

Our goal with this research project is to develop a multisensor fusion calculation-based safe localization system and application for the Internet of Things (LoRa). Using the sensors cloud, the Arduino UNO high-level development platform, and the multisensor fusion computing workstations, the LoRa technology is used to design a network security system and instantly address the computing system. The goal is to develop a network server host that gathers and processes position signals from the multisensing signal collection and analysis processing module and instantly detects location by network nodes. The results are then sent to the central monitoring system through the wireless devices of the LoRa network. Energy management, environmental management, information management, industrial monitoring, and renewable energy management are among the fields in which the secure localization computer chip created in this research might find use. The LoRa hosts in this project are part of the system.

1. INTRODUCTION

A new area of information technology development known as the Internet of Things (IoT) is distinguished by quick deployment, cooperative perception, and high failure tolerance. As such, it has wide potential applications in the fields of forecasting, environmental monitoring, military affairs, and city administration. The position data of nodes in most Internet of Things systems significantly impacts how effective an application is. Because the Internet of Things is closely linked to the real world, it must establish the spatial relationships inside the network based on the position data of its nodes, which then report events and monitor outside items as necessary [1-3]. Furthermore, node location data is a crucial component of many network operations, including self-configuration of the network architecture, instantaneous assessment of the coverage quality and routing assistance, and Determining a node's or event's exact location is crucial for IoT monitoring activities because it not only provides the necessary information to monitor an event and its target location, but it also self-configures the network topology, improves routing efficiency, notifies the deployer of the quality of the network coverage, and provides the foundation for network functions like namespace.

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**Face recognition using neuro-fuzzy inference system
With feature extraction**

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Gandhi Academy of Technology and Engineering, Berhampur, Odisha, India

ABSTRACT

The technique for identifying individuals in pictures or videos is called human face recognition, or HFR. Numerous HFR techniques exist, including feature-based, eigen-face, hidden Markov model, and neural network (NN) based approaches. The preprocessing or feature extraction employed in the first three approaches is linked to the category of the picture that has to be identified. The NN approach, on the other hand, offers better accuracy while allowing any kind of picture to be helpful without the need for specific image type data. This work presents the introduction of the neural-fuzzy (NF) based HFR system. The backpropagation (BP) technique in the neural network (NN) system is utilized for supervised learning to update the weights of the neurons. For network testing and training, two sets of images have been utilized. The system will identify the test image if it matches one of the training sets of images. Additionally, the system will return "not recognized" if the test picture does not match one of the image's learned sets. This study employs Geometric Moments and Color feature extraction techniques for feature extraction. 95.556 percent recognition rate was attained.

1. INTRODUCTION

In the domains of artificial intelligence and pattern recognition, human face recognition has gained significant attention lately. HFR has a number of problems, including the ability of hair and expressions to alter a face, the resemblance of several faces, and the various perspectives from which a face might be observed. Strong HFR systems are necessary to address these problems. (1). The three steps of the HFR system are detection, feature extraction, and recognition.

Artificial neural networks (ANN) have been extensively employed in the development of intelligent computer systems that rely on pattern recognition and image processing. The most popular ANN model that can be trained with the BP technique is the backpropagation neural network (BPNN). Several research on the HFR system, all of which rely on various techniques.

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Test Automation in Open-Source Android Apps: A Large-Scale Empirical Study

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ABSTRACT

Robotized testing of portable apps has gotten noteworthy attention in later a long time from analysts and professionals alike. In this paper, we report on the largest empirical study to date, aimed at understanding the test mechanization culture predominant among moment-hikeappdevelopers. We systematically examined more than 3.5 million repositories on GitHub and identified more than 2,000 non-trivial and real-world Android apps. We then analyzed these non-trivial apps to explore (1) the predominance of selection of test automation, (2) working habits of mobile app developers in regards to automated testing, and (3) the correlation between the selection of test computerization and the notoriety of ventures. Among others, we found that (1) half of the mobile app development projects lever age automated testing practices, (2) developers tend to take after the same test computerization houses over ventures; and (3) well known ventures, measured in terms of the number of supporters, stars, and forks on GitHub, are more likely to embrace test mechanization houses.

Keywords: Empirical Study, Automated Testing, Mobile Apps, Android

1. INTRODUCTION

Testing is an vital stage of computer program advancement life cycle. It is the primary way through which quality of software is detailed to be more profitable for a number of reasons, such as uncovering quality, repeatability, and execution speed, particularly within the setting of persistent integration [16]. Since versatile apps are an integral component of our standard of living and utilized to perform assignments in critical fields such as banking, health, and transportation, automated testing of versatile apps has gotten critical consideration in later a long time from researchers and professionals alike.

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An Examination of WSN Security Requirements: Emphasizing the Features Associated with Security

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Gandhi Academy of Technology and Engineering, Berhampur, Odisha, India

ABSTRACT

Theoretical: As WSNs combine with a differing qualities of next-generation advances, remote sensor networks (WSNs) have picked up impressive consideration as a promising omnipresent innovation. Indeed in spite of the fact that a few consider on WSNs are being embraced, few methodically analyze the security issues relating to them. Additionally, later frameworks tend to be executed without adequate thought approximately claims security necessities, which can lead to deadly dangers. Frameworks that don't consider security necessities may give assailants the opportunity to diminish the generally effectiveness and execution of the framework. This implies that insufficiently connected security prerequisites can result in inadequate security of frameworks. In this manner, in this ponder, we emphasized the significance of security necessities to raise mindfulness with respect to them. In expansion, we analyzed literature that can be moved forward by counting WSNs security prerequisites such as characteristics, limitations, and dangers.

1. INTRODUCTION

The later improvement of sensors has encouraged differing qualities in their capacities, and they are presently broadly utilized in different areas. Thus, the capacities and advances of sensors are advancing. Moreover, sensor arrange innovations that collect, prepare, and transmit data to application areas are too being created. In specific, with the introduction of sensors within the Web of Things (IoT), sensor systems have been creating quickly, and their utilization has expanded exponentially. Sensor systems are for the most part classified into wired sensor systems and remote sensor systems (WSNs). Wired sensor systems are not reasonable considering omnipresent patterns. In differentiate, WSNs that back communication between objects with more control and asserted usefulness are getting to be standard by integration with next-generation advances [1]. Be that as it may, most WSNs gadgets have one of a kind imperatives, such as an environment without an director and more computing control [2].

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The computer system architecture of our first real-time, real-time adaptive traffic light experiment and quoted; Connected and quoted; vehicles

Dr.Chinmaya Ranjan Pattnaik
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ABSTRACT

Connected vehicles can transmit real-time information to traffic management systems. Despite recent technological advances in telecommunication networks and mobile computing, no real-time adaptive traffic light control experiments have been conducted with connected vehicles. Most research in this area has been done only through simulations. In this work, we present a computer system that was introduced to control traffic lights in real time and whose only source of information are vehicles connected to a smart phone. We present the description of the computer system architecture implemented in the experiment of adaptive traffic signal based on Floating Car Data (FCD), where the traffic light is regulated in real time 100% "smart phone connected" and quoted; vehicles The description of a system based on common technologies can help others .develop and implement new traffic light control systems in new and quoted; connected and quoted; intersections

Keywords: adaptive traffic signals, Intelligent Transportation Systems (ITS), Floating Car Data (FCD), traffic management, connected and autonomous vehicles.

1. INTRODUCTION

Both connected vehicles and connected traffic lights will become an important part of the Internet of Things (IoT) and Intelligent Transportation Systems (ITS) in the future. Connected vehicles can help drive and manage traffic in a number of new ways. Classic road traffic engineering was based on efforts to allocate demand to transit systems [1] and better road traffic management using tools such as traffic simulation [2-7] dynamic network load balancing and dynamic models [8-11] and deployment of activities that influence users' route choices [12-16]. In recent years, no practical progress has been achieved in the regulation of traffic lights, and traffic lights are very often controlled by predetermined signs that do not always match the changing traffic flows.

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Midi new Connected Torus Network porVenontaGeneracia Massively Parallel Computing System

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ABSTRACT

Critical scientific and technical applications require high-performance computing. Massively parallel computing (MPC) systems can provide this. A sensitive step in the maintenance of such systems is the connection network used to connect the computing nodes. The topology used has a significant impact on network costs and performance. Hierarchical Interconnection Networks (HINs) have been introduced, which have several attractive features such as low latency, low cost, and high fault tolerance. This paper proposes a new HIN named Midline-connect Torus Network (MTN), which offers a constant node degree, high arc connectivity, high fault tolerance, and reasonable half-width. A performance evaluation of the proposed MTN mobile network was conducted and compared with other networks. The comparison included traditional topologies such as 2D Mesh and 3D Torus, as well as hierarchical topologies such as TESH and TTN.

Keywords: Massively Parallel Computers, Hierarchical Interconnection Network, Static Network Performance.

1. INTRODUCTION

This is where MPCs play an important role in our daily lives, solving computationally demanding problems. They are used to solve problems or achieve specific goals 1 at exaflops of computing speed 2. They help solve big challenges like brain function, lower the cost of solar energy, combat asteroid threats and make electric vehicles affordable 3. MPCs are important in the development and testing of powerful and advanced security devices, including nuclear systems. In fact, almost every major field uses such systems, 4 including education and research, energy coordination, weather forecasting, neural networks, and medical development 5. Thus, MPCs attracted the interest of a significant number of researchers who proposed new topologies for interconnecting these systems.

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Energy-efficient data integration through cloud and edge computing collaboration in IIOT networks

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ABSTRACT

Internet of Things (IIOT) networks have become the infrastructure to enable anomaly detection and response in various fields, where an efficient sensor data collection mechanism is essential because the energy and computing power of IIOT nodes are usually limited. In addition, most applications can experience occasional outages, while most durations can respond to a healthy situation. In this configuration, the range, not the exact value of the sensed data, should be of interest to domain applications, and the range is presented as a class of sensed data in this article. To reduce the energy consumption of IIOT networks, this paper proposes an energy-efficient sensor data collection mechanism in which a class of sensor data is processed using a compressed sensor algorithm. The data is predicted by a data prediction model in the cloud, and the detection data of an IIOT node only needs to be sent to the cloud for synchronization when the class provided by this IIOT node is different from the predicted value in the cloud. Experimental results show that our approach outperforms the benchmark in terms of network traffic and energy consumption.

Keywords: Compressed Sensing; Sensory Data Prediction; IIOT Networks; Energy Efficiency

1. INTRODUCTION

In recent years, Internet of Things (IIOT) networks as a promising and rapidly developing research field have been applied to support various domain applications, such as traffic flow monitoring in Intelligent Transportation Systems (ITS) [1], where continuous sensory data collection is essential to support environmental monitoring and anomaly detection in industrial applications. Intuitively, IIOT smart things, also known as wireless sensor networks (WSN) sensor nodes, periodically detect environmental variables and forward sensor data packets to a center, such as a WSN sink node, for anomaly investigation and source determination. Considering that the majority of monitoring times can reflect the health status of most applications and the relatively high energy consumption of sensor nodes to send sensor data packets on roadways, reducing the amount of sensor data transmitted in the network is essential for extension.

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Integrating Big Data and Cloud Computing Topics into Computing Curricula: Modula Aliro Gandhi Academy of Technology and Engineering

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ABSTRACT

Together, big data and cloud computing offer a paradigm shift in the way companies acquire, use and manage information technology. It assumes that every CS student has a basic understanding of this collective paradigm and hands-on experience in deploying and managing big data applications in the cloud. This study argues that in order to comprehensively cover the concepts and skills of big data and cloud computing, related topics should be integrated into several core courses in the CS curriculum, rather than creating additional courses and undertaking a major revision of the curriculum. Our approach to incorporating these topics is to develop stand-alone competency-based learning modules for specific core courses where their coverage could find an appropriate context. This article examines four such modules and documents our classroom experiences during these interventions. Student performance data and research findings show reasonable progress in student achievement, increased engagement and interest.

Keywords: Big data, Cloud computing Module, CS curriculum, Competency-based learning

1. INTRODUCTION

In today's world, analyzing "big data" is becoming a very important task in many fields of research, and data discovery and decision-making processes now drive many sectors of our business and economy. At the development level, analyzing big data requires the mastery of specific algorithms and methodologies due to the fundamentally distributed and parallel nature of workloads. In contrast, cloud computing capabilities are critical at the infrastructure level to acquire virtual resources on a piecemeal basis to deploy and manage these workloads. As an application area of parallel and distributed computing (PDC), big data and cloud computing together offer a paradigm shift in the way businesses acquire, use and manage information technology.

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EncryptionFileSystemFramework-ProofofConcept

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ABSTRACT

Edge Computing, also known as the IoT ecosystem, has recently become the cornerstone of computing development. Recently, challenges have emerged in protecting such technology, which has made it increasingly popular in recent years, and its growth has also been accompanied by security concerns due to the recent increase in hacking incidents. Recent challenges rely on IoT technologies such as virtual interfaces to provide solutions to end devices, and securing this connection is very important, so these end devices are usually in the pocket of the end user, along with other personal data. There are several tools available to developers to protect data, including reasonable international mandatory security rules. The goal of this project was to create a specific and unique framework in which the developer does not need to have cryptographic knowledge to perform security operations on files whose data is encrypted.

Keywords: IoT, developers, cryptography, framework, operations, files.

1. INTRODUCTION

Technical development occurs rapidly. The year 2020 is expected to be the year of the so-called great technological leap [21]. Industries are rapidly preparing to move into a new era where robots, the Internet of Things (IoT) and other innovative trends are the protagonists of our time. The existence of IoT devices is an inevitable reality. We are no longer in the implementation phase, but more and more such devices are coming to the market. IoT already plays a central role in the digital transformation processes of organizations, and the current performance of these types of devices will increase in the coming years. Along with the growth of technology, more precisely IoT, the number of projects made for them also increases, where a large part of the projects deal with data files, and losing the privacy of the same data is not the goal of the developers. To combat this, they use encryption to protect the same information from third parties [1, 21]. The creation of this project helps the programmers of these complex systems without needing to acquire knowledge of the encryption domain to perform operations on the files, preserving the security of the data in the files.

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Development and Streamlining of an Integrated Generator-Rectifier System for Offshore Wind Turbines

Dr. Jyoti Prasad Patra
Professor, Department of Electrical Engineering
Gandhi Academy of Technology and Engineering, Berhampur, Odisha, India

ABSTRACT

Numerous modern high-power direct-drive wind turbines incorporate permanent magnet synchronous generators (PMSGs) coupled with fully rated active rectifiers to manage and transmit power to the primary grid. Yet, the inherent speed limitations of wind turbines present an opportunity to diminish the requisite active rectification, thereby reducing drive costs and enhancing system reliability. This study outlines a process for designing and optimizing a direct-drive PMSG united with an integrated generator-rectifier system. To implement this hybrid approach, a multi-port generator featuring multiple diode rectifiers and a single active rectifier is devised. The paper details the optimization procedure for a 10 MW generator-drive under this proposed architecture using two distinct implementation methods. A comparison of these implementations is conducted, assessing the optimal Pareto front based on system-level efficiency and weight considerations.

Keywords: integrated generator-rectifier optimization, offshore wind generator, permanent magnet synchronous generator

1. INTRODUCTION

Advanced offshore wind turbines, exceeding 10 MW, have become increasingly accessible in the current landscape. Traditionally, wind generators ranging below 5 MW output power predominantly employed the permanent magnet synchronous generator (PMSG), wound-rotor synchronous generator, or doubly-fed induction generator. However, for power ratings surpassing 5 MW, the industry markedly favors the adoption of the PMSG [2]. In these conventional PMSG-based wind turbines, a full-power-rated active rectifier is utilized to manage power flow. To enhance efficiency and reliability while reducing the demand on active switches, an innovative integrated generator-rectifier system has been proposed. This system notably diminishes the rectifier size and introduces a notable advancement in efficiency.

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Dr. Jyoti Prasad Patra
Professor, Department of Electrical Engineering
Gandhi Academy of Technology and Engineering, Berhampur, Odisha, India

ABSTRACT
Numerous modern high-power direct-drive wind turbines incorporate permanent magnet synchronous generators (PMSGs) coupled with fully rated active rectifiers to manage and transmit power to the primary grid. Yet, the inherent speed limitations of wind turbines present an opportunity to diminish the requisite active rectification, thereby reducing drive costs and enhancing system reliability. This study outlines a process for designing and optimizing a direct-drive PMSG unit with an integrated generator-rectifier system. To implement this hybrid approach, a multi-port generator featuring multiple diode rectifiers and a single active rectifier is devised. The paper details the optimization procedure for a 10 MW generator-drive under this proposed architecture using two distinct implementation methods. A comparison of these implementations is conducted, assessing the optimal Pareto front based on system-level efficiency and weight considerations.

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Design and Visualization of Non-Contact Aircraft Electrical Generators

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ABSTRACT

The fundamental components in on-board power supply units are the direct current (DC) or alternating current (AC) generators. Contactless generators, a type of alternating electric machines, possess unique constructions and unconventional methods of excitation. Leveraging 3D modeling through CAD systems has markedly enhanced the analysis of generator construction and its operational characteristics. This advancement has resulted in reduced weight and size of the generators without compromising power output.

Keywords: 3D modeling, CAD systems, contactless generators, NX Siemens.

1. INTRODUCTION

Aircraft heavily rely on generators as their primary sources of electricity. These generators, specifically designed for aviation conditions, must meet stringent criteria: they need to ensure high reliability and operational safety, possess compact dimensions and low weight, exhibit robust mechanical, electrical, and chemical stability, maintain stability in varying environmental conditions (including pressure, temperature, humidity), operate independently of spatial orientations, and not interfere with radio equipment and antennas. Addressing these specialized requirements, aircraft employ a beneficial design solution known as contactless generators. These are electric rotating machines that lack sliding contacts within their construction, such as commutators, slip rings, or carbon brushes.

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Analysis of Analog and Digital Noise Generator Characteristics for Protective Devices

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ABSTRACT

Among the various potential technical leakages, acoustic information poses a significant threat. This paper presents the design and analysis of two noise generators: analog and digital. The primary investigated parameters include their frequency ranges and noise quality factors. The methodology for computing the entropy coefficient, a measure of noise quality, is also discussed. Both designed generators meet the specified criteria and have the potential for integration within vibroacoustic protection systems.

Keywords—noise generator; analog generator; digital generator; noise quality factor; white noise; signal amplifier; acoustic technical leakage channel

1. INTRODUCTION

To safeguard against speech information leaks, a vibration-based acoustic protection mechanism is employed, generating acoustic noise within a room. Typically, such protection systems comprise a noise generation unit and speakers. Presently, two primary types of noise generators prevail: analog and digital.

This study aims to devise analog and digital noise generators using the National Instruments Multisim electronic circuit simulation environment. It seeks to compare their key characteristics based on the noise quality factor criterion.

Designing noise generators for acoustic protection necessitates the consideration of specific factors:

- The generated noise should cover seven-octave bands of a speech signal, with geometric mean frequencies set at 125, 250, 500, 1000, 2000, 4000, and 8000 Hz.
- The noise quality factor must reach a minimum of 0.6, indicating proximity to white noise.

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Analysis of Dynamic Modes in a Brushless Doubly-Fed Generator for Wind Turbines

Dr.Satyajit Mohanty
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ABSTRACT

Wind turbines play a crucial role in today's power generation landscape, contributing significantly to the electricity supply. As electrical networks incorporate generators of relatively lower power, the need arises for multiple generators to operate in parallel to meet substantial energy demands. Achieving control over voltage and frequency parameters at the generator output becomes challenging in conventional synchronous generators equipped with permanent magnets. This challenge finds a resolution by employing a doubly-fed machine as the electric generator, allowing direct control over voltage and frequency parameters at the generator output, independent of the wind turbine shaft's rotation speed. Unlike the conventional dual conversion process involving rectification and inversion, this approach doesn't necessitate full power conversion from the wind turbine.

Keywords—wind turbine, generator, permanent magnets, field winding, three-phase electrical circuit, feedback.

1. INTRODUCTION

Power semiconductor converters play a pivotal role in supplying power to electrical networks, industrial consumers, and various technological processes within the power industry. Contemporary advancements in power electronics enable the operation of Insulated Gate Bipolar Transistors (IGBTs) at elevated voltage and current levels, facilitating their switching in alignment with control system signals. The quality of the output voltage relies on Pulse Width Modulation (PWM) modulation's carrier frequency, improving proportionally with its escalation. Nonetheless, as the carrier frequency rises, there's a simultaneous increase in switching heat losses within the IGBT transistors and radio frequency interference levels. Consequently, this escalates the converter's unreliability since heightened heat release impairs the reliability and longevity of its component elements. Hence, a paradox emerges between enhancing voltages and currents and the converter's reliability.

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An Experimental Look at the performance of a solar Flat plate collector with triangular Geometry

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ABSTRACT

The flat plate collector is the most famous and simplest form of solar collectors that is used as a water heater. On this examine, a sun flat plate collector with triangular geometry and with zigzag and non-riser tubes turned into experimentally tested. To evaluate the collector, the ASHRAE general changed into used in warm and dry climate situations. The test web page turned into located in southwestern Iran and became examined inside the early months from March to June 2020. The measured parameters consist of the environmental and thermal parameters of the collector and the fluid, and the first-class records have been selected and provided. The effects of the have a look at showed that the collector had a appropriate performance; the lowest recorded value became 32% and the best changed into fifty eight 9 %. Hence, it could be used as a sun water heating system in each home and industrial sectors. in the stress drop testing, the effects confirmed that in all wall fees used, the stress drop in the collector become much less than 0.1 bar. Additionally, the overall performance of the collector was supplied primarily based on environmental variables which include temperature and radiation, as well as fluid variables which include input temperature and drift charge

1. INTRODUCTION

The want to make bigger and develop renewable energy isn't hidden from anyone within the international today. it's far safe to say that the most practical and kind of renewable electricity is sun energy, which has long been utilized by human's heaps of years in the past. Solar energy can be utilized in not unusual sorts of energy: heat and photovoltaic. In solar thermal energy a warmth exchanger known as collector is used. In fact, a solar collector is a thermal tool for soaking up solar radiation and converting it into the specified heat in a gadget including a water heater. Collector performance enhancement is one of the most important topics in solar thermal engineering. Consequently, there are numerous approaches to beautify collector performance, converting the geometry of the solar collector and growing the thermal specification of the coolant consisting of nanofluid are key ways to clear up this trouble.

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Single and 3 Levels sensitive load compensation Via. Electric Powered spring the usage of proportional- Resonant and repetitive controllers.

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ABSTRACT

Electric springs (ES) are frequently stated to be demand-aspect strength manage systems in decentralized grids with renewable power assets, which, due to their nature, inject unreliable electricity electricity into the device. The second one sort of electric spring (ES-2) produces an sensible load then placing it subsequent to a sensitive load, which, in addition to regulating the voltage degree, will optimize numerous parameters of the power for the touchy load. In imbalance grids with harmonic voltages and close by non-linear load, wherein conventional controllers are used, the sensible load cannot improve the energy first-class for a sensitive load. In this paper, a proportional resonance (PR) controller is used to adjust such the voltage degree and the deliver voltage imbalances due to the least tracking error inside the sinusoidal mode in addition to a repetitive controller (RC) is designed to lessen THD and beautify the strength issue thanks to its infinite poles at the imaginary axis. In the long run, these suggested controllers had been tested concurrently in three-phase and unmarried-phase grids thru mathematical and gadget simulation. The grid considered on this paper has harmonics up to reserve 17 and voltage fluctuations within the variety of 0.954 to one.

1. INTRODUCTION

The software of easy energies together with sun and wind power is increasing because of their environmental benefits. However, renewable energies manufacturing is erratic and unreliable, causing it not possible to forecast the technology of power. Variability of production energy collectively with the lack of ability to be expecting output energy causes voltage fluctuation within the grid that aren't suitable for touchy loads. Alternatively, due to the local non-linear loads, harmonics are created on the grid modern and voltage. Electric springs have been first added in smart grids for voltage regulation on the load aspect in 2012, where for the first time the grid hundreds were divided into the two sorts of touchy and non-sensitive.

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Solar Micro grids Fast and Accurate Fault Detection, location and classification strategy using on-line phase let, Current injection Kits', Travelling waves, and mathematical Morphology

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ABSTRACT

In this paper, a new rapid and correct technique for fault detection, vicinity and category on multi-terminal direct current (MTDC) distribution networks linked to solar disturbed generation and loads provided a few assets such as DC resources and masses expanding, and attempt to the energy nice increasing have brought about MTDC networks' development. It's far critical to understand the fault kind which will retain carrier and prevent in addition damages, on this method, a circuit kit is hooked up to the network. Fault detection is carried out with the dimension of the modulus of the connected kit and the travelling-waves of the fault modulus and making use of it to a mathematical morphology filter out, inside the Fault time. Determine the sort and region of faults the use of a mathematical morphology filter, circuit equations and modern calculations. DC series and ground are faults are taken into consideration as DC distribution network disturbances. The provided technique was examined in a sun DC network connected to strength storages and sun assets with many faults.

1. INTRODUCTION

The rapid and correct detection, vicinity and classification of the fault are fairly effective in growing the reliability indexes, diminishing predicted strength now not deliver, and increasing the speed of network recovery and reconstruction. Developing DC intake in distribution networks, connecting photovoltaic resources to the network, looking to decorate the energy excellent and responding to in addition masses has expanded MTDC sun networks.

The implementation of conventional schemes for fault detection and place on MTDC networks has a few issues. The accuracy of impedance-primarily based methods isn't always sufficient at strength frequency for distribution networks. Traditional protection techniques which might be primarily based on under voltage/over current, rate of alternate in modern/voltage, or both lack the desired sensitivity for detecting high-resistance faults, or are Unreliable to verbal exchange postpone and failure.

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Energy, Economic and Environmental (3m) Evaluation of a Tank-in-tank solar Combi system

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ABSTRACT

In this take a look at, the thermal overall performance of a tank-in-tank sun combi system is dynamically simulated to investigate the effect of various parameters together with collector kind and location, garage tank volume, building specifications, warmness change terminal units, and climatic conditions on gadget performance. The results confirmed that through increasing the collector region, tank extent and thickness of wall insulation, the solar fraction will increase. It changed into additionally discovered that using floor heating instead of a radiator device improves the device overall performance. The sun fraction using the evacuated tube sun collector is 2.3% better than that the use of flat plate sun collector. the once a year solar fraction of 45.6%, 63.4%, 42.2%, 34%, 57.3% and 88.1% is acquired in hot-Dry (Tehran), warm-Dry (Yaouli), cold-Dry (Tabriz), slight-Humid (Rasht), warm-semi Humid (Ahvaz), and hot-Humid (Bander Abbas), respectively. The environmental evaluation suggests that the use of the proposed solar combi system should keep 2241.3 m³ herbal gas and offsetting 4731.5 kg much less CO₂ emissions throughout a year. The life cycle price evaluation shows that the payback time of the proposed gadget for the economic situations of Iran is 7 years.

1. INTRODUCTION

A solar combisystem (SCS) is a solar heating gadget which delivers simultaneously home warm water (DHW) and space heating (SH) needs of residential homes. SCSs typically consist of five sub-structures: solar collector loop, warmness storage, heat distribution, controls, and auxiliary warmers. One key benefit of the SCS compared to traditional sun water heaters is that SCSs increase the solar collector's utilization unbiased of occupant warm water intake due to the fact the warmth collected by way of the solar collector additionally makes use of for the gap heating.

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Rethinking carbon neutrality supported by energy systems

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ABSTRACT

Research on carbon neutrality is summarized in this article. First, let's discuss the general concept of CO2 neutrality. Next, we discuss the impact of CO2 neutrality on the energy and power industries. Finally, a new energy system solution to achieve the goal of carbon neutrality was presented from an energy system perspective. This study provides guidance for considering carbon-neutral solutions.

Keywords: carbon neutrality; power system; digital twin power grid; flexible solutions; integrated energy system

1. INTRODUCTION

During the general debate of the 75th United Nations General Assembly, Chinese President Xi Jinping proposed that China achieve carbon neutrality in 2060. So far, the journey to and achievement of carbon neutrality has sparked great interest in science. Many important research results were achieved. Research on carbon neutrality is summarized in this article. Explain the general concept of carbon neutrality. Then, the impact of carbon neutrality on energy and electric power industry is introduced. Finally, this paper introduces the solution of the new power system to achieve the objective of carbon neutrality, from the perspective of power system.

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Design and implementation of business access control in new generation power grid distribution and control systems

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ABSTRACT

This paper analyzes the changes of the new generation power grid dispatching and control system in system architecture, human-computer interaction mode, business organization mode, etc., combats the new requirements of the new generation power grid dispatching and control system for access control and proposes the access control solution for business in the new generation power grid dispatching control system. Key technologies are studied, such as path-based resource identification definition, metadata-based resource management, multi-factor access control based on rule engine, cross-system access control based on upper and lower organizational relationships. The solution is verified in the prototype system and provides multi-dimensional security access control means for business in the new generation power grid dispatching and control system.

1. INTRODUCTION

In early 2017, State Grid Co., Ltd. proposed to develop a new generation power grid dispatching and control system. On the basis of inheriting the achievements of the existing power grid dispatching and control system, the new system introduces new technologies such as cloud computing, big data and artificial intelligence, adopts a new system architecture of "physical distribution and logical unification", deploys cloud terminals with "location independent, authority constraint and simultaneous display" characteristics, constructs business with "full, fast and accurate" characteristics, and comprehensively supports the new generation power system safe and stable operation. No matter the change of system architecture and interaction mode, or the introduction of new technology and new business, higher requirements are put forward for the security protection of new system, and business security is an important part. In recent years, there have been many researches on the security protection of power grid dispatching and control system, mainly focusing on the network security, especially on the network border security protection [6,7], but less on the business of security protection.

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Toward a green cloud computing algorithmic approach for energy minimization in cloud data centers

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ABSTRACT

The article presents an efficient energy optimization framework based on dynamic resource scheduling for VM migration in cloud data centers. This increasing number of cloud data centers all over the world are consuming a vast amount of power and thus, exhaling a huge amount of CO2 that has a strong negative impact on the environment. Therefore, implementing Green cloud computing by efficient power reduction is a momentous research area. Live Virtual Machine (VM) migration, and server consolidation technology along with appropriate resource allocation of users' tasks, is particularly useful for reducing power consumption in cloud data centers. In this article, the authors propose algorithms which mainly consider live VM migration techniques for power reduction named "Power_reduction" and "VM_migration." Moreover, the authors implement dynamic scheduling of servers based on sequential search, random search, and a maximum fitness search for convenient allocation and higher utilization of resources. The authors perform simulation work using CloudSim and the Cloudera simulator to evaluate the performance of the proposed algorithms. Results show that the proposed approaches achieve around 30% energy savings than the existing algorithms.

1. INTRODUCTION

Cloud computing is evolving as a new standard of comprehensive distributed computing. It has moved away the computation from home PCs and small organizations to large-scale data centers and made it advantageous for consumers and IT organizations by chunking huge amount of capital investments. Cloud is offering cost-effective solutions to almost all types of large scale computations by letting users to access scalable remote resources (e.g. servers, storage, networks, applications etc.) at any time, from anywhere, on-demand basis and also on pay-per-use basis. This ever-proliferating demand of cloud computing has led the cloud data centers to grow rapidly. Consequently, it is now leading to a concerning issue of increasing amount of power consumption of cloud resources (Duy et al., 2010; Beik, 2012) and excess carbon footprint in the environment. It has been measured that power consumption of worldwide data centers has increased almost ten times over the past decade (Priya et al., 2013).

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**Game-Theoretic Resource allocation to minimize the total energy
Of a mobile cloud system**

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ABSTRACT

Cloud computing and virtualization techniques provide mobile devices with battery energy saving opportunities by allowing them to offload computation and execute code remotely. When the cloud infrastructure consists of heterogeneous servers, the mapping between mobile devices and servers plays an important role in determining the energy dissipation on both sides. From an environmental impact perspective, any energy dissipation related to computation should be counted. To achieve energy sustainability, it is important reducing the overall energy consumption of the mobile systems and the cloud infrastructure. Furthermore, reducing cloud energy consumption can potentially reduce the cost of mobile cloud users because the pricing model of cloud services is pay-by-usage. In this paper, we propose a game-theoretic approach to optimize the overall energy in a mobile cloud computing system.

Keywords: Congestion Game, game theory, mobile cloud computing, power management, virtualization.)

1. INTRODUCTION

The emerging paradigm of mobile cloud computing (MCC) moves the processing, memory and storage requirements all together from the resource limited mobile devices to the resource unlimited cloud. MCC provides many advantages to the mobile devices [1], it extends the storage capacity for mobile users [4] and also reduces the risk of data and application lost on mobile device by backing up users data on several computers in the cloud. Security services such as virus scanning and malicious code detection provided by the MCC improve the safety and reliability of the mobile device. One very important benefit brought by MCC for mobile users is the extended battery life time. The MCC helps the mobile devices to run the computation intensive applications, which normally consume a large amount of battery energy. This is enabled by virtualization technique which allows the cloud infrastructure to run arbitrary mobile applications from the mobile users or service subscribers. We refer to this technique as computation offloading.

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High band VLSI Architecture with low-Resolution ImageORB Grand

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ABSTRACT

Guessing Random Additive Noise Decoding (GRAND) is a recently proposed approximate Maximum Likelihood (ML) decoding technique that can decode any linear error-correcting block code. Ordered Reliability Bits GRAND (ORGRAND) is a powerful variant of GRAND, which outperforms the original GRAND technique by generating error patterns in a specific order. Moreover, their simplicity at the algorithm level renders GRAND family a desirable candidate for applications that demand very high throughput. This work reports the first-ever hardware architecture for ORGRAND, which achieves an average throughput of up to 42.5 Gbps for a code length of 128 at an SNR of 10 dB. Moreover, the proposed hardware can be used to decode any code provided the length and rate constraints. Compared to the state-of-the-art fast dynamic successive cancellation flip decoder (Fast-SCF) using a 5G polar (128, 105) code, the proposed VLSI implementation has 49% more average throughput while maintaining similar decoding performance.

Index Terms— Guessing Random Additive Noise Decoding (GRAND), Ordered Reliability Bits GRAND (ORGRAND), Maximum Likelihood Decoding (MLD).

1. INTRODUCTION

Channel coding techniques are an integral part of all modern communications systems. Since their inception [1], a lot of effort was focused on finding practical channel coding schemes that could approach channel capacity. Over time, various capacity-approaching codes have been designed, such as Turbo codes [2] and LDPC codes [3]. Polar codes [4], proposed in 2009, are able to asymptotically achieve the channel capacity. Each of these aforementioned channel coding techniques, along with many others, require a dedicated decoder. However, there exists an alternate paradigm of decoders that do not rely on the underlying channel code and hence can be used to decode any code. Guessing Random Additive Noise Decoding (GRAND) is a recently proposed approximate Maximum Likelihood (ML) decoding technique for linear error-correcting codes [5]. Instead of decoding the received codeword, GRAND attempts to guess the noise present in the codeword. Hence, GRAND can be used for any linear block code.

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Performance Evaluation of memristor, Finfet and Graphene TFET in VLSI Circuit Design

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ABSTRACT

CMOS transistors have limitations as the technology shrinks. The problem of short channel effects (SCE) became prevalent, causing malfunctions and failures in CMOS circuits. A variety of devices are proposed to extend Moore's Law and the roadmap for the semiconductor industry. The memristor is a two-terminal passive device that has proven to be compatible with MOSFET manufacturing processes and also offers some special features. It is a nanoscale device, so it saves a lot of mold space and consumes less energy. Also, the FinFET structure contributed to a better electrostatic control of the transistor channel. Leakage current and power are reduced, so its performance is better than MOS transistor. FinFET has a temperature effect inversion (TEI) because its I_{off} increases even in the threshold region. The integration of graphene-carbon (GNR) FETs in IC design has shown many improvements in speed and power. In this work, we introduce the characteristics of GNR/FET and design the inverter circuit using Cadence-Spectre.

Keywords: FinFET, Graphene FET, Memristor, Phase Noise, Ring Oscillator (RO), VLSI

1. INTRODUCTION

As the scaling of MOS transistors continues to advance technology, the field of VLSI is looking for more efficient devices to design and fabricate new analog and digital devices memories and circuits. Although transistor miniaturization has been successful in recent years, the inherent level structure of the CMOS transistor presents challenges that lead to short channel effects (SCE) [1]. When a high voltage is applied to the drain terminal of a short-channel device, the drain electric field interacts with the electric field surrounding the source terminal. The potential barrier required for the flow of electrons decreases and thus increases the current I_{off} . This causes the threshold voltage (SS) of the nMOS and pMOS transistors to decrease and causes positive and negative changes in the threshold voltage. A memristor is a two-terminal device that determines the relationship between an electric charge and a current connection [2]. One of the most important properties of a memristor is its ability to maintain its final resistance by modulating its internal state variable. That's why it's called "MEMORY RESISTOR".

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Accelerated addition in a resistive RAM System using parallel- Friendly majority GATES

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ABSTRACT

To "overcome the Von Neumann bottleneck", memory computing methods are being explored in many new memory technologies, including resistive RAMs (ReRAMs). Majority logic is effective in synthesizing arithmetic circuits compared to NAND/NOR/IMPLY logic. In this work we propose a method to apply a majority gate to the ReRAM array used by the transistors during a READ operation. Majority gate implemented in memory was also NOT recommended the gate forms a functionally complete Boolean logic capable of any digital logic implementation. The calculation is simplified a The order of READ and WRITE operations and is not requiresome important changes in the surrounding circuit. Although many methods have been proposed recently implements Boolean logic in memory, memory latency address implemented as a series of such Boolean operations irrational (Xⁿ). Parallel prefixes use prefix countingpeep up addition in traditional CMOS-based adders.

Keywords: Resistive RAM (ReRAM), non-volatile memory (NVM), Majority Logic, Majority Gate, Memory Adapter, 1-Transistor 1-Resistor (1T1R), von Neumann Bottleneck, In-Memory Computing, Sense Amplifier, In-Memory Processing, Parallel Prefix Adder,logic in memory, calculation in memory, read circuit.

1. INTRODUCTION

THE information flow between processing and memory units are the main cause of impaired performance (both in terms of energy and latency) in modern computing systems often referred to as the "von Neumann bottleneck" or "wall of memory". "Computing energy" is dominated by "data kinetic energy" because the working energy of the memory increases exponentially along the memory hierarchy (from cache to off-chip DRAM) [2]. As a quantitative example, [3] points out that the energy of using DRAM is 3556 times higher 16-bit addition in 45 nm CMOS technology. Same DRAM access delay is ≈ 100 ns [4], while the latency of a 32-bit adder is 4 ns in the so-called CMOS technology [5], which is related to the movement of data latency is a significant part of computing latency the traditional von-Neumann computer model.

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Addition, Subtraction and shaped Beam Pattern Synthesis with Unequal Spacing and Phase Control

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ABSTRACT

Design procedure for the synthesis of nonuniform spaced linear arrays using the Poisson sum expansion of the matrix factor presented in the literature are presented. Considering the non-zero phase term in the existing formula and using suitable line source patterns synthetic methods, general The design procedure can be used to synthesize any type of pattern, such as sum, difference and form bars. This approach makes a difference nonlinear complex pattern synthesis problem for nonuniformly spaced linear arrays into a simple problem that does it is quick and easy to implement. In addition, further optimization A process is added to the synthesis procedure to improve the final model and check the calculated parameters.

Keywords: linear arrays, unequally spaced arrays.

1. INTRODUCTION

USING unequally spaced linear arrays instead of evenly spaced linear arrays were an attractive topic in the antenna field for several years. Simply The supply network for linear arrays with unequal spacing is the most important feature of this type of table. In 1960, Linz [1] analyzed and developed a non-uniformly matrix formulation spaced linear arrays. Harrington [2] developed a repeated method for reducing the sidelobe level of a uniformly excited N-cell line array to approximately 2N times the field strength main lobe unequally spaced. Of an element positions appear in the argument of the exponential function synthesis of the desired pattern by calculating the element correct positions is a non-linear and complex problem. About that fact, most previous works have attacked the problem using numerical and computer-aided iteration [3] or stochastic optimization methods [4]-[6]. Development non-uniform fast Fourier transform (NFFT) and its applications lowering the level of the sidelobe are currently interesting research activity [7]. In most of these works, the main goal was only to reduce the level of the sidelobe and they cannot do that synthesize patterns of any form. Although there is a lack of analytical formulas for this type of tables, but in recent years almost no work has been done in that area [8]

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Navigation System for the Blind- The Third Eye

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ABSTRACT

Visual impairments people with severe condition are unable to move independently. In this fast moving world, these people are generally left underprivileged. Few methods have been used to help them and provide them with some level of mobility comfort. Conventional methods such as trained dogs or a cane are not reliable enough in providing sufficient information of possible hindrances. Moreover, training and managing dogs is challenging task. There are some guidance systems which use RFID technology. However, this technology cannot be used in an outdoor open area. In this paper, an AI based system titled "Navigation System for Blind - Third Eye" is proposed. In order to support blind and visually impaired people's mobility indoor and outdoor, this work proposes a simple electronic guidance embedded vision system which is configurable and efficient. The system utilizes three types of devices including IR sensor, sonar sensor and camera. A microcontroller processes the reflected signals from all devices in order to classify front obstacle. This system can be fasten to a hat or to a pen-sized hand mini stick.

Keywords: IR, RFID, There, This system, Conventional

1. INTRODUCTION

As derived from —World Health Organization report and fact sheet updated on October 2017 on visual impairment, the estimated number of people live with vision impairment is about 253 million; 26 million are totally blind while 217 million suffer from moderate to severe vision impairment. Globally, the main cause of vision loss is the chronic eye diseases while the top two causes of visual impairment are in-corrected refractive errors and un-operated cataract. In this fast moving world, visually impaired people are left behind and not treated equally. To help them and provide them with some level of comfort, many solutions and techniques have been tried and developed. One of these techniques is called orientation and mobility. In this technique, a specialist helps the visually impaired and blind people and trains them to move on their own. They are trained to depend on their other remaining senses to move independently and safely. Another method is through using a guide dogs. In this method, the dogs are trained specially to support the movement of the blind people. The dogs navigate around the obstacles as an alert to the user to change his way.

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Virtual Assistance Car using Raspberry Pi
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ABSTRACT
Smart devices as voice assistant are a prevalent feature in the cars these days. Voice assistants are software agents that can interpret human voices or commands and respond through smart speakers. Users can convey any feature and the voice assistant can provide answers to what they ask and user can handle and control the car as they want using the commands over voice. Along with this, the special features to the voice assistant which can execute any task given by the user. The basic feature of this technique is to set off controlling the Air conditioning depending on the weather condition and the temperature of the surrounding, functionality of wipers, controlling the music system, varying the window lights and car lock system, which can be controlled by using voice assistant with the help of Raspberry Pi. In order to secure the car from the access of an outsider or unauthorized user, RFID is used. The RFID band is used here which contains a specific serial number, the door gets unlocked when the reader recognize the correct serial number.
Keywords: Google Speech Recognition, Car Automation, Raspberry pi, RFID Band .

1. INTRODUCTION
Automation is the application of machines to perform the tasks performed by human beings or the problems that are difficult to solve. Car automation plays a vital role in the high-tech automobiles from current generation where several functionalities are performed automatically by voice commands.
AUTOMATION: In today's life, automation plays a major role in order to make the process/task simpler, without the help of Human power. The major aspect of implementing automation is to reduce the work, time and error made by a normal human being. Automation or automatic control in the technology were a range of control systems for operating equipment such as machinery, automobiles, switching on telephone networks, aircraft and other applications are performed with reduced human involvement.

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Developing Smart City Services by Mobile Application

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ABSTRACT

The smart city concept brings together technology, government and different layers of society to utilize technological enablers such as the internet of things (IoT) and artificial intelligence (AI). These enablers, in turn, facilitate the development of various aspects of the smart city including, e.g., transportation, governance, education, safety, and communication. However, the transition toward smarter cities involves not only technological development but also the changing and evolving roles of citizens, service providers, and city authorities. In this transition, the key issue is the growing and evolving roles of collaboration, participation, and co-ordination. The purpose of this paper is to present a practical example of a smartphone application that provides citizens with the most essential everyday city services in an easy and accessible manner. The application also acts as a platform for communication between the citizens and city authorities, facilitating collaborative processes and digital participation within the smart city.

Keywords: Smart city, mobile application, digital participation.

1. INTRODUCTION

The concept of smart city derives from the intersection of studies in urbanism and the development of information and communication technology (ICT), combined with the dimensions of creativity and humanity (Nam and Pardo, 2011; Pereira et al., 2017). The smart city concept represents new ways of organizing city functions and urban life for environmental purposes, based on digitalization (Obeng, Graham and Henselby, 2017). In the field of ICT, rapid development of software, hardware, and networks has made it technologically possible to connect people and the facilities serving their everyday needs in the cities (Pereira et al., 2017). Thus, the smart city concept brings together technology, government, and different layers of society to utilize technological enablers such as the internet of things (IoT) and artificial intelligence (AI). These enablers, in turn, facilitate the development of various aspects of the smart city including, e.g., transportation, governance, education, safety, and communication.

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Impact of repeated heated rolling on the mechanical characteristics and microstructure of 304 stainless steel produced via an aluminothermy reaction

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ABSTRACT

304 stainless steels were arranged by aluminothermic response strategy; to begin with steels are strengthened at 1000°C and after that rolled at 700°C for diverse distortion. The microstructures advancement and mechanical properties were recognized in subtle elements. It was found that the steel contains nanocrystalline/sub-microcrystalline/microcrystalline austenitic and sub-microcrystalline ferrite. After rolling to a thickness decrease of 30%, 50%, and 70%, the mechanical properties of the rolled steels were significantly expanded, as the distortion expanded from 30% to 50%, the malleable quality expanded from 650 to 1110 MPa, the ultimate quality expanded from 400 to 665 MPa, and the elongation expanded from 8% to 8.5%.

1. INTRODUCTION

304 stainless steel considered as a wide assortment of applications due to its fabulous weldability, erosion resistance, and formability. But its most adequate quality. As of late, numerous approaches have been recommended to make strides the reinforcing of the steel without misfortune more ductility such bimodal grain measure conveyance, nano-twinned structure, warm treatment, the strain-induced martensitic change, and lamellar structure. In common, the surrender quality of combinations may be profoundly upgraded by precipitation, grain refinement, and stage change. It is found that distortion beneath conditions of warm working may get great ductility and tall plastic quality as steel. Z. Yamshchikov et al. and F. Chen et al. have depicted that grain refinement may well be gotten by variety the rolling heading in multi-pass rolling, which was valuable to the formability of the combination sheets. At tall rolling speed, energetic recrystallization (DRX) can be fortified and advance upgraded by expanding thickness decrease. As the microstructure was refined, both ductility and quality of the tests were moved forward by DRX. YW Kim et al. have asserted that the degree of DRX is related to the rolling temperature. In this manner, warm rolling beneath conditions of distortion may be an exceptionally productive way to upgrade the mechanical properties of the combinations and metals.

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An automated transmission solenoid tester for wheeled Vehicles' design and development

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ABSTRACT

Solenoids are the foremost basic components in programmed transmissions. They are utilized to control the move focuses, clutch locking, or weight control of programmed transmissions. Since the number, sort, and arrange of the solenoids all contrast when they are utilized in numerous vendor's automatic transmissions, making precise normal/abnormal choices for solenoids is exceptionally troublesome, because it can lower the upkeep quality, to squander labor and fabric taken a toll, and indeed decrease driving security. This article proposes an "abnormal" assessing strategy (i.e. for anomaly) for solenoids with tall review capacity and creates a learnable programmed transmission solenoid analyzer. This analyzer can perform solenoid testing on numerous channels at the same time. The test result insights for all channel solenoids tried are produced consequently.

1. INTRODUCTION

In comparison with followed vehicles, wheeled vehicles have such preferences as quick speed, tall versatility, long running remove, most cost- and helpful support, but with more cross-country control and expansive turning sweep as their shortcomings. Followed vehicles are for the most part military, for illustration, armored cars and tanks. Wheeled vehicles are the preeminent sort of civilian vehicles (e.g. cars and trucks). The programmed transmission (AT) could be a key component of wheeled vehicles; it consequently changes the adapt proportion whereas running, acting as the AT for the gearshift or weight alteration. At display, the AT vehicles with programmed moving work utilize electronically controlled programmed transmissions (ECAT).² This kind of AT can utilize distinctive sensors to educate the driving computer of the working condition of motor; the driving computer then sends signals to activate distinctive solenoids within the water powered control framework to alter the oil conduit within the AT to control the gears or alter the weight. Within the ECAT, the solenoids can control the move focuses and clutch locking or control the line weight. Concurring to involvement in viable repair and upkeep, the brokenness of AT generally comes about from the abnormalities or deficiencies of the solenoids.

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An overview of the incorporation of thin gradient lattice structures into items produced using additive manufacturing

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ABSTRACT

This review examines the plan, mechanical behaviors, manufacturability, and application of angle cross section structures fabricated by means of metallic added substance fabricating innovation. By shifting the plan parameters such as cell estimate, strut length, and strut distance across of the unit cells in grid structures, a slope property is gotten to attain distinctive levels of functionalities and optimize strength-to-weight proportion characteristics. Angle grid structures offer variable densification and porosities, and can combine more than one sort of unit cells with different topologies which comes about completely different exhibitions in mechanical behavior layer-by-layer compared to non-gradient grid structures. Added substance fabricating procedures are competent of fabricating complex lightweight parts such as uniform and angle grid structures and subsequently offer plan flexibility for engineers. In spite of these points of interest, added substance fabricating has its claim interesting downsides in fabricating grid structures. The rules and methodologies in overcoming the imperatives are talked about and proposals for future work were proposed.

1. INTRODUCTION

Angle forms are common in nature, it can be found within the microstructure of creatures, plants, and in human bones. For case, the microstructure of a bamboo may be a slope permeable structure with tall porosity exterior the surface encompassing the circulate structure of the bamboo and lower porosity drawing closer the internal surface. Other slope permeable structures in living life forms are found in butterfly wings, femur, and trabecular bones. Over the a long time, an extraordinary number of writing examined added substance fabricating (AM) innovation in building exact low-density metallic grid structures. AM innovations are favorable compared to customary machining since of its capacity to make complex parts straightforwardly from the computer-aided plan (CAD) demonstrate to end-user portion. In expansion, the sum of vitality utilized by AM is distant less than conventional machining in terms of tooling and workers. Cross section structure could be a permeable structure shaped by orchestrating unit cells where its designs impact the mechanical execution of the structure.

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Synchronization of a dual-exciter coupling with torsion Spring in far-resonance system

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ABSTRACT

In-phase self-synchronization of two unconventional rotors with common rotational hub is barely actualized in far-resonance framework. In this article, a double engine coaxially coupling with a torsion spring is proposed to get in-phase synchronization between the unconventional rotors. To investigate the energetic and synchronous characteristics of the proposed framework, the mechanical demonstrates it to begin with set up with Lagrangian definition. Moment, the unflinching reaction of the framework is calculated based on differential movement conditions. Along these lines, the synchronous component between the unconventional rotors is talked about by found the middle value of little parameter strategy. At long last, a few numerical computations are assist actualized to confirm rightness of hypothetical investigation. The result appears that the synchronous state is decided by solidness of torsion spring, masses of offbeat rotors, and separate between the engines.

1. INTRODUCTION

The phenomenon of synchronization alludes to the realization of comparative or indistinguishable shapes of movement or physical shapes of things or watched objects. In building of plan and make, synchronous wonder and synchronous issues frequently show up. For case, numerous mechanical gadgets utilized in cutting edge mechanical generation require two or more working parts, such as the parts of pivoting shafts, offbeat rotors (ERs), and pendulum; relocation speed, increasing speed, stage, and connected constrain of the parts ought to be synchronized when the framework is worked in consistent state. With the ceaseless advancement of science and innovation, synchronous apparatus in metallurgy, development materials, vitality, and fabric screenings play an imperative part. Hence, the advancement of the vibrating apparatus will be advanced and sped up for investigating the marvel of synchronization in building. Agreeing to the think about of synchronization, the synchronizations can be separated into self-synchronization, synchronization control, and constrained synchronization.

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Investigation of the mechanical characteristics of titanium alloy using a ball-end milling cutter with micro texture and various cutting edges

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ABSTRACT

When accuracy cutting titanium alloy, the cutting portion of cutting apparatus is primarily concentrated within the cutting edge range, so there's a solid accentuation upon the cutting edge's geometric parameters. Considerers have found that putting a micro-texture on the cutting surface can diminish the cutting constrain. This article looks at the processing drive included in cutting titanium combination with a micro-textured ball-end processing cutter with diverse formed cutting edges. To begin with, a processing show relating to distinctive cutting edges is built up based on the conventional show of processing constrain. At that point, the impacts of diverse cutting edge geometry parameters and micro-texture parameters on milling constrain are mimicked and tried employing a limited component strategy.

1. INTRODUCTION

Titanium alloy is one of the foremost imperative metals utilized in 21st-century society. As science and innovation have created, the worldwide request for titanium combination and its extend of applications have expanded. Titanium combination is presently broadly utilized in aviation, therapeutic gear, and other areas since of its extraordinary quality and execution. The degree of its application has gotten to be symbolic of a country's fabricating advancement and skill. Be that as it may, its moo distortion coefficient, tall particular quality, and common durability can result in a number of issues amid its machining. These incorporate the huge cutting drive required per unit range, its tall cutting temperature, and the velocity with which it wears out cutting apparatuses. Within the case of exactness processing, interperate processing constrain is the most cause of apparatus wear and high temperatures. When cutting metal, the shape of the cutting edge includes a noteworthy affect on the warm perspective of the machining and the surface quality of the work piece. Typically especially the case for accuracy cutting where the sum of metal expelled is exceptionally little and most of the cutting is finished by the cutting edge.

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Numerical modeling of a marine diesel engine's emissions and Performance under various gravity settings

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ABSTRACT

A computational liquid elements show of the marine diesel motor was built up and approved, and the recreation thinks about were carried out utilizing this demonstrate. Distinctive gravity conditions were set within the computational liquid elements demonstrate to explore their impact on marine diesel emissions and execution. By comparing the re-enactment comes about beneath diverse essential lattice sizes, 1.2 mm was chosen as the fundamental lattice estimate of the computational liquid flow demonstrate. The demonstrate employment in the exploratory information counting barrel weight, warm discharge rate, and nitrogen oxides (NOx) emanations to calibrate and approve the show. The recreation comes about are exceptionally near to the test information, and slight mistakes are too inside the possible extend. In specific, when considering the warm exchange of the combustion chamber divider, the re-enactment comes about of the warm discharge rate are closer to the experimental information. The recreation comes about appear that gravity incorporates a slight impact on barrel weight and warm discharge rate, and incorporates a certain degree of impact on fuel splash and atomization.

1. INTRODUCTION

As the quality of air environment proceeds to break down, individuals proceed to have concern almost natural issues. Poison emanations from marine diesel motors, particularly NOx and sediment, have drawn expanding consideration. The Worldwide Oceanic Organization (IMO) forces limits on the NOx emanations from marine diesel motors by creating and distributing Tier-III regulations. The presentation of the Tier-III standard has caused a significant affect on bounty of shipping nations and shipping companies. The Tier-III standard is diminished by 76% compared to the Tier-II standard, which suggests more rigid directions are upheld to decrease marine diesel NOx emanations. At display, the standard NOx outflow diminishment innovations incorporate debilitate gas distribution (EGR), specific catalytic diminishment (SCR), normal gas motors, and so on, all of which have made breakthrough within the diminishment of NOx emanations.

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Examining and using the structure of cleaning tools in a negative pressure reverse circulation wellbore

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ABSTRACT

Silt regularly show up at the foot of oil and gas wells within the foot of carbonate rocks amid completion or generation, truly influencing the efficiency. In arrange to illuminate the wellbore cleaning issue, this article applies the Bernoulli condition hypothesis strategy, the limited component strategy based on the standard turbulence show and the research facility test to confirm a kind of negative weight wellbore cleaning instrument which can build up neighborhood invert circulation beneath the activity of high-pressure water fly and rescue the foot filth and jetsam. Through the numerical examination of the cleaning device structure, it is found that the divider contact breadth is at slightest two times of the spot gap distance across to viably play the cleaning tool execution. In the event that the whole zone of spot outlet is 48mm2, the cleaning device angling capacity of six spot structures is made strides the foremost. The examination of the versatility of the cleaning instrument appears that the cleaning instrument with an external distance across of 104mm is most appropriate for the casing shaft with an inward breadth of 127.3 mm. The cleaning instrument was connected to the field operation and effectively cleaned the wellbore, viably expanding the wellbore efficiency.

1. INTRODUCTION

In recent years, routine oil and gas assets have been persistently depleted, and the abuse of unusual characteristic gas, such as shale gas, has been created quickly around the world. In any case, within the prepare of shale gas mine, deep may show up at the bottom of the well, which cannot as it were influence the downstream of consequent apparatuses, but too piece the generation layer amid the generation prepare, driving to the generation capacity decrease and indeed halt generation. There are two primary reasons for the testimony of shale gas wells. To begin with, the store arrangement of shale gas is primarily characterized by adsorption state or Free State, and even well casing completion and portioned breaking and fermentation innovation are frequently utilized within the misuse.

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Dual solutions about the critical point in the modeling and analysis of the magneto-Carreau fluid with radiative heat flux

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ABSTRACT

In this article, we point to analyze the double solutions for the stream of non-Newtonian fluid (Carreau liquid) over a radially contracting surface. Magneto hydrodynamics liquid is considered. Concept of Stefan Boltzmann steady and creel assimilation coefficient is utilized within the numerical modeling of vitality expression. Mass exchange is examined. The upper and lower department arrangements for the Sherwood number, skin contact coefficient, and Bussell number are calculated for diverse germane stream factors. Fitting change factors are utilized for diminishment of halfway differential conditions framework into standard differential conditions. Double arrangements are gotten for the non-dimensional concentrations, temperature, speed, angle of concentration, slope of temperature, and angle of speed. The basic values for each upper and lower arrangements are gotten for the case of angle of speed, slope of temperature, and angle of concentration. It is shaped that concentration and temperature areas show same affect with respect to both upper and lower department arrangements for speed proportion and temperature proportion parameters.

1. INTRODUCTION

It is exceptionally well recognized that the non-Newtonian materials are more appropriate than thick materials in forms of designing, geophysics, and biomechanics.1,2 Numerous non-Newtonian materials exist in nature for their diverse characteristics. The distinction between these materials can be recognized from the utilitarian connection between shear push, the constrain per unit region required to endure a consistent rate of shear rate and fluid development, and rate of speed alter when distinctive layers of liquid or one layer passes through an adjoining layer. In terms of the rheological affect, the non-Newtonian materials are moreover classified as either shear thickening or shear diminishing materials. The clear thickness of shear diminishing materials like froths, arrangements, polymer softens and emulsions, and suspensions rot by means of connected shear push. Various models have been presented to explore the philosophical affect of such sorts of materials.

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Maintaining equilibrium while standing using virtual suspension model control for a four-legged robot

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ABSTRACT

Legged robots request to keep the adjust beneath required terms when performing standing and movement. It may be a challenge for legged robots to preserve adjust amid standing without activation from lower leg joints and association of back polygon plane to appraise the center of mass (CoM). In arrange to preserve the standing adjust of legged robots beneath such a situation, we propose a virtual suspension demonstrate control (VSMC) strategy which is brief and can get freed of overhauling show emphases on advanced flow. Moreover, we optimize the run and propose the criteria for the virtual tallness of the CoM for rapidly altering parameters and adjusting to assignment characteristics. Recreation tests on adjust keeping are performed for single-leg robot vertical standing, quadruped robot inclining standing and biped robot parallel standing cases, and the proposed strategy can accomplish promising comes about inside the approximatively genuine setting condition that illustrate the achievability and solid anti-interference capacity of the VSMC approach.

1. INTRODUCTION

The capacity of legged robots to preserve adjust is essential some time recently performing motion errands. Right now, there are two standard conduct to preserve adjust for legged robots, one is to let legged robots keep stable standing or low-speed pace state, whereas another is to arrange slowly space leg movement. For the previous one, it requests the Middle of Gravity (CoG) to be inside the zone interior the raised locale of the supporting, and another detailing beneath typical circumstances for accomplishing energetic harmony is to require the zero minute point (ZMP) to be inside the back boundary. Ordinarily, biped robots take lower leg and hip procedure single or blended to check irritations or the gravity minute but cannot fulfill both translational and rotational of the CoM due to the coupling impacts, additionally requires the soles with certain region and lower leg to react with the ground for lower leg technique.

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Building a Vital Talent Pool in an Organization
Dr. Bijay Bhujabai
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ABSTRACT
More than 60 percent of the companies surveyed intended to build up their internal talent pipelines, and more than half (51 percent) intended to create more development opportunities for talented employees in the future. However, the other 40 percent are still of the opinion that fresh blood may get newer ideas onboard and hence the out of box approach. But the above mentioned points are debatable and have implications on the company directly or indirectly and hence it becomes imperative that the organizations invest in sessions to understand the industry dynamics and hire accordingly.

Keywords: Talent Pipelines, onboard ideas, out of box approach

1. INTRODUCTION
Good talent in today's world is the competitive/comparative differentiator that makes the difference between an institute that is flourishing and one that is sluggish or declining. However, the impact of the roles performed by that talent is not the same across an institute. Some roles have a superior impact than others. Company in all industries have a set of critical role: work that must be performed—and performed well—for the companies to succeed. These positions are not confined to leaders and executives. Critical positions may lie at the core of conducting everyday business or be central to long-term new product strategy. Companies that do not have the right people in critical jobs forfeit revenue growth, innovate very slowly, and/or lose competitive advantage because they are unable to adapt to market dynamics. Organizations need to define, attract, and develop the right mix of critical talent to support and grow their businesses. To ensure a flow of the right talent for these roles over time, the best practice is for organizations to building a vital talent pool. Although these talent management practices take place within organizations, these activities occur in the context of the broader business scenarios. Macro factors affecting talent pools include the trend toward global talent mobility, the scarcity of specific skill sets, and the volatility of the economy and marketplaces. Further complexities arise from the imperative of business agility, requiring fast response to fluid conditions. New products, new markets, and evolving corporate strategies may drive the need for key talent with new skills or different skills. For some organizations, a critical job may not have existed before.

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**The Portrayal of Women in Advertising and its effects on target audiences:
A retrospective Analysis**

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ABSTRACT

Today, advertising is a key driving force behind varied conceptions of beauty. Models with revealing clothing, fair skin, and bare midriffs are the ones who play influential paradigmatic roles in society, not "size-zero" models. Such methods are troublesome for India because the media's definition of beauty is heavily westernized. The feminist movement and the evolution of women's positions in society have sparked a lot of academic interest in how women are depicted in advertising. Traditional representations of housewives, women who rely on a man's protection, and depictions of sexual objectification were common in early studies. For more than four decades, advertisers have been accused of employing inappropriate and degrading stereotypes when it comes to the representation of women in advertising. This is a major worry in the United States right now. Despite the fact that a reduction in gender stereotyping would be reasonable, this does not appear to be the case in today's culture, which maintains many gender roles. There is a plethora of information available in the literature: Female stereotyping is alive and well, according to studies, even if it takes on different forms and patterns now than it did in the past.

Keywords: Marketing, television commercials, advertising, portrayal of women, Indian media


1. INTRODUCTION

Marketing is frequently described as a battle for consumer attention. The major goal in today's dynamic business environment is to attract customers, but the question remains as to how low one can go to acquire this fleeting appeal. Is it acceptable to denigrate women and portray them as sexual objects in order to elicit a second look at the advertisement? Though not universally embraced and derided by many, the use of overt sexual appeal in advertising has expanded significantly. According to literature, such explicit portrayals only cause a major outcry and a poor perception of the company in the long run. "Advertiser's main aim is to increase sales through positive impressions on audiences, about their products and services, by grabbing their attention, through persuasion in a very short span of time; before turning the page of a magazine/ newspaper, before changing the channel of the TV."

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PRESENTED PAPERS

Experimental methods in chemical engineering: Transmission electron microscopy—TEM

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ABSTRACT

On account of a speeding up voltage in the scope of 30 to 300 kV, an electron pillar can go through a slim example and structure a picture with sub-Angstrom spatial goal. While imaging on a slight glasslike example, the quick electrons disperse and diffract. The communicated electron design relies upon the neighborhood thickness, thickness, gum construction, and synthetic nature of the example. The transmission electron magnifying instrument (TEM) shapes the approaching electron bar utilizing attractive focal points onto the example and, utilizing an alternate set of attractive focal points, centers the projected electron example to a camera. The last picture amplification and difference are controlled utilizing the boundaries from the electron lenses, openings situated along the optical way, and attractive focal points. With this mix of focal points and gap, TEM offers two potential methods of activity, (a) imaging, including high-goal electron microscopy to uncover the size, shape, crystallinity, and morphology of materials.

Keywords: Electron diffraction, interfaces, metrology, nanomaterials, transmission electron microscopy

1. INTRODUCTION

The examination of novel materials' design and arrangement joins amalgamation to application and conveys data on morphology, glasslike stages, and basic content. North of twelve instruments and strategies have been created to gauge these properties from the sub-nano scale to mass solids 10 sets of greenish bigger (Figure 1). Transmission electron microscopy (TEM) is a center portray method to study nanomaterials and is one of only a handful of exceptional methods that catches morphological, crystallinity, and substance data under 100 nm and, surprisingly, down to 0.060 nm to assist with upgrading material union, use, and debasement. The high spatial goal joined with the frequently insensitive and insensitive pictures that can be gotten make TEM a most loved strategy for some scientists.

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A novel synthesis of graphene quantum dots via thermal treatment of crude graphite oxide in a dry and alkaline condition, and their Application in uranyl detection

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ABSTRACT

In this composition, a new system to synthesize graphene amount blotches was developed via thermal treatment of crude graphite oxide (GO) in a dry and alkaline condition to cut the crude GO wastes into small graphene amount blotches named as sGQDs. The sGQDs are nano-scale reduced graphene oxide pieces with the sizes around 5 – 10 nm. The sGQDs could disperse in water for their rich content of oxygen-containing groups. The luminescence peaks were precisely derived. The sGQDS waterless result shows a bright amber-green luminescence under the UV illumination, either, the uranyl ions show a strong luminescence quenching effect on the sGQD waterless so later indeed at a low amount (10⁻⁷ M) compared with other common ions in natural water-body, which makes that these sGQDs could be applied as a chemosensor for discovery of uranyl ions with good perceptivity and selectivity.

1. INTRODUCTION

Uranium is the crucial energy material applied in nuclear industry, which at the same time is also a radioactive and poisonous element showing significantly adverse impact on mortal health as well as all living beings (1, 3, 4), currently, owing to the global energy issues, nuclear industry is passing a rapid-fire development. Unexpectedly, the public attention on nuclear leakage accidents is also arising in the meanwhile, especially after Fukushima nuclear accident (5, 6). Uranium could appear in colorful valence countries, while hexavalent form (UO₂²⁺) is the most stable state in natural terrain, which possesses high water-solubility, easy mobility and the maximum bioavailability (7, 8, 9). Due to the environmental and public-health concern, the discovery of trace position of uranyl impurity in natural circumstance is of pivotal significance and draws adding magnet. Several necessary ways have been employed, similar as inductively coupled plasma atomic emission spectrometry (ICP-AES), inductively coupled plasma mass spectrometry (ICP-MS), electrothermal atomic absorption spectrometry (ETAAS), and electrothermal atomic absorption spectrometry (ETAAS) (10).

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Efficient degradation of chloroquine drug by electro-Fenton oxidation: Effects of operating conditions and Degradation mechanism

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ABSTRACT

In this work, the declination of chloroquine (CLQ), an antiviral and antimalarial medicine, using electro-Fenton oxidation was derived. Due to the significance of hydrogen peroxide (H2O2) generation during electro-Fenton oxidation, goods of pH, current, viscosity, molecular oxygen (O2) inflow rate, and anode material on H2O2 generation were estimated. H2O2 generation was enhanced by adding the current viscosity up to 60 mm²/cm² and the O2 inflow rate up to 80 mL/min at pH 9.0 and using carbon felt cathode and boron-doped diamond (BDD) anode. Electro-Fenton-BDD oxidation achieved the total CLQ reduction and 92 total organic carbon (TOC) junking. Electro-Fenton-BDD oxidation was more effective than electro-Fenton-Pt and anodic oxidation using Pt and BDD anodes. The effectiveness of CLQ reduction by electro-Fenton-BDD oxidation raises by adding the current viscosity and Fe2+ cure; still it drops with the increase of pH and CLQ attention. CLQ reduction follows pseudo-first order kinetics in all the trials.

1. INTRODUCTION

Chloroquine (CLQ), a general pharmaceutical medicine, is recom mended as the primary antimalarial fortallment medicine(Froesch et al., ; Lee et al., 2011; Price et al., 2014) and to treat conditions similar as amoebic dysentery(Singh et al., 2011, 2013), and filariasis(Lipus erythemaosom(Furst, 1996; Howard, 2007; Schreiner and Dornier, 2008), lately, public and transnational health or ganizations permitted the treatment of Coronavirus COVID-19 in certain rehabilitated cases by chloroquine(Cortegiani et al., ; Devaux et al., 2020). Gao et al., 2020). The exigency authorization use of antimalarial medicines including CLQ requires manufacturing this medicine in larger scale to fight COVID-19 that infected millions of people in the earth within many months. Consequently, large amounts of wastewaters deliled with CLQ will be discharged into the terrain.

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Detailed molecular structure (XRD), conformational search, spectroscopic characterization (IR, Raman, UV, fluorescence), quantum mechanical properties and bioactivity Prediction of a pyrrole analogue

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ABSTRACT

Pyrroles are an interesting class of organic compounds with immense medicinal conditioning. This handwriting presents the structural and quantum mechanical studies of 1-(2-aminophenyl)pyrrole using X-ray diffraction and colorful spectroscopic styles like Infra-Red, Raman, Ultra-violet and luminescence spectroscopy and its comparison with theoretical simulations. The single-domain X-ray diffraction values and optimized figure parameters also were within the agreeable range. A completely relaxed implicit energy checkup revealed the stability of the possible conformers of this patch. We present the viscosity functional proposition results and assignment of the vibrational modes in the infrared diapason. The experimental and gauged simulated climate matched when viscosity functional proposition simulation (B3LYP functional with 6-311++G**) was used. The electronic diapason was disassembled using time-dependent viscosity functional proposition with CAM-B3LYP functional in dimethylsulphoxide detergent. The luminescence diapason of the simulation was studied at different excitation wavelengths in the dimethylsulphoxide detergent.

1. INTRODUCTION

Pyrrole is one of the most important among sweet five-membered heterocyclic compounds as it is present in different bioactive compounds like porphyrin in hem, chlorophyll in chlorophyll, and corrin ring in vitamin B12. Phenylpyrrole derivatives are used as precursors of poly-N-phenylpyrroles, a type of conducting polymer used in electrochemical capacitor (1), detector (2), coating accoutrements used in solid-phase microextraction (3) batteries and different energy storeroom (4). Computational study of the high energy viscosity pyrrole compounds also was reported (5). Microwave oven structural disquisition represents that the molecular shape like bond lengths and angles are analogous within a margin per cent. So, the pyrrole is veritably identical to an oblate symmetric top with a stingy degree of asymmetry (k=0.94). Pyrrole belongs to the C_{2v} point group, which has 24 normal modes of vibration.

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Effects of surface tension on the dynamics of a single micro bubble near a rigid wall in an ultrasonic field

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ABSTRACT

Astral cavitation is a veritably important hydrodynamic miracle, and is frequently intertwined in a myriad of in diastrial, medical, and diurnal living operations. In these operations, the effect medium of liquid face pressure on perfecting the effectiveness of astral cavitation is a pivotal concern for experimenters. In this study, the goals of liquid face pressure on the dynamics of an ultrasonic driven bubble near a rigid wall, which could be the main medium of effectiveness enhancement in the operations of astral cavitation, were delved at the microscale position. A continuous high-speed hobby imaging system was used to easily record the temporary elaboration of single astral cavitation bubble in the liquids with different face pressure. Meanwhile, the bubble dynamic characteristics, similar as the position and time of bubble collapse, the size and stability of the bubbles, the speed of bubble boundaries and phenomena, were maintained and compared. In the case of the single bubbles near a rigid wall, it was set up that low face pressure reduces the stability of the bubbles in the liquid medium. Meanwhile, the bubbles collapse before and further from the rigid wall in the liquids with lower face pressure.

1. INTRODUCTION

Astral cavitation, a process which basically refers to conformation, growth, and implosive flash collapse of a hobby gas - vapor bubble driven by ultrasonic pressure surge in liquid medium (1), is an amazing miracle that has attracted important attention since it's in the heart of numerous operations in assistivity (2,3), natural wisdom (4,5) and diurnal life (6). In numerous of these operations, the presence of surfactants reduces the face pressure of the liquid and lowers the cavitation threshold which could save energy and ameliorate effectiveness (7-10). For illustration, it was set up that a clear increase in flyspeck jinking effectiveness 78 mm S402 patches is attained when TritonX-100 (a kind of surfactant) is employed at the optimized process conditions (7); ultrasound supported birth effectiveness of natural products similar as chlorophyll, olive oil painting) from shops could also be significantly bettered by adding surfactants in the detergent (10).

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Entrepreneurship and Innovation
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ABSTRACT
The previous several decades have seen significant progress in our knowledge of the link between entrepreneurship and development and knowledge on the one hand, and the other. The relationship between entrepreneurship, innovation, and knowledge has also been analyzed in more detail. However, a full understanding of the interplay between all of these variables: knowledge, innovation, entrepreneurship, and growth are still inadequate. When it comes to growth, the relationship between microeconomics and macroeconomics is still too crudely described to appreciate the whole range of these complex and conflicting dynamics. This paper's major goal is to shed light on recent developments in our understanding of the mechanisms that support knowledge production, dissemination, and commercialization via innovation, as well as the role of the "entrepreneur in the growth process". Conclusions drawn from current study results are included in this summary.
Keywords: Innovation, Entrepreneurship, Microeconomics, Macroeconomics

1. INTRODUCTION
"Entrepreneurship and innovation" are thought to go together and depend on each other. The impact of creative innovation on corporate strategy and operations cannot be overstated. "Entrepreneurship and innovation" go hand in hand, and this is a critical component of contemporary strategic thinking. This is because if you utilize these two principles as a guide for the strategy creation of many activities, including marketing techniques, you will design an efficient plan that can compete and defeat all other rivals. Every day, new ideas and approaches to marketing emerge. When it comes to marketing efforts, particularly in a corporate climate where there is a lot of change and struggle, it needs a lot of originality and creative thinking. Advertising and coming up with fresh ideas are two of the most critical responsibilities of a manager. Since both entrepreneurship and new ideas go hand in hand, marketing and entrepreneurship go hand in hand as well. If it's clear to the people in charge, the relationship between marketing, entrepreneurship, and innovation should help them come up with strategies that are both innovative and entrepreneurial.

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An Influence of Marketing Department Depends on Legacy Marketing Strategies

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ABSTRACT

This paper endeavored to lay out the connection among marketing and corporate system. Since marketing implies a ton of things these days, such as managing with business sectors and, any activity that can advance deals. Along these lines, there is need for any association to take a short impression of the business sectors and the ability to put itself in its clients' place and give the accessible appreciated data required by these clients. As, the reason for marketing is to influence the objective client that can uphold the business in this period of quickly evolving data, various organizations' marketing strategies have changing levels of effect on the organization's future turn of events. Through this exploration the creative talks about the different marketing strategies between arising organizations and customary organizations in the fields of car assembling, lodging, and data innovation through examination.

Keywords: Marketing Department, Marketing Strategies, Strategic Planning, Kikabo Grocery Shops

1. INTRODUCTION

Marketing is investigating on the grounds that it join the science and speciality of business with numerous other discipline like financial aspects, brain research, humanities, social investigations, geology, history, law, measurements and socio-economic. This blend will invigorate your scholarly interest and empower you to retain and comprehend the peculiarity of market trade. The investigation of marketing has been contrasted with hiking, testing, exhausting and eating. Marketing is significant and vital on the grounds that, it covers surrounding us consistently, meaningfully affects our lives, and is urgent to the endurance and progress of firm and people. Effective marketing gives the commitment of a work on personal satisfaction, a superior society and, surprisingly, a quieter world generally. Marketing is the most common way of arranging and executing the origination, estimating, advancement and dissemination of thoughts, great and administration to make trade the full individual and hierarchical objectives.

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Role of Financial System in India

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ABSTRACT

The Financial System plays a vital role in the economic development and raising the standard of living of people of a country. It helps to promote the development of weaker section of the society through rural development banks and co-operative societies. The economic development of any country depends upon the existence of a well-organized financial system. It is the financial system which supplies the necessary financial inputs for the production of goods and services which in turn promote the well-being and standard of living of the people of a country. Thus, the 'financial system' is a broader term which brings under its fold the financial markets and the financial institutions which support the system. The major assets traded in the financial system are money and monetary assets. The responsibility of the financial system is to mobilize the savings in the form of money and monetary assets and invest them to productive ventures.

Keywords: Financial system, role, development.

1. INTRODUCTION

The Financial System plays a vital role in the economic development and raising the standard of living of people of a country. It helps to promote the development of weaker section of the society through rural development banks and co-operative societies. The financial institutions help the customers to make better financial decisions by providing effective financial as well as advisory services. It aids in the increase in financial assets as a percentage of GDP and increasing the number of participants in the financial system. It encourages both savings and investment and also creates links between savers and investors and also facilitates the expansion of financial markets and aids in financial deepening and broadening. The financial system accelerates the rate and volume of savings through provision of various financial instruments and efficient mobilization of savings. It aids in increasing the national output of the country by providing the funds to the corporate customers to expand their respective business. It also protects the interests of the investors and ensures the smooth financial transactions through regulatory bodies such as RBI, SEBI etc.

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Rural Credit: A Historical Overview and Contemporary Views in India

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ABSTRACT

The living standard of people among different countries varies considerably. Generally industrialized countries are termed as developed countries and the agriculturally poor dominated ones are referred as developing countries. Developing nations have normally traditional and conventional techniques to use whereas developed nations go for technological up gradation and expertise. Present study puts its focus on what type of growth pattern our small scale and tiny sector had in a period of industrial revolution. The president of World Bank once pointed out that around 40% people in developing countries live in absolute poverty. Their life is so degraded by disease, illiteracy, malnutrition and hunger that the attainment of basic necessities seems to be attained difficult in near future. Agriculture supplies certain indispensable primary requisites-food for the population, raw material for industries and surplus for exports. No country, which aspires to be self-sustaining, can do without agriculture. At the same time no a nation has become rich through agriculture alone.

Keywords: Developed, Developing, Growth, Industrialization, Up-gradation

1. INTRODUCTION

Village and small industries in their different concepts are integral and containing elements in the economic structure and in the scheme of national planning. The primary object of developing small industries in rural areas is to generate better employment opportunities, raise standard of livings and bring about a more balanced and integrated economy. The prevailing scarcity of capital for the promotion of large scale industries and lack of technical development favors the growth of small scale and tiny industries. Besides, the setting up of small but efficient units of production at suitable locations throughout the country would reduce the cost of transport involved in the haulage of raw materials on the one hand and provide employment to scattered unskilled population on the other. The low purchasing power of the masses tend to restrict the market and the scale of production in certain spheres and thus makes sense for arrival of small, tiny units. These are essential for providing subsidiary or alternate occupations as well as for utilization of local raw materials.

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**Constructional idioms of 'insanity' in English and Spanish:
A corpus-based study**

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ABSTRACT

This paper presents a corpus- grounded study of constructions in English and Spanish, with a special emphasis on original semantic-functional counterparts, and implicit mismatches. Although operation/ corpus- grounded Construction Grammar (CG) has attracted important attention in recent times, almost studies have dealt simply with monolingual constructions. In this paper we will concentrate on two constructions that represent conventional ways to express 'insanity' in both languages. The analysis will cover grammatical, semantic and instructional aspects in order to establish amphi-linguistic prototype of the constructions. To that end, data from several gigs- communicative corpora of contemporary spoken English and Spanish (resemblant and similar have been named. This study advances the explicatory eventuality of constructional expressions for the study of idiomatically, variability andcross-language analysis. In addition, applicable findings on the diadical distribution of certain expression features across both languages and their public kinds are also reported.

1. INTRODUCTION

Construction Grammar has urged a profound metamorphosis in the way idiomatcity is understood and viewed. Language is now conceived as an 'private continuum of which ' constructions ' are the structure block(general phasal patterns and expressions). In this paper we will take an experimental station towards a corpus- grounded analysis of ' insanity ' constructions in English and Spanish. Within a constructionist approach to idiomatcity, special emphasis will be laid on original semantic-functional counterparts, and implicit mismatches. This is the first study, to the stylish of our knowledge, probing ' insanity ' constructions in English and Spanish that uses both resemblant and similar corpora, and takes diatopic variation into account. This paper is also one of the first beneficitions that advances the notion of constructional expression as a important tool forcross-linguistic comparison, contrastive analysis and verbal aspects of restatement. Our explanation follows the path of affiliated work on schematic phraseological units(or phrasemes) by Dobrovolskyj.

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English medium instruction lecturer training programmes:
Content, delivery, ways forward

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ABSTRACT

This paper checks English medium instruction (EMI) speaker training worldwide in order to inform opinions by interpreters assigned with its design and delivery. The check encompasses 25 papers which included information about EMI speaker training and support enterprise in 18 countries. These were analysed for their content factors and delivery styles as well as training challenges and recommendations. This analysis revealed four main factors language, communication, pedagogy and EMI mindfulness. Almost programmes were delivered face to face but some were blended with a substantial quantum of online and independent work. Delivery styles could automatically be classified into group classes, individual support and peer literacy. Microteaching with reflection, feedback and observation was a extensively recreating and largely rated criterion. Programmes were generally developed in-house by English language professionals. Recreating challenges were contextualization, group diversity, speaker confidence and the lack of incentivisation.

1. INTRODUCTION

The worldwide spread of English as a medium of instruction (EMI) in advanced education is decreasingly generating enterprise to support EMI speakers. English language interpreters are frequently assigned with this support, as the main training target is generally(ly) originally linked as language skill, designing and delivering EMI speaker training is a complex bid. On the one hand, it requires consideration of the varied verbal, educational, artistic and institutional scenarios that characterise EMI settings. On the other hand, we need to consider affective factors similar as confidence, stotions towards EMI and provocation, as well as practical issues similar as coflers and speakers' reacity; also, individual requirements will vary with, for case, speakers' English language proficiency, correctional cooperation(EMI) tutoring experience and previous schoolteacher training in their first language. interpreters charged with developing EMI training programmes could thus profit from knowing how others have approached similar training and what their gains were. A many overviews of EMI speaker training live, specially Coste(2015),OTDowd(2018) and Jimenez- Muñoz(2020).

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Effectiveness of digital-based interventions for children with mathematical learning difficulties: A meta-analysis.

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ABSTRACT

The reason of this work was to meta-analyze experimental prove almost the adequacy of digital-based mediations for underachievers with numerical learning troubles. Besides, we examined whether the school level of the members and the computer program directions approach were conclusive balanced variables. A efficient look of randomized controlled thinks about distributed between 2003 and 2019 was conducted. A add up to of 15 ponder with 1073 members met the ponder choice basis. A irregular impacts meta-analysis shows that digital-based mediations for the most part progressed scientific execution (total ES = 0.53), in spite of the fact that there was a noteworthy heterogeneity over ponder. There was no prove that videogames offer extra points of interest with regard to digital-based boring and coaching approaches. Additionally, impact measure was not directed when mediations were conveyed in essential school or in preschool.

1. INTRODUCTION

A formative learning clutter can be an awfully genuine disable for a child, particularly in case the abilities influenced, like scientific ones, are basic in advanced social orders (e.g. Duncan et al., 2007; Ritchie & Bates, 2013). Moo numeracy influences different viewpoints of people's life. It adversely impacts school achievement, mental wellbeing and self-esteem in children (Fritz et al., 2019). Besides in adulthood, it decreases the run of working openings (Rivara-Batiz, 1992) and it compromises an individual's freedom in activities of the lifestyle (Arcara et al., 2017; Benavides-Varela et al., 2015, 2017, 2020; Semeren et al., 2014). The seriousness of the numerical troubles can change impressively and so do the workings utilized over investigate considers, government reports, and specialists, when alluding to gravity, causes, and formative directions of the different levels of numerical shortcomings (Mazzocco, 2005; Mazzocco & Kover, 2007; Butterworth, 2019). Hence, as of now there's no clear, for the most part acknowledged classification of formative scientific troubles, in spite of various endeavors (e.g. Kangas et al., 2014).

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The influence of social relationships on outcomes in mathematics when using peer tutoring in elementary school

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ABSTRACT

Complementary peer mentoring in science was conducted with 457, ten to twelve year old understudies from 20 basic schools in three diverse school areas. The peer coaching method, a shape of combined authentic, set particular accentuation on intervention through key misconception between mentor and tutee. Understudy science fulfillment essentially expanded utilizing this procedure (Impact Size=0.43). Understudy discernment of the social status of their mentoring accomplice affected fulfillment results. Most prominent science fulfillment picks up were anticipated by having a better supposition of the cognitive capacity of students' science mentoring accomplice and by having a scientific coaching accomplice simply accepted was less prevalent. After peer coaching, understudies appeared expanded social connections in and out of school. Picks up in social connections were demonstrative of a more comprehensive classroom being created. The suggestions for hypothesis, arrangement, how and future investigate are talked about.

1. INTRODUCTION

Peer coaching could be a organized frame of peer learning. It depends on constructivist approaches to learning and is based on the thought that information procurement happens as a social movement (De Lisi & Galbeck, 1999). It is broadly detailed to have useful impacts on learning (for case Gomburg-Block, Rohbeck & Fattoruso, 2006; Rohbeck, Gomburg-Block, Fattoruso & Mill operator, 2003; Topping, Kearney, McGee & Pugh, 2004). A meta-analytic audit of peer learning detailed huge impact sizes around intercessions which advance cognitive development in standard basic schools (Rohbeck et al., 2003). Peer coaching is characterized by particular part taking as either guide or tutee by understudies, with a tall center on educational modules substance and with clear strategies for interaction, in which members get bland and/or particular preparing. A few peer mentoring strategies platform the interaction with organized materials, what others endorse organized intuitively practices that can be successfully connected to any materials of intriguod.

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Changing paradigms of Engineering Education- An Indian Perspective

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ABSTRACT

VUCA (Unstable, questionable, complex and vague) characterize the building instruction situation. Engineers frame the spine of any country's economy. Around 25% of the world's engineers are in India but it lags behind in investigate and development. At the worldwide level, building instruction is encountering a worldwide move from teacher-centric to student-centric; educating: learning prepare, substance based instruction to result based instruction, information looking for to information sharing classroom, instructor to facilitator, conventional building disciplines to arrange courses, chalk and board (address based) learning to innovation driven learning and the list goes on. But in India, still ordinary instructing – learning hones with small viable preparing is embraced in numerous teach. This can be appeared by the fact the Indian educate still battle to create a position in world positioning with few special cases. A nation which spearheaded in designing, medication, expressions and music etc. in antiquated time, endures major difficulties in specialized instruction.

1. INTRODUCTION

Building, the term inferred from Latin, implies "cleverness" and Engineers (from ingenium) are implied to think up and plan. They are the spirit of the country's economy and are center of the generally advancement of people's quality of life. Root of designing instruction in India dates back to British run the show majority for infrastructural advancement. Post freedom, Indian pioneers recognized the importance of building instruction and built up national, state/regional and divisional level designing teach. Till 1990, development of educate was relentless but the situation took an upturn with the coming of computer innovation. Nowadays, India produces around 1.5 million engineers from its 6000+ colleges each year. These instructive educate and designing teachers claim the duty of creating competent and gifted engineers to manage with the changing prerequisites of the industry. Rising forms of work in Industry 4.0 transformation is increased by machines, calculations and robotizations.

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Creating theory-practice linkages in teacher education: Tracing the use of practice-based artifacts

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ABSTRACT
Generally small consideration has been paid to how teachers effectively develop linkages between distinctive shapes of information at the micro-level of interactive exercises in campus-based educator instruction. The current article addresses this hole in existing writing by observationally analyzing how teachers build theory-practice linkages through the utilize of practice-based antiquities when educating at campus. By utilizing explanatory devices related with a sociomaterial viewpoint, the article illustrates the essence of applying this viewpoint to look at the part particular antiquities can play in manufacturing linkages between diverse shapes of information, and highlights the imaginative and helpful work required by teachers for such linkages to be made straightforward in a better instruction setting.

1. INTRODUCTION
Within the field of educator instruction, a key challenge over several decades has been to set up relations between distinctive shapes of information in ways that isolate understudy learning and decrease the "practice shock" of amateur instructors. Customarily, numerous have characterized the challenge as one of bridging the "theory-practice gap", applying a distinction between so-called hypothetical and down to earth information to represent the information societies related with higher education-based and school-based components of educator instruction programs (e.g., Carr, 1995; Korthagen, Loughran, & Russel, 2006). Analysts have recorded a few endeavors to reinforce such linkages, for occurrence, by making proficient home spoken to and pertinent within the higher instruction setting by building up more grounded university-school associations (e.g., Zeichner, 2010) or establishing campus-based exercises in center errands of the educating calling (e.g., Grossman, Hammerness, & McDonald, 2009). In any case, moderately small consideration has been paid to how teachers effectively build linkages between distinctive shapes of information at the micro-level of interactive exercises in campus-based instructor instruction.

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An assessment of how climate change and UV radiation affect the toxicity of oil on coral reef animals

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ABSTRACT

Oil contamination remains a critical nearby risk to shallow tropical coral reef situations, but the natural conditions normal of coral reefs are seldom considered in oil spill scenarios testing and hazard appraisals. Here we survey the impacts of three natural co-factors on petroleum oil poisonous quality towards coral reef living beings, and appear that the impacts of oil contamination on coral reef taxa can be exacerbated by natural conditions commonly experienced in tropical reef situations. Shallow reefs are routinely uncovered to tall levels of bright radi- ation (UVR), which can considerably increment the poisonous quality of a few oil components through phototoxicity. Expo- beyond any doubt to UVR speaks to the foremost likely and destructive natural co-factor looked into here, driving to an normal poisonous quality increment of 7.2-fold over all tests looked into. The clear pertinence of UVR co-exposure and its solid influ- ence on tropical reef oil toxicity highlights the get to account for UVR as a standard here in future oil poisonous quality thinks about. In fact, measuring the influence of UVR on poisonous edges of oil to coral reef species is basic to de- velop valid oil spill risk models required for oil extraction improvements, shipping administration and spill re- sponses within the tropics.

1. INTRODUCTION

Petroleum hydrocarbons are considered among the foremost noticeable contamination dangers to marine situations (Islam and Tanaka, 2004; Haipkyli et al., 2007), and expansive oil spill occasions are of specific concern for environments of tall environmental significance, such as coral reefs. Later on, examples of spills within the tropics and subtropics include the Deepwater Ho- rizon rough oil spill within the Inlet of Mexico in 2010 (Dierecka et al., 2010), the Montara wellhead oil spill on the North West Rack of Western Australia in 2009 (AMSA, 2010), and the overwhelming fuel oil spilled from the bulk carrier MV Solomon Dooler which grounded on a coral reef within the Solomon Islands in 2019 (Daley, 2019). Whereas huge spills and acci- dental releases happen rarely, their impacts can be disastrous and fatal for decades (Jackson et al., 1989; Boehm et al., 2007; Beyer et al., 2016; Stare et al., 2016).

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Security of Quantum Cryptography For The Internet of Things

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ABSTRACT

Web of things (IoT) is a developing innovation with a part of scope within the future. It can ease different distinctive errands for us. On one hand, IoT is valuable for us, on the other hand, it has numerous genuine security dangers, like information breaches, side-chained assaults, and infection and information authentication. Classical cryptographic calculations, just like the Rivest-Shamir-Adleman (RSA) calculation, work well beneath the classical computers. But the innovation is gradually moving towards quantum computing, which has numerous preparing control and is more than sufficient to break the current cryptographic algorithms easily. So it is required that we have to be plan quantum cryptographic calculations to anticipate our frameworks from security breaches indeed before quantum computers come within the showcase for commercial employments. IoT will moreover be one of the disciplines, which has to be secured to anticipate any pernicious exercises. In this paper, we survey the common security dangers in IoT and the directly accessible arrangements with their draw backs. Then quantum cryptography is introduced with some of its variations. And finally, the analysis has been carried out in terms of the axes and cons of executing quantum cryptography for IoT security.

2. INTRODUCTION

Computers these days offer all sorts of administrations for us. Having and utilizing computers ease up so numerous assignments in our lives. But computers too have a chance of security with each each errand that they perform. Consequently it is imperative for us to guarantee the entire security of our profitable and individual data. Maintaining computer security comprises of utilizing appropriate expectant measures, recognizing budding vulnerabilities, conceivable constraint, and compromised frameworks, and taking care of incidents. The computer security is developing as a increasingly imperative field due to the far reaching utilize of the Web, Wi-Fi, and bluetooth. There are numerous diverse sorts of about that can happen over a computer organize like hacking, phishing, spreading computer infections, worms, or Trojans. About may too incorporate the harm to the equipment, computer program, or electronic information sources.

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Prioritizing and Identifying the Elements Influencing The Road Freight Accidents Model

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ABSTRACT

There are more journeys now, especially those with weight and freight specifications, because to the rapid population development, especially in developing nations. Therefore, improving the current infrastructure or creating new networks or systems for freight and transportation is crucial. Road freight has established itself as a major player in suburban transportation among the other modes of transportation because it can move cargo, save expenses, and improve highway user safety. In addition to these benefits, suburban highways' subpar design, operation, and fleet and equipment of transportation contribute to a rise in accidents and inefficiencies in these facilities. In light of these facts, the main goal of the current study is to investigate the variables influencing the severity of road freight accidents. In order to do this, data from road freight accidents that happened in Odisha Province, from 2016, 2017, and 2018 were gathered. The data was then utilized to analyze frequency, rank and determine the variables, and create models for accident severity.

Keywords: Cargo; Road Freight; Accidents; Damage; Injury; Death.

1. INTRODUCTION

There has been an increase in traffic accidents during the past ten years and in the present day; several global research on accidents have been conducted. Road accidents are thought to be a common occurrence worldwide, accounting for the deaths of over 1.3 million civilians each year. Furthermore, between 20 and 50 million people have been hurt in these incidents, the most of them were young people between the ages of 15 and 45. Because they are responsible for 2.2% of global mortality, road accidents are ranked as the ninth most significant cause of death worldwide. Globally, the estimated costs of accidents are around \$500 million. In nations with low to medium incomes, this equates to one to two percent of GDP.

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Regarding the Features of Earth Movement and the Enhancement of the Intake Mode for Complicated Layered Sites

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ABSTRACT

Analyzing the dynamic interactions between an engineering structure and the soil using the time-domain approach is a popular area of study. Using the visco-spring artificial boundary theory, this work investigates the seismic behavior of the layered sites and the seismic response of the buildings. The homogeneous foundation serves as the starting basis for the visco-spring artificial boundary model. The typical homogeneous model or comparable load input method is not appropriate for the layered site (Foundation) and may introduce significant inaccuracy. An enhanced approach of equivalent load input mode of classic visco-spring artificial boundary model is presented by adding the changes of coefficients and phases of reflection and transmission of seismic waves at the interface between layers. The propagation law of seismic waves at layered sites may be more accurately reproduced with the use of this unique wave model, which is accessible for the seismic performance of built structures at large and complex layered sites.

Keywords: Seismic wave propagation, improved input mode, layered foundation, earthquake resistance of engineering structures, and time domain analysis method.

1. INTRODUCTION

Large-scale civil, water conservation, and transportation projects frequently come across complex layered sites during development. The impacts of layered sites on the structural dynamic response have been recognized, but because of their complexity, there isn't a thorough understanding or design experience of them. As a result, determining how to assess the dynamic response properties, seismic stability, and seismic measurements of the superstructure-soil interaction has grown to be a challenging issue for the builders and occasionally even directly impacts the project's development. The structural dynamic response at layered sites is the focus of this article. It has been established that while analyzing seismic reaction, the dynamic soil-structure interaction needs to be taken into account.

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Examining the Impact of Traffic Flow Management Techniques on Driver Behavior on Freeways

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ABSTRACT

One of the most significant contributing factors to traffic accidents in many nations is excessive and inappropriate speed; the severity of the collision rises as the vehicle's speed increases as long as the road and vehicle conditions stay the same. As a result, issues pertaining to traffic infractions, injuries and damages they cause, and road accidents themselves pose a serious threat to society's general health. Consequently, reducing the number of people killed in accidents is crucial since speed management is required to control the severity of incidents. One of the most crucial instruments for regulating traffic flow on freeways may be speed cameras. The primary goal of the current study's cross-sectional, quantitative methodology is to examine and evaluate the function of traffic flow. After entering the data into the SPSS program, linear regression was used to test the research hypotheses. According to the findings, speed and driving infractions can be decreased by varying the quantity and kind of video surveillance cameras installed along the route in addition to having police officers present at all times.

Keywords - Camera, Regression, Traffic, Speed, and Crash Reduction

1. INTRODUCTION

In many nations, one of the most significant contributing reasons to traffic accidents is excessive and inappropriate speed [1-4]. There is a larger chance of injury from an accident when the speed is higher since it takes longer to stop the vehicle. Many drivers are ignorant of the risks involved and frequently weigh the advantages of speeding over the possibly dangerous outcomes [5, 6]. A number of things, including accelerators, traffic cops, equipment and signs, and speed cameras, can regulate a driver's speed. One of the most crucial instruments for controlling traffic flow on freeways is the speed camera. One crucial component in the realm of intelligent systems for controlling vehicle speed is the use of speed cameras. The United States was the first to use these cameras. It will be easier to find and warn speed violators if automatic speed control devices like speed cameras are used.

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Unreinforced Masonry walls can be reinforced in-plane using glass fiber-strengthened polyurea.

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ABSTRACT

For many years, Korea has used strengthening techniques on unreinforced masonry walls (UMWs) to prevent damage from the sporadic occurrence of earthquakes. To improve the in-plane strength and ductility of UMWs, a reinforcing material with a high tensile strength and elongation rate can be used: polyurea. A composite polymer called glass fiber-reinforced polyurea (GFRPU) is created by gradually adding milled glass fiber to polyurea. This study looks at how applying GFRPU can improve the ductility and in-plane strength of UMWs, depending on how the coating is shaped on the wall. The number of strengthening sides and coating forms are examined on four examples of masonry walls. It is demonstrated that improved load-carrying capacity, ductility, and energy are brought about by the GFRPU reinforcement of masonry walls. This work proposes an empirical formula to express the strengthening impact of GFRPU.

Keywords: unreinforced Masonry Wall, retrofit, in-plane load-carrying capacity, glass fiber-reinforced polyurea, and energy absorption capacity.

1. INTRODUCTION

Despite a history of sporadic earthquake occurrence, Korea did not have seismic design rules until 1988. Buildings built prior to the establishment of the regulations were prone to earthquakes. Following the two South Korean earthquakes in quick succession, in Kyungju (2014) and Pohang (2017), there was a renewed emphasis on the technical and social domains of seismic retrofitting. Brick fragments falling on Unreinforced Masonry Walls (UMWs) resulted in secondary damage, which was one of the obvious problems noted in the constructions. In addition, damage to nearby structures and automobiles was considered secondary damage. A number of retrofitting methods have been created and put into practice to improve UMW's seismic and structural performance. To improve the in-plane load-carrying capacity, ductility, and energy absorption, reinforcement should be implemented.

pg. 21

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Robotics: From First Order Cybernetics to Third Order Cybernetics
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ABSTRACT
The general principles of different classes of cybernetics were formulated half a century ago. However, these principles were mostly used in philosophy, sociology, biology, economics and similar fields called the humanities. Technical experts practically did not use these principles in their work. This article tries to discuss and formulate these principles in the control tasks of robotic systems from the point of view of first, second and third order cybernetics. A new principle based on linking generations of cybernetics is proposed for the classification of robotic systems. It should be noted that the proposed principle can be extended to other fields of technology and engineering, such as cognitive architectures, artificial neural networks or genetic algorithms.
Keywords: first order cybernetics; second order cybernetics; third order cybernetics; cyber-physical system; robotic; control system.

1. INTRODUCTION
Division into "orders" in cybernetics, which in its most general form can be defined as the science of systems control, which is based on the processing of information about their state. This is a very conventional definition, but it allows us to highlight the main features of the subject of research and the means used for this. The purpose of this article is to consider and formulate the basic principles and tasks of control of a class of robotic complexes (RC) in terms of cybernetics of various orders. RCs belong to complex cyber-physical systems, and in this area, in my opinion, all the most complex cybernetic theories and methods used in practical projects are concentrated at this point in time. Considering the RC class, it should be immediately specified that the methods and algorithms that are used in the design of the RC control system will be considered.

Fig. 22

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**IOT-CAD: Context-Aware Versatile Irregularity
Discovery in IOT Frameworks through Sensor Affiliation**

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ABSTRACT

The arrangement of Web of Things (IoT) gadgets in cyber-physical applications has presented a modern set of vulnerabilities. The modern security and unwavering quality challenges require a all encompassing arrangement due to the cross-domain, cross-layer, and intricate nature of IoT frameworks. Be that as it may, the IoT's share of work displayed within the writing fundamentally center on the cyber perspective, counting the organize and application layers, and the physical layer is frequently ignored. In this paper, we utilize IoT sensors that capture the physical properties of the framework to guarantee the assistance of IoT sensors information and identify atypical episodes within the environment. We propose a versatile context-aware irregularity discovery strategy that's optimized to run on a mist computing stage. In this approach, we plan a novel sensor affiliation calculation that produces fingerprints of sensors, clusters them, and extricates the setting of the framework.

Keywords: Web of Things, setting, sensor affiliation, inconsistency discovery, repetitive neural system, LSTM encoder-decoder

1. INTRODUCTION

Over the final decade, IoT has snatched considerable consideration due to headways in computation and communication, and it is utilized in numerous applications such as savvy domestic, car, and therapeutic help. The fast development of IoT has raised concerns about the security and unwavering quality of these frameworks. There are a huge sum of work within the writing that centers on different perspectives of IoT frameworks such as communication organize [24, 36], equipment security [1, 15, 21, 22] or program security [3, 34, 40, 41]. Be that as it may, the To guarantee the security of CPS frameworks, in expansion to a bottom-up security state of mind, a all encompassing approach is required [8-10, 12]. The extreme objective of an IoT framework is to control the environment and keep up it within the wanted state.

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Survey of Applications of Deep Learning For Cyber Security

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ABSTRACT

Compared to traditional ML algorithms (CMLAs), deep learning (DL), a novel research area in the machine learning (ML) field, has achieved tremendous success in many classical AI problems. Though they are relatively new, DL architectures are being used sensibly for several applications related to cyber security. The objective of this work is to review the state-of-the-art deep learning architectures in Cyber Security applications, emphasizing the challenges and contributions from several recent research works. First, the mathematical representations and principles of the most widely used ML algorithms and DL architectures are covered. Then, we examine the recent developments in DL architecture research for a range of projected cyber security uses. That comprise network traffic analysis, binary analysis, steganography, intrusion detection, malware and botnet detection, spam and phishing detection, insider threat detection, and CAPTCHA analysis. Furthermore, the significance of DL architectures is examined with regard to fog computing, biometric security, cloud security, cryptography, and Internet of things (IoT)-specific smart cities. Big data, natural language processing, signal and image processing, blockchain technology, causal theoretical fundamentals, and cyber security are all covered.

1. INTRODUCTION

The rapid growth of technology, especially in cloud computing, mobile computing, fog computing, Internet of Things, etc., has made the Internet and its related technologies ubiquitous in recent times. People now depend on the Internet more than ever before; in 2014, 40% of the world's population used it, and in industrialized nations, that percentage rose to 78%. People quickly discovered that the best way to spread computer viruses, steal account credentials, and promote dubious products was to make use of the free and widely distributed communication medium developed by researchers who had linked computers via the Internet to establish a communications network with some utility. Every bit of information pertaining to Internet technologies and data storage bases that are sent across a network can be safeguarded by using the techniques found in the cyber security sector.

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Allocating resources and ensuring reliability in Mobile Cloud Computing

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ABSTRACT

Mobile Cloud Computing (MCC) shifts the computing load from mobile devices to the cloud, enabling mobile devices to provide a greater range of functionality. Using mobile devices as resource providers has a number of drawbacks, such as erratic wireless connections, low energy storage, and frequent location changes. Among the difficulties faced by mobile service providers in MCC, are fault tolerance and dependable resource distribution. In order to use a fully distributed resource allocation algorithm without taking advantage of any central components, a new dependable mechanism for resource allocation and fault tolerance is provided in this research. Enhancing the dependability of mobile resources is the goal. The suggested method consists of two steps: First of all (1) Adapting replication and checkpointing techniques to fault tolerance; and (2) Predicting device state by obtaining contextual information and employing TOPSIS to prevent faults caused by volatility of mobile devices. To gather context and oversee the offloading procedure, a trustworthy, context-aware offloading middleware is created. In order to assess the suggested approach, multiple real-world experiments are conducted.

1. INTRODUCTION

Recent advancements in mobile technologies have made mobile devices—such as smartphones and tablet PCs—an essential component of daily life, serving as incredibly practical and efficient methods of communication. However, there are several obstacles that mobile devices must overcome when it comes to communications (such mobility and security) as well as resources (like battery life, storage, and bandwidth). Offloading calculations from mobile devices to the cloud is suggested as a solution to this constraint. For Mobile Cloud Computing (MCC), a three-tier architecture is defined, comprising nearby mobile devices, cloudlets, or local servers, and distant cloud servers.

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Predicting Network Security Situations Using Support Vector Machine and Grey Relational Analysis

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ABSTRACT

The Internet is currently multidirectional and omnidirectional, and the era of big data supremacy has arrived. However, the current state of network security is concerning because of the untrusted people on the network and the massive volume of network data. Predicting the state of network security is therefore a crucial component. In this study, the GRA-SVM based network security situation prediction model was constructed, actual data were substituted into the model, the prediction process was simulated based on the support vector machine (SVM) algorithm, and the network evaluation index was weighed using grey relational analysis (GRA) theoretical SVM techniques were contrasted. The outcomes demonstrated that the model constructed by the GRA-SVM approach had higher prediction precision when compared to a single SVM techniques, indicating that this algorithm was dependable for forecasting network security situations.

Keywords: Grey Relational Analysis Theory; Network Security; Support Vector Machine Algorithm

1. INTRODUCTION

The Internet is being gradually built and improved, which has resulted in a massive increase in its user base. However, the network security issues that underlie success are frequently brought on by the openness of network information and the randomness of how network data is used. People are progressively coming to understand how urgent it is to improve network security, with situation prediction being the most crucial aspect.

A weighted hidden Markov model (HMM) was proposed by Wei et al. [1], who also refined the HMM's transfer matrix and used multi-scale entropy information to address the training data issue. Furthermore, they demonstrated that the autocorrelation coefficient may plausibly forecast future security situations by utilizing the correlation between the features of historical data.

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Nuclear Command and Control Using Quantum Cryptography

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ABSTRACT

12,685 warheads spread across a vast network of vehicles make up the nuclear arsenals of both Russia and the United States of America at the moment. A command-and-control communication system overcomes this interconnected network. In addition to relaying data from a multitude of airborne, space-borne, and ground sensors throughout the network in potentially degraded environments, this command-and-control communication system (C3) is designed to securely hold transmissions that must adhere to the strictest encryption standards. Since C3 systems often need to function (totally) when other systems fail, they require significantly greater security, dependability, and hardening than ordinary communication systems. This makes them maybe one of the most difficult systems to create. While not necessarily utilizing state-of-the-art technology, C3 systems need to be updated when necessary to maintain optimal performance. This paper provides a plan for integrating cutting-edge encryption technologies into both present and future systems. By providing redundancy, flexibility, and increased speed, this will change the security of the data we send to our C3 assets and guarantee that system people and vehicles get network message traffic.

Keywords: Applied cryptography, wireless technologies for advanced applications, quantum key distribution, secret-key cryptography, quantum secure cryptography, security and privacy concerns, CPS security and privacy, CPS fault detection and recovery, and quantum internet

1. INTRODUCTION

In addition to bombs carried on a variety of vehicles, the nuclear arsenals of the United States and Russia currently consist of 12,685 warheads spread across a vast network of bombers, intercontinental ballistic missiles, and submarine-launched ballistic missiles. The network is controlled by a command-and-control communication system. Even in potentially degraded environments, the command-and-control communication system (C3) in Figure 1 must relay data from multiple airborne, space-borne, and ground sensors throughout the network. It is designed to securely hold transmissions that must adhere to the strictest encryption standards.

Fig. 27

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Industrial Parameter Control and Monitoring Using Cloud Computing and HMI with OPC Data Hub Software

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ABSTRACT

Motivation: It is quite challenging to oversee and manage every industrial operation from one location. Numerous staff are needed in various parts of the plant to collect, analyze, and monitor data in order to carry out specified tasks. Issue: We are wasting our valuable time on this data collection. Occasionally, as a result of this delay, several mishaps take place, such as fires, the leakage of hazardous gases or chemicals, etc. Even with the development of several monitoring instruments and techniques, workers were still required at the facility to perform tasks like turning on and off the system. Methods: This cloud-based industrial system monitoring and controlling application is made to assist with both data collection and the control of many industry parameters a single use case. Results: This data collection is carried out by cloud computing; a database is connected to the Human Machine Interface (HMI) to enable easy comprehension of the plant's operational state by all parties. From any location and on any internet-connected device, these data can be managed and observed.

Keywords: Industrial Automation, Controlling, Monitoring, HMI, Open Platform Communications (OPC) Server, Programmable Logic Device.

1. INTRODUCTION

Numerous automation approaches have been put into practice to make our jobs easier. One such strategy is the idea of automating the industry and its system by exchanging data over a secure GSM [1]. Another proposal for industrial automation was made by Mousam [2], who suggested using 8051 microcontrollers. However, there is still a difficulty because the 8051 chip was not designed for an industrial setting, which presents a challenge when attempting automation through the heating factor microcontroller. However, in order to send the command to proceed while using GSM, the person operating or in charge of the industry needed highly functional smartphones, which are difficult for everyone to purchase and carry around.

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Whenever Regular Transactional Data Stream Item Set Mining

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ABSTRACT

In the modern world, mining frequent item sets from transactional data streams has become crucial for a variety of applications, including web log analysis, retail chain analysis, and stock market analysis. To mine single-port and multi-port transactional streams efficiently under time and memory constraints, several algorithms have been proposed. All of them, however, are budget algorithms, meaning they cannot manage high-speed streams or transactions with varying inter-arrival rates. They are limited by a maximum transaction inter-arrival rate beyond which they are unable to process transactions. Furthermore, these algorithms cannot provide mining results instantly, not even with reduced accuracy when necessary. An anytime algorithm has the two characteristics listed above. The first anytime frequent item set mining algorithm for data streams is proposed here: ANYFI. ANYFI makes use of a unique data structure called BF1-FOREST, which can manage transactions that arrive at different rates.

1. INTRODUCTION

A data stream is defined as a continuous flow of time-ordered data items arriving quickly and varying in frequency. Numerous applications, including retail chain analysis, stock market analysis, web log analysis, network traffic analysis, mining data feeds from sensor networks, etc., frequently use mining for frequent itemsets (FIs) in transactional data streams. The limitations of data stream mining usually stem from having little memory to store the incoming data items and little processing time. And the changing patterns need to be recorded within these limitations. A few algorithms for mining FIs from data streams have been proposed by researchers in order to overcome these limitations. Sticky Sampling & Lazy Counting [1], FP-Stream [2], CPS-Tree [3], DSM-FI [4], SWP-Tree [5], VSW [6], and so on are a few of them. There are two stages to these algorithms: online and offline. During the online stage, they either batch-by-batch [2, 3, 4, 5] or transaction-by-transaction insert the incoming transactions into a summary structure. Additionally, they carry out the offline phase to extract FIs from their summary structures whenever a user requests a mining result.

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Resolution of Entities through Recursive Blocking
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ABSTRACT

Entity resolution is a well-known problem in data management because it is hampered by various hidden errors in the data and a lack of unique record identifiers, which make it difficult to identify the entities to which the data relates. Even for moderately-sized databases, it is computationally infeasible to compare every record in the database with every other record in order to identify matching records. Blocking techniques are commonly used to help restrict promising pair comparisons within small subsets of records, or blocks, in order to get around this quadratic challenge. Effective methods that are currently in use usually depend on expert-created blocking keys to capture matches, which requires a significant amount of human labour and does not ensure high-quality outcomes. Machine learning techniques are being researched to address the challenge of reducing manual labour and increasing accuracy, but their effectiveness is limited by the high requirements of training data and inefficiencies, particularly for large databases. Although the thorough approach yields precise results, it has efficiency issues.

1. INTRODUCTION

The process of locating records that refer to the same actual object within or between database(s) is known as entity resolution, or ER. Numerous fields, including information retrieval, machine learning, statistics, natural language processing, database management, and data warehousing, are actively researching this topic. It has many applications in real-world settings, including public administration, law enforcement, web search, comparison shopping, and national security. In the big data era, the ability to resolve co-reference relationships in massive amounts of data gives businesses and agencies a competitive edge in business settings and is a critical factor in the success of data-centric and data-driven research, such as knowledge discovery, data mining, and machine learning [3, 4, 5]. As an example of a potential method for entity resolution, consider a scenario in which we have two websites, each with a million products for sale.

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Efficiently Mining Co-location Patterns for Range Query

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ABSTRACT

Co-location pattern mining identifies a group of characteristics whose instances regularly occur close together in the same area. The majority of co-location pattern algorithms currently in use locate neighbouring objects using a single-distance threshold that is set by the user. Selecting an appropriate distance for a user is a challenging task because the distance threshold's value varies depending on the data. It is instead intended to define spatial proximity by a range of distances in the majority of real-world scenarios. Additionally, it offers flexibility in observing how co-location patterns alter with distance and improves result interpretation. The computational overhead prevents algorithms for mining co-locations with a single distance threshold from being directly applied to the range of distances. An effective single-pass co-location mining algorithm for distance range queries is proposed by us, based on the identification of multiple structural properties of the collocation patterns.

1. INTRODUCTION

Co-location patterns are the group of features whose instances regularly coexist in close proximity to one another. Applications for co-location patterns from spatial data include identifying the coexistence of diseases in the spatial vicinity of stagnant water or contaminated water reservoirs [1], crimes in the spatial neighbourhood of busier streets or remote locations [2], stores near residential complexes or schools, etc. The extraction of structural regularity in terms of co-location patterns is an unsupervised task. Several methods have been proposed in the past ten years to find co-location patterns. They discussed the relevance of the mined patterns and suggested various measures to address the problems with finding co-location from the large spatial datasets efficiently. Space partitioning and non-overlap grouping over neighbouring objects [3], join-based co-location mining [4], partial-join based co-location mining that minimizes costly join operations [5], join-less co-location mining using instance lookup [6], and other techniques are a few of the noteworthy works. To identify co-location patterns, the Participation Index (PI) is one of the most popular metrics [4].

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Hybrid drive system for off-road vehicles with Power trailers for use in arctic regions

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ABSTRACT
The paper provides a rationale for a design intended to improve the off-road performance of vehicles when transporting freight or passengers over long distances on snow-covered roads at low ambient temperatures. The design includes a tractor unit with a cross-country wheeled chassis and a trailer with a drive axle. The tractor unit is equipped with a generator. Some of the electric power from the tractor unit can accumulate in the accumulator in the trailer. The trailer electric motor operates due to the electric power from the tractor unit. In this paper, we present a layout diagram for the main components of the drive of a combined power unit. We also describe the advantages of the design. Any off-roader equipped with an additional electric generator, control system, and electrical circuits can be used as a tractor unit. Depending on the tasks, this tractor unit can be operated both with the trailer and without it. The paper presents the results of modeling the power of the electric drive of the trailer at design speeds of 0-40 km/h and a maximum weight of the trailer of 1.5-4.5 tons.
Keywords: powered trailer, off-roader, hybrid engine, snow-covered road, traction calculation, energy storage.

1. INTRODUCTION
In arctic regions, vehicles are used in low temperatures, frequent snowdrifts, ice crossings and hilly terrain. Additionally, long distances are often covered where no service network or gas station is available. This requires high performance and reliability of vehicles. The vehicle must have good off-road maneuverability as well as the ability to tow a trailer with a payload and additional fuel. As a rule, crawler chassis or balloon tire chassis are also used for these purposes. However, it is not suitable for long journeys on paved highways. Therefore, the challenge is to improve the cross-country capabilities of vehicles and make them suitable for transport in heavy snowdrift conditions without compromising maneuverability. In some cases, this problem can be solved by powered trailers with electric drive axles. In this case, the energy storage opens up the possibility of separate or joint operation of the gasoline engine.

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App Store framework and technology in a new generation of power grid distribution and control systems

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ABSTRACT

Existing power grid distribution and control systems have incomplete software version control mechanisms. It is difficult to guarantee software quality. Software version has low automation level. There is no feedback mechanism regarding software usage. This makes it difficult to meet the openness requirements of the new generation power system distribution and control system "NGPGDCS." This article proposes an App Store framework for NGPGDCS and details key technologies such as app review and publishing process, accurate app recommendations and downloads, intelligent app upgrades, and app rating feedback. To do the solution has been tested in some power grid distribution and control centers at local level and above. Practice has shown that this solution helps improve app quality, increases the level of software automation, and promotes continuous improvement of app quality.

Keywords: app store; power grid dispatching and control system; review and release; precise recommendation; intelligent upgrade; evaluation feedback

1. INTRODUCTION

In order to meet the needs of the development of the new generation of power system and safe, stable and high-quality operation, and significantly improve the support capacity for integrated control of large power grids, unified clean energy consumption across the entire network, coordinated interaction among power source, power grid and power loads, and market-oriented operations, State Grid Corporation proposed NGPGDCS with four features: sharing, intelligence, openness and security. One of the important design objectives of the new system support platform is to create a standard open development ecosystem for multi-business and multi-scenarios. So we need to provide the whole life cycle management mechanism during software review, release, feedback and delist for the business apps developed by various manufacturers.

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Enhanced Fault-Tolerant A-Source Inverter-Fed PMSM Drive for Electric Vehicles

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ABSTRACT

The paper illustrates the resilience of an A-source inverter-fed PMSM drive system designed for electric vehicles against faults. It introduces an innovative A-source impedance network topology aimed at generating a high-gain DC output for the inverter module. This high-magnitude DC output is then utilized to power the PMSM drive system in electric vehicles. Beyond the system's design, the paper outlines a rapid fault identification and diagnosis method, specifically addressing switch faults in the inverter module. This approach remains robust against common converter issues like load variations and input power fluctuations. The paper's simulation results showcase the effectiveness of this fault-tolerant operation, significantly enhancing the overall system's reliability and demonstrating its viability for electric vehicle applications.

Index Terms: A-source network, fault-tolerant, switch faults, permanent magnet synchronous motor (PMSM) drive, electric vehicles, inverter

1. INTRODUCTION

Electric vehicles have captivated researchers worldwide, with electric motors, particularly permanent magnet synchronous motors (PMSM), standing out for their efficiency and power density. However, these drive systems, especially for demanding applications like electric vehicles that entail high speeds and variable loads, demand sophisticated voltage-boosting control mechanisms. This necessity often leads to larger circuit components, escalating costs. Numerous converter designs have emerged in response. The conventional buck-boost converter, while prevalent, suffers from drawbacks like intermittent input and charging currents, increased need for filtering equipment, and reduced efficiency.

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An Enhanced Fault-Tolerant Power Converter for Electric Vehicle Propulsion

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ABSTRACT

In this study, an advanced fault-tolerant power conversion system tailored for Electric Vehicle (EV) propulsion is introduced. It employs a blend of fault detection methods to identify open-switch faults in EV propulsion power converters. The innovative fault-tolerant control approach involves rerouting the gating signal from the faulty switch to a fault-tolerant switch, significantly reducing the number of bypassed TRIACs. Additionally, fault tolerance is incorporated not only in the inverter section but also in the DC/DC boost converter. The system's configuration, operation, and analysis are meticulously conducted using PSIM software. To validate the practical viability of the proposed fault-tolerant control, real-time Hardware-in-the-Loop (HIL) testing is executed with a DSP controller, and the outcomes are thoroughly detailed.

Keywords: Fault-tolerant, Permanent Magnet Synchronous Motor (PMSM), Electric Vehicle (EV), Variable Speed Drive, open circuit fault, Real-time simulation, Typhoon HIL.

1. INTRODUCTION

PMSMs, highly versatile in electric vehicles (EVs), serve various applications like electric propulsion, steering, brake-by-wire, and HVAC systems. The reliability/cost ratio in PMSM drives for propulsion isn't always justifiable unless a fault significantly raises accident risks or demands an economically viable post-fault strategy for a particular vehicle model. Therefore, ensuring EV drive systems exhibit high reliability and safety levels is paramount. This necessity calls for Fault-Tolerant Control (FTC) in EVs, aligning with evolving standards to bolster functional safety in automotive electric/electronic systems. In the event of power switch failures, a three-phase PMSM drive system loses its ability to maintain constant output speed. Fault-tolerant electric drive systems aim to alter the inverter drive topology, ensuring consistent speed output despite electrical faults.

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Investigate of the Analog and Computerized Clamor Generators Characteristics for Security Gadget

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ABSTRACT

One of the unsafe specialized spillage channels is acoustic data. The paper portrays two planned commotion generators: an a log and advanced. Their primary investigated characteristics: recurrence rate, commotion quality figure. The technique for calculating the entropy coefficient of commotion quality is considered. Planned generators compare to the considered criteria and can be coordinates into the vibroacoustic

Keywords: noise generator, an a log generator; advanced generator; commotion quality calculate; white clamor; flag enhancer; acoustic specialized spillage channel.

1. INTRODUCTION

To ensure discourse data spillage channel utilized vibration acoustic security gadget that makes acoustic clamor within the room [1]. A normal acoustic assurance framework comprises of a clamor era square and speakers. The investigation appeared that as of now, there are two fundamental sets of clamor generators on a log and computerized. The reason of the work is to plan an a log and computerized clamor generators utilizing the National Rebellious Multiturn electronic circuit recreation environment and to compare the primary characteristics by the commotion quality calculate basis. When planning acoustic assurance clamor generators, the taking after components must be considered:

- Clamor ought to be created in seven-octave groups of a discourse flag with geometric cruel frequencies 125,250, 500, 1000, 2000, 4000, 8000 Hz;

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Agreeable Virtual Dormancy Control of PMSG based Wind Generator and Battery for Control Framework Soundness Upgrade

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ABSTRACT
As of late, renewable energies are pulling reconsideration since of no CO2 outflow and no disquisitions off coal fuel. Renewable vitality era frameworks are promising vitality sources, but there's a problem that they don't have, in common, inactivity and synchronizing control. On the off chance that the framework in activity and the synchronizing control of the framework diminish, the steadiness of the framework will diminish. Hence, different investigators have been conducted to include virtual dormancy impact to off-bus scattered control sources. In this paper, agreeable virtual inactivity control of variable-speed wind control generator employing a lasting magnet synchronous generator(PMSG) and expansive capacity battery is proposed, in which Pluffy Rationality is received to plan the agreeable virtual inactivity control.
Keywords: Changeless Magnet Synchronous Generator(PMSG), Virtual Synchronous Generator (VSG), Pluffy Rationality Control (PLC), Wind Control Era

1. INTRODUCTION
As of late, renewable energies are drawing in consideration since of no CO2 outflow and no disquisition of fossil fuel. Renewable vitality era frameworks are promising vitality sources, but there's a problem that they don't have, in common, inactivity and synchronizing power[1]. More often than not, when the adjust between created control and control request in the control framework is misplaced, the rotor speed of the generators deviate from the synchronous speed, and after that the systems entrance moreover veers off from the approximated occurrence. In the event that the fullminate idleness of the generators is huge, Rate of Alterof Recurrence (RoCoF) becomes low. Be that as it may, as the grid connection of renewable vitality sources increments, routine synchronous generators have to be diminished after that the framework idleness and synchronizing control of the framework diminish. On the off chance that the framework dormancy and the synchronizing control of the framework diminish, RoCoF increments. As a result, the solidness of the framework will diminish.

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**Modeling of Double Energized Synchronous Generator
With slip recurrence excitation**

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ABSTRACT

Wind control era is considered to be then noteworthy dispatch able source within the coordinate lattice. Integration of wind farms force serious frequency variances within the lattice due to irregular wind speed variances. Doubly-fed acceptance generator (DFIG) and changeless magnet synchronous generator (PMSG) based wind control era with reasonable control procedure has become prevalent for tackling recurrence related issues within the network. In this paper, constructional highlights of double energized synchronous s generator (DESG) are examined for controlling there current oscillations within the network. DESG has two field windings one is on the d-axis and the other is on q-axis. Since, the development of field windings on both the standbarks isolate parcel of end cavos, two diverse ways of building field winding(DES-G-1 and DES-G-2) are recommended in this paper.

Keywords: Dual Excited Synchronous Generator (DESG),Slip frequency excitation and two-phase excitation.

1. INTRODUCTION

Within the later a long time, framework coordinates variable speed worked wind turbines coupled with DFIG and PMSG are in unlike for effective and real-time operation of framework. Within the writing it has been said that DESGs can be utilized for variable speed and steady recurrence applications. To work the DESG for variable wind speed applications, it requires double slip recurrence excitation. The slip frequency is relative to distinction between the specified state recurrence and the ostensible recurrence which is corresponding to the speed of the generator. The operation of DESG is same as DFIG but that DESG has two windings on rotor which are 90° separated. The control of DESG based on rotor dynamic control with progressed productivity is proposed in . In computer-based control strategies are proposed for controlling the terminal voltage and recurrence of DESG. But the field windings of DESG considered in are per90° separated and so as the stage contrast in two-plane excitation. In this manner, machine can energize with slip recurrence which comes about in keeping up consistent recurrence independent of the input mechanical speed.

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Hybrid PV-T Solar Collector using Amorphous Type of Solar Cells for Solar Dryer

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ABSTRACT

Solar energy that available in the structure of radiation can be without delay transformed into warmness and/or electricity the use of a solar gadget collector. Conventional solar thermal collectors generally convert daylight into heat solely, and the other hand, a photovoltaic (PV) panels commonly used solely for producing electricity. In this study, a photovoltaic solar panel is tried to use both as photo voltaic thermal and as electricity generator at the identical time so-called hybrid photovoltaic-thermal (PV-T) collector for a photo voltaic dryer system. The literature related to hybrid PV-T applications are reviewed, and a small scale photo voltaic dryer utilizing amorphous type photovoltaic-thermal (PV-T) as a collector is designed and tested. A forty Wp amorphous photo voltaic panel is used as a photo voltaic collector and blanketed with double glass at the top.

Keywords: solar dryer, PV-T, solar module, solar collector

1. INTRODUCTION

For many kinds of agricultural products, the drying process is an essential process in post-harvest. The productivity and the quality of products are affected by the adequateness of the drying process. More appropriate ways need to be attempted to improve the quality of products as well as the hygienic aspects. At the same time, to improve the productivity and economics of the farmers. The utilization of solar energy using solar dryers is one way for this purpose. Solar radiation can be directly converted into heat and/or electricity using a solar dryer collector. Conventional solar thermal collectors generally convert sunlight into heat solely, and the other hand, a photovoltaic (PV) panels usually used solely for generating electricity. In converting solar radiation into electricity, the commercial Solar PV modules give about 17 % of efficiency, which means that it converts the portion of solar energy falling into the modules electricity.

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Performance Analysis of Partial Shading on Solar Photovoltaic System under Aluminum Reflectors

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ABSTRACT

The Solar Photovoltaic (PV) energy generation is swiftly increasing power in renewable energy systems and it is clean and low priced power. Photovoltaic (PV) system faces many issues in producing maximum power. One of the motives was partial shading on the photo voltaic panels. The shading on the photo voltaic panels on the whole occurs due to clouds, tall buildings, dust, trees...etc. This effect can fluctuate the result current (Imp), maximum power (Pmax) and solar irradiation (W/m²) parameters might to be decreased in Photovoltaic (PV) device. So in this lookup via providing aluminum reflectors on solar array machine to observing shading effecting parameters performance. I.e. Current (Imp) 21.84%, Maximum strength (Pmax) 22.34% and solar irradiation (W/m²) 5.23% are growing and common solar array device performance has been expanded under shading prerequisites using aluminum reflectors.

Keywords—Solar Irradiation, Reflectors, Partial Shading, Solar Panels.

1. INTRODUCTION

Conventional methods of generating energy require a fuel to be consumed, and once it's gone you can never get it back unless you are prepared to expend more energy than the fuel contains, which kind of defeats the purpose Renewable energy is mostly based on the one energy source, the sun. Solar photovoltaic system is one of major production in renewable energy generations and has many advantages like pollution free, sustainable etc. Therefore their installed capacity is increasing every year, but solar panels face different type of problems like Climatic stress(Solar irradiation, Dust, shading, Temperature changes), Materials failures...etc. Shading effect is the one of cause to produce hot spots in the solar panels and reducing efficiency. In this paper discussion about partial shading of solar photovoltaic system under solar reflectors is done. The previous various researches are done in solar photovoltaic panels under partial shading conditions, their main observations are, shading has more effect on current of PV than generated voltage and photovoltaic system.

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Stain detection method of solar panel based on Spot elimination

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ABSTRACT

When the photovoltaic panel is contaminated by stains, it will produce a serious thermal spot effect, which will lead to a massive decrease or even harm to the lifestyles of the whole photovoltaic panel, so it is essential to realize the stains of the solar panel in time. Firstly, the mild spot of the whole photovoltaic panel image is eliminated, so that the photovoltaic panel photograph can be extracted effectively. Secondly, a single photovoltaic cell image is got through image correction and image segmentation. Furthermore, the stain and its vicinity are extracted with the aid of mathematical morphology. Finally, an instance is given to illustrate the effectiveness of this approach in detecting photovoltaic panel stains. Photovoltaic panel stain detection can make the operation and protection personnel easy up in time, to keep away from the occurrence of faults and noticeably enhance the service life of photovoltaic panels.

Keywords: Solar energy; photovoltaic panel; stain identification

1. INTRODUCTION

With the improvement of sustainable energy in the international status, green and clean solar energy has been applied to photovoltaic power generation in various fields all over the world [1]. In the process of using the solar photovoltaic panel, the cell module of the photovoltaic panel will be covered by the stain, resulting in the hot spot effect. The modules in the shielded series branch will be considered as loads, which will consume the energy generated by other battery modules that normally receive light, and greatly reduce the service life of photovoltaic panels in serious cases. Therefore, in order to prolong the life of photovoltaic panels, it is necessary to find the stains in time through certain means, and clean them before problems occur. To a certain extent, the occurrence of damage is reduced, the service life of photovoltaic panels is improved, and the cost is reduced.

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The Impact of Cracked Solar Cells on Solar Panel Energy Delivery

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ABSTRACT

Solar panel degradation is usually assessed with the aid of the change in electricity at popular testing conditions (STC). However, some degradation mechanisms have shunting or recombination characteristics which have the aptitude to reduce performance at low irradiances drastically more than at 1-Sun conditions. We present information at each the single cell phone coupon stage and at the module level that display this effect with cracked cells, the place the effect scales with the complete length of the cracks. The impact is present even for modules with tightly closed cells the place the metallization is non-stop across the cracks and no dark areas are seen in the electroluminescence (EL) images. Depending on the system geographic location, mounting angles, the time of year, and the clipping characteristics, the daily power transport of a system can depend quite strongly on the module overall performance at low irradiances.

Keyword: Electroluminescence, Photovoltaic cells, Power system stability, Solar Panels, Stress, Energy Delivery.

1. INTRODUCTION

The PV industry is highly sensitive to the performance of solar panels at Standard Testing Conditions (STC). These conditions correspond to the performance at a temperature of 25°C and an irradiance of 1-Sun (1000 W/m²), and the term P_{max} generally refers to the maximum power point at STC. Any particular measurement will occur at different temperatures and irradiances, but well-developed equations have been developed to correct each point on the Jf curve back exactly to STC conditions [1]. Indoor measurements are generally quite close to the STC conditions, while outdoor measurements are often performed at quite different conditions with larger corrections needed. The selling prices of solar panels are determined by these P_{max} values, and the passing of module certification tests and warranty violations are based on this P_{max} degradation. In contrast, the economics of system revenues depend on energy delivery over the course of years.

Fig. 42

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Intelligent Patient Health Monitoring system use of IOT
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ABSTRACT
The healthcare monitoring systems has emerged as one of the most vital system and became technology oriented from the past decade. Humans are facing a problem of unexpected death due to various illness which is because of lack of medical care to the patients at right time. The primary goal was to develop a reliable patient monitoring system using IoT so that the healthcare professionals can monitor their patients, who are either hospitalized or at home using an IoT based integrated healthcare system with the view of ensuring patients are cared for better. A mobile device based wireless healthcare monitoring system was developed which can provide real time online information about physiological conditions of a patient mainly consists of sensors, the data acquisition unit, microcontroller (i.e., Arduino), and programmed with a software (i.e., JAVA). The patient's temperature, heart beat rate, EEG data are monitored, displayed and stored by the system and sent to the doctor's mobile containing the application.

Keywords: Arduino, JAVA, IoT, data acquisition unit, mobile application etc.

1. INTRODUCTION
The increased use of mobile technologies and smart devices in the area of health has caused great impact on the world. Health experts are increasingly taking advantage of the benefits these technologies bring, thus generating a significant improvement in health care in clinical settings. Likewise, countless ordinary users are being served from the advantages of the M-Health (Mobile Health) applications and E-Health (health care supported by ICT) to improve, help and assist their health. According to the constitutions of World Health Organization (WHO) the highest attainable standard of health is a fundamental right for an individual. As we are truly inspired by this, we attempt to propose an innovative system that puts forward a smart patient health tracking system that uses sensors to track patient vital parameters and uses internet to update the doctors so that they can help in case of any issues at the earliest preventing death rates.

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A Voice based Navigation System for the Blind and An Ultrasonic Sensor

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ABSTRACT
As the technology is advancing day to day, the human machine interaction has become a must in our daily life. The interference has progressively become more important and advanced in order to ease the interaction process of the user and provide friendly operation. There are a few advanced technologies which are now accessible in the market to cater the needs, yet they have their own particular drawbacks, thus one of the efficient solutions is to use an embedded system. The primary objective of this work is to permit blind persons to explore autonomously in the outside environment. Ordinary route navigational systems in the outdoor environment are expensive and its manufacturing is time consuming. Blind people are at extensive drawback as they regularly do not have the data which is required, while passing obstacles and dangers. They generally have little information about data such as land marks, heading and self velocity information that is crucial for them to explore them through new environment. It is our conviction that advances in innovations could help and encourage these blind people in their regular operations. This work goes for giving the route to blind persons, by designing a cost-effective and more flexible navigation system.
Keywords: Esp8266, GoogleAPI, Pocket sphero, Raspberry pi, ultrasonic sensor, GPS, Geocoder, Reverse geocoder.

1. INTRODUCTION
There are approximately 38 millions of people across the worldwide mainly in developing countries who are blind and visually impaired, over 15 million are from India. Blind persons most of the time are withdrawn from the society because they feel that people and the society are prejudiced and they may not be welcomed most of the time. The remarkable achievement, which is the outcome of persistent struggle and hard work between "Anne Sullivan" - the teacher and "Helen Keller" - the blind student resulted in a revolutionary method of learning and communication, which ultimately culminated in the development of Braille language.

Fig. 44

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Smart Fabrics

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ABSTRACT
Humans are close to textiles more than anything, and certainly we carry it most, other than anything. The last few decades have shown enormous growth in the development of wireless communication technologies, nanotechnology, information technologies, and miniaturization of electronic devices. These developments draw the attention of researchers to envisage the significant characteristics of these advancements to the belongings with whom we are most close to. Researchers are now evaluating the new ideas and possibilities to functionalize this 'natural necessity feature of human beings' with emerging technologies into different arrays of human life especially in the Medical and Healthcare management - as mobile monitoring of health care, protection from life risk factors, life style management, rehabilitation and into other facilitation of our lives, by Hybridizing the Smart or Intelligent Technology in Textiles. The aim of this paper is to describe the analysis on how 'Smart', 'intelligent' or 'active' materials and textiles are being incorporated in the healthcare sector to aid diagnostics, recording and transmitting of bio-physiological signals or ambulatory title-monitoring of the body vitals, by encompassing the core concepts of smart materials under the light of the recent developments and projects.

1. INTRODUCTION
The world is distinctly rising towards the new era, an era of smart and intelligent discoveries; problem solving and creativity - the smart automobile vehicles (cars, metro system), intelligent jets, smart homes and amongst from many of such futuristic paradigms, the 'Smart and Intelligent Textiles'. Before going further, a clarification of the term and definition of smart and intelligent textile is essential. There is a substantive difference between the terms, 'Smart' and 'intelligent'. Smart materials or textiles can be defined as the materials and structures which have sense or can sense the environmental conditions or stimuli, whereas intelligent textiles can be defined as textile structures which not only can sense but can also react and respond to environmental conditions or stimuli.

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Plasma Antenna

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ABSTRACT
The plasma antenna is an emerging technology and is a type of radio antenna currently in development in which plasma is used instead of the metal elements of a traditional antenna. A plasma can be used for both transmission and reception. Although plasma antennas have only become practical in recent years, the idea is not new; a patent for an antenna using this concept was granted to J. Hettinger in 1919. Early practical examples of the technology used discharge tubes to contain the plasma and are referred to as ionized gas plasma antennas. Ionized gas plasma antennas can be turned on and off and are good for stealth and resistance to electronic warfare and cyber attacks. This paper comprises the discussion of basic theory, operations of plasma antenna, features, advantages etc.

Keywords : Wi-Gig - Wireless Gigabit Alliance, RF - Radio Frequency, EM - Electro Magnetic, Wi-Fi - Wireless Fidelity, DC - Direct Current, CCTV - Closed Circuit Television.

1. INTRODUCTION
Now, before talking of a plasma antenna, we should understand the term plasma. There are five states of matter known to this date, namely, solid, liquid, gas, plasma and supercooled solid as shown in Fig. 1. Plasma is the fourth state of matter. The story of plasma starts with gases. A substance is said to be a gas if its boiling point is below room temperature under atmospheric pressure. More specifically, the intermolecular forces of attraction existing amongst the molecules are almost negligible. So that means higher the boiling point, higher the intermolecular forces of attraction. Talking of electrical property of gases, we can say they are generally insulators. Now what happens when we supply thermal energy to the gases is that the heat absorbed is used to cut off the intermolecular forces. By applying more heat energy to the gases, we can convert them into a plasma state. Overall, this process is known as ionization, i.e., the conversion of atoms to ions and electrons. For plasma to exist, ionization is necessary. The term plasma density is a synonym to electron density.

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Internet of things for Smart Crime Detection

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ABSTRACT
The rapid economic development in South Korea has resulted in increase of crimes. Timely detection and reduction of crimes are primary focus of police officers. Internet of Things (IoT) and increasingly cheap and wearable sensors can be used to facilitate this task. Generally, the application of IoT technologies to the fields of smart cities, smart logistics and healthcare can be seen more often. In this paper, we present the design of IoT based smart crime detection system. The proposed system is able to detect crimes in real-time by analyzing the human emotions.
Keywords: Internet of Things, crime detection, crime prediction.

1. INTRODUCTION
In recent decades, the economy of South Korea has developed significantly. This rapid economic development has resulted in increase of crimes. For example, National Police Agency says that the crimes in South Korea has increased by 37% from 475,369 in 2002 to 1,752,598 in 2011 [10]. Timely detection and reduction of these crimes are primary focus of police officers. Internet of Things (IoT) and increasingly cheap sensors (wearable and implanted) can be used to facilitate this task. Specifically, we can attach the wearable sensing devices to a user body, and perform emotion mining of a user to identify if he/she is in dangerous situation. Generally, the application of IoT technologies to the fields of smart cities, smart logistics and healthcare can be seen more often. IoT technologies can be applied to smart cities in order to improve the daily life local residents. Li et al. [1] proposed a new IoT-based application, so called smart community that has several useful functions for local residents, such as neighborhood watch and pervasive healthcare. Bi et al. [2] investigated the impact of IoT technologies on enterprise systems in modern manufacturing. Xiao and Wang [3] proposed the intelligent traffic monitoring using various IoT technologies. IoT technologies can increase the efficiency of logistics. Li et al. [4] proposed sIoT-based configurable information service platform for product lifecycle management (PLM).

Fig. 47

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Voltage Drop and Surge Compensation with a DVR based on an Asymmetric Multi-element Cascade Converter

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ABSTRACT
This article discusses the Dynamic Voltage Restorer (DVR) as a solution to compensate voltage sags and surges and protect sensitive loads. In order for the DVR to be applied in distribution systems with voltage in the range of kilovolts, the series converter as one of the important components of the DVR should be applied to multi-level transformers that can withstand the voltage and power of kilovolts, several megawatts. So this article proposes a DVR configuration based on an asymmetric cascade converter. The main feature of this asymmetric CM converter is to increase the number of output voltage levels by reducing the number of switches. Synchronous reference frame (SRF)-based pre-ang compensation strategy and the proposed voltage falling/sag detection and DVR reference voltage determination methods are also used as the control system. The proposed DVR is simulated using PSCAD/EMTDC software and the simulation results are presented to confirm its effectiveness.

1. INTRODUCTION
Due to the increase of sensitive loads in power systems, the need for high power quality and voltage stability has increased significantly. The most important threats to sensitive equipment in current networks are voltage drops and surges [4]-[7]. These disturbances are caused by some events such as network short circuit, surge currents associated with the start-up of large machines, or network switching operations [14]. The use of dynamic voltage restorer (DVR) or voltage disturbance compensator is one of the most effective solutions to "reduce" the voltage quality at the load-side terminals when the voltage quality at its source-side terminals is disturbed [12] - [14]. A traditional DVR mainly consists of series and shunt transformers connected in series and a common DC capacitor used as an energy storage element [11], [13], [15]. There are many circuit topologies available for DVR, as the widely used method is a two-level or multi-level transformer. Compared to traditional two-level transformers and increasing the number of DC voltage sources (levels), small voltage steps lead to high-quality waveforms, lower harmonic components, lower device voltage values, lower switching losses, higher efficiency, and also a reduction in leading dv/dt voltages.

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Improved Microprocessor based Smart System for Home Appliances

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ABSTRACT

The work is aimed at stimulating microprocessor based smart system for home appliances. The system design was first analyzed considering the voltage and ampere rating of the home appliances then the analyzed consideration were conceptualized into physical design of one bedroom apartment which was simulate using a Proteus and test was carried fulfilling the objective of the research. In the design many component were tested and tried but the chosen component that made the work achievable in the following component are Arduino 328, relay, multimeter, voltmeter, connector, remote diode etc. These were used to achieve the aim. In the simulation of the proposed microprocessor based smart system adjustment of voltage rating were made and recommend that a mobile application can be built to control such design to enable ease and wireless transmission and reception of signal from smart system.

Key words: Microprocessor, Arduino328, Timer, Relay and Distribution board

1. INTRODUCTION

Microprocessor are usually silicon chip on which millions of transistor are embedded and other components that process instructions per second, integrated with memory chips and special purpose and directed by software [3]. A microprocessor programmable microchip that make use of digital data as its input and form results as an output once it processes the input according to the knowledge or instructions stored in its memory. Microprocessor use sequential gates as they have internal memory element and work on numbers and symbols represented in the binary numeral system [3]. The plan is based on microprocessor smart based system module which is used for long distance communications. A modern home can be controlled using microprocessor chips that serve as a remote control for all the home appliances. The microprocessor based smart device module uses computer-based microprocessor chips that are battery powered, making the smart home system safer and free from the internet hacks.

Fig. 49

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**Network Penetration security Survey a Recognition System
Based on machine learning**

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ABSTRACT

This paper mainly analysed the application of the machine learning method in the intrusion detection system (IDS). The support vector machine (SVM) algorithm parameters were improved by the adaptive particle swarm optimization (APSO) algorithm and the APSO-SVM algorithm, which obtains for intrusion detection. In feature selection, we will compare the proposed method with Relief and InfoGain methods. Experiments were carried out on the KDD CUP 99. The results showed that the proposed method greatly reduced the running time of the algorithm and improved the performance to a certain extent after the dimensionality reduction of features selected by Relief and InfoGain. Comparatively speaking, the feature extracted by Relief performed better in the algorithm.

Keywords: Intrusion Detection System; Machine Learning; Network Security; Particle Swarm Optimization; Support Vector Machine

1. INTRODUCTION

With the popularity of the network [10], it not only facilitates people's study, work and life but also brings a lot of security problems. The emergence of various viruses, vulnerabilities, and attacks poses a great threat to the security of individuals, enterprises, and even the country. Network security generally needs to ensure the integrity, availability, confidentiality, and controllability of information and prevent information from being leaked, tampered, or destroyed [17]. The current technologies used include access control [3], firewall [20], identity authentication [7], data encryption [24], etc., but they can only carry out passive defense, not real-time monitoring; therefore, intrusion detection system (IDS) [23] appears. IDS can detect potential threats in time by analyzing network information [13], which has been widely concerned by researchers. Kang et al. [12] designed an IDS using a deep neural network (DNN) and used a deep belief network (DBN) to pre-train the initial parameters of DNN [2, 6].

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**Clustering under - Sampling data for improving
The performance of Intrusion Detection System**

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ABSTRACT

The fast development of information technology has made information security and computer networks an essential factor. One possible method of protecting these security resources is the Intrusion Detection System (IDS), which recognizes abnormal packets among incoming data. In this study, we work on its detection capability by exploring a machine learning-based data mining approach. In this approach, proper training data are needed to obtain a useful detection model. Preprocessing is one way to increase the quality of the training data, which can be performed by removing noise. Our research attempts to cluster data for the majority class by using k-means that we can recognize the noise by taking an appropriate threshold. In this case, we identify the clusters with a value below the threshold as noise data. Thus, a new majority class of data should not contain noise anymore.

Keywords: Classification, Computer security, Intrusion detection system, Machine learning, Network security, under sampling.

1. INTRODUCTION

In this digital era, transmitting data between computer networks, such as through the internet, has been shared. This data transmission has made it easy for users to exchange information in any environment. Nevertheless, not all users utilize this technology for functional purposes; some may exploit it to send malicious packets. This activity has been a security issue for decades. Some methods have been introduced to overcome that security problem; one of them is by detecting the bad incoming packets to the network [1]. It is often carried out by implementing an Intrusion Detection System (IDS), where an alarm is transmitted to the network administrator once a suspicious packet is detected. The IDS is a system for monitoring network traffic that recognizes intruders in the network. Its performance, however, may not be optimal. As a result, a false alarm may be sent just because regular access is detected as an attack.

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**An overview of how fretting fatigue behavior is affected by
Cyclic Contact Loading**

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ABSTRACT
A harm marvel called fusing weariness regularly takes put when two contact bodies are clamped together beneath a typical contact stack alongside a small-scale oscillatory movement due to cyclic stacking. In differentiate to the consistent contact stacking, less consideration has been paid to variable contact stacking which was in fact checked on in this ponder. Accentuation was placed on the endeavors made over the past decade and long haul challenges counting moderate impacts of contact loads, grinding, recurrence, slip sufficiency, wear, and contact technician are talked about broadly. It was uncovered a requirement for modern weariness and contact mechanics models by recognizing the previously mentioned lost parameters.

1. INTRODUCTION
Weariness, break, wear, erosion, crack, and fusing are among the prominent common instruments of disappointment. These disappointment modes are as a rule taken beneath thought inside the plan prepare of any building component. Fusing weariness may be a combined activity of fusing and weariness disappointments, which happens when two reaching surfaces are subjected to an ordinary stretch and an bulk cyclic loading at the same time. Fusing weariness happens due to the little plentyfulness sliding movement between the two mutually clamped surfaces. Worrying weariness may be a dangerous disappointment which can diminish the life of a component by a figure of regularity between 2 and 3 in spite of the fact that, variables as tall as have moreover been detailed. Fusing weariness happens broadly in different mechanical components, such as in dovetail of turbine edges, shot and bolted joints, heading, cables, etc.
Worrying weariness has been the subject of various examinations over the past few decades, different strategies have been proposed to improve fusing weariness life, diverse strategies have been proposed to assess fusing weariness life and most of perspectives of fusing weariness instrument such as split start area, break engendering course and worrying weariness life have been investigated.

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Utilizing a tunnel boring equipment with a high-pressure Water jet to crush rock

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ABSTRACT

The concept of burrow boring machine (TBM) plate cutter shake breaking coupled with high-pressure water jet has been proposed to overcome the challenges that happen when TBMs experience amazingly difficult rocks. Hence, to meet genuine building prerequisites for the TBM development of burrows as portion of the Wan'anxi water redirection extend in Longyan City (Fujian Territory, China), tests were conducted on high-pressure water jet assisted TBM plate cutter shake breaking. By changing kerf profundity and width beneath diverse water jet parameters and performing plate cutter shake breaking tests on shake surfaces with no kerf, single kerf, and twofold kerfs, the impacts of diverse kerf profundities on the plate cutter shake breaking prepare, stack, and effectiveness were inspected. The test comes about appeared that high-pressure water jet can produce the standard kerfs required for the coupled circle cutter shake breaking of rock. Utilizing the coupled shake breaking strategy to come about in a diminish in particular vitality and an around 80% diminish within the typical drive of the circle cutter, in this manner essentially progressing shake breaking productivity.

1. INTRODUCTION

Tunnel boring machines (TBMs) are burrow building development machines that use disc cutters on a turning circle cutter to cut rocks by explosion and shearing, acting on the whole cross-section of the burrow at any given time. Beneath the circumstance of great geographical condition and well-prepared development, they have uncovering rates that are by and large 10-fold higher than those of routine boring and impacting strategies. As a large-scale, high-tech development hardware planned for the uncovering of underground entries, TBMs have the focal points of quick uncovering, tall proficiency, and security. Furthermore, they are conservative, naturally neighborly, decrease labor excitement, and play a critical part within the development of underground sections.

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Using fuzzy theory and dynamic equations, an energy control system for a parallel hybrid power system is developed

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ABSTRACT

A fuzzy control technique is created in this consider to oversee the parallel crossover control framework of inner combustion motor (ICE) and electric engine (EM) for cross breed vehicles. The rules built up for the fluffy rationale are based on the conditions of vehicle pedal position, vehicle speed, and the state of charge to control the throttle position of the ICE and the switch position of EM in mass, mid-, and high-power cruising. The optimization of the control procedure can make vehicles accomplishing ECE 40 driving design. In expansion, the ICE can work in an ideal operation extent, hence lessening carbon outflow. The EM may give control agreeing to the request, such that the torque yield of the yield shaft of the control part gadget is twice of the input of the two control sources independently.

1. INTRODUCTION

Hybrid vehicles are a combination of an inside combustion motor (ICE) and electric engine (EM). An appropriate cross breed setup of the ICE and EM can make strides the control yield and overcome the challenges of deficiently battery life and badly designed charging of electric vehicles. Agreeing to the distinctive control transmission and dissemination strategies, crossover vehicles can be separated into the parallel and arrangement sort. Arrangement half breed vehicles are more suited for driving at most speeds within the city, since a arrangement power source is easy to preserve within the ideal working run at most speeds. In addition, the ICE and EM of a parallel framework are associated to the transmission shaft through a control integration gadget or a transmission gadget. The vehicle can be driven by the ICE and EM at the same time or autonomously. Subsequently, since the ICE was worked within the ideal working run through a legitimate energetic programming? and a control administration strategy, the fuel economy of parallel cross breed vehicles can be higher than that of arrangement cross breed vehicles.

pg. 54

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Analysis and testing of HMT stationary shift control with the impact of oil bulk modulus taken into account

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ABSTRACT
In arrange to move forward the move quality of hydro-mechanical endlessly variable transmission, the impact of digression bulk modulus and diverse control strategies on the move quality were analyzed. Hypothetical investigation and exploratory consider on the digression bulk modulus of oil were carried out to get the impact law of discuss substance on the digression bulk modulus of oil. A four-cavity demonstrate of a closed pressure driven circuit was built up based on a two-stage number juggling soft hydro-mechanical transmission. By implies of recreation examination and exploratory think about, the impact of the digression bulk modulus of oil on the move quality is examined. The incline control strategy of sensibly controlling supporting proportion and dragging out the invert time of stack torque is put forward. The results about appear that this strategy can decrease the changes of the speed of the settled relocation engine and the oil weight of the initial low-pressure side. This strategy can too make strides the move quality and give reference for the think about of the move prepare of hydro-mechanical persistently variable transmission.

1. INTRODUCTION
Hydro-mechanical persistently variable transmission (HMT) may be a dual-power stream transmission composed of pressure driven control transmitting unit and mechanical control transmitting unit in parallel. With the combination of pressure driven and mechanical units, persistent simplex changes in transmission proportion can be realized to form the motor work within the effective zone. In expansion, the oil can buffer and decrease the transitory stack on the transmission framework to successfully make strides the benefit life of vehicles, which is particularly vital for building vehicles working in unforgiving situations for a long time. HMT, a high-power, high-efficiency, and versatile simplex transmission, is one of the perfect transmission shapes for vehicles that not as it were meet the requirement of essential driving, but moreover the require of high-power operation.

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**Modifiable pseudo-rigid body model for generalized cross-spring
Pivots under coupled loads**

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ABSTRACT

Generalized cross-spring pivots (CSPs) are broadly utilized as revolute joints in exactness apparatus. Be that as it may, pseudo-rigid-body (PRB) models cannot capture the parasitic movement of a generalized CSP precisely beneath combined loads; additionally, the characteristic parameters utilized in PRB strategies must be recomputed utilizing optimization strategies. In this think about, we create two straightforward and precise PRB models for generalized CSPs. To begin with, a PRB strategy for a pillar is created based on the pillar imperative show and the momentary center demonstrate, where the bar is modeled as two unbending joints joined at a turn through a torsion spring. Hence, two PRB models of the generalized CSP, comprising a four-bar show for precision and a pin-joint demonstrate for solidness, are developed based on a kinematic investigation utilizing the proposed PRB strategy. A diversion characteristic investigation is at that point conducted to decide the relationship between the proposed show and the existing models.

1. INTRODUCTION

Flexural turns change both movements and energies through versatile distortion. These turns are utilized broadly in accuracy designing since they offer an assortment of points of interest, counting zero backfire, zero grinding, no clearance necessities, no gathering necessities and tall accuracy. Customary notch-type flexural turns display tall firmness and little parasitic movements; in any case, these turns encounter life strokes due to push concentration. Spring-type flexural turns give a wide extend of movement and show decreased stretch since of flexible averaging impacts. The generalized cross-spring turn (CSP) is shaped by crossing two symmetrical bars at a subjective position (Figure 1). The CSP can be requested as a revolute joint with settled and moving closes. The moving conclusion pivots around the momentary center, which about coincides with the beginning crossing point of the two pillars for little diversions.

Fig. 56

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**Assessment of the collaborative robot URS's unidirectional posture
Accuracy and repeatability**

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ABSTRACT
The article depicts the estimation of unidirectional posture precision and repeatability of a collaborative robot. The objective of the estimations is to explore and assess unidirectional exactness of the six-axis collaborative robot URS of the company All-inclusive Robots. The estimation technique was based on sketching out a fanciful ISO 3d shape set within the robot's workspace, in which the robot's apparatus middle point (TCP) achieved five estimation focuses in thirty estimation cycles. A video camera and six direct incremental sensors with six assessment units were utilized for the estimation. The measured values are displayed and connected agreeing to the ISO 9283 standard. On the premise of the estimation, we confirmed specialized determinations of unidirectional posture exactness and repeatability of the automated arm URS indicated by its maker.

1. INTRODUCTION
Due to the current pressure on required precision in generation as well as productivity and unswerving quality of automated and robotic lines, a requisite emerges to conduct numerous logical ponder and tests centered on the exactness of such hardware and on the right approach to its programming. Within the case of mechanical and collaborative robots, their exactness and repeatability are a few of the foremost imperative properties impacting the operation and running of generation equipment within the generation. Accuracy is sought on to be the capacity to achieve the desired point within the workspace. One of the fundamental strategies of deciding precision is the estimation of precise or straight changes of person parts of the robot. Repeatability is the ability of the robot's arm to return to the same position from the same course, by which the impacts of play are limited. It is subsequently the robot's capacity to achieve the specified position with regard to its reference position. The posture precision is impacted by the wear in joints, equip transmission blunders, contact, and workspace, get together, inactive and energetic variables, and numerous other variables influencing the operation of the gear.

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Enhancement of bellows noise reduction efficiency using multilayer perforated panels

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ABSTRACT

When the speed of a railroad vehicle increments, the level of clamor interior the vehicle unavoidably increments as well, which could be a major cause of distress to travelers. The foremost successful strategy is to make strikes the generally commotion decrease execution of a vehicle. In specific, the corridor of the railroad vehicle is made of silicone elastic; hence, its clamor diminishment execution is second rate to that of other components of the vehicle. Hence, it is basic to make strikes the insides clamor performance of railroad vehicles. This consider points to diminish the clamor within the low-frequency locale of a railroad vehicle corridor. It looks at the appropriateness of the multi-layered reverberation sort board, which has not been already connected to the howls in railroad vehicles. In specific, the transmission misfortune was progressed by changing the structure without filling the howls with sound-absorbing fabric. To begin with, a hypothetical audit of the commotion lowering execution of a punctured multilayer structure was performed. Based on this, the major plan parameters of the punctured multilayer structure that are compelling in diminishing commotion within the low-frequency locale of the howls were inferred.

1. INTRODUCTION

An increment within the speed of a railroad vehicle moreover increments the commotion interior the vehicle, causing distress to travelers. There are different causes of incommensurate insides clamor in railroad vehicles, such as the rolling clamor caused by wheel-rail contact and streamlined commotion caused by the turbulent streams around the car body. In expansion, the clamor characteristics change with the driving environment, such as open or narrow ranges. In this manner, diminishing the by and large clamor of a vehicle is restricted to diminishing the commotion created from a particular source in specific driving conditions.

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The use of a step-by-step design approach based on numerical simulations to a multi-stage multiphase pump

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ABSTRACT
Rotodynamic multiphase pumps are as a rule prepared with numerous compression units to supply adequate boosting weight for the transportation of generation liquid in gas oil field. It could be a challenge to preserve pump execution whereas stream parameters in each arrange shift due to the compressibility of gas-liquid stage. In this article, a stage-by-stage plan strategy is proposed to progress the boosting capability of a multiphase pump. Varieties of stream parameters in each organize are examined based on computational liquid flow (CFD) numerical recreation. Accessible strategies to determinate fundamental impeller geometry parameters of impeller are examined. The stage-by-stage plan strategy is connected on a five-stage multiphase pump when the gulf gas volume division (GVF) are 30% and 50% independently. The moment arrange is altered base on its comparing channel stream parameters when gulf GVF is 30% whereas the moment and third organize are adjusted when inlet GVF is 50%. Stream parameters, weight conveyance and speed dispersion are compared between the initial pump and adjusted pump.

1. INTRODUCTION
In a subsea gas oil field, the generation liquid is ordinarily transported from the wellheads to the generation offices through long subsea pipelines and risers. One of the challenges is to keep up a adequate generation rate and the correct sum of weight to stream liquid. Due to this reason, multiphase pumps are broadly utilized in subsea operations to overcome these issues. There are a few benefits for the application of multiphase pumps, such as expanding generation rate in an existing acid-out pipe-line, reducing well-head stream weight to extend oil and gas recuperation, making it conceivable to create hydrocarbon from negligible areas without introducing modern generation offices and reducing cost of surface office modification. Helico-axial pumps are the foremost utilized among a few ordinary sorts of multiphase pumps counting centrifugal pumps, semi-axial pumps and twin-screw pumps.

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Program creation for low pressure water jet cleaning patterns and performance assessment

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ABSTRACT

Waterjet could be a gadget that cuts or pulverizes materials utilizing water weight infused through the spout. Particularly, Moo weight waterjet is utilized in stripping and cleaning work. The cleaning designs of the moo weight waterjet is decided by different plan factors, such as the number of spouts, and point of spouts, slant proportion and so on. In arrange to optimize the cleaning design, the ideal waterjet plan is required depending on the shape of the target structure. To do this, a huge number of waterjet investigation models ought to be utilized. This consider decreased design time by computerizing the creation of the required investigation show with straightforward changes in plan variables, and conducted assessment of the cleaning designs utilizing numerical strategy for the foremost regularly utilized round and hollow structures. In expansion, it analyzed the impacts of changes in plan factors and proposed enhancements.

1. INTRODUCTION

Recently, the require for naturally inviting controls and vitality sparing has been expanding in created nations, and eco-friendly gear that seeks after moo clamor, moo vibration, and tall productivity is drawing in consideration. Figure 1 appears a waterjet with a tall utilization proficiency in a constrained space among eco-friendly pulverization gear, which may be a gadget for smacking a structure utilizing the water weight. It is classified as moo weight, medium weight and tall weight waterjet depending on the weight. Among them, moo weight waterjet is utilized for cleaning and stripping, medium weight waterjet is utilized for mechanical fabric and parts cutting, and tall weight waterjet is utilized as pulverization hardware for extraordinary environment. The waterjet is broadly utilized all through the industry for its utilize, and numerous analysts are examining the waterjet. With respect to the moo weight waterjet, Gaha et al. examined a moo weight cleaning waterjet framework through a test and numerical strategy.

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Training and Development

Dr. Bijay Bhujabal¹, Uma Sankar Pani²
¹Professor, Department of MBA,
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ABSTRACT
Training and Development is a vital part of HRM, it helps in nurturing the people according to the needs and demands of the organizations. It serves as a platform to identify the future leaders among the group of employees. Organizational objectives can only be achieved only when there is a team effort. Training and Development caters the team building and team playing abilities among the employees by providing the both departmental and cross-departmental training programs. Training and development refer to educational activities within a company created to enhance the knowledge and skills of employees while providing information and instruction on how to better perform specific tasks. Training is a short-term reactive process meant for operatives and process while development is designed continuous proactive process meant for executives. Training and Development is a structured program with different methods designed by professionals in particular job. In fact, many organisations are using term "training and development" as one and same. Mostly we hear the term "training" for the purpose of the inducing skills and knowledge among employees.

Keywords: Training & Development, Employees, Knowledge, Skills, Organizational objectives

1. INTRODUCTION
Training is one of the best ways to value your employees. It shows them that you are invested in their wellbeing and growth as they are in your growth as a company. Employees who are looked after will never want to look elsewhere. Training can be a pre-emptive step to train employees for expected/unexpected changes in the industry. In times like ours when trends change constantly under the influence of online evolution, keeping our teams prepared just makes good sense. There is no better way to create future leaders than to train the best bunch. This will also lead to a clear career path for employees preventing attrition and dissatisfaction. Any company dedicated to training its workforce will only prosper and move forward. The employees are a major part of a company's assets and taking care of them will mean taking care of the organization.

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Single gold nanocluster probe-based fluorescent sensor array for heavy metal ion discrimination

Dr. Girija Prasad Sahoo
 Professor, Department of Chemistry
 Gandhi Academy of Technology and Engineering,
 Berhampur, Odisha, India

ABSTRACT

There is a proceeding with popularity to plan compelling sensors for the assurance of weighty metal particles (HMs) since they are risky to both human wellbeing and the climate. In this review, we revealed an easy fluorescent sensor cluster for quick segregation of HMs in view of a solitary gold nanocluster (AuNC) test. This AuNC test was ready by utilizing 2-mercapto-1-methylimidazole (MMI) as a ligand and polyvinylpyrrolidone (PVP) as a scattering specialist. The fluorescence emanation of PVP/MMI-AuNC was seen to be firmly connected with the pH worth of the watery arrangement, which presentations yellow ($\lambda_{max} = 512 \text{ nm}$) and red ($\lambda_{max} = 700 \text{ nm}$) fluorescence at pH 12.0 and 6.0, individually. Further trials demonstrated that different HMs can create differential outcomes on the photoluminescence of PVP/MMI-AuNC and subsequently produce particular fluorescent reactions at 512 and 700 nm. Based on this peculiarity, a fluorescent sensor exhibit in light of the PVP/MMI-AuNC was then constructed by just changing pH esteem in the sensor component.

INTRODUCTION

Weighty METAL Particles represent an extreme danger to human wellbeing and the environment inferable from their non-biodegradability and high poisonousness (Quang and Kim 2010; Unnikrishnan et al. 2021). As needs be, the plan of effortless, quick, and dependable techniques for the assurance of HMs is fundamental for safeguarding natural climate and working on general wellbeing. Various logical methods, for example, nuclear assimilation spectroscopy (Safari et al. 2018), inductively coupled plasma outflow spectroscopy (Ebrahimi-Najafabadi et al. 2019), inductively coupled plasma mass spectroscopy (Alkas et al. 2017), and X-beam fluorescence spectroscopy (Hutton et al. 2014), have been utilized to screen HMs.

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NMR spectroscopy captures the essential role of dynamics in regulating bio molecular function

Dr. Amit Kumar Jana
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Gandhi Academy of Technology and Engineering, Berhampur, Odisha, India

ABSTRACT

Bimolecular are in consistent movement. To comprehend how they capability, and why breakdowns can cause infection, it is important to portray their three-layered structures as far as unique conformational tropes. Here, we exhibit how nuclear magnetic reverberation (NMR) spectroscopy gives a fundamental, dynamic perspective on primary science that catches bimolecular movements at nuclear goal. We center around models that stress the variety of biomolecules and biochemical applications that are amiable to NMR, for example, explaining utilitarian elements in huge atomic machines, describing transient conformities ensured in the beginning of illness, and getting nuclear level portrayals of characteristically cluttered districts that make frail connections engaged with fluid stage partition.

1. INTRODUCTION

Endeavors in primary science have prompted significant advances in giving a generally static portrayal of the particles of life, producing bits of knowledge into how such particles capability in an extraordinary many cases. What has been remarkably missing, be that as it may, has been a similarly thorough tentatively based atomistic portrayal of how atoms change their conformities over time, and a comprehension of how these conformational revisions balance capability. To some degree, this trouble has emerged since the accessible innovation for acquiring three-layered depictions of biomolecules performs ideally when particles expect to be a solitary, or a modest number, of conformities. The actual course of balancing out atoms of interest for point by point studies, in any case, frequently extinguishes their elements. In this way, albeit the subsequent designs got are of high goal, they are to some degree one-sided to conformities that can be settled in any case, as opposed to those that are the most significant organically. With the rise of cry electron microscopy (cryo-EM) also, the proceeded with advancement of X-beam diffraction and atomic attractive reverberation (NMR) strategies for investigations of biomolecular structures, there is an expanded impulse to create extra integral innovations that utilization these nitty gritty designs as beginning stages to comprehend how atomic elements decipher into capability.

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Highly sensitive sensing of food additives based on fluorescent carbon quantum dots

Dr. Sagarika Pasayat
Professor, Department of Chemistry
Gandhi Academy of Technology and Engineering, Berhampur, Odisha, India

ABSTRACT

A vigorous fluorescence-based detecting methodology was planned considering significance of breaking down compound added substances in industrialized food. In this review, a detecting approach was created utilizing fluorescent carbon quantum spots (CQDs) as a chemometric instrument. CQDs were combined by a basic one-step aqueous course utilizing the American regular seed *Caesalpinia pulcherrima*, and further described in regards to their compound construction. Five food added substances were distinguished, citrus extract, lactic corrosive, ascorbic corrosive, sodium benzoate and potassium sorbate, which showed an exceptionally touchy reaction with a restriction of discovery (LOD) as low as 252 ng mL⁻¹. The detecting stage was planned involving the directed technique for perceiving examples of straight discriminant examination (LDA), where we could distinguish various groupings of added substances, after advancement of exploratory boundaries.

Keywords: Monosodium glutamate (MSG); spectroscopic studies; bovine serum albumin; thermodynamic parameters; circular dichroism.

1. INTRODUCTION

Food added substances are regular or engineered synthetic substances used to work on the nature of assembling type food chiefly with respect to its taste, appearance and surface. To be sure, added substances assume a critical part in the safeguarding of groceries which can forestall oxidation and other debasement processes [1]. Other than various food added substances might be harmful, they should be fundamental thinking about financial view and around the world populace development. Thus, the utilization of these synthetic substances are checked to forestall any sort of human existence harm, for example with no gamble to shoppers wellbeing [2,3]. For example, as indicated by the Brazilian Public Wellbeing Reconnaissance Office (ANVISA), contingent upon the kind of food, a few added substances, for example, ascorbic corrosive, sodium benzoate furthermore, potassium sorbate can be just utilized at a focus scope of 0.033-0.1 g per 100 g of food.

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Theory of Gas Chromatography

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Gandhi Academy of Technology and Engineering, Berhampur, Odisha, India

ABSTRACT

Insightful gas chromatography (GC), Fig. 2.1, is a procedure of partition of parts of combinations (tests) determined to acquire data about their sub-atomic arrangement. The data got from a chromatographic investigation can incorporate a chromatogram (a graphical picture of a locator yield), data with respect to levels and the areas of settled (enough isolated) tops in a chromatogram, their sub-atomic personality, and so forth.

I. INTRODUCTION

This part is for the most part founded on its past release [1]. As in the past, it is expected to be here that the peruser knows all about the fundamental GC ideas furthermore, designs like the slim, i.e., opentubular segment (OTC), transporter gas as the versatile progressively ease in GC, fluid and strong fixed stages, the critical instruments of the association of the solutes relocating (being conveyed by the transporter gas) through a segment with the fixed stage, temperature and additionally pressure programming, and so forth. A few sections of this volume and different sources [2e12] could assist with invigorating this data. A hypothesis of GC can be customized to underscore various parts of GC activities. It very well may be centered, for instance, on precise expectation of maintenance times and level of partition of all or on the other hand a few forecoordinated parts of the example. As the automated estimations are for the most part adequate for such expectations, intricacy of the models turns into a generally minor issue contrasted with their precision. It could turn into vital for the precise expectations to account for such by and large minor variables as nonideal transporter gas, impacts of the fluid fixed stage surface, no uniform segment fixed stage thickness, and so forth. These elements, in any case, are beyond the principal worry of this section. Its principal center is around the impact of the functional boundaries of GC investigation on its overall execution. The hypothesis introduced here is intended to address such issues as the impact of section aspects, transporter gas type and stream rate, temperature programming, and different variables on length of examination, the quantity of pinnacles that can be settled, recognition limits (DLs), and the compromises between these exhibition factors.

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 - Title:** A Study on "Role of Emotional Intelligence in Managing Stress at the Workplace with Specific Reference to ITES Sector"
 - Author:** Dr. Ramesh Chandra Rath
 - Affiliation:** Professor, Department of Economics, Gandhi Academy of Technology and Engineering, Berhampur, Odisha, India
 - Section:** ABSTRACT
 - Text:** IT-enabled services (ITES) are the outsourcing services that use information technology in the processing and delivery of the service. ITES related professionals are at a constant pressure to deliver services efficiently and have to be cost effective. Employees working in ITES industry are prone to develop a lot of health problems due to continuous physical and mental stress of their work. A good knowledge of one's own and others emotions and ability to manage them can also help a person to cope up with job stress in a work environment. Individuals with high emotional intelligence are more capable of understanding and managing their emotions, which allows them to adjust to their surroundings and become more tolerant to challenging conditions, including stress. Because stress is a perceived concept, emotional intelligence plays a role in the mental process of determining the source of the stress.
 - Keywords:** Emotional Intelligence, ITES, Stress
 - Section:** 1. INTRODUCTION
 - Text:** In the era of globalization where there is high cultural, scientific, economic and social exchange the success of a person depends on many personal factors. This includes attitudes, parental support, good education, social network, financial support and so on. Even with all of these, there can be failure in success when the root cause for this was searched it points towards EI. The present world demands higher level of interrelationships, mutual understanding and greater productivity at workplace. A good knowledge of one's own and others emotions and ability to manage them can also help a person to cope up with job stress in a work environment. IT Enabled services (ITES) are the outsourcing services that use information technology in the processing and delivery of the service. Services are typically delivered through a telecommunications or data network, or other electronic media. Often the business processes are information technology-based, and are referred to as ITES. Knowledge process outsourcing (KPO) and legal process outsourcing (LPO) are some of the sub-segments of business process outsourcing industry.
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Act East Policy and Economy of the North East India
Dr. Mousumi Parida
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ABSTRACT

The look east policy launched in 1992 was an inevitable offshoot of the closing stages of the cold war following the collapse of the Soviet Union. The policy was kick started when the then prime minister Naramsimha Rao visited China, Japan, South Korea, Vietnam and Singapore. This initiative culminated in India becoming a sectoral dialogue partner with ASEAN in 1992. The Act East Policy is an attempt to integrate India with her neighboring eastern economies. Even when India's approach to development was inward looking and state controlled some smaller countries to its east has emerged as strong economies and came to be known as the Asian Tigers. The performance of these economies finally compelled policy makers in India to look eastward for inspiration for rapid economic development. The look east policy is one of the important strategies of India's development. Look East Policy was launched when India had a very fragile economy due to Economic Crisis.

Keywords: ASEAN, Act east policy, Economic crisis

1. INTRODUCTION

After independence India was attracted to the tremendous development achieved by western countries. It had been recognized that the noteworthy factor behind the rapid economic development of these countries was the process of industrialization. India was inspired by the concept of economic planning which particularly prevailed in the economy of the erstwhile Union of Soviet Socialist Republics (hereafter USSR). Accordingly India initiated five year plans from 1951 onwards, the prime aim of which was rapid economic growth of the country through industrialization. One of the main objectives of planning was to attain self reliance which is possible only when a country is able to produce everything domestically. Two types of trade strategies were sought to be promoted towards this end strategy: import substitution and export promotion. Strategies of import substitution were generally designed to produce those commodities, which were previously imported from foreign countries, domestically. This trade strategy had two major objectives: (a) To save valuable foreign exchange due to import of desired commodities, (b) To achieve self-sufficiency in the production of as many imported items as possible. On the other hand export promotion strategies were conceived to expedite the export sector.

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**Causal Relationship among the Emerging Asian Economies:
An Exploration**

Dr. Tanmaya Kumar Pradhan
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Gandhi Academy of Technology and Engineering, Berhampur, Odisha, India

ABSTRACT

The present paper explores the extent of causality among four emerging Asian economies. It aims at finding the causal linkage between the National Stock Exchange (NIFTY), Singapore Stock Exchange (SGX), Taiwan stock Exchange (TWI) and South Korea Stock Exchange (KSI1). The data set span for a period of eleven years from April 2007 to March 2018. Using daily data for the sample, time series properties have been diagnosed using ADF Unit Root test. Moving forward with the analysis, the presence of any causal linkages among the markets have been investigated using the Granger Causality Test. The results of the pair-wise Granger causality test assert bi-directional linkage between 'National Stock Exchange (NIFTY) & Singapore Stock Exchange (SGX)', 'National Stock Exchange (NIFTY) & South Korea Stock Exchange (KSI1)' and between 'Taiwan Stock Exchange (TWI) & South Korea Stock Exchange (KSI1)'. A strong uni-directional relationship between 'National Stock Exchange (CNX NIFTY) & Taiwan Stock Exchange (TWI)' and a weak uni-directional relationship between 'Singapore Stock Exchange (SGX) & South Korea Stock Exchange (KSI1)' as well as between 'Singapore Stock Exchange (SGX) & Taiwan Stock Exchange (TWI)' is also found.

Keywords: Causal Relationship among the Emerging Asian Economies. An Exploration

1. INTRODUCTION

Market integration and market linkages have gained a considerable significance in the past decades as more and more economies liberated and deregulated their markets. Further, economic and financial turbulences across the globe also contributed to such importance. Once the multi-dimensional benefits of market integration were known, more and more markets made policy measures to gain from such integration. With the passage of time, more and more markets are integrated with each other which consequently made the financial markets globally more correlated and interdependent. [Bose & Mukherjee (2005), Joshi, Phylkties & Ravazzolo (2004)]. Study of interdependence between markets is of utmost importance and use as policy makers and investors learn about the implications on the portfolio diversification. Previous studies documented the increased co integration among markets.

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Relationship between second language English writing self-efficacy and achievement: A meta-regression analysis

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Gandhi Academy of Technology and Engineering, Berhampur, Odisha, India

ABSTRACT

The study aimed (a) to estimate the overall average effect size of the relationship between jotting tone- efficacy and jotting achievement for first language (L1) and alternate language(L2) pens in English; and b) to examine how jotting in English as a L1/ L2 centrists the connection grounded on a meta-analysis of published journal papers and compositions theses. Data included 565 effect sizes from 76 studies through a rigorous process of literature quests, webbing, and data rendering. A two- position meta- regression model was constructed to estimate the average effect size and to examine the moderating goods of the covariates. Results revealed a medium effect size ($r = .29$) with both L1 and L2 pens, which indicated roughly 9 of the variability in English jotting achievement was associated with variability in scholars' tone- efficacy. likewise, writing in English as a L1/ L2 was set up to moderate the relationship between jotting tone- efficacy and jotting achievement, with the effect size estimated with L2 learners ($r = .441$) being statistically significantly larger than that yielded with L1 learners ($r = .233$), after controlling for the covariates of sample size, gender, grade, statistical procedures, and publication type. Results also revealed that statistical procedure moderated effect size estimates.

1. INTRODUCTION

English jotting is a critical and protom skill (Graham, 2006), which plays a vital part in academic success in nearly all countries(Asmari, 2013) and serves as a threshold standard for council admission, job operation, and career creation(National Commission on Writing, 2004). In countries where English is spoken as an alternate language(L2), English jotting is also essential since it's an indicator of language learners' overall verbal proficiency(Archibald, 2016). English jotting doesn't only give professional openings for individuals, but also is a skill requires in business, politics, and education in the globalized world(National Commission on Writing, 2004). Writing is a study- demanding and challenging undertaking(Amannsson & Michal, 2013). According to the National Center for Education Statistics(2012), 20 of eighth graders and 21 of twelfth graders in the United States were below the introductory position in English jotting and only 3 of scholars at both grades performed at the advanced position.

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Exploring engagement of users of Global English in A Community of inquiry

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ABSTRACT

The Community of Inquiry (CoI) frame has been considerably studied. While previous exploration has delved the development and validity of the CoI theoretical construct, many studies have concentrated on the interdependent Cognitive, Social and tutoring aspects of the frame and none have been conducted grounded on a positive architecture of Global Englishes (GE) which directly challenges a monolingual tutament. This mixed styles study considers how GE druggies in a Alternate Language Acquisition postgraduate course at a exploration university in Malaysia endured these three aspects in their course, and how knowledge was collaboratively constructed in relation to their experience with these aspects. Data sources comprised of the CoI checks and discussion board posts. Analysis of these posts concentrated on the relationship between CoI aspects, GE stoner participation and knowledge construction. Findings suggest that the GE druggies laboriously constructed knowledge collaboratively in the CoI, and that they took on varied places which demonstrated the three aspects. This study makes an empirical donation to the body of exploration on GE druggies and a performing CoI in asynchronous discussion boards.

1. INTRODUCTION

In recent times, a burgeoning literature has illuminated our understanding of the Community of Inquiry (CoI). This work has concentrated on the development and conservation of the CoI, the validity of the cooperative construct, and how the CoI frame supports critical and creative thinking, and provides an educational terrain which enables scholars to learn how to learnt see, e.g., Akysil, Garrison, & Ozden, 2009; Anderson, Rouke, Garrison, & Archer, 2001 Foo & Quak, 2019). Yet while exploration has explored the demographic moderating goods of age, position, gender and discipline (e.g., Horvath, 2015; Khodabandlou, Ab Jafar, Wan Ali, & Mohd Daud, 2014), interest in online and amalgamated literacy grounded on CoI has tended to concentrate on study surrounds in the United States and Canada (see, e.g., Stenbohm, 2018) where almost actors were using English as their home language, or in English as an alternate or foreign language (ESL/EFL) where the emphasis was on the part of CoI in perfecting foreign speakers language proficiency (e.g., Herrera Diaz & González May, 2017; Wu, Hsieh, & Yang, 2017).

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Design of a nonlinear model for the propagation of COVID-19 and its efficient nonstandard computational implementation

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ABSTRACT

In this handwriting, we develop a fine model to describe the spreading of an epidemic complaint in a mortal population. The emphasis in this work will be on the study of the propagation of the corona virus complaint (COVID-19). Colorful epidemiologically applicable hypotheticals will be assumed upon the problem, and a coupled system of first-order or density discrimination equations will be attained. The model adopts the form of a nonlinear susceptible-exposed-infected-quarantined-recovered system, and we probe it both an lyrically and numerically. Analytically, we gain the equilibrium points in the presence and absence of the coronavirus. We also calculate the reproduction number and give conditions that guarantee the original and global asymptotic stability of the equilibria. To that end, colorful tools from analysis will be employed, including Volterra type Lyapunov functions, LaSalle's invariance principle and the Routh - Hurwitz criterion. To pretend com putationally the dynamics of propagation of the complaint, we propose a nonstandard finite difference scheme to compare the results of the fine model.

1. INTRODUCTION

Coronavirus complaint 2019 (COVID-19) is a viral complaint that was linked toward the end of the time 2019 in China, and which came a epidemic in the first quarter of the time 2020 (1). After its identification in 2019, COVID-19 has been a source of active explanation from colorful scientific points of view, substantially due to the mortality rate deduced from this complaint and the essential health complications. Indeed, to this day, the COVID-19 dashboard by the Center for Systems Science and Engineering at Johns Hopkins University reports a aggregate of cases in 188 countries around the World, along with - 185,696 recovered individuals and 345,589 deaths worldwide (2). On the other hand, the usual symptoms of this complaint include fever, cough, fatigue and breathlessness of breath (3), but it may develop to acute respiratory torture pattern, multi organ failure, septic shock and blood clots, among other conditions (4,5). In some cases, these symptoms evolve fleetly performing eventually in a painful death.

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Valuation of electricity storage contracts using the COS method

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ABSTRACT

Storage of electricity has come increasingly important, due to the gradual relief of fossil energies by further variable and uncertain renewable energy sources. In this paper, we give details on how to mathematically formulate a corresponding electricity storahouse contract, taking into account the physical limitations of a storahouse installation and the priceaional constraints of the electricity grid. We give details of a valuation fashion to price these contracts, where the electricity prices follow a structural model grounded on a stochastic polynomial process. In particular, we show that the Fourier-grounded COS system can be used to price the contracts directly and efficiently.

1. INTRODUCTION

One of the main options for the reduction of hothouse foota is the use of renewable energy (28), like wind and solar energy. The current, largely variable, affair of these energy sources still creates a great challenge in maintaining a balance between demand and force and using a dependable and stable electricity network (30). Among all, results for the largely variable affair (22), electricity storahouse is considered as a result with promising eventuality (7). There are numerous different technologies for large scale electricity storahouse systems and each technology has its own specialized characteristics (see (1)). In addition, new ways and generalities are being developed that can be used for electricity storahouse (e.g. Auto as Power Plant (31,37)). The rapid-fire technological advancements of electricity storahouse are also decreasingly intriguing from a fiscal point of view, i.e., storing electricity when there's a lot of force (and thus a low price) and selling when the demand is high (and thus a high price). The business profitable consequences, profitability analyses, technological developments, and operations of electricity storahouse have been complexly derived, Chen et al. (1). In this paper, quantitative exploration is conducted into the valuation of contracts for storing electrical energy by trading on the electricity request.

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Interpreting the relationship between emotions and understanding in mathematics: An operational approach applied to measurement with preservice elementary teachers

Dr.Chetan Kumar Sharma
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Gandhi Academy of Technology and Engineering, Berhampur, Odisha, India

ABSTRACT

This exploration explores the relationship between feelings and understanding in mathematics. In concrete, an illuminative model is proposed allowing to relate, operationally, the pupil's emotional experience with a functional view of their understanding, grounded on their uses of fine knowledge. The model includes a specific system for detecting the connections between scholars' feelings and their understanding during fine practices in the classroom. This system is applied in an empirical qualitative study with preservice education preceptors involved in dimension problem working in dyads. The study provides positive results on the influence of scholars' understanding on the generation of their different feelings during the fine action performed. In the same way, the feelings give prescriptive reasons that help to explain the scholars' fine understanding.

1. INTRODUCTION

The complex world of mortal feelings is a major focus of interest in mathematics education (Frank, 2006; Hamada, 2012a; Martinez, Sierra et al., 2019; Papp & Roehsen-Winter, 2015; Zan et al., 2006). In recent decades, there has been an adding number of studies on how mortal feelings are related to cognition in mathematics. The perspective put forward mentions that emotion and cognition aren't separate but rather conceived as related realities (Chen & Leung, 2015; Marmar, 2019). They develop together within subjectivation processes linked to participation in social and artistic conditioning (Evans, 2006; Radford, 2015). According to this paradigm shift in the sphere of the mind, cognition is basically of an emotional nature; feelings are conceived as necessary for rational goals, forming part of a participated vision of the world (Hamada, 2006, 2012a; Radford, 2015; Schlegelmann, 2010). In this contemporary vision, the challenges that remain are, among others, to integrate the cerebral, suggestive and physical aspects linked to feelings within the same process, to relate the binary, conscious and unconscious origin of the feelings themselves; and to situate their ineliminable, integral and universal nature with their contingent character dependent on facial, artistic and social conditions (Hamada, 2012b; Sempere, 2020).

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Three cases that demonstrate how students connect the domains of mathematics and computing

Prakash Kumar Shukla
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ABSTRACT

This study uses active-acquainted transfer perspective to probe different ways in which scholars make connections across the disciplines of mathematics and computing. We solicit first-time scholars at the University of Oslo as they work with a set of tutorials that we designed to integrate knowledge from both disciplines. The cases we present then demonstrate four different types: a) cross-domain connection; b) mathematically reproducing the work of a computer program; c) specifically perfecting a program to produce better affordances; d) coupling calculation to afford to justify program advancements and e) coupling calculation to law to justify program design. We give rich exemplifications of the ways in which scholars make these connections and bandy affordances for fine literacy in this environment.

1. INTRODUCTION

The last several decades has seen computers take over more and more tasks that used to be the sphere of the mortal mind alone. formerly, there's a concern that while mathematics is at the core of what computers can do, "the universal mathematics is substantially hidden in all feathers of outfit, which serve as black boxes for its druggies" (Gravmejer et al., 2017 p. 53); see also Williams & Wake, 2007). In mathematics classrooms, the solicitude is that scholars will come dependent on computational tools to do mathematics without understanding the underpinning principles of either. nonetheless, computers and programming are getting ever more important in the practice and tutoring of mathematics (e.g., Hirsley et al., 2018; Passow, 2017). The reasons for this movement are multifarious and include allowing for the discussion of further and different motifs, giving scholars more hands-on experience, and the envisaged "impetus" to have mathematics come to feel more natural, applicable, and less intimidating (e.g., O'Shea, 2018 p. 25); still, we as a field are just beginning to understand how the integration of calculating into calculation affects pupil thinking and literacy. How does home sphere connect to the other from the scholars' point of view, and what do these connections get? Our focus in this paper is to study the ways in which undergraduate scholars connect mathematics and computing.

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Impact of self-interaction of gravitational fields on the creation of massive structures

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ABSTRACT

We check whether Common Relativity's field self-interaction eases the require for dim matter to clarify the universe's huge structure arrangement. We found that self-interaction quickens sufficiently the development of structures so that they can reach their by and by watched thickness. No free parameters, dull components or alterations of the known laws of nature were required. This result includes to the other common clarifications given by the same approach to the, connect also, level revolution bends of worlds, super move perceptions suggestive of dim vitality, and flow of world clusters, in this manner fortifying its validity as an elective to the dim universe show.

1. INTRODUCTION

The basic part of dull matter within the development of universes and other huge structures constitutes a critical prove for the reality of that dull component of the universe. Enormous microwave foundation (CMB) anisotropy information appear [1] that at recombination time $t = 3.7 \times 10^{-4}$ Gyr, or redshift $z = 1100$, the fragmentary thickness vacillations δ that will advance to create the huge structures have ordinary sizes of $\approx 10^{-5}$. Modeling their advancement by means of the Pans collapse component and expecting exclusively baryonic matter yield, for the show times, $\delta \approx 10^{-2}$. Typically 2 orders of greatness lower compared to perceptions. Dull matter fathoms this issue since its need of electromagnetic interaction permits it to begin to condense without obstruction from electromagnetic weight, and so essentially prior than baryonic matter whose development is at that point quickened by the generally denser dull matter hales. In spite of the fact that this demonstrate is by and large fruitful in depicting the dispersion of the universe's matter thickness, it predicts as well numerous overshadow worlds and globular clusters [2].

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The universe's energy conditions and entropy density

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ABSTRACT

Within the standard Friedmann-Lemaître-Robertson-Walker (FLRW) cosmological demonstration, the vitality conditions give model-independent bounds on the behavior of the separate modulus. Be that as it may, this strategy can not give us the point by point data almost the infringement between the vitality conditions and the perception. In this paper, we show an expanded investigation of the vitality conditions based upon the entropy thickness of the universe. On the one hand, we discover that these conditions infer that entropy thickness α depends on Hubble parameter $H(z)$. On the other hand, we compare the hypothetical entropy thickness from the preservation law of energy-momentum tensor with that from the vitality conditions utilizing the observational Hubble parameter.

1. INTRODUCTION

Over the past decade numerous pieces of prove for an quickened development of the universe have been found with a few autonomous cosmological tests, such as the supernova(SNIa) observations [1-6], enormous microwave foundation (CMB) [7-9], baryon acoustic motions (BAO) [10-12], coordinate Sachs-Wolfe impact [13-15], void clusters [16-19] and solid gravitational lensing [20]. There are different endeavors to clarify the speeding up, from dall vitality to adjusted gravity. Combined investigation of the over cosmological perceptions support that an approximately 20% of cold dark matter(CDM)and the other portion 70% ruled by an obscure extraordinary component with negative pressure-driving the current speeding up. To ponder the phys- ical properties that hold for a assortment of matter sources, Sells and Ellis found the so-called vitality condition [21-24], which are compared in Common Relativity to confine common energy-momentum tensors. Since these conditions don't require a particular condition of state of the matter within the universe, they give exceptionally basic and demonstrate autonomous bounds on the behavior of the vitality thickness, weight, and see back time. Subsequently, the vitality conditions are one of numerous approaches to get it the advancement of the universe.

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A Comparative Study of Met kaolin/Slag-Based Geopolymer Mortars Incorporating Natural and Recycled Sands

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ABSTRACT

Significant efforts are being made to reduce the damaging effects of the Portland cement industry on the environment by substituting some of the cement used in the production of concrete with industrial byproducts from the clinker manufacturing process. Nevertheless, in addition to the substantial use of natural resources like sand and other aggregates, the carbon footprint is still quite significant. To address these issues, a novel class of mineral binders with characteristics akin to Portland cement—known as geopolymers—should be used in place of Portland cement. Silica or aluminosilicate materials can be alkali-activated to produce these binders. Various activators were used, such as liquid ($\text{Na}_2\text{SiO}_3 \cdot n\text{H}_2\text{O}$) and solid (NaOH). The best combinations were employed to create mortars using recycled concrete sand (RCS) and natural sand (NS). The physical, mechanical, and microstructural properties of the two types of mortars were compared experimentally. The best physico-mechanical qualities were produced by cement mixtures that contained a high percentage of slag and a combination of sodium hydroxide and sodium silicate.

Keywords: Geopolymer; Metakaolin; Slag; Alkali-activation; Recycled Sand; Mortar; Strength.

1. INTRODUCTION

Concrete is the most widely consumed manmade material in the world, with over six billion cubic meters produced annually, or almost one cubic meter utilized by every resident. It is important to note that the cement industry releases an estimated one billion tons of carbon dioxide (CO_2) annually, half of which comes from fuel and the other half from the calcination of CaCO_3 . In addition, cement pollutes more globally than all trucks combined, according to a report by the International Energy Agency and World Energy Outlook [1]. In reality, the production of it accounts for 7% of carbon dioxide emissions worldwide.

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Daily Maximum Rainfall Forecast Affected by Tropical Cyclones using Grey Theory

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ABSTRACT

The purpose of this study is to create a model that will predict the daily maximum rainfall in Northeastern Thailand in August and September of 2022 and 2023 due to tropical cyclones. Research has historically employed the ARIMA or ARIMAX technique to forecast rainfall. It is a rainfall forecast for the near future. The Grey Theory was used in this study because it is a method for managing discrete, limited data for long-term forecasting. In Northeastern Thailand, rainfall impacted by tropical cyclones has never been predicted using the Grey Theory. Using the highest daily cumulative rainfall data from 17 provinces in Northeastern Thailand during the August and September tropical cyclones of 2018-2021—the Grey model GM(1,1) was examined. According to the findings, only Nong Bua Lamphu province had a daily rainfall forecast of more than 100 mm in August 2022 and 2023; the other provinces' forecasts were far less than 70 mm. There were five provinces with the highest predicted daily rainfall totals of more than 100 mm for September 2022 and 2023.

Keywords: Grey Theory; Tropical Cyclones; Daily Maximum Rainfall.

1. INTRODUCTION

A tropical cyclone is a storm that can harm houses and crops in addition to causing powerful winds and flash floods. The South China Sea, the Bay of Bengal, and the western portion of the North Pacific Ocean are the primary locations where tropical cyclones that impact Thailand form. Climate change is also influenced by global warming, which happens when the Earth is unable to regularly radiate the heat it receives from solar radiation back into space. The average temperature of the Earth rises when its climate changes, which increases the amount of water that flows into the rivers and seas and melts more glaciers at the poles, affecting life as we know it. In general, Thailand experiences three to four storms annually. Every year, from August to September, they primarily affect Northeastern Thailand, where strong storms and thunderstorms destroy and damage homes and farms. Both landslides and floods can result from heavy rains.

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Effect of Stirrups on the Behavior of Semi-Precast Concrete Slabs

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ABSTRACT

Precast concrete semi-slabs, also known as half-slabs, are structural systems made up of concrete placed in situ at the top and concrete at the bottom of the slab. This section can serve as formwork to minimize the bottom half of the slab and avoid the need for traditional formwork. Precast slabs can be made thinner, which facilitates easier transportation. The performance of the slab system benefits from the interface between overlapping concrete and precast concrete. A shear connector, also known as stirrups, is required to enhance the half-slab floor system. Consequently, six full-scale slab specimens (2 x 7.5 m) with various stirrup shapes and spacing between them were built for this study in order to better understand the behavior of this slab system. Stirrups were used to join slab units in one specimen, which was produced without any connections and used as a reference. The distribution and kind of stirrups have an impact on the semi-precast concrete slab's structural performance, according to the test results. Slabs with rectangular or triangular connections had maximum load capacities of 136.11 and 86.11%, respectively, almost twice as high as reference slabs.

Keywords: Semi Slab; Precast Concrete; Site-in-place Concrete; Stirrups; Spacing.

1. INTRODUCTION

In semi-precast or hybrid concrete construction, precast and cast-in-place concrete are utilized (overlapped concrete). Precast concrete is used for the slab's bottom, and conventional concrete is used as the topping to seal it. The economy and flexibility of cast-in-situ concrete units can be combined with the precision, speed, and superior finish of precast components. This method has several advantages, including lowering the amount of wood used for formwork, making transportation easier, and enabling quicker and safer construction. Because the production process is carried out in a controlled factory environment, semi-precast concrete's structural performance exhibits high cracks and deflection control.

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Maintenance and Management of Computer Network Security In the Big Data Era

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ABSTRACT

The big data network was first created as a result of information technology advancements. But in this setting, the issue with network security is getting worse and worse. China has made network security a key component of national security. In order to improve China's network security governance policy system and serve as a guide for the formulation of new policies, this paper examines the text of China's network security governance policy from the perspective of big data, develops an analysis framework based on big data, examines pertinent sections of the policy, examines current issues, and makes optimization recommendations. This study uses data analysis from Google to gather information on network security events and policies in 2020. A total of 195 pertinent network security governance policies are acquired. Every policy is examined to guarantee the materials' correctness and applicability. The study's findings indicate that the application of the regulatory aspect of network security governance is the focus of certain big data-level, devoid of particular guidelines and procedures for execution. Out of these, 183 policies pertaining to regulatory oversight, making up 31.6%. Consequently, the national network security legislative and information departments should work together to create policies to address issues inside the network ecosystem.

1. INTRODUCTION

The actual civilization is expanding into cyberspace as network technology and equipment continue to advance and become more widely used. As a result, the Internet is becoming increasingly integrated into daily life. Networks are becoming more and more essential to people's ordinary existence. Nonetheless, given the quick advancement of network technology and network, the issue of network security has grown more pressing in the industrial economy. With the Internet transitioning from a time of steady development to one of dense accumulation, "network governance" is receiving more and more attention from all sides.

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**Reduction of Attributes using
Genetic Algorithm on K-Nearest Neighbor (KNN)**

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ABSTRACT

Worldwide and in Indonesia, diabetes mellitus (DM) is a major health issue. Diabetes has been diagnosed with the use of data mining tools. The process of selecting characteristics involves locating and eliminating those with excessive or unnecessary values. In this work, a genetic algorithm was used to pick attributes. Used as K-Nearest neighbour (KNN) for classification purposes. The goal of the genetic algorithm is to sort characteristics according to rank, where a feature's bigger value indicates its importance for the categorization task. 760 data points from the Indian dataset were used to run the test. We found that combination one worked well in the test. selection of attributes: three and four attributes derived from K-Nearest Neighbour (KNN) accuracy prior to 76.96% after being cut by 76.52%. As the two traits that have been chosen are reduced, so are attributes 1 and 4. The K-Nearest neighbour (KNN) accuracy scores are compared at 76.52% and 79.57% before and after attribute reduction. These outcomes demonstrate that comparing the acquired findings, attribute reduction while preserving the findings' optimization both before and after the elimination of characteristics.

1. INTRODUCTION

Hyperglycemia is a symptom of diabetes mellitus, a metabolic disorder caused by abnormalities in insulin production, insulin function, or each. If you've come into contact with long-term diabetes, then there will be dysfunction, long-term harm, or failure of a few human organs, including the heart, blood vessels, kidneys, eyes, and nerves. Diabetes mellitus (DM) is a dangerous medical condition both globally and in Indonesia. As aid by diabetes was identified as a lower-income country in the WHO report from 2005, nation comes in fourth place with the most diabetic world's population with diabetes mellitus after India, United States and China. The KNN Method uses this selection procedure in its implementation. One of the most popular algorithms for classifying or predicting new data is KNN.

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**Face recognition using neuro-fuzzy inference system
With feature extraction**

Dr.Sachi Nandan Mohanty
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ABSTRACT

The field of wireless sensor networks is relatively young. It can be used to gather, analyse, and send signals in certain unique situations. ZigBee is a novel wireless sensor network technology that has poor speed and short range. The Wi-Fi network is brand-new. Stack of IEEE 802.15.4 protocols. Recently, the conventional method of gathering characteristics for agriculture, greenhouses are commonly employed. The conventional setup utilizes wired wiring. It adds to the system's complexity and cost. Modern greenhouses typically have hundreds of thousands of square meters, and according to the various seasons, they may grow a range of plants. Thus, wireless to move the sensors that gather data for the greenhouse to a more suitable location more productive. It is affordable and convenient to switch to wireless wiring.

1. INTRODUCTION

In this study, a wireless sensor network system for greenhouses based on ZigBee technology was built. It provides mobility and flexibility to save wiring costs and energy consumption. This article also covers relevant programming, hardware, and software architecture. A comparison between the ZigBee system and a conventional wired network system's benefits include low cost, low power, and broader coverage for greenhouses. Beyond that, it adheres to the IEEE802.15.4 standard, making communication with other items that also follow the protocol. A new technology called ZigBee is now being used for wireless sensor networks. An administrator can instrument, watch, and respond to events and phenomena in a designated area using a sensor network, which is an infrastructure made up of sensing, computation, and communications components. Common uses comprise, but are not restricted to, information gathering, observation, tracking, and therapeutic telemetry. Usually, a civil, governmental, business, or industrial body serves as the administrator. The following are the key areas where ZigBee technology excels: (a) Trustworthy and self-arrangement. (b) Offers a lot of node support. (c) Simple to use. (d) Excellent battery longevity. (e) Safe. (f) Cheap. (g) Usable anywhere.

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An Internet of Things-based Biogas Electrical Generator Condition Monitoring System for Performance Assessment

Dr. Aurobindo Kar
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ABSTRACT
Biogas could be a promising renewable vitality source having awesome potential, particularly in animals ranches. In any case, as biogas electric generators are as a rule conveyed in provincial areas, it would take more time and exertion to repair in case any blame occurs. Remote observing of the framework condition is basic to analyze or indeed foresee the issues in progress and subsequently plan the upkeep plan in time. This paper presents a checking framework of biogas-based control era framework using Internet of Things (IoT) gadgets. Data of the generator operation is procured by field gadgets and sent to remote server. Information collection and administration are facilitated by Lambda engineering and Apache Kafka program platform for their interoperability and solid holder of enormous information management. The framework appears that close real-time supervision of the question conditions can be gotten. Authentic information analysis of a couple of operation scenarios are moreover given to assess the generation framework execution as well as to examine its blame conclusion.

File Terms: Internet of Thing, Biogas generator, Lambda Design, Condition Observing.

1. INTRODUCTION
Increase in vitality request raises a genuine concern around the world, particularly in creating nations. Whereas fossil fuel assets don't give maintainable implies for maintainable advancement, other ordinary vitality source such as hydroelectricity or atomic control have unfavorable environmental impacts and impurities. Looking for elective vitality sources, agrarian nations are taking advantage of the vitality created by agricultural wastes such as biogas to supplant gasoline and oil in a few cases. Biogas extricated from creature excrement through anaerobic assimilation may be a renewable vitality source for animals ranches, and it can be utilized to create warm or power. In addition, this handle too makes a difference to diminish totally methane outflows and stabilizes the fertilizer some time recently its agronomic utilize [1]. The electrical generating biogas are regularly adjusted from gasoline and diesel motors or based on dual-fuel motor [2, 3].

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Versatile robots collaboration with impediments control based on counterfeit insights

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ABSTRACT

In this paper, investigate on the applications of artificial intelligence in actualizing Profound Deterministic Approach Angle (DDPG) on Gazebo demonstrate and the reality of portable robot has been examined and connected. The objective of the exploratory ponders is to explore the versatile robot to maximize the finest conceivable activity to move in real-world situations when confronting settled and versatile deterrents. When the robot moves in an environment with deterrents, the robot will naturally control to dodge these deterrents. At that point, the more time that can be maintained within a particular contain, the more rewards are accumulated. And subsequently superior comes about will be accomplished. The author performed different tests with numerous change parameters and demonstrated that the DDPG calculation is more effective than calculations like Q-learning, Machine learning, profound Q-network, etc. At that point execute Pymmel to recognize the robot positions, and virtual maps are absolutely built and shown in Rviz.

List Terms: Mobile robots, manufactured insights, DDPG calculation, independent route, support learning.

1. INTRODUCTION

Presently A DAYS Fake Insights (AI), Web of Things (IoT), and robot controls are receiving a part of consideration. Robot innovation has changed since the primary introduction of robots in 1917. Nowadays, machines are display in our lives, supporting us in standard of living [1] - [5]. One of these utmost innovations is counterfeit insights that has come to life as well as mechanical technology and machine apparatuses innovation, so robots can presently legitimately prepare and oversee data, and automatically perform certain tasks without human help, supplanting people in mechanical industrial facilities. In any case, the capacity to see the environment (IoT) and make choices (to require activity) could be a exceptionally troublesome assignment for the computerized machines. Hence, the field of Counterfeit Insights (AI) is required for portable robots to unravel such issues, [3, 4, 5, 6].

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Applications of LoRa-Based Sensor and Actuator Networks in Smart Livestock Farming

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ABSTRACT

Fast development of cultivating exercises in Vietnam requires work of modern advances in information securing, control, and communication to form them work more productively. In animals cultivating applications, natural condition monitoring and control are basic to preserve great consolation for the creature, decrease the farmworker's workload, and minimize the chance of illness spread. In this work, a remote sensor and actuator framework based on LoRa convention is developed to send in board ranches. The surrounding temperature and irregularity data is obtained and prepared. The information is at that point utilized for automated control of the cooling fans to consolation the animal within the horse shelters. Other than, long term information collection can be also utilized to get at the framework comprehensively and thus facilitate the cultivate proprietor to upgrade the cultivating operation subsequently. A graphical client interface is additionally given for the operator to oversee the framework and mediate on the off chance that essential. Experiment al results are given to illustrate the performance of the complete framework.

Record Terms: LoRa, Remote Sensor and Actuator Systems, Smart Livestock Farming

1. INTRODUCTION

Mechanical computerization in creating nations such as Vietnam is quickening quickly. In agriculture, since the most donor to the economy, still plays a vital role. However, the characteristic assets have gotten to be costly, and the fruitful substitution comes about within the decrement of farmland. Modernization of the farming may be a must in arrange to optimize the restricted assets and maximize the benefit. Later progressed innovation in communication and computation empower unusual state of smart cultivating applications. A number of Remote Sensor and Actuator Systems (WSANs) have been created for the final decade and appeared a incredible potential in farming as expressed in [1-3]. Remote Sensor Networks (WSNs) comprise of a number of hubs which can be sent effectively in different sorts of environment and coordinate well with each other to see required data [2, 4].

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Bayesian Stackelberg Ludoj por Cyber Security Decision Support

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ABSTRACT

A cyber security decision support system is introduced here. The system tries to select an optimal portfolio of security controls to combat multi-stage attacks. The system has several parts: predictive optimization to select controls for an initial defense portfolio, a learning mechanism to evaluate possible persistent attacks, and network optimization to select an optimal portfolio to counter persistent attacks. The system relies on effective two-level optimization solutions, especially the network optimization is a proper Bayesian Stackelberg game solution. The proposed solution has been shown to be more efficient than traditional solutions such as the Haranyi transform, as well as newer efficient solutions.

Keywords: Attackgraphs Bayesian Stackel bergames Cyber-security Security games Security investment

1. INTRODUCTION

Cyber security is a critical challenge for any organization that uses IT equipment in its daily business and operations. Digital assets such as customer data and confidential product information are high-profile targets for these financially motivated cyber attackers. Recent studies [1-4] address the question of how to choose the optimal security control package to counter potential cyber attacks. Other studies, such as [5-7], focus on a learning mechanism to detect and evaluate ongoing attacks against an organization. In this work, we present an organizational decision support system that determines optimal security portfolios to counter multi-stage (possible and sustained) attacks.

The system consists of predictive optimization to select the optimal proactive security portfolio to counter potential attacks, a learning mechanism to evaluate potential ongoing attacks, and network-based optimization to determine the optimal remedial security portfolio in response to detected ongoing attacks.

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Cyber security Research Communities: A Comprehensive Literature Review

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ABSTRACT

To obtain a coherent overview of cybersecurity research, a citation graph of 98,373 authors in the field from 1949 to the beginning of 2020 was mined from the Scopus academic abstract and citation database, and the Louvain community-detection algorithm was applied to the graph. Identify existing research communities. The analysis identified twelve high-level communities: access control, authentication, biometrics, cryptography (I and II), cyber-physical systems, information hiding, intrusion detection, malware, quantum cryptography, sensor networks, and operational security. These advanced communities in turn consisted of a total of 80 sub-communities. The analysis results are presented for each community as descriptive text, sub-community diagrams and tables with, for example, the most cited articles and authors. A comparison between the observed communities and current fields defined by other related works is also presented, showing the increased emphasis of the researcher on cryptography, quantum encryption, information hiding and biometrics at the expense of law and regulation, risk management, and management and security software life cycle.

Keywords: Security Clustering Community System at literature review

1. INTRODUCTION

The cybersecurity research community is an eclectic group that addresses different research questions, uses different theories, and uses different methodologies, making it difficult to gain a comprehensive understanding of this connection. In this work, we try to constantly summarize the activities of this group of researchers using quantitative methods. In a reference graph of 98,373 authors working in cybersecurity between 1949 and 2020, we identify twelve distinct communities focused on topics as diverse as malware, exploitable security, intrusion detection, and access control. Each community is described e.g. regarding research priorities, publication forums and the development of sub-communities. Since Thomas Kuhn's pioneering work *The Structure of Scientific Revolutions* [1], philosophers of science have been aware of the influence of social organization on scientific endeavors.

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DUPM: A Data Duplication Strategy for Distributed Mining

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ABSTRACT

A bulk data mining algorithm is usually sensitive to computer resources, the extent of which (such as the amount of memory and processors available for mining algorithms) determines the mining results. In this paper, data replicas have been added as resources in a distributed data mining resource planning strategy to provide a replica-aware resource planning strategy DupM. For data copies as a type of data resource, DupM's strategy is to design data copies using dynamic programming so that the cloud environment can allocate copies based on distributed mining requirements. A simulation test on the KDD CUP transaction test datasets and IBM Synthesizer datasets showed that the DupM resource scheduling strategy has more advantages than the Hadoop built-in resource scheduling strategy.

Keywords: replicascheduling; replicascheduling; distributedmining; dynamicprogramming; Hadoop

1. INTRODUCTION

Traditional data mining techniques process massive big data inefficiently. The uncontrolled, continuous and explosive growth of big data also reinforces the trend of data explosion and weak knowledge. In this situation, cloud computing platform as an effective solution has become a hot research area. As an emerging computing service model, the cloud computing platform evolves from parallel computing, distributed computing and network computing. Since the platform's resources are shared among users, users can access the data center via the Internet from anywhere and request any computing resource from the platform according to their needs [1]. With the research of distributed data mining, various distributed data mining algorithms have gradually emerged. Many researchers are mining massive data using a decentralized framework. This mode, which combines a distributed computing framework with bulk data, currently constitutes the main "5th generation data mining" as well as cloud computing platform-based distributed data mining [2].

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A 32 KW Power-Dense Six-Phase Dual-Interleaved DC-DC Back-Boost Converter with Three Inter phase Transformer

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ABSTRACT

This article presents a power-dense, six-phase dual-interleaved DC-DC Back-Boost converter for electric/hybrid vehicle applications. This converter employs six hand-switched arms at 75 kHz, three dual interleaved inter phase transformers along side three common inductors and two channel capacitors at the input and output. The steady-state current ripple recurrence of the common inductors is twice the exchanging recurrence due to the double interleaving within the inter phase transformers. The resultant small current recurrence of the input and output channels is six times the exchanging recurrence; estimate and weight loosening of the detached components are gotten due to this recurrence increment.

Keywords: Back-boost converter, dual-interleaved, high-power thickness, inter phase transformer

1. INTRODUCTION

The drift of utilizing more electric innovation in portability applications has expanded the control rating of electron vitality stages, disabling the weight and measure of the control converters on board vehicles and influencing their independence[1]. [2]. These issues constitute these days a innovative bottleneck. High-power-density DC-DC converters have opened a field of advancement and inquire about that right now help diminishing measure and weight in medium control applications [3], [4], [5] either with or without bidirectional capability. This innovation methodology consolidates interleaves exchanging arms together. The related editor planning the survey of this composition and endorsing it for distribution was Sheldon S. Williamson, with coordinates magnetic such that the control dealing with capacity is separated into two or more cells. be that as it may, the complexity of these circuits may increment due to the tall number of exchanging gadgets. For case, displayed DC-DC converter that employs this slant for a 20 kW application, whose thickness is made smaller essentially expanding the number of exchanging factors.

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**A Fault Tolerant Inverter with SCADA Communication
Functionality for Photovoltaic Programs**

Dr. Dhannuraja Mahar
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ABSTRACT

In maximum latest sensitive commercial software of inverters, reliability is a important difficulty to care due to improvement of SCADA device and variety of renewable energy in electrical grids which can be on the whole scattered in distance, it is vital to have capability to talk within industrial manipulate systems and be allowable to be aware of a system circumstance each second. Inverters are the middle part of the grid-tied PV device. In traditional inverters, simply nearby monitoring of electrical parameters or inverter's situation become to be had however in recent times operation circumstance of inverters and more information like status, quantity of input, output, and electric parameters like voltage, present day, energy or posed-off faults, are available the use of evolved industrial communicate protocols.

1. INTRODUCTION

Solar energy is transformed from sunlight into both directly the usage of photovoltaic's (PV), in a roundabout way the usage of focused sun strength, or a combination. Inverters are one of the power electronic components that their most important application is strength structures are to convert direct present day (DC) to opportunity current (AC). Fault troubles is one of the most troubles that experts ought to care about in operation, repair and hold of inverters. Supervisory manage and facts acquisition (SCADA) is a manage machine structure this is evolved for transmission of statistics inside a manage middle and a faraway system. In advised fault tolerated inverter of this paper, if a fault befall in switches the broken detail may be recognized remotely through manipulate center the usage of IEC60870-five-one hundred and one and put together an excellent circumstance for restore or keeping of that validation of verbal exchange between inverter and manage server is lasted the use of Fink-WinPI10 software the usage of IEC 60870-5-one hundred and one protocol, on this segment, solar electricity, faults in inverters, SCADA, communication protocols is mentioned.

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Advanced High-Frequency Fiber Bragg Grating Acceleration Sensors for Monitoring Transmission Line Galloping

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ABSTRACT

Conventional fiber Bragg grating (FBG) acceleration sensors are limited by their low operational frequencies, restricting their efficacy in monitoring transmission line galloping. In this study, we introduce a novel slotting optimization technique designed to precisely track transmission line galloping. This technique is integral to the development of a high-frequency FBG acceleration sensor. Through optimization of slot width, position, and length, we aim to minimize the slot's impact on the FBG acceleration sensor. Our work includes vibration experiments to assess the frequency response and sensing capabilities of this FBG acceleration sensor. The experimental findings demonstrate that our high-frequency FBG acceleration sensor exhibits not only heightened sensitivity but also delivers accurate monitoring outcomes.

Index Terms: Acceleration sensor, high-frequency, fiber Bragg grating, transmission line galloping.

1. INTRODUCTION

Amid the global energy scarcity and heightened environmental concerns, multi-energy optimization strategies have gained considerable traction in recent years. Electrical energy, recognized as a clean power source, has garnered increased attention globally. The operational condition of transmission lines plays a pivotal role in ensuring the reliable transmission of electrical energy. Instances of transmission line galloping occur frequently and pose a significant challenge. When wind excites the transmission line, it induces a self-sustained vibration characterized by low frequency and substantial amplitude, thereby threatening the secure and dependable operation of the transmission line. The realization of a smart and dependable power grid necessitates real-time monitoring and early detection of transmission line galloping. Extensive global research efforts have made substantial progress in monitoring transmission line galloping.

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Capacity Allocation of Heat Accumulator in Combined Heat and Power Plant

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ABSTRACT

The looked up potential of wind strength generation in developing locality in China, but at the identical time wind power accommodation is nonetheless a serious problem. The combined heat and power (CHP) units working below the precept of 'electric power determined through warmth load' is the foremost reason for wind curtailment at some stage in heating season in Northern China. Allotting heat accumulator in CHP unit can partly decouple strength output from heat output and decorate the flexibility and peak regulation ability of the unit in order to promote wind power accommodation. Based on the relationship between strength and heat output of extraction unit, which is the most important type of CHP units in Northern China, the operation method of extraction unit with warmth accumulator to maximize top legislation capacity is analyzed. A calculation model for the increment in peak regulation capability is proposed, and the method for optimal capacity allocation of warmth accumulator is proposed below the objective of maximizing wind electricity accommodation.

Keywords: Combined heat and power (CHP), heat accumulator, peak regulation, wind power accommodation

1. INTRODUCTION

The installed capacity of wind power generation has developed rapidly in the past decade in China, and until the end of 2019, it has reached 219GW. However, at the same time, wind power accommodation is still a serious problem especially in Northern China. At present, the main reason for wind curtailment during heating season in Northern China is that the combined heat and power (CHP) units, which account for a large proportion of installed capacity, operate under the principle of 'electric power determined by heat load'. The peak regulation ability of CHP units is greatly restricted and reduced by the constraint between its power and heat output during heating season because of large heat load demand. Therefore, enhancing the peak regulation ability of the units under the condition of satisfying the heat demand is an effective way to promote wind accommodation. Heat accumulator can cooperate with CHP unit to decouple its power output from heat output to a certain extent, enhancing the flexibility and peak regulation ability of the unit for wind accommodation.

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Decentralized Estimation Techniques for Power Transmission Line Two-Port Equivalents

Dr. Jyoti Prasad Patra
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ABSTRACT
The utilization of a two-port equivalent model around a transmission line is customary for a range of line protection analyses. This paper focuses on introducing decentralized methods applicable at the substation level to estimate such an equivalent model. Initially, it presents techniques for estimating straightforward two-source equivalents triggered by events like line faults or switching of shunt elements at its terminals. It also explores the limitations of these models when a transfer path exists across the line terminals and proposes extended estimation techniques to address this issue. Additionally, it outlines methods for updating the two-port equivalent model following changes in the network topology surrounding the line in question. Unlike previous efforts that aimed to estimate the equivalent model without assuming an initial solution, this contribution specifically aims to update the existing two-port equivalent model. The update methods utilize parameters of the equivalent model in a base network scenario and measurements obtained from a topology event, relying solely on limited measurements of bus voltages, line currents, and model parameters of the concerned line and neighboring apparatus.

INDEX TERMS: Network reconfiguration, protection relaying, source impedances, transmission line, two-port Thevenin equivalent, transmission line fault.

1. INTRODUCTION

Several analyses crucial for power transmission line protection rely on an equivalent representation of the system viewed from the line terminals. This diagram illustrates a transmission line linking terminal buses M and N. In interconnected high-voltage transmission systems, these lines typically interconnect with the broader network via other transmission lines. Shunt elements, such as reactors or capacitors, might be connected to the buses based on operational needs. The load element could represent downstream lower voltage level networks or direct high-tension load connections. This equivalent model serves various analytical purposes. For instance, it aids in analyzing the reach of distance relays to set their operational characteristics and determines the source-to-line impedance ratio (SLR) for the relay.

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Energy Storage Configuration Method Based on Wind and Solar Volatility

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ABSTRACT

Vigorously creating the new electricity has become an essential measure for our country's power strategy adjustment and transformation of the electricity improvement mode. However, it presents good sized challenges to the grid for their large-scale integration because of their random and volatile characteristics, such as wind power and photovoltaics. The introduction of strength storage devices can improve this situation effectively, to promote the large-scale application of new energy. Based on the historic wind and photo-voltic records of the National Wind and Solar Storage and Transportation Demonstration Project, this paper analyzes the 15-minute and 10-minute fluctuation characteristics of wind and solar strength generation.

Keywords: Energy storage, wind and solar Volatility, Configuration Method

1. INTRODUCTION

Wind and solar power generation is characterized by volatility, and its large-scale access will have a large impact on the safe and stable operation of the power grid. By adding an energy storage system to wind and solar power generation, we can take advantage of its charging and discharging characteristics to keep the total output active power of the wind and solar combined power generation system relatively stable, reduce power fluctuations, improve power quality, and reduce the impact on the grid. Located at the junction of Zhangbei and Shangyi counties in Zhangjiakou City, Hebei Province, the National Wind and Solar Storage and Transmission Demonstration Project is currently the largest comprehensive new energy utilization platform demonstration project of the world, integrating wind power, photovoltaic power generation, energy storage, and smart power transmission. The demonstration project has completed 450MW of wind power generation, 100MW of photovoltaic power generation and 33MW of chemical energy storage equipment.

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Examining Electromagnetic Interactions in Periodically Corrugated Transmission Lines via Mutual Capacitance and Mutual Inductance Analysis

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ABSTRACT

This research introduces an original equivalent circuit model for interconnected sub-wavelength periodic micro strip lines (CSPMLs) spanning a broad frequency spectrum. The circuit, comprising two parallel and identical CSPMLs, manifests two primary modes—odd and even. Leveraging these modes, the finite element method (FEM) is employed to extract critical circuit parameters, notably emphasizing the frequency-dependent nature of mutual capacitance and mutual inductance within the CSPMLs. Comparative analysis between S-parameters derived from full-wave simulations and those from the circuit model reveals high consistency, with a maximum deviation of merely 0.249 dB observed for transmission coefficients below 15 GHz. By optimizing the sub-wavelength periodic structure and thereby reducing mutual capacitance and mutual inductance, this study demonstrates effective suppression of crosstalk between adjacent micro strip lines.

INDEX TERMS: Corrugated transmission lines, crosstalk, differential signal.

1. INTRODUCTION

With the escalating operational speeds of chips, the integrated circuits (ICs) grapple with an upsurge in data volume for processing. Within high-speed or high-frequency circuit systems, circuit designers encounter formidable challenges such as augmenting signal working frequencies, enhancing digital signal transmission rates, and accommodating more loops and devices within a circuit board's unit area. The presence of mutual capacitance and mutual inductance between transmission lines necessitates addressing crosstalk, an invariable concern in high-speed circuit design. Additionally, as digital signal rise times decrease, the length of coupling between lines intensifies crosstalk. Numerous researchers have employed electromagnetic numerical methods like finite difference time domain (FDTD) and circuit modeling to quantitatively analyze electromagnetic interference (EMI) between two microstrip lines.

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**Exploring Edge Computing for
Monitoring Transmission Line Galloping**

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ABSTRACT

As the scale of construction for Ultra-High Voltage Direct Current (UHVDC) systems expands, accompanied by longer project distances, the operational demands and maintenance requirements for transmission lines have significantly increased. Ensuring the safe and stable operation of UHVDC lines necessitates intelligent, real-time monitoring and analysis of galloping states. Presently, existing monitoring methods encounter limitations such as high power consumption, elevated costs, and reduced accuracy, which hinder meeting the substantial demand for comprehensive perception. Low-cost, low-power IoT sensors are pivotal in transmission line applications. In this paper, we propose a cost-effective monitoring scheme for transmission line galloping based on acceleration sensors. Our work involves a thorough analysis encompassing Fourier transformation algorithm comparison, precision enhancement via coordinate conversion, and device development. Leveraging this algorithm, our sensor achieves high accuracy in characterizing galloping parameters.

Keywords: galloping monitoring, edge computing, transmission line, Fourier transform, coordinate conversion

1. INTRODUCTION

Monitoring transmission line galloping is pivotal in averting galloping-related disasters. This phenomenon commonly occurs when power lines, particularly those eccentrically coated with ice during cold winters, undergo galloping. Prolonged galloping induces alternating loads on the line, leading to interphase flashovers, damage to metal fittings, tower bolt loosening, and alterations in the tower's stress state. Galloping significantly impacts the overall reliability of transmission towers and compromises the safe operation of the line, thus ranking among the primary disasters for overhead transmission lines. For instance, in central and eastern China between January 24 and 31, 2018, two consecutive large-scale cold rain and snow freezing episodes triggered galloping in 88 lines in Hubei province and 23 lines in Anhui province.

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Fault Localization in Overhead Transmission Lines Using Magnetic Signatures and the Extended Kalman Filter

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ABSTRACT

This study introduces a contactless technique for pinpointing faults in transmission lines by leveraging magnetic fields generated by current signals. It utilizes magnetoresistive sensors positioned solely at the terminals or substations, specifically beneath the phase conductors of the first transmission tower at both ends. Employing the Extended Kalman filter, this method processes these signal measurements and adopts a traveling wave strategy to achieve fault localization. The paper outlines the method's implementation and testing, commencing with an overview and an analysis of magnetic fields resulting from current signals, discussing their measurement considerations. It then delves into the Extended Kalman filter and the traveling wave strategy. Finally, it presents results from simulations using EMTP/ATP, assessing the method's resilience across diverse conditions, including varying fault resistance, inception angle, involved phases, and fault locations.

Keywords: Electrical fault detection, fault localization, Kalman filters, magnetic field measurement, power systems, electromagnetic propagation, signal processing algorithms.

1. INTRODUCTION

An efficient electric power transmission network plays a pivotal role in meeting the energy demands arising from population growth and industrial expansion. It achieves this by linking numerous power generation stations to both densely populated urban centers and sparsely inhabited rural regions, forming extensive interconnected systems. However, these systems are susceptible to various abnormalities affecting their equipment. Among these components, transmission lines are particularly vulnerable due to their extensive coverage, making them more prone to adverse atmospheric conditions, accidents, and similar events, as referenced in [1]. Maintaining a consistent and high-quality power supply requires minimizing interruption times and swiftly locating faults. This ensures reliability, security, and sustained operations, allowing maintenance crews to expedite fault detection and restoration, thereby enhancing overall system performance.

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Frequency Control and Energy balancing in a hybrid Renewable Energy Device

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ABSTRACT

With advent of the contemporary Hybrid Renewable power system (HRES), the software of various electricity storage structures has more and more increased. when the sun radiation or wind speed has low values, the electricity garage device (ESS) injects the desired power to deliver the load demand, continuously, due to big numbers of device and unique manage loops in the HRES, effective contribution of ESS desires an efficient manage method to coordinate the ESS with other system inside HRES. To fulfil this gap, a Proportional integrative (PI)- based manipulate systems approach is offered for the tuning of the PI controllers, within the proposed technique, all PI controllers for exclusive varieties of ESS are designed based on root-locus trajectory, damping coefficient of dominant poles, and coordination among extraordinary gadget. finally, assessment among one of a kind styles of ESS based on provided manage method is performed, outcomes display that the presented manipulate method has ok capability to damp the frequency deviations in opposition to a couple of disturbance and parameter variation.

1. INTRODUCTION

With a discount inside the wind pace or solar radiation, strength production of PV and WT severely reduce [1]. Consequently, the MG energy balancing between production and consumption is disrupted and the MG frequency can trade out of its nominal range [2], to enhance the MG stability, an ac MG consists of different ranges of control loops inclusive of master, secondary, and worldwide controls [3]. The local control manages primary manage which include masters and voltage control loops within the MS [4]. The secondary control ensures that the frequency and voltage deviations of the MG are inside the authorized range after every trade in load or deliver [5]. the worldwide manipulate, basic monetary energy management, can perform technical roles like; connect/disconnect of the MG, load-shedding in emergency mode, optimal strength glide among unique MGs and grid, monitoring and presenting of the voltage and frequency set points for the MGs to synchronize with the principle grid [6].

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False Target Alarm Transmission by linear Frequency Modulation Radars & Quot

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ABSTRACT

This article describes a method for fundamentally blocking frequency shifting in linear frequency modulated pulse-compression probes. The method examines various interference of two types of jamming signals, the only false target harmonist and multiple false targets. Frequency-variable decoy jammer, linear a frequency-modulated (LFM) signal is transmitted, which produces a bias induced by the false target enemy radar. A block frequency is added to the LFM signal and transmitted the original target creating a false target. All the previous methods have false goals fall behind the real target, so it is possible to detect the real target, so in this article a forward jamming signal is used which transmits the frequency interference signal a mismatch that creates a false target earlier than the original target. It describes mathematical expressions related to alarm signals before and after matching by filtering and gives a relationship between the magnitude of the frequency change and the relative distance from real and false targets.

Keywords: Radar interference; Time-frequency distribution; convolutional neural network; Fault detection.

1. INTRODUCTION

With the development of radar jamming technology, especially with the advent of digital radio frequency. Recording (DRFM) [1] allows a jammer to capture, modulate and create interference signals that are highly correlated with radar transmission signals, which seriously threatens the normal operation of the radar [2]. The implementation of proper anti-jamming measures in the complex electromagnetic environment is crucial for modern electronic warfare and the correct detection of various radar-active decoy interferences. signals are a prerequisite for radar jamming. Until now, radar alarm signal classification methods have mainly been probability-based methods, feature-based methods, and deep learning model-based methods. Probabilistic based on previous information methods detect the type of the jamming signal by fitting the jamming signal to a probability function a certain threshold.

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Fusion of SAR and optical Imaging for Remote sensing Applications

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ABSTRACT

The task of enhancing the perception of a scene by combining information captured from different image sensors is usually known as multisensor image fusion. This paper presents an area-based image fusion algorithm to merge SAR (Synthetic Aperture Radar) and optical images. The co-registration of the two images is first conducted using the proposed registration method prior to image fusion. Segmentation into active and inactive areas is then performed on the SAR texture image for selective injection of the SAR image into the panchromatic (PAN) image. An integrated image based on these two images is generated by the novel area-based fusion scheme, which imposes different fusion rules for each segmented area. Finally, this image is fused into a multispectral (MS) image through the hybrid pansharpening method proposed in previous research. Experimental results demonstrate that the proposed method shows better performance than other fusion algorithms and has the potential to be applied to the multisensor fusion of SAR and optical images.

Keywords: Synthetic aperture radar, Image fusion, Feature extraction, Optical imaging, Approximation methods, Optical sensors, Wavelet transforms.

1. INTRODUCTION

With the recent, rapid developments in the field of sensing technologies, multisensor imaging systems are being used in a growing number of fields, such as in remote sensing and military applications. Multisensor image fusion, which is defined as the process of combining relevant information from two or more images into a single image, has been receiving increasing attention in the remote sensing research community due to the increasing availability of spaceborne imaging sensors [1], [2]. The objective of multisensor image fusion is to combine complementary information from multisensor images of the same scene into a single image to obtain data that is more useful than the data from any of the individual source images by reducing imprecision and uncertainty in the spatial properties and maintaining completeness of the spectral information [2].

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A Real-Time in-Vehicle AIR Quality Monitoring System Using A Machine Learning Prediction Algorithm

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ABSTRACT

This paper presents the development of a real-time cloud-based in-vehicle air quality monitoring system that can predict current and future air quality in the passenger compartment. The proposed system provides predictive analytics using machine learning algorithms that can measure driver sleepiness and fatigue based on the air quality of the passenger car. It consists of five sensors that measure CO2 levels, particulate matter, vehicle speed, temperature and humidity. Data from these sensors was collected in real time from the cabin of the vehicle and stored in a cloud database. A predictive model using multilayer perceptron, support vector regression and linear regression was developed to analyze the data and predict the future state of vehicle air quality. The performance of these models was evaluated using Root Mean Square Error, Mean Mean Square Error, Mean Absolute Error and Coefficient of Determination (R2).

Keywords: Internet of Things (IoT); machine learning prediction; vehicle air quality; smart mobility; smart city.

1. INTRODUCTION

One of the main goals of smart cities is to reduce the number of deaths and injuries in traffic accidents. According to Malaysian traffic statistics, the total number of vehicles involved in traffic accidents increased every year from 2008 to 2017. In 2017, a total of 533,875 traffic accidents and a total of 16,389 cases of victims and damages in traffic accidents were reported [1]. The Royal Malaysian Police reported that fatigued conditions and distracted drivers are the main causes of traffic accidents [2]. According to the American Automobile Association (AAA), one in six fatal traffic accidents and one in eight accidents requiring hospitalization are caused by tired drivers [3]. In fact, the air in the vehicle cabin significantly affects the cognitive abilities of the occupants without any noticeable discomfort to wake them up [4]. Most indoor air quality studies focus on the inside of a building. The main components of indoor air pollution are carbon monoxide (CO), formaldehyde, ozone (O3), volatile organic compounds (TVOC) and particulate matter (PM), which can significantly affect human health [5].

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Health Monitoring System with GSM Modem

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ABSTRACT

The new corona virus outbreak is a big one threat and has been declared a global public health emergency. The whole world is trying to stop the virus, but there is no effective remedy and there is a strategy to manage it. Monitoring the patient's health from afar is really important, especially for patients who are suffering long-term illness. Vital signs such as pulse, body temperature etc. must be checked regularly main indicators of human health. Even old people carbon dioxide/flow a reduction in the number of regular visits to hospitals. That is why we are planning to introduce GSM based healthcare secure patient monitoring system the health of a patient. Health monitoring is the technology that makes this possible monitoring the patient's health outside the clinical setting. System measure the patient's heart rate and body temperature and then urgent information is sent to the registered number.

Keywords: body temperature, heart rate, Arduino, GSM, Registered mobile number, other, Me.

1. INTRODUCTION

The most well-known WSNs (Wireless Sensor Networks) come into play important role in the technology community and research leading to the improvement of various high-performance intelligent detection systems. Mostly innovative research focuses on better quality of life health. This can be achieved through design and manufacturing sensors that are contact penetrating or non-invasive [1]-[2]. To improve health diagnosis, monitoring and treatment this was made possible by the development of biomedicine/planning of delivery and reception measured values of temperature and heart rate. The most important thing is detected, measured and processed by sensors and microcontroller and then the calculated values sent to the mobile phone via the GSM network as shown in the image figure. The function of the control system is to keep an eye on a sure action and make sure it sticks as desired. This can be achieved using different electronic sensors. Irregularities of the pulse and uneven or high temperatures can cause serious problems which can eventually lead to the death of the patient. Smart health monitoring system focuses on patient safety monitoring and control of various influencing parameters the human body. This project document is explained as follows.

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Circularly Polarized MIMO Antenna for Wireless use

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ABSTRACT

The performance of a MIMO system using circularly polarized (CP) antennas is discussed for indoor propagation. In particular, the comparison of a MIMO system using CP antennas with linearly polarized (LP) antennas has been carefully studied. For this purpose, a series of CP or LP antennas operating at 2.45 GHz were designed and their most important parameters were analyzed in advance.

Keywords: MIMO, Channel Capacity, Receiving antennas, Wireless LAN, Wireless communication, Correlation.

1. INTRODUCTION

The demand for high data traffic and channel capacity, as well as the increase in the number of users of modern wireless communication systems, has increased the widespread interest in MIMO systems [1]. Relying on the MIMO system makes it possible to improve the efficiency of the spectrum, which at the same time ensures greater reliability of the entire radio communication system. Basically, it consists of using multiple antennas on both the receiver and transmitter front end, but it does not require additional transmission power or bandwidth as in SISO communication [2]. [1]. A very low correlation between the signals received by the MIMO antenna ports is necessary to ensure good performance in terms of higher channel throughput and higher diversity gain. The use of electromagnetic burst gap (EBG) materials or defective ground planes (DGP) has been proposed to reduce the correlation, but a more promising strategy is the implementation of a polarization diversity antenna system [4].

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Water Quality Monitoring System

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ABSTRACT

Water pollution is one of the biggest threats in recent times as drinking water is becoming more and more polluted. Polluted water can cause various diseases to humans and animals, which in turn affects the life cycle of the ecosystem. If water contamination is detected at an early stage, appropriate measures can be implemented and critical situations can be avoided. To ensure a clean water supply, water quality must be studied in real time. Smart solutions for water pollution monitoring are increasingly important today thanks to innovations in sensors, communications and Internet of Things (IoT) technology. This paper presents a detailed review of recent work in the field of intelligent water pollution monitoring systems. The paper proposes a cost-effective and efficient IoT-based intelligent water quality monitoring system that monitors quality parameters without interruption. The developed model is tested with three water samples, and the parameters are transferred to the cloud server for further processing.

Keywords: Arduino, Cloud server, Conduction, Controller, pH sensors, Turbid Water Quality.

1. INTRODUCTION

Water pollution occurs when deadly substances enter water sources such as ponds, rivers, lakes, seas and oceans, dissolve and float in the water, or settle to the bottom. Pollution reduces water quality and purity. Ensuring clean and safer water is really difficult because of unnecessary chemicals and sources of pollutants. Water pollution can be started in several ways; one of the most important causes of pollution is industrial waste emission and urban sewage. Secondary sources of pollution are pollutants that enter water from the soil or atmosphere through rain or groundwater systems. In general, soil and groundwater consist of residues from modern agricultural practices as well as crudely disposed waste from industry. The biggest pollutants in water are viruses, bacteria, fertilizers, parasites, pharmaceuticals, pesticides, nitrates, fecal waste, phosphates, radioactive substances and plastics. These materials do not always change the color of the water, but they can be invisible impurities. Therefore, a small amount of water from such water resources and marine organisms is tested to determine water quality.

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Diabetic Retinopathy using a convolutional Neural network (CNN)

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ABSTRACT

The diagnosis of diabetic retinopathy (DR) through colour fundus images requires experienced clinicians to identify the presence and significance of many small features which, along with a complex grading system, makes this a difficult and time consuming task. In this paper, we propose a CNN approach to diagnosing DR from digital fundus images and accurately classifying its severity. We develop a network with CNN architecture and data augmentation which can identify the intricate features involved in the classification task such as micro-aneurysms, exudate and haemorrhages on the retina and consequently provide a diagnosis automatically and without user input. We train this network using a high-end graphics processor unit (GPU) on the publicly available Kaggle dataset and demonstrate impressive results, particularly for a high-level classification task. On the data set of 80,000 images used our proposed CNN achieves a sensitivity of 95% and an accuracy of 75% on 5,000 validation images.

Keywords: Deep Learning, Convolutional Neural Networks, Diabetic Retinopathy, Image Classification, Diabetes.

1. INTRODUCTION

Diabetic Retinopathy (DR) is one of the major causes of blindness in the western world! 2. Increasing life expectancy, indulgent lifestyles and other contributing factors mean the number of people with diabetes is projected to continue rising! 3. Regular screening of diabetic patients for DR has been shown to be a cost-effective and important aspect of their care 4. The accuracy and timing of this care is of significant importance to both the cost and effectiveness of treatment. If detected early enough, effective treatment of DR is available, making this a vital process 5. Classification of DR involves the weighting of numerous features and the location of such features 6. This is highly time consuming for clinicians. Computers are able to obtain much quicker classifications once trained, giving the ability to aid clinicians in real-time classification.

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Toll Collection System Using Image Processing

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ABSTRACT

In India, from manual collection to electronic collection, drastic changes had been made at toll gates. The risks due to cash are high compared to digital money. The introduction of a digital payment system laid a foundation for the present toll collection system. In FASTAG, RFID technology is used for toll collection at national highways. RFID tag plays a key role in the automated deduction of toll charges. FASTAG main objectives are traffic control and time-saving. But there are few disadvantages, as FASTAG uses an RFID tag, which can be cloned, so there is a chance for misusing it and it is also somewhat inconvenient to the user as they have to renew the tag every 3 years for which they have to pay for it. In case of loss of FASTAG user has to wait for a whole day for new tag and they have to pay for it. In this paper, we implemented toll collection using image processing technology which doesn't require RFID scanning devices, RFID tags. The account details of the user are stored in the database using the user's vehicle number plate as a key. When a vehicle is passed through the tollgate, license plate details are retrieved using image processing.

Keywords: Electronic payment, image processing, toll collection, open CV, OCR.

1. INTRODUCTION

Due to the increasing number of vehicles, the traffic is increasing at the toll plazas. There are long queues on busy highways. Nowadays people prefer to use their personal vehicles instead of public transports which results in increase of traffic. Increasing number of vehicles on the roads, result into many problems such as congestion, air pollution and fuel wastage etc. Most of the toll plazas are operated manually, where there is an operator on each lane for collecting the toll amount i.e. for every lane there are two operators one for operating the system and the other for interacting with the driver. So huge manpower is required. One more thing which results in congestion is the drivers sometimes start chitchatting with the toll operators, hence the vehicles waiting in the queue gets irritated and may result in chaos. Conventional Toll Collection Systems includes manual as well as automatic collection which is based on reliable technologies like LCD monitor, touch screen monitor, industrial computers, fast toll barriers, different sensors etc.

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Implementation of IRIS Scanning- Using Color Detection and Scale Invariant Feature Transform (SIFT)

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ABSTRACT

Colour recognition is the process of perceiving the name of any color. Human eyes and brain work together. Light enters the eye and is transmitted to the brain. The brain then recognizes the color. But one of the limitations of the human brain is that it cannot recognize everything. Color shades that are too similar to each other are not recognized. We are developing a process/algorithm that will allow us to get faster results at iris detection by first considering the color of the iris and then scanning the user data with the reduced data. By SIFT (Scale Invariant Feature Transform), Iris is one of the unique features that can be used to separate two different people. Since the iris function is unique, it can be used in biometric applications. Fingerprint biometrics is effective, but you need to switch to iris scanning biometric data, because this method is more hygienic and accurate.

Keywords: Iris, Euclidean distance, color recognition, SIFT.

1. INTRODUCTION

First, the plan is to develop a process to find the color of the sample. Color detection is the process of perceiving the name of any color. The human eyes and brain work together to transform light into color. The light receptors in our eyes transmit the signal to the brain. The brain recognizes color. But one of the limitations of the human brain is that it cannot recognize all shades of color. Colors consist of three primary colors: red, green, and blue. In computers, we define the value of each color between 0 and 255. So we can define color in $256 \times 256 \times 256 = 16,777,216$ ways. It is about 16.5 million different ways to represent a color. Through this process, we store recognizable most colors (about 1500) and can print the color name and can be stored in the database by providing the sample (Iris) through the camera as input. Using this technique, we focus mainly on iris color detection, which is the main step of iris scanning. Iris is one of the unique characteristics that differ from person to person.

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Double-ball motor control valve-based cooling system

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ABSTRACT

To realize eco-models based on (where 3R represents decreasing, reusing, and recycling), both analysis and car improvement divisions utilize controllable components to diminish vehicle fuel utilization and emissions. In this setting, this paper presents the plan of a double-ball engine control valve (DB-MCV). When compared with utilize of a conventional in-door regulator, utilize of the proposed valve in an Around the world Harmonized Light Vehicles Test Cycle (WLTC) permits the coolant temperature to be controlled precisely as per the vehicle working conditions, with control precision of $\pm 1^\circ\text{C}$. Utilizing this approach, the motor pre-heating time is diminished by 61 s, the full hydrocarbon (THC) emission is decreased by 6.79%, the CO emission is diminished by 7.18%, and NOx emission is decreased by 4.84%. Beneath the same vehicle and working conditions, the motor fuel utilization is decreased by 2.31% on normal. Beneath the warm condition, the cabin temperature can be expanded by 4.3°C , which progresses the warm consolation of the driver. When the vehicle is halted after running at full speed and the engine is sitting, the coolant temperature within the motor decreases rapidly, which decreases the hazard of a hot plume happening within the motor.

1. INTRODUCTION

The car motor industry can not one or the other be extended for financial benefits as it were, nor restricted for biological benefits alone. On the opposite, financial improvement and biological benefits ought to be facilitated together in an imaginative way. Past papers have illustrated that making strikes the engine's warm proficiency has both financial and biological benefits. Upgraded warm effectiveness cannot as it were make strikes motor fuel economy but too can diminish the emission of CO, NOx and other poisons. A few papers have proposed diverse strategies to move forward motor warm effectiveness, counting the utilize of imaginative warm administration methods.

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Vibration reduction approach of the solar array driving system with many degrees of freedom

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ABSTRACT

The operation unsetting influence actuated by the sun oriented cluster drive framework (SADS) and the leftover vibration of sun powered cluster taking after the detourer alteration of the shuttle clearly influence the flow environment, fast stabilization, and detourer steadiness of the high-precision shuttle. Be that as it may, these two sorts of vibration unsetting influence are characterized by particular vibration categories, course of vibration, and modular shapes. A multi-degree-of-freedom vibration decrease procedure (VRS) was displayed to move forward the energetic characteristics of SADS and after that to debilitate these unsetting influences artificially in this paper. SADS applying this VRS was modeled based on the virtual work rule, and the impact of the firmness and damping parameters of this VRS on the SADR energetic characteristics was analyzed. At that point a model of vibration decrease gadget (VRD) was outlined and confirmed by unsetting influence characteristic and modular tests. The comes about show that the identical firmness of VRD is basic to the normal recurrence of SADS and hence ought to be carefully thought to dodge recombination. The proportionate damping of VRD continuously has positive relationship with modular damping.

1. INTRODUCTION

The different configurations overhanging solar arrays on the modern spacecraft may cause two kinds of vibration disturbance. The first, the residual vibration of solar arrays cannot be attenuated for a long time due to the characteristics of low frequency and low damping after the attitude adjustment of the spacecraft and instantaneous thermal load, which greatly affects the attitude stability time and quick response ability of the spacecraft. The second, these solar arrays rotate continuously to orientate the sun for collecting solar energy as much as possible. However, the motion of solar array induces unsetting disturbance to the body of the spacecraft, affecting the pointing accuracy of the high-precision spacecraft and the dynamic environment of the sensitive equipment. On the one hand, the residual vibration belongs to free-vibration problem, occurring in the out-of-plane direction, and is mainly related to the bending mode.

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The design and study of a new parallel micromanipulator that complies with 3-DOF over a vast range

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ABSTRACT

Compared with the conventional inflexible instrument, the adaptable instrument has more preferences, which play an imperative part in basic circumstances such as microscopy, IC (coordinate casual) fabrication/detection, and a few exactness working environment. Particularly, there's an expanding require for 3-DOF (degrees-of-freedom) compliant translational micro-platform (CTMP) giving great execution characteristics with expansive movement extend, near cross-coupling, and tall spatial thickness. Decoupled topology plan of the CTMP can effectively realize these merits without expanding the trouble of controlling. This paper proposes a unused three DOF compliant half breed micromanipulator which have huge extend of movement up to 100 μm \times 100 μm \times 100 μm within the course within the measurement of 90 mm \times 90 mm \times 50 mm, later cross-axis coupling (the max coupling as it were 2.5%) than the introductory XY compliant stage in XY pivotal.

1. INTRODUCTION

The conventional inflexible 3-DOF stage is as a rule gathered by a single-DOF stage with stepper engine driven, which composed of a settled base and a movement arrange interpreting along X-, Y-, and Z-axis in a plane. Compared with conventional unbending stage, compliant small scale stage has ended up one of the most branches of the components and automated frameworks due to their characteristic merits, such as decreased number of parts, no contact, and so on which make a CTMP more exact to have an assortment of inside cell control, checking test nano-lithography, nuclear drive microscopy, IC or targets fabrication, and information capacity. So a wanted tall exactness CTMP ought to have the expansive movement extend, negligible cross-axis coupling, without expanding the complexity of controlling. With respect to a number of 3-DOF compliant micromanipulators, analysts pay a parcel of endeavors from hypothesis to application. In any case, most of them based on the conventional unbending body show such as 3-RPR, 3-RPR, 3-PPS, or 3-FPU (P: Kinetostatic muscle; R: Revolute combine; S: round pivot; U: Hooke bed habit), and seldom includes three translational micromanipulators.

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In the event of a slide, stability and control of the nonlinear system for a tractor and N trailer

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ABSTRACT

In numerous building frameworks, it isn't sufficient to consolidate the framework ways to zero at boundless time, but the speed of moving these ways to zero is exceptionally critical. Assessing this speed can be done utilizing exponential capacities. This concept is utilized in exponential steadiness definition. The reason of this paper is to plan a controller for issue inputs and actualize a framework of a car with N to a trailer associated to it. This approach is based on the investigation of the Lyapunov stability strategy. Within the given issue, the reason of conducting and merging the framework considering the slip wobble as a primitive uncertainty within the framework is toward the specified point. Since the trailer tractor framework has restriction imperatives within the modeling structure, it is troublesome to ensure the steadiness of a non-homonymic framework. Since no controller outlined by the control criticism method can persistently and steady guarantee the joining of the framework.

1. INTRODUCTION

Steadiness is the primary and most imperative address around the diverse properties of a control framework. On the opposite, unsteady frameworks are unexpected or have unfavorable impacts amid the operations indicated for them. The suggestion of supportability is that in the event that a framework begins working close an ideal point of work, at that point it remains at the same point, making the framework steady. Each control framework, whether straight or nonlinear, will be included with the supportability issue, which should be carefully considered. The foremost common and valuable strategy for considering the soundness of the hypothesis of nonlinear control frameworks, which is depicted by the title of the Lyapunov steadiness work in different shapes, is known in terms of the kinematics of the issue and the framework. This thinks about included two strategies, called "linearization method" and "direct method." In linearization strategy, utilizing the linearization of the non-system nonlinear framework of harmony focuses, and utilizing the strategies of checking the steadiness of direct frameworks, it investigates the soundness of the point of balance.

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A two-phase level-set technique numerical investigation of droplet splitting in branching T-shaped micro channel

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ABSTRACT

Droplet splitting as a significant include of droplet-based microfluidic frameworks has been broadly utilized in biotechnology, biomedical designing, tissue designing, and it has been favored over persistent stream frameworks. Within the display paper, two-dimensional numerical recreations have been done to look at the toppy-sturdy bead part handle. The two-phase level set strategy (LSM) has been anticipated to analyze the instrument of bead arrangement and bead part in immiscible liquid-liquid two-phase stream within the branched T-junction microchannel. Overseeing conditions on stream field have been discretized and illuminated utilizing limited element-based COMSOL Multiphysics program (adaptation 5.3a). Gotten numerical results were approved by exploratory information detailed within the writing which appear satisfactory assertion. The demonstration was created to reconstitute the component of bead part at the branched T-junction small scale channel. This consider gives a detached procedure to unevenly part up miniaturized scale beads at the downstream T-junctions. The results about appear that outlet branches' eight slope influences the bead part.

1. INTRODUCTION

Amid the final three decades, quickly created micro-total examination frameworks (µTAS) have been encouraged a wide extend of microfluidic applications within the area of lab-on-a-chip (LOC), nano materials amalgamation, science, chemistry, mediate conveyance, emulsions, and related businesses. The control of beads in limited microfluidic devices has been imperative about highlighted logical areas since of the having advantage within the blending prepare and transporting. In droplet-based microfluidic (DBMF), an awesome number of investigates can be found which centered on bead arrangement and part. T-junction miniaturized scale channels are one of the foremost ordinary gadgets to control bead arrangement. In these small scale channels, there are more often than not two immiscible liquids such as water and oil, in which the scattered stage streams into the most channel from the horizontal channel and meets the crossflow stage at the opposite intersection.

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**Analyses on the closed-loop systems grouting
Robot's trajectory planning**

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ABSTRACT

In arrange to advance building insights and unravel the impediments of conventional grouting innovation, the direction planning of closed-loop grouting robot was planned. The minimax optimization work was utilized to optimize the A* calculation to realize the 2D direction arranging, which might get a smooth, endless course, and arranging chart of time dispersion, speed, speeding up, and snap. Advance, the weight work of the moved forward A* calculation was balanced to perform 3D direction arranging to decrease repetitive hits within the course. Amodeus drawing closer law versatile sliding mode control method was utilized to attain exact direction following of the mechanical arm and decrease the issue of chattering in sliding mode control. Through the plan of closed-loop grouting robot and the inquiry about of direction planning, the two-dimensional and three-dimensional ways of grouting robot might be optimized. The system may realize programmed grouting operation. It might advance the improvement of tall productivity and security within the development grouting industry.

1. INTRODUCTION

With the fast improvement of building insights, the presentation of development robots is the as it were way for the advancement of the development industry. The conventional grouting innovation is for the most part developed by hand-held or low-automation hardware, the grouting effectiveness is more and the grouting quality cannot be ensured. Particularly when working at tall height, the chance coefficient is tall and the laborers are required to have tall encounter. At display, in see of the complex building environment, there's no efficient grouting robot on the advertise. Hence, it is fundamental to ponder the plan and direction arranging of closed-loop grouting robot. Through the plan of closed circle structure, the inquiry about of two-dimensional direction arranging and three-dimensional direction arranging, the independent movement arranging of grouting robot can be realized. The grouting assignment can be completed. The grouting victory rate and grouting quality can be moved forward. It is of awesome centrality to the advancement of the development industry.

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Impact of clearance on 2D piston pumps' Volumetric efficiency

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Gandhi Academy of Technology and Engineering, Berhampur, Odisha, India

ABSTRACT

In order to illuminate the impediments of the grinding sets in pivotal cylinder pumps on rotational speed and mechanical proficiency, a 2D cylinder pump whose 2D cylinder has two-degree-of-freedom movements of turn and responding movement was proposed by the creator group. The volumetric proficiency of 2D pumps anticipated by the initial volumetric proficiency show is higher than the test comes about. A modern numerical demonstrate of the volumetric productivity is inquired about by considering impact of clearance between the cone roller and the directing tail. In past considers, the volumetric misbehavior of the 2D pump were considered to be composed of spillage and compressibility misbehavior. Be that as it may, it is found that the impact of the clearance on the volumetric effectiveness in 2D pumps is more noteworthy than that of spillage and compressibility misbehavior. The test comes about appear that the contrast between the expectation of the modern show and the volumetric proficiency of the fitted pump with 0.19mm clearance is diminished from 8% to 1.5% comparing with the first show. The volumetric proficiency of the test pump without the clearance is 96.5% at 5000 rpm rotational speed and 8 MPa stack weight.

1. INTRODUCTION

Water powered systems are broadly used in air transportation and astronautics since of its high power-to-weight proportion. As the prerequisite for the power-to-weight proportion has expanded in flight, the pressure driven system that its power-to-weight proportion is decided by hydraulic components' has been persistently overhauled, such as electro-hydraulic actuator (EHA) installed pivotal cylinder pumps as the oil source is used to supplant the centrifugal hydraulic system which employs centrifugal pumps as the oil source. In later a long time, due to the improvement of materials science, such as rubidium magnets, the power-to-weight proportion of engines has started to extend quickly, which makes the power-to-weight proportion of water powered components, particularly for hub-cylinder pumps, have higher challenges.

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Industrial robot with elastic joints under feed-forward control using a hybrid inverse dynamic model

Dinesh Kumar Bal
Professor, Department of Mechanical Engineering
Gandhi Academy of Technology and Engineering, Berhampur, Odisha, India

ABSTRACT

A novel feed forward control strategy of elastic-joint robot based on cross breed reverse energetic demonstrate is proposed in this paper. The cross breed converse energetic show comprises of explanatory demonstrate and data-driven show. Firstly, the converse energetic expository demonstrate of elastic-joint robot is built up based on Lie bunch and Lie variable based math, which makes strikes the productivity of modeling and calculation. At that point, by coupling the data-driven demonstrate with the explanatory demonstrate, a feed-forward control strategy based on half breed converse flow show is proposed. This strategy can overcome the impact of the mistake of the explanatory converse energetic show on the control execution, and successfully progress the control precision of the robot. The data-driven show is utilized to compensate for the parameter instabilities and non-parameter vulnerabilities of the explanatory energetic demonstrate. At last, the proposed control strategy is demonstrated to be steady and the multi-domain coordinates framework demonstrate of mechanical robot is created to confirm the execution of the control plot by recreation. The recreation comes about appear that the proposed control strategy has higher control exactness than the conventional torque feed-forward control strategy.

1. INTRODUCTION

Industrial robots are broadly used in present day mechanical fabricate, such as paint splashing, welding, grinding, milling, drilling, and so on. In later a long time, with the rise of brilliantly fabricating innovation and the near combination of the manufactured insights innovation and mechanical robots, the application of robots has been growing to all stralls of life. Since the quick improvement of cutting edge undertakings requires higher generation effectiveness, item quality and speedier item emphasis speed, the mechanical robots have entered the advancement organize of tall speed, tall exactness, overwhelming stack, lightweight, and cleverly.

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Effect of Clearance Joints on the...

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**Effect of Increasing Imitation Skill
On Identification of Forged Signatures**

Dr. Bijay Bhujabal
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Gandhi Academy of Technology and Engineering, Berhampur, Odisha, India

ABSTRACT

Signature is one of the popular hallmarks of person identification. In contrast to its popularity, the signature is often forged by a forger without giving much effort. The present study is aimed to explore the effect of increasing imitation skills on the identification of forged signatures. The signature is forged at three levels of imitation skills defined based on varying times of practicing imitation. The conventional handwriting features are compared at the three forgery levels in comparison to the genuine signature. It has been observed that the slant has the minimum effect on imitation; however, other features are changing significantly.

Keywords: Signature, imitation, forgery, and handwriting features

1. INTRODUCTION

Signature is widely considered one of the most convenient ways of personal identification. It is the way one can prove himself or herself as what he/she claims to be. The signature of an individual can be any kind of combination of letters, numerals, or symbols of any language system. It may comprise all or a few handwriting characteristics or sometimes none of them hence it is as unique as an individual's handwriting. In an immature state of signature individual changes its form, shape, and style many times and finally when an individual feels ease of signing, he/she follows that pattern style. As time passes with regular use of a particular signature by an individual that signature becomes highly individualized and may consist of some of the imitable features. Some people are not frequent writers but they sign regularly, in such cases layman is not able to find any similarities between handwriting and signatures produced by them. The signature can be made in one of three styles, namely, text-based, stylized, and mixed.

Text based signatures are those in which an individual may use letters of a particular language system in upper or lower case and these letters are legible. Stylized signatures are those signatures that comprise embellished letters numerals or symbols. Most often stylized signatures are non-legible because of the decorative appearance of letters. When the signature consists of features of both text-based signatures as well as stylized signatures, then the signature is known as a mixed signature.

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**Human Resource Information System:
A Case Study of Polyhedron Group Company**

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ABSTRACT

Human Resource Information Systems can have a huge impact on an organization's HR capability. Human resource management (HRM) must be comprehensive, high-quality, quick and adaptable. HRIS is a human resource information system that allows access to workers' data. In the age of information, we live, work, and play. HR can rely on an efficient and effective HRIS to remain at the forefront of its efforts to provide more efficient and smooth services. The main take away from this paper is that using a computerized HRIS is better than using a manual one because it allows for faster, more accurate data maintenance. As a crucial part of the organization, HRIS efforts will provide important information about HR needs and capabilities, which will help the management team establish the organization's mission and set goals and objectives. HRIS isn't confined to the PC equipment and programming applications that include the specialized piece of the framework; it also includes the personnel, procedures, data, and policies necessary to manage the HR function.

Keywords: Human Resource Information Systems, HR Functions, ERP, SWOT

I. INTRODUCTION

"A human resource information system (HRIS) is programming containing an information base that permits the entering, stockpiling and control of information with respect to representatives of an organization. It takes into account worldwide perception and access of significant workers' data". Some notable instances of the utilization of data innovation for upper hand include frameworks that connect an association to providers, appropriation channels, or clients. As a general rule, these frameworks use data or handling capacities in a single association to work on the presentation of another or to further develop connections among associations. Many new ways to use information to create value have emerged as a result of rising competition and falling information capture and use costs. The concepts do not constitute a method that will invariably result in a competitive advantage.


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Cathode-Electrolyte Interphase in Lithium Batteries Revealed by Cryogenic Electron Microscopy

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ABSTRACT

Cathode electrolyte interphase (CEI), the private covering layer shaped on the positive anode, has been believed to be basic. Nonetheless, numerous parts of CEI stay unmodified. This begins from the absence of successful devices to describe underlying and substance properties of these touchy interphases at nanoscale. Here, we foster a convention to safeguard the local state and straightforwardly picture the point of interaction on the positive terminal utilizing cryogenic electron microscopy. We find that under typical activity conditions, there doesn't exist a close covering layer at the single-molecule level in carbonate-based electrolyte. Notwithstanding, upon brief outer electrical shorting, a strong electrolyte interphase, which generally shapes on anodes, could shape on cathodes and be electrochemically changed over into a stable, conformed CEI in situ.

INTRODUCTION

Lithium-particle batteries, the cutting edge auxiliary battery innovation, have reformed present day energy capacity. Because of the super working possibilities of both the positive and negative terminals, new strong stages, with an electrolyte nature, structure at the anode electrolyte interface through electrochemical disintegration of the electrolytes. These supposed strong electrolyte interphases (SEI) impact the addition of Li⁺ from the solvated stage into the strong stage and comprise the rate-restricting step for lithiation of most terminal materials.¹ Given the significance of these interphases to the battery execution, there has been broad portrayal of them in various frameworks utilizing different methods.²⁻⁵ In any case, in contrast to the negative cathode (anode) SEI, the SEI on the positive terminal (cathode), or cathode-electrolyte interphase (CEI), has been less completely contemplated.

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Application of silica (SiO₂) nanofluid and Gemini surfactants to improve the viscous behavior and surface tension of Water-based drilling fluids

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ABSTRACT
Further studies into drilling fluids especially to reduce the use of oil painting and synthetic-grounded drilling fluids are ever-growing due to their benefactions to environmental pollution. This study, thus, attempts to estimate the thermal, density, face pressure, and filtration loss parcels of water-grounded drilling fluids (WBDFs) upon the addition of Gemini surfactant-silica nanofluid. This surfactant-nanofluid was formed by dissolving silica nanofluid in the surfactant, and ultra-sonication was used to attain unity. Characterization of the Gemini surfactant-silica (SiO₂) nanofluid was done by Fourier Transform Infrared Spectroscopy (FTIR). The experimental results showed that Gemini surfactants contributed to the lowest increase in drilling fluid density compared to a conventional surfactant. Also, when combined with silica nanoparticles showed better thermal stability with an 11 average change in density with adding temperature and a drop in face pressure and filtration loss both showing a 17 and 12 drop independently.

1. INTRODUCTION
A crucial determinant in the success of drilling operations is the expression of largely functional drilling fluids. Drilling fluids carry out several purposes including junking of drilled slices and their transportation from the bottom of the hole to the face, control ring face pressure, maintaining wellbore stability, and sealing off possible zones in the conformation with slash, cutlet to pre-vent fluid loss (1). According to World Oil's fluids title (2), there are four major types of drilling fluids including water-grounded, oil painting-grounded, synthetic-grounded, and curvaceous drilling fluids. Synthetic-grounded drilling fluid (SDDF) and oil painting-grounded drilling fluid (OPDF) are preferred due to their good shale stabilization capability, high slicking parcels, and minimum effect of temperature on them (3,4). Still, their use continues to reduce due to calls from the government and other agencies on their environmental toxin as well as discom-conformity with certain aspects of the sustainable development pre-tensions (SDG) (5).

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Modelling FeCrAl cladding thermo-mechanical performance
Part I: Steady-state conditions

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Bidyasagar, Kantabadi, Bhubaneswar, Odisha-752054

ABSTRACT

Among the challenges posed by accident-tolerant energies (ATFs) is the demonstration of their safe gaste under normal and supposed accident conditions. In order to directly prognosticate the response of new accoutrements in similar scripts, the development of modelling capabilities is consummate. This paper provides an integral character ization of FeCrAl sheathing under steady- state conditions up to high burnup, pressing the major differences with respect to Zircaloy-4 and the crucial parcels responsible for their distinct gaste . To that end, the energy performance law FRACCON-4.0 has been extended to FeCrAl cladding simulation, similar extension has been carried out according to a critical review of the thermo-mechanical data and correlations reported in the open literature for several FeCrAl blends. The main outgrowth of this study is that there are no major performance differences between FeCrAl and Zircaloy-4 at end-of- life, except for their stress countries, which differ due to different creep distortion rates.

1. INTRODUCTION

Nuclear energy is the result of a long optimization process aimed at perfecting its performance and trustability under both normal and supposed accident conditions. serve it to mention the perpetration of several systems devoted to achieving the Zero energy failures objective (EPRI, 2021). In the last decade, this pursuit of excellence in energy gaste has rebounded in the connection of accident-tolerant energy (ATF) development. lately, ATFs have been renamed as advanced technological energies as they might not only extend the managing time under accident conditions, but also ameliorate the economics of nuclear power through advanced enrichments and burnup extensions(Khatib- Rabbar et al., 2021). Among the challenges posed by ATFs is the demonstration of their safe gaste under normal operating conditions and design base ac cidents(DBAs). In order to directly prognosticate the response of new accoutrements in similar scripts, the development of modelling capabilities is consummate. Experimental exploration on seaker ATFs has enabled the characterization of a large number of thermo-mechanical parcels (Field et al., 2018; Gamble, 2019) as well as the identification of new declination and failure mechanisms(Goethood and Luscher, 2019; Goodson and Goethood, 2020).

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Thermo-oxidative stability of asymmetric distigmasterol-modified acylglycerols as novel derivatives of plant sterols

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ABSTRACT

The study delved the thermo-oxidative stability of distigmasterol-modified acylglycerols as a new sterol acylglycerols. Samples were heated at 60 and 180 °C for 8 h. Their chance oxidation and products formed during heating were compared with free distigmasterol and distigmasteryl esters. The remaining of stigmasterol and adipose acid, conformation of distigmasterol oxidation products and the composition of polar and non-polar fragments were analysed using chromatographic styles. The cytotoxicity and genotoxicity were determined with the use of an MTT test and a comet assay, independently. The lipoxy stability during heating was observed for 2,3- distigmasterylsuccinate(1-oleoyl-sn-glycerol) (dStig- OA) and the smallest for 2,3- distigmasterylsuccinate(1-oleoyl-sn-glycerol) (dStig- OA). Data showed that the conformation of thermo-oxidative oxidation products is affected by the temperature and chemical structure of lipids present in the patch. The dStigMAx clicked by a succinate linker and products formed during their thermo-oxidation showed no cytotoxic or genotoxic exertion to normal mortal cells.

1. INTRODUCTION

Revision of fat and canvases was developed in order to break specific problems, ways similar as separation, interesterification/ esterification, hydrogenation or hardening and blending were applied to acclimatize the physical and chemical parcels of canvases, and fats to individual requirements. These processes are used for the product of, for illustration, EPA and DHA fortified products, red wine olein rich in carotenes and tocophenols, diacylglycerols as diet canvases and medium-chain triacylglycerols (Kadhim & Shamma, 2017). One of the most important reasons for the revision of lipids is the enhancement of nutritive parcels. To increase the quantum of minor factors, similar as phytoosterols, factory percentage or inheritable variations were described(Cepelicka- Tama, Nigala- Kalucka, Szala, & Siger, 2016). The eventuality of phytoosterols, also appropriated to as factory sterols, to reduce blood cholesterol has been known for decades(Kaur & Myrta,).

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Chemical regulation in the bonding reconstruction stage of amorphous Zr-Si oxidation and the resultant phase selection

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ABSTRACT

A medium grounded on oxidation convinced relating reconstruction(OBR) was proposed to optimize phase selection during oxidation of unformed ZrSi1-x (0.55 ≤ x ≤ 0.75). According to VASP modeling, a some- hedge effect was proposed to regulate the OBR and Zr/Si separation at original oxidation stage. The depressed Si immersion- proclivity leads to the conformation of unformed bilayer structure. A Si-rich Zr-Si subcaste formed underneath the external Zr-Si-O unformed subcaste, which synergistically impeded oxygen saturation at subcritical terrain. As verified by EELS and XPS, the violation of Zr-O and Si-O bonds in Zr-Si-O subcaste contributed to the enhanced hydro chemical stability.

1. INTRODUCTION

Silicides are considered as implicit campaigners for high temperature operations because of the superior parcels similar as high melting points and high temperature strength(1). The thick infanteismal structure also endows advantage in the operation of proclivity walls for sub micron circuit(2). Among them, Zr silicides have been explored as definitive coatings on Zr blends used in pressurized water reactor(PWR). 3). Zr blends have the characteristics of low thermal neutron immersion cross section, small thermal expansion measure, good comity with nuclear energy, and have good mechanical parcels and erosion resistance in the harsh terrain of high temperature and high pressure water; therefore it's extensively used in fission nuclear reactors(4). The inquiries on the operation of chromium coatings on Zr blends have been extensively concerned in the field of nuclear assiduity. The inquiries on the operation of chromium coatings on Zr blends have been extensively concerned in the field of nuclear assiduity. Zr-Si coatings are preferred over chromium coatings due to the lowcross-sections for thermal neutron immersion. Another reason is that the measure of thermal expansion of Zr-Si coatings is analogous to that of Zr amalgamation. The thermal expansion measure difference determines the internal stress and quality of the coatings(5,6).

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E-Waste: A Growing Challenge and Opportunities for Sustainable Management

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ABSTRACT

Electronic waste, or e-waste, refers to discarded electronic devices such as computers, mobile phones, televisions, and household appliances. With the rapid advancement of technology and increasing consumer demand, the generation of e-waste has become a global concern. This review article examines the current state of e-waste management, its environmental and human health impacts, and explores potential solutions for sustainable management and recycling of electronic waste.

Keywords: E-waste, Recycling

1. INTRODUCTION

As technology continues to advance at a rapid pace, the disposal of electronic devices and their components has become a significant environmental and health issue. The proliferation of electronic devices and their relatively short lifecycle contribute to the mounting e-waste problem. With the constant introduction of newer and more advanced gadgets, older devices are quickly rendered obsolete, leading to their disposal. Unfortunately, improper handling and disposal of e-waste can have detrimental effects on the environment, as well as human health. E-waste poses several environmental challenges due to its toxic components and the volume of waste generated. Many electronic devices contain hazardous substances such as lead, mercury, cadmium, chromium, and flame retardants. When improperly discarded or incinerated, these substances can seep into the soil, contaminate water sources, and release harmful gases into the atmosphere, contributing to pollution and potential health risks.

E-waste contains several hazardous substances that pose risks to human health and the environment if not managed properly. These substances include heavy metals (lead, mercury, cadmium), (Pb, Hg, Cd) brominated flame retardants, polychlorinated biphenyls (PCBs), ozone-depleting substances (chlorofluorocarbons), and various toxic chemicals used in electronic manufacturing.

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Financial Inclusion in India: Concept and Initiatives
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ABSTRACT
Women entrepreneurship development is an essential part of human resource development. The development of women entrepreneurship is very low in North East India, especially in the rural areas. Here women have to face many constraints in carrying out economic activities or undertaking any entrepreneurial work. But today they have become aware of their existence, their rights and their work situation. They are now participating in large number in the present world of business. Today, more and more women are undertaking various economic activities. They are playing very important role in socioeconomic development of the country. This paper mainly focuses on women entrepreneurs. It is an attempt to understand the prospects and challenges for women entrepreneurship development of Gobarbhata Development Block. This paper is prepared to understand the various issues like importance of women entrepreneurship, constraints faced by the women entrepreneurs and a framework for encouraging women entrepreneurship. The paper also suggested some measures which may be viewed as challenges for the development of women entrepreneurship.

Keywords: Entrepreneurship, Women Entrepreneurship, Motivational Factors, Constraints

1. INTRODUCTION
The Reserve Bank of India was set up a Commission (Khan Commission) in 2004 to look into Financial Inclusion. It is implemented by the Reserve Bank of India and Central Government Since 2005. Financial Inclusion is the inclusion of Vast Sections of disadvantaged and low income groups under banking services at an affordable cost. Government of India constituted a committee to enhance financial inclusion in India on 22th June 2006. The Committee presented its report in January 2008. Committee on financial inclusion has initiated a mission called National Rural financial inclusion plan. It has set targets to increase financial inclusion in the country across regions and across institutions (Bank, Rural Regional Bank etc.) A Committee on Financial Inclusion (2008) Under the Chairmanship of Mr. C. Rangarajan was setup to suggest measures to increase financial inclusion (hence called the Rangarajan Committee on financial inclusion).

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Relating Determinants of Profitability of Commercial Banks in India with Selected Financial Variables: A Dynamic Panel Data Analysis

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ABSTRACT

This article analyses the elements that determined the success of India's commercial banks between 1992 and 2016. Arellano and Bond's Dynamic Panel Data is used for the unbalanced panel data of 80 banks in India during the reform period, broken down into three ownership groups: Public Sector Banks, Domestic Private Banks, and Foreign Banks. The research also considers the NIM and ROA as supplementary measures of bank profitability. The Return on Assets (ROA) compares the profitability of a bank to its total asset base, while the Net Interest Margin (NIM) measures the profitability of the bank's interest-bearing activities. Explanatory variables include bank-specific (BS), industry-structural (IS), macroeconomic (ME), and other-specified (OS) factors. The empirical results demonstrate that industry-specific and macroeconomic factors, in addition to the bank's inherent features, impact profitability. Profitability of Indian banks is found to be heavily influenced by political and ownership issues. However, the profit-influencing factors differed widely among the groupings.

Keywords: Deregulation, commercial, profitability, dynamic panel data

1. INTRODUCTION

Profitability can be characterized as the capacity to generate financial gains or positive net income. Typically, it is commonly denoted as a proportion relative to another variable, such as the magnitude of an asset, the quantity of invested capital, and similar factors. This phenomenon is believed to be attributable to the tangible business operations conducted by the companies. Hence, the prioritization of profitability becomes paramount when assessing an organization's performance. Financial institutions are not granted an exemption from this policy. The banking industry has undergone significant transformations in its structure and operations in recent decades, resulting in the inefficiency, lack of productivity, and diminished utility of numerous publicly owned financial institutions. In response to recommendations put forth by the Committee on Financial Sector Reforms, the Reserve Bank of India (RBI) implemented a series of reforms in 1992 aimed at enhancing the financial stability of banks.

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Spatial Analysis of Socio-Economic Development in Ghaziabad District

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ABSTRACT

Socio-economic development, encompassing diverse dimensions such as economic growth, education, health services, and more, constitutes a multifaceted phenomenon. This research paper explores the spatial analysis of socio-economic development in Ghaziabad District for 2020. The study employs a composite index approach, incorporating indicators from education, health, transportation and communication, electricity and drinking water, financial development, and agriculture sectors. By standardizing and categorizing various indicators, the research examines the distribution of development across different blocks within the district. The findings indicate varying levels of development across sectors and blocks, shedding light on the interconnectivity of agriculture and overall socio-economic progress.

Keywords: Socio – economic development, Transportation & Communication, Electricity & Drinking water

I. INTRODUCTION

Socio-economic development is a multi-dimensional phenomenon. Its major dimensions include economic growth, education, health services, nutrition, degree of modernization, the status of women, quality of housing, distribution of goods and services, and access to communication (Das, 1999). Development can be defined in different ways; however, it is a process in which things improve positively. In the socio-economic context, development means the improvement of people's lifestyles through improved education, incomes, skills development, and employment. It is the economic and social transformation process based on cultural and environmental factors. Various studies have been made at governmental and quasi-governmental levels regarding the assessment and evaluation of socioeconomic and cultural facilities at the macro and micro levels in India to examine the levels of socioeconomic development. However, very few studies have been conducted at the micro level to reduce the existing regional imbalances. The government has laid stress on balanced regional growth through different programs such as the Backward Region Grant Fund (BRGF), the Border Area Development Programme (BADP), the Hill Area Development Programme (HADP).

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Extraction of Formal Manufacturing Rules from Unstructured English Text

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ABSTRACT

Semantics-grounded approaches – innovated on the idea of explicitly garbling meaning independently from the data or the operations – are being applied to manufacturing, for illustration, to enable early manufacturability feedback. These approaches calculate on formal, i.e., computer-interpretable, knowledge and rules along with the environment or semantics, which facilitates the exercise and sharing of the knowledge via semantic web technologies. On the other hand, manufacturing knowledge has been maintained primarily in the form of unshaped English textbooks. It's considered impracticable for masterminds to author accurate, formal, and structured manufacturing rules, still, former swears on rooting semantics from unshaped textbook in manufacturing have substantially concentrated on introductory conception names and scales for ontology creation, rather than rooting complex manufacturing rules. In this environment, this paper focuses on the development of a semantics-grounded frame for acquiring formal manufacturing rules from English textbooks, similar as those written in manufacturing textbooks, by guiding standard Natural Language Processing (NLP) ways with formal manufacturing knowledge (i.e., controlled vocabulary and sphere ontology). Specifically, this paper studies the problem of rule birth in the manufacturing sphere, proposes the formal rule birth frame, and demonstrates its feasibility.

1. INTRODUCTION

Semantics-grounded approaches – counting on explicitly decoded formal knowledge and rules for decision-making – have been proposed as important mechanisms for manufacturability analysis during product design. Rangarajan et al. (1), for illustration, have demonstrated the semantics-grounded system that utilizes formal manufacturing knowledge, a sphere ontology and formal rules, for manufacturability analysis and design feedback. The semantics-grounded manufacturability analysis is anticipated to overcome the limitation of traditional Design for Manufacturing (DFM) systems, which calculate on implicitly bedded hand-enciphered rules, by furnishing the following advantage(1) • As semantics-grounded manufacturability analysis relies on formal knowledge severed from a certain type of Computer-aided Design (CAD) terrain, it can be fluently acclimated to different CAD surroundings.

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Recycling of directional determinants by English and Iranian Academics

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ABSTRACT

Motivated by the supposition that the recycling of directional determinants (DDs) the exploration purposes, suppositions, questions) across English exploration papers (RA) is substantiation of the pen's responsibility, this study sought to probe any implicit differences between English and Iranian experimenters in the recycling of DDs throughout RA sections. To this end, 600 empirical RAs representing six soft wisdom disciplines from 2006 to 2018 were chosen, 300 of which were penned by English L1 scholars and another 300 by Iranian experimenters. The quantitative analysis revealed parallels between the two groups of scholars, with the DD recycling appearing more constantly in the Discussion section than in other sections, and in Economics than in other disciplines. In the qualitative phase, the two groups of authors' common accounts for the DD recycling, including editorial policy, RA length, English academic jotting conventions, and anthology guidance were determined. Still, only two reasons were linked in neophyte Iranian experimenters' responses redundancy and English academic jotting conventions.

1. INTRODUCTION

Currently, English has come the global language of education challenging the ignorance of innumerable academics around the world in English academic jotting conventions. These models and conventions aren't fluently acquired by neophyte authors-English L1(non-Eng L1) academics until they've explicitly made conscious of similar conventions. One of the conditions for writing English academic textbooks is to compose anthology-friendly textbooks by furnishing colorful kinds of appreciation cues because as Kinder (1987) proposed, English has a pen-responsible culture. This means that in English, it's over to the pen to make the textbook as clear and scrutable as possible for the intended followership. Indeed, in pen-responsible languages similar as English, pens prognosticate areas where compendiums may bear backing with textbook appreciation and meet this need by interspersing guiding signals throughout their textbooks.

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Mathematical Formulation and application of kernel tensor Decomposition based unsupervised Feature Extraction.

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ABSTRACT

In this work, we extended the lately developed tensor corruption(TD) grounded unsupervised point birth(FE) to a kernel-grounded system through a fine expression, lately, the kernel TD(KTD) grounded unsupervised FE was applied to two synthetic exemplifications as well as real data sets, and the findings were compared with those attained preliminarily using the TD-grounded unsupervised FE approaches. The KTD-grounded unsupervised FE outperformed or performed comparably with the TD-grounded unsupervised FE in large p small n situations, which are situations involving a limited number of samples with numerous variables(compliances); nonetheless, the KTD-grounded unsupervised FE outperformed the TD-grounded unsupervised FE in non large p small n situations. In general, although the use of the kernel trick can help the TD-grounded unsupervised FE gain further variations, a wider range of problems may also be encountered.

1. INTRODUCTION

Lately, the tensor corruption(TD) grounded and top element analysis(PCA) grounded unsupervised point birth(FE) approach was developed to identify a limited number of genes in large p small n problems involving a small number of samples(n) with a large number of features(gene)(p). This approach, applied to genomic wisdom operations, which constantly involve large p small n problems, could successfully identify the limited number of biologically dependable genes that can not be named using conventional statistical test grounded point selection styles, nonetheless, because the TD and PCA grounded unsupervised FE don't include any tunable parameters owing to their linearity, the styles can not be modified or optimized in failure scripts, therefore, it's desirable to extend the TD and PCA grounded unsupervised FE to include nonlinearity. To this end, we aimed at extending the TD-grounded unsupervised FE to incorporate the kernel trick(k2) and introduce nonlinearity.

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Research on Non- Destructive Testing technology of Hydraulic Engineering based on improved ALO Algorithm and Wireless network.

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ABSTRACT

Thanti-seepage wall design is an important part of thanti-seepage system of water sanitation and hydro-power systems, and its the introductory installation and hedge to repel catarracts and insure the safety of people's lives and property. This paper analyzes the wireless communication (GPRS) (General Packet Radio Service) technology. After establishing a fine model and determining the optimal detector deployment scheme, the mesh-type detector network type is determined, and the overall design scheme of the system is automated. The wireless network completes the field information collection and instruction transmission, and transmits the field information to the remote monitoring platform for unified processing. In order to effectively ameliorate the lost content of wireless detector networks, a network content optimization system grounded on a mongrel strategy to ameliorate the Antlion algorithm is proposed. The durability boundary loss factor is used to ameliorate the hunt traversal of the algorithm and accelerate the confluence speed. Dynamic weight portions are introduced during the filtration phase to balance the global disquisition and original development capabilities of the algorithm.

1. INTRODUCTION

The remote monitoring system uses a combination of computer technology and communication technology to collect and transmit remote data through detectors and other outfit installed on the ponds, and the central computer performs post-processing to gain other data needed by colorful diligence (6,7). The operation of the remote monitoring system for water and rain conditions in public flood tide work has a history of numerous times. With the rapid-fire development of computers and communication technologies, the transmission styles of water governance telemetry data have also changed(8). The development of microelectronics technology has led to the rapid-fire development of computer technology and network technology. At the same time, it has also been fleetly integrated with communication technology(9).

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A fractional-order fall armyworm-maize biomass model with naturally beneficial insects and optimal farming awareness:

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ABSTRACT

Sludge remains an important food crop in Africa, still, the product of this crop, and accordingly the livelihood of the farmers are hampered by the irruption and wide infestation of the fall armyworm which causes substantial sludge yield losses. In this paper, a fractional-order fall armyworm- sludge biomass model with naturally salutary insects and optimal husbandry mindfulness has been formulated. Comprehensive analysis of the model has shown that it contains five equilibrium points which are all locally and encyclopedically asymptotically stable if the conditions outlined in Lemma 2.1 and 2.2 are met. We also carried out numerical simulations to support the logical results and to illustrate different dynamical administrations that can be observed in the model. We have set up that time-dependent husbandry mindfulness can significantly reduce fall armyworm population if the cost of perpetration is fairly low.

1. INTRODUCTION

In the last partial century, invasive species have caused unknown challenges to agrarian systems encyclopedically. In sub-Saharan African (SSA), husbandry is considered the primary source of livelihoods for almost homed (1,2), still, its donation to food security and poverty reduction is hampered by several, frequently interesting, biotic and abiotic factors. For case, the recent irruption of fall armyworm (FAW - Spodoptera frugiperda JE Smith) in SSA has come a major trouble to food security in the region (2,3). The first outbreak of FAW in Africa passed in West Africa in 2016, and to date the pest has spread to 40 countries in the mainland (2). The FAW can begot damage to further than 80 crop species, including economically important crops similar as sludge, rice, sludge, wheat, sugarcane and cotton just to mention a many

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**The collaborative consistent vehicle routing problem
With workload balance**

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ABSTRACT

The rising competition in the logistics sector forces companies to be more economically effective. One of the major sources of inefficiency is the deficient operation of available coffers, similar as vehicles' capacities. Medium that allow to more exploit similar coffers by enabling carrier collaborations are on the rise. One study examines a centrally organized multi-period cooperative vehicle routing problem, where carriers can change guests who have to be serviced on a regular base. Collaborations, where carriers serve frequent guests, are supposed to face the problem of (i) time thickness in terms of visiting time, and (ii) service thickness. The ultimate ensures that guests are visited by the same collaboration mate throughout the whole planning horizon. Also, carriers might only be willing to enter a collaboration if a minimal request share can be guaranteed. In order to take all these issues into account, we introduce the cooperative vehicle routing problem with time and service thickness and workload balance. The fine model including several valid inequalities is presented. In a computational study, we break small-sized cases to optimality. In order to attack larger cases, we propose an effective and effective metaheuristic and an improved original heuristic algorithm. We show that both styles reach near optimal results within veritably short computational times.

1. INTRODUCTION

The transportation assiduity has come a veritably competitive terrain. While the number of request players has grown vastly, guests are getting more and more demanding. Thus, companies need to give effective transportation services at low prices in order to stay in business. Accordingly, profit perimeters have vastly declined. To increase their effectiveness, carriers can establish collaborations in which they partake their lines with the end to maximize their profit and reduce functional costs. Another issue related to thickness is the fact that each client must always be visited by the same motorist, still, this alternate demand may come too restrictive in practical operations (Kovacs, Golden, Hartl, & Parragh, 2015). Thus, thickness of service can be assured by allowing guests to be visited by a defined number of motorists.

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Generalized uncertainty principle and stochastic background spectrum of gravitational waves

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ABSTRACT

This paper concerned with the impact of generalized vulnerability guideline (GUP) on the stochastic gravitational waves (SGW) foundation flag that created amid to begin with arrange cosmological QCD stage move in early universe. A altered equation of entropy is utilized to calculate the worldly advancement of temperature of the universe as a work of the Hubble parameter. The weight that comes about from therecent cross section calculations, which gives parameterizations of the weight due too, 4, squarks and gluons, with follow irregularity is utilized to depict the condition of state around QCD age. A red shift within the crest recurrence of SGW at current age is calculated. The results indicate an increment within the recurrence top due to GUP impact, which improves the capacity to identify it. Taking into consideration bubble divider collisions(BWC)and turbulent magneto hydrodynamics(MHD)as a source of SGW, a fragmentary vitality thickness is explored. It is found that the GUP impact debilitates the SGW signal created amid QCD stage move in companion to its counter portion within the nonexistence of GUP. These comes about bolster understanding the cosmological QCD stage move and test the viability of the GUP hypothesis.

1. INTRODUCTION

One of the foremost vital physical wonders that have pulled in both consideration in hypothetical physicists and observational astrophysicists is the revelation of gravitational waves (GWs). It is known that, from the merger of dark gaps by Laser Interferometer Gravitational-Wave Observatory (LIGO) collaboration. GWs usher in a modern period in space science and cosmology[1]. LIGO locates are organized in such a way that they work in full recurrence range(1010Hz), for recognizing sources like compact parallel in spirals. Too, to distinguish lower recurrence sources(10-5-10z), GWs signals from sources such as Supernovae and eLISA experiment[2], have been proposed. In addition, a few setups counting Square Kilometer Array(SKA)[3,4] and Pulsar Timing Array(PTA)[5] can degree recurrence extend indeed lower than10-5Hz(around10-9Hz).

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Research on utilizing compressed airflow to clean and Cool Solar photovoltaic panels

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ABSTRACT

Sun oriented photovoltaics (PV) are getting to be one of the most sources of renewable vitality to diminish carbon emanations of power supply. It is well perceived that clean amassing and tall temperatures result in a sensational decrease within the execution of PV boards. To progress the proficiency of sun oriented PV boards, a compressed air-based direction strategy which can at the same time clean and cool PV boards is considered and tried. A displaying think about of the clean attachment and separation instrument is conducted and the temperature variety caused by the discuss blowing handle is examined. Energetic models of the compressed discuss discharge are inferred which can be utilized to direct the plan of the control framework for expanding PV control yield. A test framework is created for confirming different plan and framework parameters. The test comes about are utilized to approve the appropriateness of the demonstrating and outline how the wastefulness emerging from drying and tall temperatures can be relieved with the directed compressed wind stream. PV clusters serving in an parched locale are received for this consider and the expanded vitality surrender emerging from the cleaning and cooling impacts is assessed by means of the test test

1. INTRODUCTION

Worldwide sun oriented control capacity expanded from 25 GW at the starting of 2010 to about 618 GW in 2019, and the in general speculation within the sun powered vitality segment inside the Center East and North Africa (MENA) locale, which is perfect for photo voltaics (PV) establishment, might reach \$1 trillion between 2019 and 2023 (Center east sun oriented industry affiliation, 2020). In any case, tally amassing and tall board temperatures impressively decrease the execution of the sun powered boards, making them a less viable elective vitality source. For PV modules serving within the Eastern portion of Saudi Arabia, the yield control diminishes by as much as 50% in the event that uncleaned over a six-month period (Adinoyi and Said, 2013). In Kuwait, a 60% control diminishment emerging from board drying has been re-ported for the same term (Sayigh et al., 1985).

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Effect of Strategic Planning of Human Resources in Management Performance

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ABSTRACT

Strategic planning is a crucial step in the administrative process because it is regarded as a particular way of thinking and doing business that helps the organization select the options that best fit its objectives and capabilities. The purpose of this study was to ascertain the strategic interaction between (HRP) and the performance of project management in infrastructure contracting companies, as well as the role that HRP plays in addressing external challenges. The study also sought to ascertain the impact of HRP's dimensions—needs assessment, dealing with results, environmental variables, and human resources plan—on the performance of project management, which includes time, cost, safety, and quality. The researcher created a scale to address the study's questions by using the descriptive approach in the investigation. 120 workers from infrastructure contracting firms made up the study sample, and they were split up into non-overlapping groups.

Keywords: Strategic Planning; Human Resources; Construction Project; Management Performance; Infrastructure Contracting Companies; AMOS.

1. INTRODUCTION

One of the primary pillars of the economy is the construction sector, which encompasses all activities related to the development of significant real estate and infrastructure as well as the maintenance and repair of any already-existing projects. A variety of corporate stakeholders are also involved, including government representatives, contractors, professionals, and real estate developers. Furthermore, in civilized societies, infrastructure serves as the foundation and vitality for all economic, social, and political activity. Numerous studies that demonstrated the beneficial effects of infrastructure services' availability because of their significance in attaining sustainable development supported this. It helps to raise GDP, which in turn raises the nation's standard of living. Given the current state of uncertainty in the organization, it is imperative that it project its future requirements for human resources (HR) with a variety of skills, competencies, and specializations.

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Effects of HDPEU Utilization and Addition of Wetfix-Beto Asphalt Pavement in Tropical Climates

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ABSTRACT

One of the main sources of pollution is plastic waste (PW), which can clog drainage systems and result in flooding and damage to road surfaces. The development of HDPE is one of the main strategies to lessen pollution caused by plastic waste and reverse of natural resources. Improving the quality of the asphalt used in construction is another important way to lessen damage to road pavement structures. Thus, the purpose of this study is to examine the effects of adding Wet fix-be to asphalt pavements in tropical climates and using HDPE shale, an environmentally friendly material. According to the study's findings, 5.75 percent of OAC asphalt made with plastic waste increases stability values and satisfies specification requirements. Additionally, specimens of the AC-WC concrete asphalt mixture were tested by submerging them for 5, 24, 72, and 96 hours in fresh and subwater. In conclusion, the AC-WC concrete asphalt mixture remains stable when HDPE plastic waste and Wet fix-be are used.

Keywords : HDPE ,Wet fix-be; Soaked AC-WC , Pavement.

1. INTRODUCTION

Indonesia is among the Southeast Asian nations with a tropical climate because of its equatorial location. Indonesia is extremely vulnerable to natural disasters because of its location in the Pacific Ring of Fire, according to preliminary studies. The failure to strike a balance between heavy rainfall and sufficient infrastructure will surely have an effect on neighborhood issues like damaged roads and pavement. This destruction, commonly referred to as a puddle, typically occurs when rainfall and water retention in the ground exceed the soil's retaining capacity .The capital and hub of Indonesia's economic expansion, Jakarta, frequently faces issues due to heavy rainfall. Every time there is a prolonged period of rain, this capital city floods, submerging some road points .Road flooding brought on by severe weather is a common problem that affects almost every region on Earth. As seen on the unbound layers beneath the bound surface, it frequently results in the short- or long-term deterioration of pavement layers built with hot-mix asphalt (HMA)[1].

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Effects of Stir Casting Baffles on Hardness and Microstructure: Investigation of Designed Aluminum Composites

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ABSTRACT

Researchers are under pressure to create lightweight materials that are affordable, environmentally benign, and scalable due to the growing demand for lightweight material specifications. Given that Indonesia has the second-longest coastline in the world, it has an abundance of marine resources, including sea sand. Sea sand can be used as an engineering reinforcement in aluminum composites because of its ceramic contents of SiO₂, SiC, and Al₂O₃. Stir casting is the most efficient way to make AA6061-sea sand composites, but its biggest drawbacks are in the homogeneity and distribution of the particles. Particle homogeneity and distribution are influenced by a number of factors. The homogeneity and dispersion of the particles are impacted by the heightened turbulent flow during the stirring process. Adding baffles is one method to stir up a turbulent flow.

Keywords: AA6061; Sea Sand; Mechanical Properties; Stir Casting; Baffle.

1. INTRODUCTION

Every year there is a greater demand for materials that are strong and light. Lightweight materials are beginning to be used more often in the automotive and manufacturing sectors, as well as in a number of other industries like sports, health, and food and beverage. Metal matrix composites are one material that is still being developed. Because aluminum has a great strength-to-weight ratio that can be increased, aluminum matrix composites are typically used in a variety of industries [1-3]. In the manufacturing process, ceramic oxides and particles are used as reinforcement in aluminum composites. Since ceramics and their oxides of Al₂O₃, SiC, SiO₂, and Fe₂O₃ have excellent mechanical and thermal properties, they are frequently utilized as reinforcements. Sea sand is one of the natural resources that is rich in SiO₂ and Fe₂O₃ oxides. The content of SiO₂ and Fe₂O₃ in sea sand from Java's south coast is 42.2%.

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Evaluating the Compressive Strength of Recycled Aggregate Concrete Using Novel Artificial Neural Network

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ABSTRACT

In this work, a novel artificial neural network (ANN) that makes use of a sigmoid function to enable the proposal of closed-form equations is used to study the compressive strength of concrete made from recycled aggregate and to propose an intelligent prediction. After a thorough search of the literature, 476 data points containing cement, sand, aggregates, fine-to-course recycled aggregates, water, and plasticizer were found. These data points served as the intelligent model's input variables and the components of the concrete. The model's output variable was the recycled aggregate concrete's (RAC) compressive strength (f_c), which was investigated through a number of experiments. The concrete strength data points gathered from the literature demonstrate a steady and continuous strength improvement with the rise in the ratio of recycled aggregate but the concrete compressive strength prediction model's result reveals impressive performance indices: for the model training and testing, respectively, r is 0.99 and 0.99, R2 is 0.98 and 0.97, MSE is 28.67% and 44.64%, RMSE is 5.35% and 6.68%, MAE is 4.12% and 5.01%, and MAPE is 12.73% and 13.83%.

Keywords: Compressive Strength; Recycled Aggregate Concrete; Sustainable Construction; Eco-friendly Concrete.

1. INTRODUCTION

Fifty percent of the solid waste generated globally annually is generated by the building materials and construction industry. As per the 2018 statistics, the global construction and demolition (C&D) waste amounted to approximately 3 billion tons, signifying approximately 50% of the total solid waste produced. As a result, making use of the waste products from C&D has gained significant importance. Studies conducted over the course of nearly 70 years have shown that the production of recycled aggregate concrete (RAC), a new generation of concrete, can benefit the environment and the economy by substituting recycled aggregate (RA) from C&D for natural aggregate (NA).

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A basal ganglia-derived simple unit complex structure neural network model for simulating reinforcement learning tasks

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ABSTRACT

In the field of computational psychiatry, reinforcement learning tasks aim to measure a subject's sensitivity to rewards and punishments. We aim to provide a mechanistic explanation of the behavioral data of participants performing reinforcement learning tasks at the Medical University of Wrocław by reproducing the observed trends through computer simulations of a neural network with a complex structure of simple units developed quantitatively. The network mimics the basic features of the basal ganglia. This is a group of subcortical nuclei located in the brain responsible for motor skills and learning about rewards and punishments. We demonstrate the performance of the proposed network in three reinforcement learning tasks: a probabilistic selection task, a probabilistic inversion task, and a prescriptive version of the probabilistic learning.

Keywords: Basal Ganglia model; instructed probabilistic selection task; Goan NoGo learning; learning from rewards and punishments;

1. INTRODUCTION

In the field of computational psychiatry, reinforcement learning tasks aim to measure a subject's sensitivity to rewards and punishments obtained in choice trials of successive competing stimuli [7]. The measured values are directly related to the subject's cognitive functioning and provide a quantitative overview of such phenomena as confirmation bias, exploratory behavior, Go and NoGo learning, etc. [11]. One of the most common uses is to compare patients with cognitive disorders (e.g. schizophrenia or Parkinson's disease) with a healthy control group [16]. A brain structure involved in learning positive and negative outcomes is the Basal Ganglia (BG) [14]. Cognitive neuroscientists refer to this construct to provide a unified account of experimental results regarding reinforcement learning tasks [13]. Hence the importance of VS modeling, which includes so-called biologically plausible neural networks that represent the relationships between VS components and the activity of the neurons that make up these components.

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IoT System Authentication Mechanisms Based on MQTT Decentralized Brokers: Overview and Challenges

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ABSTRACT

Due to the rapid growth of Internet devices and the huge amount of data generated and exchanged in the IoT environment, we need to rethink the current IoT architecture based on cloud computing to avoid performance and scalability issues. Message Queuing Telemetry Transport (MQTT) is one promising IoT communication protocol that can face such problems because it relies on a central broker in the cloud, which can increase network congestion, performance overhead or bottlenecks. Therefore, we need to take advantage of fog computing by developing an MQTT distributed architecture that spans multiple brokers. In this case, IoT services can be coordinated and managed between fog and cloud computing. However, this opens up new security issues for several reasons. First, security procedures must be changed, because MQTT based on a distributed architecture requires more brokers and different communication standards, which can increase security threats and change the complexity of security management.

1. INTRODUCTION

Handling and managing the large amount of data produced and transmitted in an IoT environment are critical issues that affect the efficiency and scalability of a cloud-based IoT system. One of the IoT protocols that can encounter such problems is Message Queue Telemetry Transport (MQTT), because it relies on a centralized broker in the cloud for client (publisher and subscriber) communication, and this can cause network congestion, performance overhead or a bottle, things. As a result, we need to take advantage of fog computing by developing an MQTT distributed architecture that spans multiple brokers. In this case, IoT services can be coordinated and managed between fog and cloud computing. Cloud computing has recently been introduced as a complementary technology to cloud computing to provide some special features such as low latency, location awareness, geographic distribution, advanced security, and real-time processing [1].

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A study of Social and a Graph Database in the Context of a Recommendation Framework

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ABSTRACT

This paper presents a comparison between social and graph-based database systems' execution in a advanced web application proposal framework. The comparison is conducted on five diverse questions beginning with straightforward ones, leading up to more complex inquiries, that are performed in a normal web social application. The usage is exhausted C# using .NET system and the database frameworks utilized are SQL Server and Neo4j. For the comparative ponder we used a database outlined within the setting of a proposal framework for a culinary application. In arrange to successfully test the execution of both chart and social database frameworks, tests were performed on four information sets that contain 350,000, 700,000, 1,400,000 and 2,100,000 sections. The tests infer performing five diverse recovery questions taken in arrange of trouble both in SQL and Neo4j.

1. INTRODUCTION

WEB applications and mobile applications have gained popularity in later a long time, being user-friendly, offering product and a simple to use environment for research, reading, buying and so on. While Considering the reality that clients regularly favor the utilize of a mobile or a web application, over physical assets, for speedy data search, the creation of web applications that quickly provide data based on user filtering appears natural and has gotten to be well spread. Be that as it may, this might not be sufficient for clients, who are energetic to quickly learn approximately an item based on their preferences, without having to rummage around for specific criteria lead the way for improvement of more complex suggestion frameworks. For a lion's share of individuals, particularly individuals living in an urban environment, time-consuming exercises hold them from spending time investigating. This will be avoided by the improvement of online web application that gives quick and inventive thoughts based on users' habits. The recommendations, within the shape of reactions to clients, have to be conveyed quick, no matter how complex the application gets to be, because it may be a prerequisite suggested by the fast-paced living period.

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Approaches and Challenges of Connectivity Maintenance in IoT-based Mobile Networks

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ABSTRACT

Network is a vital prerequisite in nearly all IoT-based remote systems. The multi-hop systems utilize middle hubs to make a communication way between other hubs. Consequently losing a few hubs may cut off all communication ways between other dynamic hubs. By and large, the network of a divided arrange can be reestablished by including unused or actuating excess hubs, moving accessible hubs to the modern area, and expanding the remote communication run of hubs. The rebuilding issue may have numerous limitations and sub-problems. The organize may at first be disengaged, the hubs may be heterogeneous, solid associations may be required between the hubs, we may have inaccessible areas within the arrange zone to put the modern hubs or move energizing hubs, more than one hub may fall flat at the same time and the anticipated scope range may complicate the connectivity reclamation issue. In this paper, we ponder the most challenges and strategies of network rebuilding in IoT-based remote systems.

1. INTRODUCTION

Internet of Things (IoT) is one of the fastest-growing and promising innovations that as of now shaped a transformation in day by day human life. In later a long time, the modern era of keen buildings, structures, vehicles, dress and nearly all sorts of objects that each day are utilized by individuals advantage from IoT advances [1], [2]. Actually, IoT could be a set of little, low-energy electronic gadgets that can interface to the Web over wired or remote communication stages [3], [4]. These gadgets may have diverse sorts of capabilities such as handling, detecting, and information capacity. Later propels in electronic and equipment innovations permit the era of a wide run of modest, low-cost, low-energy gadgets that back nearby preparing, detecting, and different communication strategies. The differing qualities and capabilities of IoT gadgets develop exponentially day by day which permits individuals to utilize them completely different application ranges.

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**Supervised Machine Learning for the Identification
Of False Reviews**

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ABSTRACT

With the widespread usage of e-commerce platforms, online reviews are primarily seen as an essential component of creating and preserving a positive reputation. Additionally, they play a useful part in helping end users make decisions. Positive reviews typically draw in more customers and result in a significant rise in sales for the target product. These days, it is intentional to write false or misleading reviews in order to attract potential clients and improve one's online reputation. As a result, the detection of fraudulent reviews is an active field of study. Reviewer conduct has a role in identifying phony reviews in addition to the reviews' salient characteristics. This research suggests using machine learning to detect fraudulent reviews. Furthermore, to the extraction of features This research uses multiple feature engineering techniques to extract different reviewer behaviors during the review process. The performance of multiple tests conducted on an actual Yelp dataset of restaurant reviews with and without features derived from user behavior is compared in this study.

1. INTRODUCTION

These days, reviews serve as the primary information source for consumers looking to make decisions on goods and services. They determine whether to reserve rooms or not based on the reviewers' comments. They will most likely go ahead and reserve the room if the reviewers gave them great feedback. As a result, the majority of users of various web sites now regard past evaluations as extremely reliable sources of information. Reviews are thought of as genuine feedback platforms for discussing either positive or negative services, therefore any attempt to influence them by creating false or phony content is regarded as dishonest behavior and will result in the reviews being flagged as fraudulent. This kind of situation makes us wonder: what if some published reviews aren't reliable or honest? How about if these reviews aren't all real. As a result, the field of fake review detection has grown active and continues to be so. The detection of fraudulent reviews of online content can be greatly aided by machine learning techniques. Generally speaking, web mining techniques use a variety of machine learning algorithms to locate and extract important information.

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Reducing the Vehicle Routing Problem with GPU-Accelerated Genetic Algorithm Optimization

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ABSTRACT

With several applications, the capacitated vehicle routing problem (CVRP) is an NP-hard optimization issue. CVRPs are frequently solved using genetic algorithms (GAs), although tuning GAs requires a large number of parameters and operations. Four solutions can arise from incorrect settings. To find the ideal GA parameter settings, a design of experiments (DOE) approach is employed in this work. The NVIDIA RTX 3090 GPU powers the GA in its entirety. A 200-node benchmark's GPU execution demonstrates a speed increase of 1700 over an octa-core i7 CPU with 64 GB RAM. After only 263 generations, the tuned GA found a solution for a 400-node benchmark that is 72% better than that of an arbitrarily tuned GA. New benchmark values for a number of Moreover, multiple benchmarks are attained. Additionally, a comparison of the algorithm's performance using various hardware configurations and tuning sets is provided.

1. INTRODUCTION

In capacitated vehicle routing problems (CVRP), genetic algorithms (GAs) are frequently employed to identify nearly optimal delivery/pick-up routes through a set of sites. A two-level 2 factorial design of experiment (DOE) is employed to ascertain because of the numerous parameters and operations used in the GA and the lack of knowledge regarding the impact of parameter interactions. The optimal GA parameter settings. Pilot tests are conducted using minor problem conditions in order to determine the parameters. Subsequently, bigger problems are solved using the adjusted settings. To maximize GPU's parallel execution capabilities, the developed GA (GPU-GA) runs exclusively on GPUs [1]. For a 200-node benchmark, the optimized algorithm yielded an 8.89% difference from the most well-known solutionM-200-k17 issue [3] 50,000 generations later, compared to arbitrary parameter sets within 263 generations alone, there was a 72% improvement in the gap for a 400-node benchmark, and new best-known values for additional challenges. GPU's achieved a 1700% increase in execution performance over sequential CPU executions (GA is a GA algorithm with a 2-opt local search). The technique of close restriction maintains population variety throughout the evolutionary process.

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An Ideological Artificial Neural Network Model for Receiving Management in Warehouses

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ABSTRACT

This study aims to investigate an appropriate Artificial Neural Network (ANN) approach for reception management in warehouses. To identify and count the components, a hypothetical artificial neural network model is suggested. The suggested model is composed of a standard picture library, an artificial neural network (ANN) system to count the number of items in the image and provide objects for identification from the real-time images. The joint probability from the Bayes theorem and the image pixel values for shape analysis and pre-defined features were accepted by the authors as the qualities of pictures for shape analysis and four fundamental mechanical design shapes. Counting objects is used in this study. The suggested conceptual paradigm makes classification and counting easier than with previous ANNs. A small image dataset relevant to industrial enterprises is used to test the model. According to the preliminary findings, the suggested model has an 80% classification accuracy rate and a 97% counting accuracy rate. A few problems are related to the model's development, such as investigating strategies to improve component identification accuracy rates and testing the model on a larger dataset.

1. INTRODUCTION

The industry management team is under constant pressure to optimize their business processes in the highly competitive industrial environment of today, where consumers demand high-quality products at low profit margins with quick delivery timeframes. On the other hand, there have been issues with data mistakes or information delays at the warehouse receiving stage, which require immediate attention from the management team.

The basis for all supply chain management and business activities is the data in the enterprise warehouse's receiving stage. Accuracy is regarded as one of the most important aspects of commercial and manufacturing operations. The data frequently has a major overall impact on the supply chain profit forecast. At the warehouse receiving stage, the resolution of erroneous data is contingent upon an appropriate management model.

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Adaptive algorithm for generating keys utilizing software Engineering techniques

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ABSTRACT

The strongest security key in terms of randomization has recently been guaranteed through the generation process. Furthermore, the aforementioned objective is ensured through the adoption of software engineering practices. This study proposes an adaptive key generation approach using software engineering methods. The self-checking method is an adopted software engineering technique that is used to find the error in the underlying system. This method verifies the produced security keys according to validity predicted on elements of unpredictability. Test findings from the National Institute of Standards and Technology (NIST) are among these variables. If the randomness factors are smaller than the permitted ranges, the key is created again until the valid one is found. It is significant to remember that the SIGABA method and shift register are used to produce the security keys. The suggested algorithm is put to the test using a variety of case studies, and the outcomes demonstrate how well it performs in terms of producing randomly generated keys.

1. INTRODUCTION

The need to find robust security keys that can withstand hacker key-banking techniques has grown significantly in recent years. Therefore, the studies, techniques, and algorithms that were presented were meant to provide these kinds of keys for use in security algorithms. This will result in a security level that effectively thwarts hacker attempts. Various methods have been used to produce security keys that vary greatly in length, subsequence, and correlation. On the other hand, these strategies have been integrated with software engineering techniques to boost the generated security key's resilience against dominating attacks across a wide range of applications. Among these approaches is the fault tolerance methodology, which relies on a self-checking mechanism to identify errors that occur. The remedy for Depending on the program being used, there are various approaches to remedy the detected error. Because security key management is so important to security research, a lot of researchers have concentrated on coming up with effective algorithms.

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Cloud Computing's Importance in Libraries
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ABSTRACT

The concept of cloud computing in libraries has been increasingly popular in recent years. In fact, even recession-affected countries started to realize that increasing the complexity of PCs for quick access to information would increase their profitability. Data and library-related data can be stored on cloud servers. This essay will look at the significance of PC blurring, its advantages, its drawbacks, the different types of virtual clouds, its influence on libraries and libraries that use cloud computing, security concerns, and other related topics. PC computing is web-based registration. The introduction of cloud computing to school libraries will soon lead to an increase in library services. We all agree that libraries will contribute more information benefits to our nation with the help of cloud computing. The services they provide will prove to be more client-focused, driven, expert, and successful, among other things. Cloud climate is a highly developed network environment. The clients perceive it as having good security and excellent service. In addition to accelerating the use of resources, cloud computing tactics and approaches implemented in advanced libraries can also alleviate the discomfort that is developing across districts and make use of cloud computing in our daily lives at work.

Keywords: cloud computing, benefits of cloud computing, cloud models, PaaS.

1. INTRODUCTION

One of the hottest technologies in today's industries and educational fields is cloud computing. With cloud computing, customers and businesses may use apps without setting up shop and access their own files or data from any PC with an internet connection. Highlights of several breakthroughs, such as web 2.0 assistance organized design, grid registration, cloud computing, utility processing, and bond together figure, are included in cloud computing. Cloud processing innovation is providing libraries with amazing benefits to quickly associate their services in addition to in updated configurations with the flexibility, including pay as you use model access anywhere, anytime, etc. Libraries nowadays are using closed-loop registration technology to improve services by incorporating additional features that attract customers and maintaining cost-effectiveness. Mists, with their array of organized highlights and on-demand asset categorization, are enormous asset pools in the cloud computing environment.

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Security at Multiple Levels with Honey pot

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ABSTRACT

These days, security is turning into a big problem. Devices such as laptops are not the only ones that require security. These days, data security is becoming more and more crucial. Since everyone with access to hacking can access data, data is never safe in a social setting. However, any company can safeguard its data from all forms of cyberattacks. It is crucial. It is a necessary chore that requires labor. For this reason, data protection is the main application of honeypot security. The primary function of this protection is to interact with the location of attackers and attackers, the attackers' network, and the details of malware assaults. For attackers, honeypots will generate data logs. A honeypot provides crucial information about attackers to a researcher. They could pick it up quickly. In this study, the benefits of honeypots will be discussed. Additionally, we will study how Honeypot functions, gathers data, and protects it from hackers.

I. INTRODUCTION

Modern society places a high value on internet security. Every business is internet-based. Attackers will always be coming up with fresh and creative methods. Benefit from network security. They began to oppose the strategies they were using to get around this security problem, but they were intruders. It's a challenging task. Consequently, the idea of communicating with a honeypot has been introduced by security scientists. Honeypots are a safe haven. They neither fix anything nor offer a remedy for network issues. They serve as instruments. Depending on the user's interests, this tool can be used for constructive or destructive ideas. It is crucial to the containment of an insider threat. To safeguard information resources, the plan is to examine and address the following problems, taking into account potential system problems. Honeypot security is mostly employed in a defensive manner. At the moment, some labs are utilizing security defense technology to further up their security defense initiatives. Essentially, choose a deception target that resembles the real system.

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Grid-connected Power Control for Power Generation of Wind Turbine

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ABSTRACT

The installed capacity of new electricity power generation in China has damaged new archives for many instances in recent years. However, as the installed capability of new energy takes up a large share in the strength grid, it also brings great challenges to the safe and steady operation of the power grid. The defects of endowment of the new energy, represented by wind turbine and photovoltaic, are randomness volatility and intermittent. In order to improve the control potential of new energy era when natural resources change, it brings a new operation mode to mix wind turbine PV and second-used battery to improve the balance of the new energy generation to reach the equal degree with thermal power. At the same time, the paper studied the grid-connected manage strategy based on PQ control, constructing the microgrid grid-connected MATLAB/Simulink simulation model based on PQ control, providing the building method of every sub-module and the calculation and format approach of related manipulate parameters. Finally, the effectiveness of the manipulate system plan was verified by Simulink simulation.

Keywords: Combined Power Generation Grid-connected Control, Matlab/Simulink, PQ

1. INTRODUCTION

With the rapid development of the domestic and world economy, the types of energy consumption are become more and more pluralistic distributed and diverse. The demand for energy is also increasing day by day, and the traditional energy is increasingly exhausted. Therefore, it is extremely urgent to find new energy sources and solutions. At present, the main energy consumed is coal and oil. The main consumption of coal is concentrated in the electric power production and heat supply. Electricity as the vanguard of the national economy development plays a decisive role. Therefore, it is a necessary condition for economic development to increase the development of electric power. However, the environmental pollution caused by coal consumption has been concentrated in recent years. Represented by the north's haze weather become a social focus. So, it is imperative to explore new energy and clean energy.

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Integrating Modal Domain Transmission Line Models into ATP Software

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ABSTRACT

The Electromagnetic Transients Program heavily relies on transmission line models for simulating electromagnetic transients. This paper introduces a circuit-based depiction of modal transformations, specifically focusing on Clarke's matrix. Our proposed configuration of ideal transformers enables direct integration of modal transformation within software platforms like the Alternative Transient Program - Electromagnetic Transients Program. By incorporating this circuit design with single-phase transmission line models encompassing both frequency-independent and frequency-dependent parameters, we emulate transposed three-phase transmission lines. This approach's key advantage lies in its independence from pre-existing models within applications, allowing seamless implementation of novel transmission line models. To illustrate its adaptability, we incorporated frequency-dependent soil parameters into the simulations. Results demonstrate the precision of the proposed model in both frequency and time domains.

Keywords: Transmission line modeling, Clarke transformation matrix, electromagnetic transients, EMT-based programs.

1. INTRODUCTION

Over the past few decades, transmission line (TL) modeling has been extensively explored for various purposes such as fault detection, analyzing electromagnetic transients in frequency domains, preventing faults, applications in medicine, and more. Numerous TL models have been developed and integrated into software platforms dedicated to simulating electromagnetic transients, including the Alternative Transient Program - Electromagnetic Transients Program (ATP-EMTP), Power Systems Computer Aided Design (PSCAD), Electromagnetic Transients Program - Restructured Version (EMTP-RV), among others. ATP-EMTP, PSCAD, and EMTP-RV are specialized software designed for simulating transient phenomena, both electromagnetic and electromechanical, within power systems. They feature specialized libraries housing cutting-edge models representing power electronics, transmission lines, transformers, mechanical equipment, and various other devices.

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Introducing a New Lightning Disturbance Identification Method for HVDC Transmission Lines Using CEEMD-IHT

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ABSTRACT

In the context of high-voltage direct current (HVDC) transmission systems utilizing overhead transmission lines, protection malfunctions are often triggered by lightning disturbances. To mitigate the impact of lightning disturbances on the safety and stability of DC line protection, a comprehensive model of the HVDC transmission system is developed, accounting for lightning strikes. This study proposes a methodology that combines complementary ensemble empirical mode decomposition (CEEMD) and Hilbert transform as a time-frequency analysis approach to assess the energy distribution of signals. The protection criterion for identifying lightning disturbances relies on the low-to-high-frequency energy ratio of the 1-mode voltage signal within a 3 ms data window after protection initiation. Additionally, the low-to-high-frequency energy ratio of the current signal within a 3 ms window serves as a criterion to further distinguish between lightning and non-lightning faults. Validation through simulation tests demonstrates the scheme's adaptability and accuracy across different scenarios.

Index Terms: CEEMD-IHT, disturbance identification, HVDC line protection, lightningstroke.

1. INTRODUCTION

Due to the scarcity of fossil fuels, transitioning toward renewable, clean energy sources has become a pressing need. In comparison to AC transmission, HVDC transmission offers several advantages including cost-effectiveness, a singular structure, high transmission capacity, and unrestricted transmission range, making it a crucial technology for facilitating long-distance power delivery and establishing future goals powered by renewables.

Among the components within the transmission system, the HVDC transmission line poses the highest probability of faults. Enhancing its relay protection capabilities is crucial for ensuring the power system's safety. While overhead lines, as opposed to cable transmission, are more cost-effective, their primary protection principle based on transients is susceptible to high-frequency signals introduced by lightning strikes.

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Manufactured Neural Organize Supported Misfortune Maps for Inductors and Transformers

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ABSTRACT

The non-linear property of magnetics postures challenges for their misfortune displaying in control gadgets due to missing full physical models. As a down to earth approach for their misfortune estimation, the producers can pre-measure the misfortunes in standardise rigs and disseminate the "misfortune maps" as added look-up tables/curves for the conclusion clients. Be that as it may, with more components found that affect the misfortunes, e.g., DC inclination and stack conditions, the measurements of the misfortune maps cannot be illuminated by routine surfacecurve fitting strategies. This paper addresses this issue by applying the Fake Neural Arrange (ANN). For both inductors and transformers, Neural Network-aided misfortune maps (NNALMs) are outlined and assessed with comparisons against customary rms for tune maps to uncover the impediments of the last mentioned caused by physically inter-coupled input factors. The NNALMs not as it were appear predominant precisions all through the complete data sets but too empower the misfortune maps to extend the measurements to account for more components (e.g., stack conditions in transformers) and produce numerous yields (e.g., both the winding misfortune and center misfortune).

Key TERMS Fake neural arrange (ANN), machine learning, misfortune outline, inductor, high-frequency (HF)transformer.

1. INTRODUCTION

About all control gadgets applications include attractive components for usefulness and sifting purposes. As one of the prevailing components in estimate, weight and control misfortunes, magnetics essentially affect the execution of control converters. Be that as it may, there's no palatable first-principle show for center misfortune in a attractive component due to the non-linear center misfortune components and the inter-couple disintegrated, such as the DC predisposition. In expansion, comparative to the center misfortune, the winding misfortune moreover mostly offers the nonlinearity due to the field intuitive with the center and complex geometries, which can barely be captured by the conventional equation-based strategies

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Refinement of a Scaled-Down Frequency-Dependent Transmission Line Model

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ABSTRACT

The rise of power electronic equipment in the power grid has led to increased occurrences of both electromechanical and electromagnetic transients. Over the past decade, extensive research has been dedicated to studying these interactions. Frequency-dependent transmission line models play a crucial role in comprehending such dynamics. This paper presents a methodical approach to create an experimental scaled-down 220 V model based on the frequency-dependent transmission line of a 230 kV line. Utilizing modal transformation, a reduced-order lumped-parameter model for the 230 kV line is derived and then scaled down to 220 V. Clarke and inverse Clarke transformations are applied through specifically designed 1- π transformers. The inductances in the scaled-down model are actualized using amorphous cores.

Keywords: Amorphous core inductors, frequency-dependent transmission line models, lumped parameter models, modal transformation matrix, switching transients, unbalanced faults, universal line model.

I. INTRODUCTION

Traditional synchronous generator-based power systems are evolving into converter-dominated grids due to the increased integration of renewable energy sources, HVDC transmission, and FACTS devices. This shift introduces a higher occurrence of both electromechanical and electromagnetic transients due to the presence of power electronic converters. The reduced disparity in the frequency of these transients emphasizes the need for intricate modeling of individual components within the power system. With the accessibility of detailed models and the advancements in real-time simulators, experimental models of electric power systems have been entirely supplanted worldwide.

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Single Pole-to-Ground Fault Detection in MMC-HVDC Transmission Lines Using Voltage Correlation

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ABSTRACT

This study delves into the distinctive fault voltage traits in modular multilevel converter high voltage direct current (MMC-HVDC) transmission systems, highlighting the evident divergence in positive and negative voltage relationships in cases of single pole-to-ground faults compared to other faults. Utilizing the Pearson correlation coefficient as a measure of this dissimilarity, the research demonstrates that, during single pole-to-ground faults, the correlation coefficient exhibits a positive and near-unity value, contrasting with negative and close-to-negative-one coefficients for other faults. The article examines the correlation coefficient's mechanism in handling transition resistance and validates the proposed method's efficacy in instances of high-resistance grounding faults. A novel scheme is introduced, amalgamating the summation of voltage variation characteristics to discern fault poles efficiently. This innovative approach necessitates a smaller time window, boasts high efficiency, and demonstrates robustness in handling transition resistance.

Index Terms: MMC-HVDC transmission, high resistance ground fault, Pearson correlation coefficient, fault detection.

1. INTRODUCTION

Presently, high-voltage direct-current (HVDC) transmission lines covering vast distances have garnered increasing attention worldwide due to the substantial integration of renewable energy sources like wind and solar into the primary power grid. The power industry demands a notably safe and steady operational framework. A pivotal aspect of HVDC systems involves precisely and reliably identifying faults within the transmission line. Compared to conventional HVDC systems, modular multilevel converter (MMC) HVDC systems offer numerous advantages, including the absence of reactive compensation or commutation failures, independent regulation of active and reactive power, and the capability to power passive systems, among others. These advantages have positioned MMC as a significant area of research. The protection of HVDC transmission lines becomes a crucial technical challenge that the MMC-HVDC transmission system must resolve.

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Innovation for prospective electricity source through solar cellular

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ABSTRACT

The object of the research mission is to decorate solar power conversion into electricity and shop it via photovoltaic cells. Various parameters had been studied in a picture galvanic having D-Xylose+MB+Brj-35+NaLS PGS (photovoltaic system) for solar cell conversion and storage. The photo potential was observed at 684.00 mV for D-Xylose+MB+Brj-35+NaLS PGS for solar cells. The photocurrent was observed at 230.00 μ A in D-Xylose+MB+Brj-35+NaLS PGS for solar cells. The impact of sun electricity becomes studied by way of various the diverse parameters in PGS for solar electricity-based conversion and storage. The D-Xylose+MB+Brj-35+NaLS PGS for solar cell performance was found 110.00 minutes in absence of light. The value of fill factor of the cell (FF) = 0.2910 was observed and the powerpoint of the cell (PP) = 56.23 μ W was obtained for the solar energy conversion and storage.

1. INTRODUCTION

The intake of fossil fuels like timber, coal, kerosene, etc. is unexpectedly accomplishing towards their nearly complete depletion. The non-renewable energy resources have their own barriers at the side of dangerous strategies concerned and pollutants growing environment. The worldwide scientific network is prepared to go looking the renewable source of power to feed the entire international with non-polluting nature and business viability. Therefore sun energy is the fine choice to satisfy the energy call for. Promising photochemical reactions like photosynthesis and photolysis of water are the premise for solar electricity contents. Rideal and Williams [1] have been pioneers to study photogalvanics. Whereas, Robinson [2, 3] has systematically investigated the endergonic photochemical reaction between iron thioam system and has found this photochemical reaction very well and its suitability for trapping solar strength as supply renewable electricity. It changed into also supported with the aid of the research work of Suda et al. [4], Marthy et al. [5], Bayer et al. [6] for advanced some photogalvanic cells with semiconductor. The most excellent outcomes were referred to by means of Wildes et al. [7], Dixit and Mackay [8], Albery and Archer [9], photoelectrochemical manner have been found by using Memming [10], Hamdi and Alwa [11]

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Solar Panel Cleaning System Based on the Adriano Microcontroller
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ABSTRACT
The large-scale adoption of renewable energy throughout the world is solely increasing. In terms of economic efficiency, massive photovoltaic (PV) installations are only slightly inferior wind strength plants, which makes solar energy an attractive strength resource, now not only for the construction of solar power stations, however also for putting in solar panels in households. In this paper, the authors address the urgent trouble of clean solar energy. This paper provides the effects of a find out about of the selection of an engine, an electric power for it and the software environment of an autonomous and dependable machine for cleaning solar panels. The predominant benefits and hazards of solar panel cleansing systems are considered. A device characterized by low electricity consumption and the absence of the opportunity of panel shading, was sooner or later designed. To date, a sample has been assembled that can clean the SDM-50 panel from snow, dirt, sand and different contaminants.

Keywords: solar energy, solar panel, solar panel cleaning system, solar power plant, Arduino

1. INTRODUCTION
To support the creation of micro-generation facilities and increase the share of renewable energy sources in the country's energy balance the Federal Law No. 471 was adopted on December 27, 2019. -" An amendment to the Federal Law on the Electricity Industry"- by the State Duma of the Federal Assembly of the Russian Federation was also made- in terms of the development of micro-generation. This law introduced the concept of "micro-generation facility", thereby simplifying installation, grid connection and the sale of electricity to individuals. The main sources of such mini power plants are renewable energy sources, especially solar and wind energy. Over the last 50 years, there has been a tendency to reduce the cost of equipment used to generate energy using renewable energy sources. The cost of solar panels is falling rapidly due to lower accompanying expenses for installation, lower component prices, and marketing efforts and market capture. All this contributes to the reductions in the cost of generating electricity using solar panels and their use both in households and the construction of solar stations. However, the actual solar energy is an issue related to the cleaning of the front surfaces of photovoltaic panels (PV).

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Solar panel performance enhancement using water filter

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ABSTRACT

Performance discount of photovoltaic cells caused by increasing temperature, is an vital problem that restricts their use inside the middle of the day particularly in summer. A brand new fee-powerful approach to boom the solar cell performance is presented to relieve the trouble. A combination of forty fiberglass small cells is used in the form of a panel to perform the experimental assessments. Water is used as absorbent of warmth to reduce high temperature effects on the panel and the take a look at consequences show that the panel performance is expanded the usage of the suggested technique with the aid of quantity of at least sixteen.8%. A 300W halogen lamp is seemed as the mild source during the experiments

1. INTRODUCTION

sun energy is a loose and natural power supply available on the earth floor and is turn out to be popular in recent years due to its benefits like ease of use and renovation, environment pleasant traits, and potential of installation in nearly anywhere [1,2]solar cells can convert sun strength from sun mild to electric energy. generally an array of series-parallel cells are linked to every other to shape a place to obtain applicable amount of energy.those modules may be used in many packages from large sizes to set up a photovoltaic solar electricity-station, to small sizes to design a pocket-length solar energy financial institution. the primary trouble of solar cells is their lowefficiency. Many research are accomplished to represent and recommend strategies to increase the performance of panels [3,4,5,6]solar panels are sensitive to temperature and their performance decreases as temperature is going high.at some stage in production, solar panels are tested mainly in27 °C underneath everyday test situations, however they're used within the day light in which the daylight may also cause the temperature move very upper. Of path, the more the daylight, the extra electric powered power produced, but additionally the less the performance because of the rising temperature...

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Time-Domain Fault Localization Technique for Double-Circuit Transmission Lines Linked to Extensive Wind Farms

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ABSTRACT

This paper presents a novel time-domain fault localization algorithm designed for two-terminal parallel transmission lines associated with extensive wind farms. The newly proposed algorithm utilizes synchronized current samples from a half-cycle data window at both line terminals to circumvent inaccurate current phasor estimations arising from sub- and inter-harmonics generated by wind farms. It eliminates the necessity for transformation methods to decouple the double-circuit transmission line and accounts for line asymmetry effects and potential couplings among the six phases. The fault location equation is derived by equating the differential components of calculated instantaneous voltages at the fault point, facilitating direct fault distance estimation without iterative algorithms. Emulation of the two-terminal parallel transmission line occurs on the PSCAD/EMTDC platform, employing the frequency-dependent phase model, with fault location calculations executed on MATLAB software.

INDEX TERMS: Fault location in domain, double-circuit transmission line, large scale wind farms, current sampling.

1. INTRODUCTION

Double-circuit transmission lines are extensively utilized in power transmission systems. Fault location estimation in these lines is notably more intricate compared to single-circuit lines due to potential couplings between parallel circuits and the potential occurrence of cross-circuit faults. Various fault location algorithms have been proposed, encompassing traveling-wave-based, high-frequency component-based, knowledge-based, and frequency-domain-based schemes. However, schemes reliant on traveling waves or high-frequency components prove intricate and costly, demanding high sampling frequencies or specifically tuned filters for high-frequency component measurements. Knowledge-based schemes initially necessitate manual training and lack applicability to new transmission lines without undergoing a fresh training process. Moreover, frequency-domain-based fault location schemes, while well-established in literature for double-circuit transmission lines, encounter challenges in accurately estimating voltage and current phasors at line terminals, particularly during fault transients.

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Research of a brand new Topology for Multilevel Inverters Fed with the aid of Photovoltaic machine for Linear Induction Motor

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ABSTRACT

On this paper, a new shape of multilevel inverters with the decreasing the count number of applied energy system is offered. This inverter consists of two elements, a simple module, and an H-bridge, since the fundamental module part is handiest capable of generate tremendous and 0 voltage ranges, so the H-bridge is attached to the primary module to generate all tiers symmetrically (fantastic and negative). The newly recommended inverter is investigated by way of enter supply determination algorithms and the overall configuration of the converter is proposed with the capability to increase to a excessive wide variety of tiers. From the overall shape of the proposed multilevel inverter, one circuit is chosen to perform all the simulations, implementations, and other research on it, furthermore, so as to investigate the proper operation of the proposed shape, this inverter has been simulated in the application of a linear induction motor in which the inverter voltage resources are powered by means of photovoltaic structures. The energy losses of the case-study circuit with symmetrically decided input assets using the NLC modulation approach are investigated for three various loads.

1. INTRODUCTION

Recently, multilevel inverters (MLIs) have been widely considered by researchers and are among the most widely used power electronic converters. Since MLIs provide high-quality output voltage and current in converting DC voltage sources to AC, they have gained wide application in the industry. Providing high-quality output waveform (current and voltage) on the AC side, having fewer problems related to electromagnetic compatibility (EMC), proper division of the task of generating output voltage between inverter switches, right operation in high voltage/energy programs, and less strain on power switches of the inverter are a few of the maximum critical benefits of MLIs as compared to two-level inverters. due to the noted features in MLIs, those strength electronic converters have determined extensive utility in numerous fields of strength electronics. many of the maximum vital programs of MLIs are energetic electricity filters, uninterruptible power deliver (UPS),

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Implementation of an Automated Attendance System using Deep learning and CNN

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ABSTRACT

Due to the shortcomings of the existing attendance system, which was always time-consuming and created problems for the employees of institutions and organizations, we want to implement an attendance tracking system that uses deep learning techniques and thus exploits its potential. In the field of facial recognition and recognition. First, we take a photo of the students in the classroom and use the OpenCV module to detect and crop the faces in the image. In the next step, we enhance these frames with an image enhancement model. In the final phase of the project, we will build a Convolution Neural Network (CNN) that will train these facial images and compare them with student records stored in the database, thus updating students' attendance. Our system promises an easy-to-maintain trouble-free attendance system and with other integrations can be used for other industrial needs and is not limited to educational institutions.

1. INTRODUCTION

Digital image processing: Digital image processing means processing images using computer algorithms. As a subcategory of digital processing, image processing is considered and known to have several advantages over its predecessor. It usually has a wide range of algorithms that can be applied to reduce problems such as noise or distortion during image processing. Pictures are usually known to be multidimensional and therefore image processing models or modules also have multiple attributes. In general, image processing is a process in which the image is changed better using various methods techniques. A facial recognition system is when a system of modules or software can recognize and recognize a person. Facial recognition modules typically work in different ways, but one concept that applies to each module is the comparison of individually selected facial features. It can be called an application that works with artificial intelligence and recognizes people based on their unique characteristics such as shape, color or some other unique characteristic. It can also be implemented on different platforms.

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Estimation of Blood Glucose level by BIOSENSOR
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ABSTRACT

This article is about glucose assessment concentration in blood using tripolar complementary distributonicircular resonator (TP-CSR) antenna. Glucose content blood is a direct indicator of diabetes. planedmicrostrip antenna operates in the 2-5 GHz range and has a resonant frequency 3.35 GHz. When the antenna is energized, the blood acts as a dielectric load for it. Because blood sugar concentration affects the resonance frequency and amplitude at the resonant frequency of parameter β_{21} antenna. This information allows us to estimate glucose levels concentration in a blood sample. Debye model was used for modeling blood. It is effective in determining the concentration of glucose-Type II diabetes (70-120 mg/dl). The amplitude sensitivity is 0.28 dB (mg/ml) and the frequency sensitivity is 583 MHz (mg/ml).

Keywords: Complementary casting ring resonator, Debye Model, permeability, hyperglycemia.

1. INTRODUCTION

Diabetes is a growing disease worldwide [2], together changing the lifestyle, this disease spreads from hand to hand also the younger generation, which reduces their happiness. Through 422 million people worldwide suffer from diabetes the growth rate of the numbers is staggering. Diabetes is a considered a metabolic disorder of the hormone insulin pancreatic production. This hormone helps cells absorb glucose from the blood. So due to the lack of this hormone blood sugar level increases, making it a suitable measuring device for. Blood glucose is clinically measured in units of mg/dL, i.e. milligrams of glucose per deciliter blood sample. If fasting glucose is 100-125 mg/dl is considered normal and above 126 mg/dl is considered hyperglycemia. Concentration below 100 mg/dl is considered hypoglycemia and so is the need treatment. The current common method of glucose testing includes BGL measurements and cannot be used for glucose testing levels in real time. Measurement of glucose concentration simpler and chemical-free is the hourly requirement with an increasing number of patients. The test must be simplified. This paper is one a step towards this endeavour. The main purpose of this antenna is to detect blood glucose level around 80-180 mg/dl.

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Lung Cancer Staging Based on Tumor Size- Application of Segmentation and Feature Extraction in medical image Processing

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ABSTRACT

Lung cancer is one of the deadliest cancers in the world, and malignancy is characterized by the growth of abnormal cells in the lung tissues. Symptoms of lung cancer usually do not appear until it is already advanced. Appropriate segmentation of cancer lesions on CT images is the primary detection method to achieve a fully automated diagnosis system. Method: In this work, we developed an advanced hybrid neural network combining two architectures, MobileNetV2 and UNET, for semantic segmentation of malignant lung tumors from CT images. A transfer learning technique was used and the pre-trained MobileNetV2 was used as a traditional UNET model encoder for feature extraction. The proposed network is an efficient segmentation method that performs lightweight filtering to reduce computation and create additional point convolution features. Bypass links were created using the ReLU activation function to improve model convergence to connect the MobileNetV2 encoder layers to the UNET decoder layers, which allow the integration of different resolution feature maps from encoder to decoder.

Keywords: Keywords: deep learning, medical imaging, CT, UNET, MobileNetV2, lung cancer, lung nodule Gs.

1. INTRODUCTION

Computed tomography (CT) is considered one of the best imaging modalities and has become the standard method for analyzing and evaluating lung tumors. Accurate segmentation of cancerous nodes from CT images is very important because it provides the necessary information that is strongly related to the early diagnosis of lung cancer and improves the survival chances of patients [1]. Lung cancer is one of the deadliest cancers in the world, and malignancy is characterized by the growth of abnormal cells in the lung tissues [2,3]. Symptoms of lung cancer usually do not appear until it is already advanced [4]. Timely diagnosis of subgroups of malignant lung tumors is essential for effective treatment of patients.

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Face Mask Detection using JE TSON NANO

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ABSTRACT

In December 2019, the coronavirus pandemic started. Coronavirus disease-19 (COVID-19) is transmitted directly from contaminated surfaces via direct touch. To combat the virus, a multitude of equipment is needed. Masks are a vital element of personal protection in crowded places. As a result, determining if a person is wearing a face mask is critical to assimilating to contemporary society. To accomplish the objective, the model presented in this paper used deep learning libraries and OpenCV. This approach was chosen for safety concerns due to its high resource efficiency during deployment. The classifier was built using the MobileNetV2 structure, which was designed to be lightweight and capable of being utilized in embedded devices such as the NVIDIA Jetson Nano to do real-time mask recognition. The stages of model construction were collecting, pre-processing, splitting data, creating the model, training the model, and applying the model. This system utilized image processing techniques and deep learning to process a live video feed.

Keywords: Computer vision COVID-19 MobileNetV2 NVIDIA Jetson nano Open CV

1. INTRODUCTION

Computer vision science uses various imaging technologies as input devices, rather than visual organs, with computers processing and interpreting visual information in place of the brain. Computer vision technology is continuously developing, and computers are now capable of recognizing and responding to a wide variety of facial expressions [1]. At the moment, the coronavirus disease-19 (COVID-19) epidemic is sweeping the globe. Coronavirus is discharged into the air when someone coughs, talks, or sneezes and may infect others in close proximity [2]. COVID-19 infected approximately 5 million individuals in 188 countries in less than six months. The virus spreads via intimate contact and in densely populated regions. Its expansion has resulted in unprecedented levels of scientific collaboration on a global scale [3]. According to the World Health Organization (WHO), the COVID-19 virus is primarily transmitted via breathing fluids and social integration. To control the spread of this infection, certain preventive measures, such as isolation and the usage of masks [4], [5].

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Eye ball movement based Wheel Chair Using RASPBERRYPI

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ABSTRACT

The purpose of this eye-controlled wheelchair is to eliminate the need for support for people with disabilities. The proposed wheelchair control technique depends on eye movements. The camera is mounted on the user's head to take eye photos and track eye pupil movements using face landmarks recognition technology. Based on eye pupil movements, the wheelchair motor moves left, right and forward. For security, an ultrasonic sensor is introduced at the front of the wheelchair to identify obstruction and consequently stop the wheelchair. The complete system is controlled by Raspberry Pi.

Keywords: Dlib library, Numpy library, Open Computer Vision Library, Python, Raspberry Pi, Wheelchair.

1. INTRODUCTION

Wheelchairs controlled by eye movements allow people who are totally paralyzed to make their lives more independent and easily accessible [1]. Someone who cannot walk and cannot use a wheelchair exert a lot of physical strength to turn the wheel [14]. Disabled people will save a lot of energy. At present there are several other methods for tracking eye pupils [1][4] that are used to control wheelchairs, such as the eyeball method based on EOG, ECG and EEG [5] [6], decisions about the position of the pupils of the eye depend on changes in voltage. However, different output voltages are generated for different users, which leads to the wrong eye pupil position [7]. The head movement system has restrictions when the user cannot physically access the system [8] [3]. A voice-activated wheelchair that functions correctly when the user says commands clearly, moves left, right and forward [13]. Other sounds from the area can interfere with the system. Infrared reflection, which is based on eye pupil detection, tracks the exact position of the pupil of the eye. However, infrared reflection can affect the eye and a person can lose an eye visibility [13]. The camera records real-time video images such as faces, eye and eye movements with as little delay as possible [13] and analyzes and processes the image to send commands. The GPIO pin and then the motor controller IC work differently functions like forward, left, right and stop. This system includes a multiphase that follows the center of the pupil eye [9]

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Square L- Shaped and inverted L- Shaped Grooved AMC Structure for Wi-Fi Applications

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ABSTRACT

To improve the antenna characteristics in terms of bandwidth, gain and its radiation characteristics without providing any phase reflections, Artificial Magnetic Conductor (AMC) are used in antenna designing. This paper initially designed AMC structure for 2.4GHz frequency. The proposed AMC structure consists of three L-shaped and inverted L-shaped slots and provides zero degrees phase reflection at 2.4GHz resonant frequency. This proposed AMC structure is incorporated on conventional micro strip square patch antenna and results are simulated in High Frequency Structure Simulator (HFSS) software. The Proposed AMC incorporated patch antenna, return loss is improved from -16.16dB to -31.75dB, VSWR is from 1.42 to 1.05, the band width is increased from 16.5 MHz to 348.1 MHz This design resonates at a frequency of 2.4GHz and applicable to Wi-Fi applications.

Keywords: Artificial Magnetic Conductor, Micro strip Patch antenna, Phase reflection coefficient, Radiation Characteristics.

1. INTRODUCTION

The unwanted surface waves have a serious impact on micro strip antennas. These waves reduce antenna efficiency, gain, return loss, bandwidth which limits the performance of an antenna. This problem is avoided by introducing Artificial Magnetic Conductors (AMCs), it is called "Artificial" because it's a man-made material. Artificial Magnetic Conductors (AMCs) are composite structures, they will act like magnetic mirror and they will reflect the incident electromagnetic waves in-phase and these AMCs will have small physical thickness. These structures are used to improve the performance of antenna characteristics in terms of radiation characteristics, gain and bandwidth. When AMCs are employed as ground plane of one antenna, it can reflect a normal incident plane wave in phase like a Perfect Magnetic conductor and also provides good input impedance matching. Antenna arrays with AMC planes, improves the bandwidth and gain. In [1] aperture coupled, patch antenna is used, this paper is based on the relationship between patch antennas and PMC surfaces, this method reduces the parallel plate mode and side lobe suppression.

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Dual Frequency Reconfigurable antenna using DGS

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ABSTRACT

Reconfigurable antennas are proposed to cover different wireless services that operate over a wide frequency range. The reconfiguration capability of antennas is used to maximize the antenna performance in a changing scenario or to satisfy changing operating requirements. The proposed work is focused on dual band dual feed MIMO reconfigurable antenna with frequency reconfigurability for wireless applications. The dual band has been achieved by the periodic property of split ring employed with the circular DGS in the ground plane. Alternate shunting of ports has been performed to attain the reconfiguration. In this design, dual band is achieved with orthogonal dual feed MIMO configuration, enabling reconfiguration at the desired band of operation by employing SRR in the ground plane as DGS. This antenna finds its application in public safety and aeronautical radio navigations at 0.816 and 1.072 GHz with reflection coefficients of -19.26 and -27.27 dB respectively.

Keywords: Resonant frequency, PIN photodiodes, antennas, Antenna, Slot, Bandwidth.

1. INTRODUCTION

An antenna is a device that is used to convert guided electromagnetic waves into electrical signals and vice versa (i.e. either in transmitting mode or in receiving mode of operation). Antennas are frequency dependent devices. Each antenna is designed for a certain frequency band and outside of this band, antenna rejects the signal. Therefore we can say antenna is a band pass filter and transducer. Antennas are essential part in communication systems therefore understanding their basics are important. With the advances in telecommunication, the requirement for compact antenna has increased significantly. In mobile communication, the requirement for smaller antennas is quite large, so significant developments are carried out to design compact, minimal weight, low profile antennas for both academic and industrial communities of telecommunication. The technologist focused into the design of microstrip patch antennas. Many varieties in designing are possible in microstrip antenna. The first chapter provides an introduction to microstrip patch antennas with their advantages and disadvantages. Then feeding techniques, analysis method and different parameters of microstrip patch antenna are presented.

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Analysis of the wear prediction model of linear rolling guide ways and impact of off-sized balls on contact stiffness and stress

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ABSTRACT

The characteristics between the rolling balls and raceways are the key to consider a direct rolling guideway (LRG). In this paper, the contact stresses of an LRG with off-sized balls joining the variety of the contact point are given by the set up LRG joint show. In addition, the impact of the area, number, and the deviation degree of the off-sized balls on the stretch discrimination are examined. In expansion, the contact stretch discrimination between the balls and necessary for distinctive course of action cases of the off-sized balls are analyzed. The irregular course of action case can move forward the softness and benefit life of the LRG. Based on the Archard wear hypothesis, the wear forecast demonstrate of the LRG is built up and the relocations and precise relocations of the slider caused by wear in responding movement are gotten. The adequacy of the contact softness and wear expectation demonstrate of the LRG is confirmed by recreations and examination.

1. INTRODUCTION

Linear rolling guideways (LRGs), which are the most utilitarian component to attain moor grinding nourish, are being broadly utilized in machine instruments, since of their prevalent precision-retaining ability, tall siting exactness, and moor contact coefficient, that's, not accessible with ordinary sliding guideways, and its inactive and energetic characteristics specifically influence the in general execution of machine tools. It is of extraordinary noteworthy to ponder the firmness and wear of LRGs for optimizing the plan and making strides in execution. Significant exertion has been made over the a long time to think about the contact of LRGs. Ohta and Tanaka created a adaptable show that considers the adaptability of the rail and carriage based on Hertz hypothesis. In this show, the distortions of the carriage were assessed by limited component (FE) investigation. In expansion, they analyzed the energetic characteristics of the LRG utilizing expository and FE approaches within the literature. Gradziński and Konowalski displayed tests on the needle rolling direct to decide the contact distortion characteristics of the direct associations beneath inactive loads.

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Multi body dynamics-based dynamic input load assessment of a recreational vehicle frame hybrid modeling verified with comprehensive analytical and experimental modeling data

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ABSTRACT

Information of outline loads at the limits of the planning driving conditions is vital amid the plan prepare of a vehicle structure. However, recovering these loads isn't unimportant as the stack way between the street and the outline mounting point is complex. Luckily, later thinks about have appeared that multibody dynamic (MBD) recreations might be an effective apparatus to gauge these loads. Two primary categories of MBD simulations exist. First, full expository recreations, which have gotten great attention within the writing, are run in a virtual environment employing a tire demonstrate and a virtual street. Furthermore, crossover recreations, maneuver named semi explanatory, employments test information from Wheel Drive Transducers and Inertial Estimation Units to supplant the street and tire models. It is still hazy how reliable semi explanatory recreations are for outline stack assessment. Both strategies were tried for three loads cases. It was found that semi explanatory recreations were somewhat way better in forecasting vehicle energetic and outline loads than the complete explanatory recreations for frequencies beneath the MF-Tyre demonstrate substantial recurrence run (8 Hz) with exactness levels over 90%. For quicker energetic maneuvers, the expectation exactness was lower, within the 50%-80% run, with semi expository recreations appearing way better comes about.

1. INTRODUCTION

Each time a modern vehicle is considered for advancement, the mechanical structure plan is regularly returned to with the reason of diminishing its weight, whereas moving forward a few other related perspectives, counting fashion, taking care of behavior, or manufacturability. The overhaul prepare incredibly benefits from a careful information of the vehicle working loads. Dependable and substantial estimation of these loads isn't a direct errand. Undoubtedly, the stack way between ground inputs to the mounting focuses on the outline is affected by various vehicle components such as tires, bushings, suspension, or suspension arms.

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Preliminary investigation of a substitute technology for air conditioning duct flow rate measurement and control

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ABSTRACT

This paper states that there might have around 1000 little estimate trade planes (until nine tenants) flying over the world prepared with stream control and directing shut-off valves that employments hot wire anemometer gadgets to direct mass stream rate from the drain wind current to supply the air-conditioning and pressurization frameworks. Be that as it may, these valves display more unwavering quality within the field. The reason of this paper is to assess the suggestions of a stream control and controlling shut-off valve with a non-intrusive wind stream measure gadget beneath the perspective of liquid mechanics. The Venturi innovation that's commonly used innovation, given its development effortlessness, exactness, and wide utilize within the industry, is chosen to substitute the stream control and controlling shut-off valves with hot wire anemometer of the specified little measure commerce planes applications. This paper has embraced a numeric recreation approach utilizing the ANSYS-CFX computational liquid elements computer program to confirm both the differential weight at the Venturi gadget and its journalist mass stream rate to supply the discuss conditioning frameworks of a few little measure commerce planes, considering the mass-flow rate as asked by the FAA certification prerequisite (0.55 lb/min per tenant).

1. INTRODUCTION

It is assessed that there might have around 1000 little estimate commerce planes flying over the world prepared with stream control and controlling shut-off valves with hot wire anemometer gadgets, an essential and exclusively discuss stream measure gadget utilized to direct the drain wind current, of both air-conditioning and pressurization frameworks. It is recognized that the hot wire anemometer gadget is for the most part utilized in inactive applications ordered to research facility tests, tests, or mechanical applications that require consistent equalization, and it isn't commonly utilized in estimation of higher Mach drain wind stream as in flying machine applications.

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Research on thrust disk performance as a backup impeller

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ABSTRACT

Thrust disk as assistant impeller features a crucial impact on the enormous control pump unit with damp engine. It can adjust the hub drive of the unit, give control for inner cooling, circulation circuit of engine, and assist decrease the hub length of the unit. Due to the engine chamber space is limited, and the transmission medium is fluid which has to consider the impact of cavitation, the inquiry about of pushed disk of assistant impeller is diverse from the past thinks about of pivoting channel. In this paper, the pressure driven excitation and cavitation characteristics of pushed disk as assistant impeller are explored tentatively beneath distinctive conditions. A pushed disk test fix was set up to get information beneath diverse revolution speeds and stream forces. Three sorts of volutes with distinctive outlet points were outlined to coordinate the pushed disk as assistant impeller in tests. Results indicate that the law of speed extent for the conventional centrifugal pump isn't pertinent to the head of pushed disk as assistant impeller. In expansion, the stream scope increments marginally with revolution speed.

1. INTRODUCTION

Pivoting channel is the establishment of investigating the impact of Coriolis and centrifugal drive on turbulent stream in pivoting framework. Johnston et al. found the rotational asymmetry impact and the large-scale vortex structure to explore for the primary time. Based on the exploratory comes about, Nakabayashi and Kitoh examined the impact of revolution on the Reynolds shear push transport condition advance. Mårtensson et al. gotten the impact of turn on the reasonable scalings of weight drop within the conduit. Vinascher and Anderson found the length of the essential division bubble diminishes monotonically with the rise of turn utilizing PIV. Li et al. examined the impact of revolution on the turbulent boundary layer stream utilizing hotwire in a pivoting fix with a vertical pivot and pointed out that the stream close the driving side tends to turn into laminar beneath the impact of turn.

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**Measuring a jet valve's switching mechanism numerically with
The Mesh less approach**

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ABSTRACT

This study numerically examines liquid elements of a fly stream at supersonic speed. The meshless strategy and the covering point cloud strategy are utilized to handle the moving boundary issues. The interaction between the fly stream and a moving ball-shaped plug is numerically illuminated, which has been once in a while exhausted the distributed writing. The exchanging component of a novel planned fly valve in a state of mind and circle control framework (AOCSS) is analyzed. It is found out that connected weight to the control channels of the fly valve must be tall sufficient in arrange to effectively drive the plug to move and hence alter the constrain heading acting on the fly valve. At that point the exchanging instrument of AOCSS can be activated. The starting liquid condition moreover plays an imperative part and it essentially impacts the reaction time of the switch. This consider investigates the fundamental material science of the fly stream on its avoidance, divider connection, and interaction with the ball-shaped plug. It contributes to the optimization design of the fly valve within the AOCSS with a quick and effective reaction.

1. INTRODUCTION

Complex liquid streams with free moving strong bodies are exceptionally common designing issues, such as multi-body interaction, free surface issues, constrained vibration issues, etc. They are so-called energetic boundary issues in computational liquid elements (CFD) investigation. To track the moving boundaries of the strong bodies, the commonly utilized numerical strategies incorporate work remaining strategy, overnet work strategy, meshless strategy, etc. Work reproduction strategy permits extraordinary distortion of the moving bodies and in the interim controls the work component quality such as non-orthogonality, tall skewness, and tall angle ratio. So it is vigorous to precisely interact the liquid field and the body movement. But it is computationally exorbitant. Overnet work strategy employment different sets of networks and remeshing are unnecessary.

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Investigation of the longitudinal vibration of a mine hoisting rope under the influence of ADAMS disturbance excitations

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ABSTRACT

The periodic and aperiodic excitations caused by drum winding and interface misalignment of steel guides continuously result in raising insecurity in mine shafts. This paper centers on examining the longitudinal reaction of the lifting framework subjected to the two unsettling influence excitations. To begin with, the intermittent speed and increasing speed excitation from a test show was determined. Moment, the virtual model demonstrate for the longitudinal vibration of the lifting rope subjected to the two excitations was built in ADAMS, and the legitimacy of the set up virtual model demonstrate was confirmed tentatively. Inevitably, the speeding up of the transport beneath the unsettling influence excitations were successfully decreased by applying a vibration diminishment gadget, and the virtual recreation comes about affirmed the viability of the proposed gadget. This paper can give a great conspire for the investigate of vibration diminishment in mine raising frameworks.

1. INTRODUCTION

A winding mine lifting framework is continuously composed of Lebas drum, catenary, head sheave, lifting rope, transport and rail direct framework, etc., as appeared in Figure 1. Beneath the foundation of the super profound mine lifting frameworks, the length of steel wire rope regularly surpasses 1500 m. One conclusion of the rope associated to the Lebas drum will subject to the unsettling influences of occasional speeding, speed, and increasing speed due to that the Lebas drum has the uncommon parallel groove structure. The other conclusion of the steel wire rope is frequently associated with the lifting holder which rises consistently along the steel direct through steel rollers. In any case, interface misalignments of the steel guides will cause affect excitations due to dishonorable manual establishment or other reasons. The over excitations will cause irregular vibration of the raising rope and lifting transport, and indeed lead to mischance such as tank sticking and rope crack, which is able completely undermine the security of mine lifting.

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Design and study of the external needle pipe climbing robot's Mechanical structure

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ABSTRACT

This study planned a slithering component that can fulfill the estimation issues of slim and needle channels by recognizing the warming vertical needle pipe, which is enormously connected within the petrochemical and refinery industry. The robot's strolling framework employs a single driven wheel to stay on the way, with a scissor-hand structure to adjust to changes in breadth between 50 and 90 mm. This consider records the energetic investigation condition of the robot, in this manner getting the ideal run of Point n between the horizontal line and the center line of the most driving wheel and the most clamping wheel. Besides, the think about employments multi-body elements re enactment computer program for elements re enactment investigation. Comes about show that the slithering framework has the points of interest of anti-deviation, can adjust to diverse pipe breadths and includes a basic structure.

1. INTRODUCTION

At present, different pipelines are progressively utilized within the petrochemical industry. For illustration, the warming heater, which is broadly utilized in petrochemical and refining plants, regularly employments the warming heater pipe to exchange warm. When the warming heater pipe utilized for a long time is harmed, the fetched of pipe support or substitution is tall. Hence, the warming heater pipe ought to be cleaned and checked frequently, and this handle requires manual labor, where the working environment is terrible and the work effectiveness is meagre. The investigate and application of the slithering robot innovation exterior the pipe can free individuals from the cruel environment and will enormously move forward the working environment of specialists and increment efficiency. At present, considers on the robot exterior the pipe at domestic and overseas are restricted. The existing structures for the slithering component exterior the pipe divider are as takes after: wheel sort, pneumatic peristaltic type, inchworm type, and multi-joint sort structure.

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An inventive screwed vacuum pump concept featuring a smooth rotor profile and meshing clearance

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ABSTRACT

Cross-section profile of rotor takes an awesome impact on the execution of dry-screw vacuum pump. A novel smooth rotor profile comprising of eight sections of bends, counting circular segments and conjugate adjustment bends is proposed. Points of interest are that it can be utilized to unravel the smoothness association and no fitting clearance in conventional profile. The fitting show for smooth profile can specifically create steady addendum clearance, tooth clearance, tooth side clearance, and outspread clearance. The impacts of the epicycloid turn point, circular segment span and involute balanced remove of the conjugate redress bend on the clearances are examined agreeing to built up hypothetical demonstration. And transitory stream field of vacuum pump is analyzed by utilizing the commercial computer program Ansys-Fluent. Compared to conventional screw vacuum pump, the results about appears that weight in channel and pump depth is lower, and greatest pumping speed is higher, demonstrating that the proposed plan is prevalent.

1. INTRODUCTION

The dry-screw vacuum pump could be a kind of vacuum acquisition hardware without any grease exercises within the depth, which is working clearances between each other and no coordinate contact among screw rotors, rotor, and pump depth. The screw rotor is the key basic and complex portion for this kind of vacuum pump and its cross-section profile is the essential calculate to decide the structure of rotor and to require a awesome impact on the exhibitions of vacuum pump. Pfaller et al. proposed a technique for the lively optimization of a screw axle vacuum pump by implies of the variable pitch of a rotor at steady plan volume, and numerically recreated energy-specific optimal rotor pitch based on the developmental optimization approach. Pfaller et al. set up a show that's a work of chamber weights and mass streams of dry-running screw pump, and outlined the relationship among working chamber volumes, organize weight proportions and isentropic compression work for diverse suction weights.

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Reduced energy consumption in mechanical crank press drives

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ABSTRACT

The paper deals with the drive options of mechanical presses and their impact on vitality efficiency. In spite of the fact that the most center is on vitality efficiency, we too emphasize plan and operational issues. The press machine is isolated into two partitioned areas – the machine side and the drive side. The machine side and its efficiency is portrayed utilizing a vitality adjust equation. We evaluate the vitality adjust for an 80 MN manufacturing press. We depict eight diverse sorts of drives from an ordinary drive with a flywheel to coordinate drive and their combinations. We depict person maintenance and efficiencies for components of the drive side.

1. INTRODUCTION

Shaping is one of the foremost productive and so moreover the foremost widespread production and handling innovations. In any case, executing this innovation is exceptionally vitality intensive. To extend generation proficiency, we must pay uncommon consideration to shaping and explore for ways to spare vitality. A case of sprocket generation can be utilized as an outline both as a comparison with machining innovation, Figure 1, and as an exhibit of the vitality adjust in its generation by shaping. The charts in Figure 2 clearly illustrate the benefits of shaping innovation over machining innovation, not as it were in terms of vitality productivity.

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Status of ICT in Teaching Learning Process with Relevance to NEP 2020 Curriculum Structure

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ABSTRACT

In the field of education ICT is an important aspect of teaching-learning process to provide multi-modal communication style that enables learners to access, extend, transform and share learning resources to pick up lot of information about the content area. Teachers and learners have high expectation in using computers in their classroom because information and communication technology make the learning easier and versatile. This study aims to analyse how teachers are use different ICT based learning approaches in classroom situations and learners are actively involved in this learning environment. Teachers are currently working to integrate ICT in teaching-learning process and it must be expand both procedural and institutional level for better education. Techno-pedagogical knowledge of a teacher is instrumental to integrate ICT as a tool for scaffolding pupils during learning process. Effective implementation of ICT is certainly a powerful means of improving the quality of education in general and in particular area of learning.

Keywords: Status of ICT, Teaching-Learning Process, Curriculum Structure of NEP2020.

1. INTRODUCTION

Education around the world is experiencing major paradigm shifts in educational practices of teaching and learning under the umbrella of ICT enabled learning environment. ICT can play a supplemental as well as central role in learning by providing digital or adaptive tools to support effective learning. The curriculum structure of NEP 2020 indicated that the old technologies should be replaced in new technologies according to the need and interest of learners. The role of teacher will change from knowledge transmitter to knowledge navigator or facilitator because of the demand changes from traditional e-learning to virtual learning. The new technologies and their effective integration with curriculum and classroom processes have presented enormous possibilities and have revolutionized education system at all levels. ICT has been tremendously significant in the way it has evolved the whole process of the creation, revision, and sharing of the curricular content.

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**The Impact of Online Learning Strategies
On Students Academic Performance with its Merits and Demerits**

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ABSTRACT

Higher education institutions have shifted from traditional face to face to online teaching due to Corona virus pandemic which has forced both teachers and students to be put in a compulsory lockdown. However the online teaching/learning constitutes a serious challenge that both university teachers and students have to face, as it necessarily requires the adoption of different new teaching/learning strategies to attain effective academic outcomes, imposing a virtual learning world which involves from the student's part an online access to lectures and information, and on the teacher's side the adoption of a new teaching approach to deliver the curriculum content, new means of evaluation of student's personal skills and learning experience. This chapter explores and assesses the online teaching and learning impact on student's academic achievement, encompassing the passing in review the adoption of students' research strategies, the focus of the student's main source of information viz. library online consultation and the collaboration with their peers.

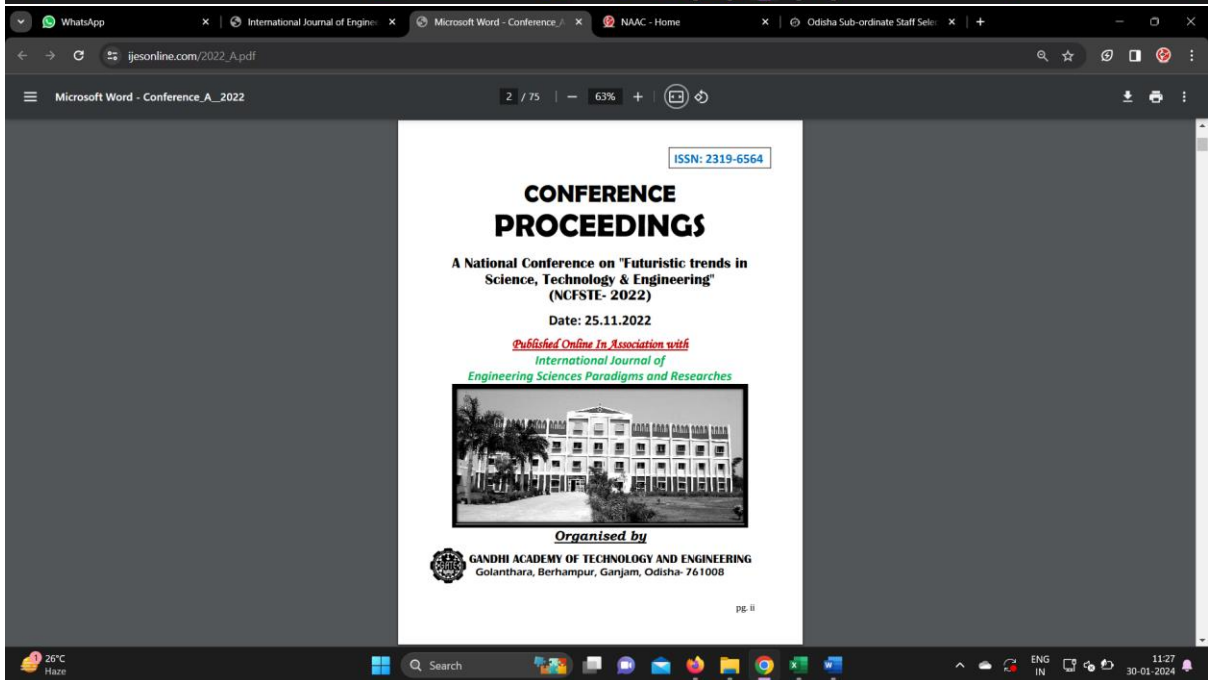
Keywords: online learning environment, content-based research, process-based research, success factors assessment

1. INTRODUCTION

With the advent of COVID-19 pandemic and the shutdowns of universities worldwide for fear of contamination due to the spread of the corona-virus, higher educational institutions have deemed necessary to adopt new teaching strategies, exclusively online, to deliver their curriculum content and keep from the Corona virus widespread at bay. Technology was called upon to play this pivotal teaching/learning online role, as it has influenced people's task accomplishment in various ways. It has become a part of our ever changing lives. It is an important part of e-learning to create relationship involving technology, course content and pedagogy in learning/teaching environment. Therefore, e-learning is becoming unavoidable in a virtual teaching environment where students can take control of their learning and optimize it in a virtual classroom and elsewhere.

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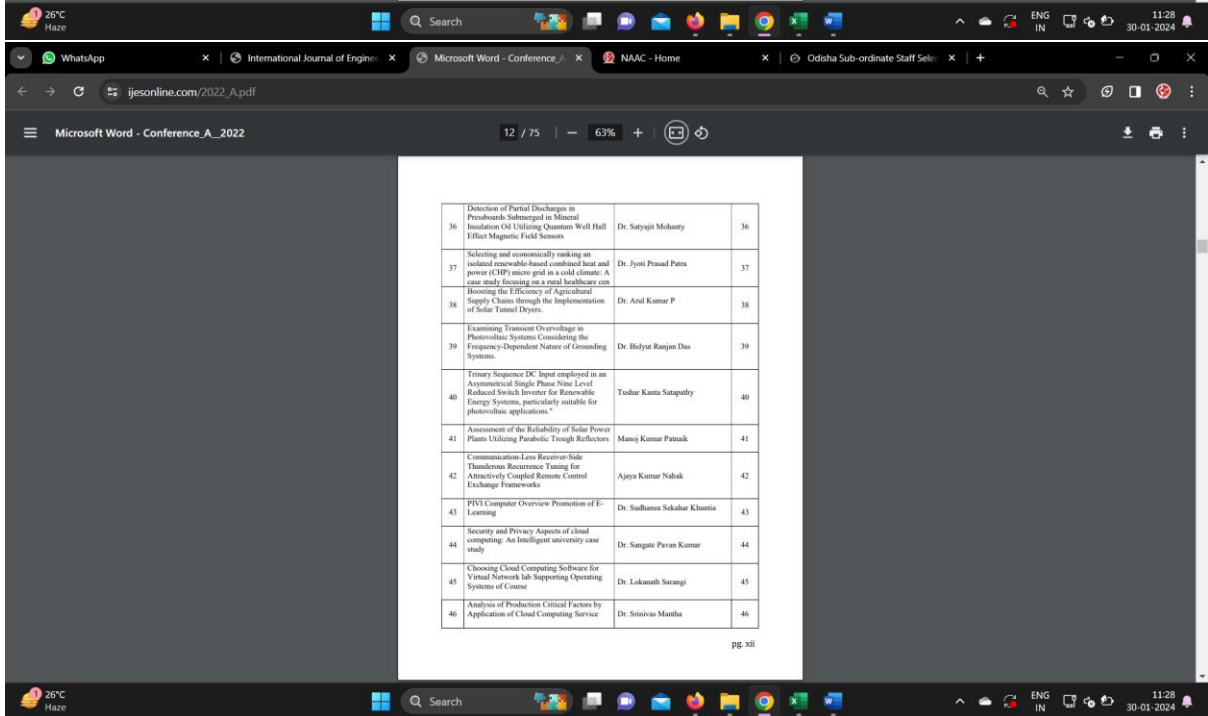
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B2LIVE, a label-free 1D-NMR method to quantify the binding of amphitropic peptides or proteins to membrane vesicles

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ABSTRACT

Amphitropic proteins and peptides reversibly segment from answer for layer, a key interaction that controls their capabilities. Trial moves toward traditionally used to quantify protein partitioning into lipid bilayers, like fluorescence and round dichroism, are not really suitable when the peptides or proteins don't display critical extremity or potentially conformational changes upon film restricting. Here, we portray restricting to lipid vesicles (B2LIVE), a straightforward, vigorous, and generally minimal atomic attractive revolutionation (NMR) technique to decide the answer for layer dividing of unlabeled proteins or peptides. B2LIVE depends on recently portrayed proton 1D-NMR quick heating methods. Layer dividing investigates a high line expanding, prompting a deficiency of proton signals, thusly, the decline of the NMR signal straightforwardly gauges the negligible part of layer bound protein. The strategy utilizes low polypeptide focuses and has been approved on a few film communicating polypeptides, going from 1 to 54 kDa, with layer vesicles of various sizes and different lipid situations.

1. INTRODUCTION

Portrayal of the communication of peptides and proteins with lipid layers frequently starts with the assurance of the fondness, or on the other hand more properly, the proved coefficient, $K_{1:2}$. A normal fundamental review compares in the 1D of the lipid species as well as the lipid properties, like lipid polymorphism, charge, and acyl chain smoothness, leaning toward the appointment of proteins and peptides from answer for film. Additionally, information on layer fondness can be significant to interpret atomic components or mutational investigations to recognize districts or amino corrosive buildups basic for film restricting. A few exploratory methodologies, for example, surface plasmon revolutionation (SPR), 1-11 interferometry, 11-15 fluorescence, 16-24 centrifugation, 25-27 isothermal titration calorimetry (ITC), 28-30 also, round dichroism 31-35 are normally used to gauge the dividing of solvent peptides and proteins into lipid bilayers. Be that as it may, a few peptides and proteins don't have inherent fluorophores, or their optical or tertiary underlying contents don't change essentially to the point of being utilized as a test of their dividing into layers.

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The effect of weathering environments on micro plastic chemical identification with Raman and IR spectroscopy: Part I. polyethylene and polypropylene

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ABSTRACT
A productive convention was created for the amalgamation of tertiary alcohols through nucleophilic expansion of organometallic mixtures of s-block components (Grignard and organolithium reagents) to esters performed in the biodegradable choline chloride/urea eutectic blend or in water. This approach shows a wide substrate scope, with the expansion response continuing rapidly (20 s response time) and neatly, at surrounding temperature and under air, clearly outperforming the normal tertiary alcohols in yields of up to 98%. The practicality of the strategy is exemplified by the manageable combination of some delegate S-nitryl-L-systeme subordinates, which are a powerful class of E₂ inhibitors, additionally by means of extended one-pot processes.

1. INTRODUCTION
Tertiary alcohols are significant primary subunits in compound building blocks and normal among naturally dynamic mixtures [1]. The augmentations of organometallic mixtures of s-block components (normally organolithium and Grignard reagents) to ketones or on the other hand esters are among the most effective and direct courses to getting to tertiary alcohols. At about this point, interesting reading material are clear: profoundly captured organometallic reagents should be responded at low temperature (frequently -78 °C), in aprotic solvents such as Et₂O or THF, under a dry, inactive climate of argon or nitrogen, with the competing responses typically reaching a conclusion inside a not many hours [2]. Concerning the expansion to esters, these responses, when run under the previously mentioned conditions, are now and again terminated by the creation of diminished auxiliary alcohols, and combinations of ketones and carboxylic acids likewise be acquired, contingent upon the conditions utilized (Plan 1a) [3]. The rising mindfulness towards natural contamination and environment changes has induced research in natural combination to look for all the more ecologically mindful and less effective solvents instead of harmful and frequently perfidious supercritical natural mixtures (SCN₂), which are known to represent around 80-90% of the complete mass utilized in any natural response [4], accordingly redrawing long-laid-out standards [5].

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A comparative study of different docking methodologies to assess the protein-ligand interaction for the E. coli MurB enzyme

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ABSTRACT
We have researched the dynamic site of E. coli MurB utilizing the Quantum Mechanics/Sub-atomic Mechanics (QM/MM) procedure. The docking of three novel series of 4-fluorobenzene subordinates has been performed utilizing two strategies: unbinding docking and adaptable docking (Distributed Fit Docking: FID). The outcomes have been contrasted with comprehend the conformational parts of the compound. The docking results from inflexible docking show that the ligands with exceptionally bad D_{bind} had underperformance docking scores. Likewise, the worth of the reshape coefficient (R) got on associating the D_{bind} and the trial pMIC values is irrelevant. On keeping the protein adaptable, there is a surprising improvement in both the docking score and D_{bind}, alongside a decent worth of R (0.64). Two significant buildings, Tyr254 and Tyr190 are viewed as exceptionally apoosted during the adaptable docking and consequently their part in viable ligand restricting has been affirmed. Hence, looking at the two techniques, FID has arisen as the more fitting one for concentrating on the E. coli MurB compound.

1. INTRODUCTION
In the current situation, the rising instances of bacterial diseases are a serious worry for human wellbeing. Likewise, with time, the bacterial strains have created opposition toward the accessible antibacterial medication (Pfitz and Wilkinson, 2004; Tenover and McDonald, 2005). Penicillin and methicillin opposition toward Gram positive microorganisms S. aureus (Chambers and DeLac, 2009) and opposition for Gram negative microorganism E. coli (Kufarewsky et al. 2002; Saez et al. 2004) have us of now been accounted for. This has made the treatment of invariable illnesses troublesome, and hence the battle activity requires the advancement of novel targets with the goal that there can be no cross-obstruction with the current therapeutics. Toward this path, going after the peptidoglycan union of the bacterial cell wall is a powerful technique. Peptidoglycan, which is an fundamental part of the cell mass of both Gram-positive furthermore, Gram-negative microbes, helps in keeping up with the osmotic strain of the bacterial cell. During its biosynthesis, different chemicals, like Mur A-F, are engaged with the reactant cycle (Figure 1) (Lovering et al., 2012; Zwoby et al., 2003).

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Fluorescence based studies on the interaction and characterization of Surface-active ionic liquids with polarity sensitive Intermolecular charge transfer probe

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ABSTRACT

Surface-dynamic ionic fluids (SAILs) are of gigantic interest as of late because of their better application in the field of food, cleaner, and softening. The biexcited fluorescence emission of an intramolecular charge move (ICT) ion, trans-ethyl-p-(dimethylamino) cinnamate (EDAC), in presence of five distinct SAILs with shifting head gatherings (viz. imidazolium, pyridinium, and morpholinium) and different alkyl chain length (decyl, dodecyl, and tetradecyl) was observed by consistent state and time-resolved fluorescence spectroscopy. Outcomes analysis of EDAC fluorescence was utilized to portray different physicochemical properties of the SAILs, counting basic micelle focus, ionic extremity, and exact dissolvable extremity scale, (ETIS) of the microenvironment. The assessed boundaries are in great concurrence with the writing reports and estimated freely from other free investigations talked about here. Time-resolved fluorescence tests show a huge hindrance in various nonradiative non channels of EDAC, when contrasted with that in watery stage, showing a particular relationship of the test in presence of SAILs. Thus, what the outcomes demonstrate the physicochemical properties of SAILs can be used by controlling the idea of both the cations and as well as the chain length of the alkyl bunch. These properties additionally show critical adjustment in arrangements with fluctuating SAIL focus, especially in the pre- and post-micellar locale.

1. INTRODUCTION

Surface dynamic ionic fluids (SAILs) are considered as trendy shrewd materials and going about as reasonable option in contrast to the conventional and neutral surfactants concerning their designated applications [1-6]. Commonly, the inherent amphiphilicity with more prominent than eight number of carbon atoms appended with either the head or tail moieties of SAILs prompts surfactant like property and works with the arrangement of micelle like structure in fluid medium [7,8]. These microaggregates in the micellar as well as premicellar structure in SAILs can go about as a reasonable stage for drug conveyance framework with further developed solubilization conduct of ordinarily water insoluble "nanosized" drug particles [9-15]. The special physicochemical properties of SAIL frameworks broaden their application in various fields. For instance, in general expansion in the response pace of natural combination and analysis in watery medium is seen because of the more prominent water dissolvability of natural substances and expansion in nearby convergence of the substrates inside the micellar locale.

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Evaluation of the effect of soaked false yam (Iracina oliviformis) Tuber meal on the hematological indices and Serum biochemistry of rabbits

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ABSTRACT

The double-dealings of non-customary feeds for domesticated animals have started extraordinary interest because of human-creature rivalry for customary feedstocks. Most of creature feedstocks are figured out with grains as the significant fixing, bringing about tightness and an expansion in the expenses of regular feeds. This training has highlighted the need for an on the other hand modest furthermore, supportable non-customary feedstuff to reuse the taking care of limitation to creature creation. With this, the current review pointed toward assessing the impact of drenched boggy sweet potato tuber dinner (SFYTM) on the hematological records and serum biochemical profile of weaner bunias. Methods: Sixteen neighborhood weaned bunias of enhanced breeds and genders were haphazardly allotted to dietary medicines containing 0, 10, 15, and 20 % of absorbed milled sweet potato tuber made for maize in a maize-fishmeal-based diet.

1. INTRODUCTION

The bunias, being a monogastric herbivore has a completely evolved hindgut. Because of the inflated expenses of conventional wellspring of meat creating cows, sheep, lamb, pork, and poultry, here cultivating has as of late drawn in a ton of interest. Monetary, here have many promising possibilities. They are extremely productive and effective converters of food to meat [1], with an incredible possibility of creating high pay on little feed admission, which is financially reasonable for here ranchers. Hares can likewise be raised for non-food purposes, for example, high-grade fleece creation, which can add to work creation open doors. At the point when taken care of appropriately with adjusted pellets, bunias develop quickly in the beginning phases of their life, with a feed transformation proportion normally around 1:3 [1]. Along these lines, youthful bunias need around 3 kg of pelleted food to put on 1 kg of added live weight. Yearling hares just pulch off milk for the initial 18-20 days of their lives. Subsequent to passing through this stage, they start eating strong food varieties as the caecum's fermentative movement begins to create and the enzymatic processing exercises show critical changes [2]. Bunias can consume abstains from food thick in roughage and low in grains [3].

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An empirical analysis on Indian stock market volatility during the pandemic

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ABSTRACT

The covid pandemic has affected the performance of an economy in various areas and the Indian stock market is not an exception. This study empirically analyses volatility of the Indian during covid 19 pandemic with special reference to BSE and NSE. To determine the market volatility by historical data NSE and BSE closing prices on the daily basis from December 2019 to December 2021. Trend analysis is used to find out the trend pattern of the stock returns on the daily basis and to test the statistical properties of the time series descriptive statistics and Garch (1,1) Model is used to analyze the volatility nature of the stocks. The findings strongly confirm the presence of volatility in the Indian stock market during December 2019 to December 2021.

KEY WORDS: GARCH (1,1), NSE, BSE, COVID PANDEMIC, STOCK MARKET

1. INTRODUCTION

In Finance Sector Stock Market plays major role in the development of a country. In India Stock Market has classified into Bombay Stock Exchange and National Stock Exchange. Bombay Stock Exchange is the oldest stock exchange in India located at the Dalal Street in Mumbai. In Bombay Stock Exchange their bench mark known as Sensex is used to measure the index. In Bombay Stock Exchange Top 30 Companies are listed in the Stock Exchange. Companies has classified into 10 or more sectors which contributes towards Indian Economy. Example: Reliance Industries, ITCI Bank, National Stock Exchange is another type of market in India. It is the largest financial market in India and fourth largest trading volume in the world. National Stock Exchange introduced fully automated, electronic, and screen-based trading in India. And its bench mark known as Nifty 50 is used to measure the index. National Stock Exchange Top 50 companies most highly liquid and constant trading Indian companies which are listed on National Stock Exchange. Example: Reliance Industries, TCS, Hindustan Unilever.

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ARIMA Model in Forecasting Stock Returns – A Study with Reference To BSE Senses

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ABSTRACT

Although accurate stock price prediction is difficult, the autoregressive integrated moving average (ARIMA) model has proven to be reliable in a variety of linear and non-linear time series forecasting methods. With a market capitalization of around 2,61,00,855.91 crores, the Bombay stock exchange is India's largest stock exchange. The goal of this study is to find the best ARIMA model for forecasting the BSE Sensex price index. In order to find the best ARIMA model for forecasting the stock market index, the researchers utilized a three-step iterative quantitative approach. The study found that the ARIMA (1,1,0) model is the most stable and appropriate model for forecasting India's stock price index for the subsequent year.

Key Words: ARIMA model, time series plots, Stock Index

1. INTRODUCTION

The stock market is a marketplace that allows for the seamless exchange of corporate stock purchases and sales. Every Stock Exchange has its own value for the Stock Index. The index is the average value derived by adding up the prices of various equities. This aids in the representation of the entire stock market as well as the forecasting of market movement over time. The stock market can have a significant impact on individuals and the economy as a whole. As a result, effectively predicting stock trends can reduce the risk of loss while increasing profit. The ARIMA model is a short-term prediction model and a time series model with high precision. The basic idea of the model is that some time series are a set of random variables that depend on time, but the changes of the entire time series have certain rules, which can be approximated by the corresponding mathematical model. Through the analysis of the mathematical model, it can understand the structure and characteristics of time series more fundamentally and achieve the optimal prediction in the sense of minimum variance. The ARIMA model, a time series prediction method, was proposed by Box and Jenkins in the 1970s. The model consists of AR, I, and MA. Here AR represents the Autoregressive model, I represents the Integration indicating the order of single integer, and MA represents the Moving Average model. In general, a stationary sequence can establish a metrology model.

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**Competitive constructs of ERP implementation
Across selected manufacturing sectors**

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ABSTRACT

This paper evaluates and operates eight competence constructs in ERP implementation in selected manufacturing sectors. This study is questionnaire based and is conducted in three organizations where ERP has been successfully implemented. The role of strategic IT planning, executive and management commitment, IT skills, business process skills and ERP training and Learning has been determined in Cavinkare, Murali Petro Chemicals and Britannia. Some of major findings from this study includes excellent ERP project management and top management commitment may be an important key success factors in ERP implementation. Regarding implementation issues employee training and learning in advanced cloud-based ERP modules, continuous business process reengineering, data conversion from legacy system considered most key strategic importance in ERP implementation.

Key Words: Enterprise Resource Planning, ERP Competitive Constructs, Strategic IT Planning, ERP training and learning

1. INTRODUCTION

An ERP system is an integrated suite dominating across various business and industry functions because of latest developments in digital transformation allowing firms to produce and access information through real-time environment by completely automating every business function and process by sharing enterprise-wide application across globally. ERP systems are programs that provide integrated software to handle multiple corporate functions which includes back and front office functions like finance, human resources, manufacturing, materials management, and sales and distributions. SAP, Oracle Corporation, Microsoft, Infor, NetSuite, Sypris, Raincheck, Assumatic, Workday, SAGE group PLC are the major ERP vendors stay competitive within ERP market by adopting differentiated strategies, perform healthy competition, collaboration, joint ventures and acquisition. AMR Research predicted global ERP market across various business functions and industry verticals projected towards higher market share in 2023 by occupying three-fifth of the global market. At the same time, service sectors / segments projected to grow with faster pace of 12.3% CAGR from 2021 to 2028 by classifying evaluation of ERP systems into manufacturing integration enterprise integration.

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**Consumer buying behavior in automobile sector and how it will get
Impact after covid-19**

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ABSTRACT

The Indian automobile industry is one of the largest in the world, and it continues to grow year after year. As a result of the ease with which automobile loans are available, as well as the rise in income structures and higher purchasing power of the middle class, there has been an increase in the number of vehicles on the roads during the COVID 19 pandemic. The goal of this study is to look into the purchasing habits of Indian car purchasers after COVID 19. A questionnaire survey was conducted to determine the many factors that influence vehicle buying decisions in India. A Google Forms questionnaire survey was prepared and sent to participants by e-mail, WhatsApp, Face book, and other channels. The results of the survey were statistically examined and are shown below.

Keywords: Percentage Analysis, COVID 19, Pandemic, Automobile, Loan

1. INTRODUCTION

The epidemic at COVID-19 serves as a stark reminder that the events depicted in the Black Swan are accurate and will have a significant impact on business and industry. In the aftermath of the recent pandemic, the globally integrated vehicle sector is particularly sensitive and exposed, and it is projected to have severe economic consequences in the following quarters. However, as China, which is growing at a faster rate than the rest of the world, shows, car supply chains must adapt swiftly. According to supply chain specialists, most organizations have the ability to overcome the current situation due to extremely low processing capacity and substantial unutilized stock inventory. Although most organizations focus on supply concerns automatically and instantly, others fail to view this as a market problem affecting consumers in yet-to-be-determined ways. It won't be business as usual when markets recover from COVID-19 politically and socially. Customer trust would be severely harmed by probable job layoffs and income cuts, forcing others to postpone discretionary purchases such as automobile purchases. Consumer trust has been shattered around the world, according to a Wall Street Journal story, with many people not even considering buying a car after the outbreak.

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Recycling of directional determinants by English and Iranian academics

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ABSTRACT

Motivated by the supposition that the recycling of directional determinants (DDs) (the explanation purposes, suggestions, questions) across English explanation papers (EAs) is substantiation of the peer's responsibility, this study sought to probe any implicit differences between English and Iranian experimenters in the recycling of DDs throughout RA sections. To this end, 600 empirical RAs representing six soft wisdom disciplines from 2006 to 2013 were chosen, 300 of which were penned by English L1 scholars and another 300 by Iranian experimenters. The quantitative analysis revealed parallels between the two groups of scholars, with the DD recycling appearing more consistently in the Discussion section than in other sections, and in Economics than in other disciplines. In the qualitative phase, the two groups of authors' common accounts for the DD recycling, including editorial policy, RA length, English academic jargon conventions, and anthology guidance were determined. Still, only two reasons were linked in neophyte Iranian experimenters' responses redundancy and English academic jargon conventions. This implies that EAP jargon course convenors need to give further unequivocal tutoring accommodations to help neophyte non-English L1 experimenters find out how the DD recycling in each RA section directs the jotting of that section and contributes to textbook consonance.

1. INTRODUCTION

Currently, English has come the global language of education, challenging the ignorance of innumerable academics around the world in English academic jargon conventions. These norms and conventions aren't fluently acquired by neophyte and non-English L1 (non-Eng L1) academics until they've explicitly made conscious of similar conventions. One of the conditions for writing English academic textbooks is to compose anthology-friendly textbooks by furnishing colorful kinds of appreciation cues because as Hinds (1987) proposed, English has a pen-responsible culture. This means that in English, it's over to the pen to make the textbook as clear and sensible as possible for the intended followership. Indeed, in pen-responsible languages similar as English, pens prognosticate areas where compendiums may bear backing with textbook appreciation and meet this need by interspersing guiding signals throughout their textbooks.

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On saying "enough": Decolonizing subjectivities in English Language learning

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ABSTRACT

This paper considers saying "enough" to English — that is, articulating a turnaround of English in a way that highlights reflecting on the history as a base for abating an indispensable future — as a practice for decolonizing subjectivities of English. Drawing perceptivity from indigenous, revolutionary, anti-capitalist movements as well as propositions of turnaround and saying, this paper suggests that similar movements' emphasis on stopping the temporal meter of rough social relations can guide postcolonial druggies of English to declare that they've had enough of the enduring coloniality of English. As an illustration of this possibility, this paper looks at the case of young-age, a order of Korean scholars who give up on learning English.

1. INTRODUCTION

The promoter of the Bollywood film English Vinglish (Shinde, 2012) is Shashi, a middle-class Indian woman, who, despite being a successful home-grounded entrepreneur, is constantly mocked and dismissed by her hubby and son for not speaking English well. When she travels to New York City to help with the medications for her husband's marriage, she experiences several further humiliating incidents because of her lack of English. This prompts her to intently enroll in a conversational English class in Manhattan during the four weeks leading up to the marriage. Working hard on her English, Shashi regains confidence and respect, and in the climax of the film, ultimately manages to deliver a gladdening toast in English at the marriage event, to her family's surprise and everyone's applause. The film's narrative of success in English language literacy, still, ends with a modest twist. In the film's ending scene, Shashi and her family are on board the flight back to India. When the flight attendant offers reading accommodations in English, Shashi competently pines, and asks "do you have any Hindi review?" When the flight attendant answers she doesn't, Shashi says "it's okay", and sits back, indicating that she'd rather not read anything than read an English review. The film's final scene may be read as an explanation that Shashi has not lost her Indian roots despite her newfound capability and confidence in English. Yet, what's significant then might not be the fact that she's turning to Hindi, but that she's closing a doot indeed if temporarily on English.

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Modeling temperature-dependent dynamics of single and Mixed infections in a plant virus

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ABSTRACT

Multiple viral infection is an important issue in health and husbandry with strong impacts on society and the fragility. Several examinations have dealt with the population dynamics of contagious with different dynamic periods, focusing on strain competition during multiple infections and the goods on contagious' hosts. Recent interest has been on how multiple infections respond to abiotic factors similar as temperature (T). This is especially important in the case of factory pathogens, whose dynamics could be affected significantly by global warming. Still, many fine models incorporate the effect of T on para-point fitness, especially in mixed infections. Then, we probe simple fine model: monostable incorporating thermal response: meristal TDNs, which allow for quantitative analysis. A logistic model is considered for single infections, which is extended to a Lotka-Volterra competition model for mixed infections. The dynamics of these two models are investigated. Entering on the places of T-dependent replication and competitive relations in both. Both and asymptotic dynamics. We determine the scripts co-existence and competitive rejection, which are separated by a transcritical bifurcation. To illustrate the connection of these models, we run single and mixed infection trials in sheep growing at 20 °C and 30 °C using two strains of the factory RNA contagion Pepino mosaic contagion.

1. INTRODUCTION

Numerous exemplifications live of different sponges infecting a host contemporaneously [1,2]. This is of special significance because multiple infection can bring huge impacts on health and husbandry, therefore having severe ecological and socio-economic consequences [3,4]. Regarding conditions impacting mortal health, mortal immunodeficiency contagion type-1 (HIV-1) [5,6] can acquire-act with tuberculosis [7], the hepatitis B, S, and C contagion [8], and malaria [1]. Other common exemplifications of multiple infection include infection by the hepatitis B and C contagion [12], gonorrhoea and chlamydiae [13], and herpes simplex contagion 1 and 2 [14,15]. In all cases, the issues of multiple infection differ from the observed from the single infection cases.

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Inverse two-phase nonlinear Stefan and Cauchy-Stefan problems: A phase-wise approach

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ABSTRACT

We develop a new phase-wise successional numerical approach grounded on the system of abbreviated 'modified' (MPS) for inverse two-phase nonlinear Stefan and Cauchy-Stefan problems in one dimension (1D). By treating each phase singly, the inverse two-phase nonlinear Stefan problem splits into two single-phase inverse problems an inverse nonlinear boundary identification problem and an inverse direct one-phase Stefan problem. Along with the reconstruction of boundary data, the contemporaneous reconstruction of the boundary and original data is also considered. Numerical examinations show the robustness and effectiveness of the proposed system in reconstructing the data.

1. INTRODUCTION

Stefan problems, in which a material solidifies or melts, occur in many situations in science and engineering [1-5]. Mathematically, these are particular cases of moving boundary problems, in which the position of the phase-change front is not known a priori, but needs to be determined simultaneously with the temperature field [6]. Such problems may themselves be categorized according to the number of distinct phases in which the temperature field must be solved for; in this paper, we are concerned with two-phase problems, as typically occur in casting processes [7-14], where the initial temperature of the melt is greater than the solidification temperature. Further recent examples of two-phase Stefan problems can be found in [15-17]. The references given above all refer to direct problems. On the other hand, in inverse two-phase Stefan problems, extra information, such as partial measurement of the moving interface position [6,18] or the temperature at selected interior points of the domain [19,20], is used to determine thermal properties and/or the initial and/or boundary conditions. Our interest is in a nonlinear variant of the Stefan problem that has an unknown moving boundary and corresponding data at one of the fixed boundaries. Such a problem has a unique solution; however, it is still ill-posed, as it is sensitive to a perturbation of the data [19]. Both the direct and inverse Stefan problems have been answered using different mesh-grounded numerical styles similar as the finite-element system, the finite-difference system and the boundary-element system; for excellent expositions, we relate to [9].

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A new variable shape parameter strategy for RBF approximation using neural networks

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ABSTRACT

The choice of the shape parameter largely goods the genre of radial base function(RBF) approximation, as it needs to be named to balance between the ill- exertion of the interpolation matrix and high delicacy. In this paper, we demonstrate how to use neural networks to determine the shape parameters in RBFs. In particular, we construct a multilayer perceptron MLP trained using an unsupervised literacy strategy, and use it to prognosticate shape parameters for inverse multibasic and Gaussian kernels. We test the neural network approach in RBF interpolation tasks and in a RBF-finite difference system in one and two- space, confound, demonstrating promising results.

1. INTRODUCTION

The complex world of mental feelings is a major focus of interest in mathematics education Evans, 2006; Hamada, 2012a; Mantero, Serra et al., 2019; Papis & Rookens-Winter, 2015; Zan et al., 2006). In recent decades, there has been an adding number of studies on how mental feelings are related to cognition in mathematics. The perspective put forward moment is that emotion and cognition aren't separate but rather conceived as related, mutualized Chen & Leung, 2015; Mammor, 2019). They develop together within subjectivation processes linked to participation in social and artistic conditioning(Evans, 2006; Radford, 2015). According to this paradigm shift in the sphere of the mind, cognition is basically of an emotional nature; feelings are conceded as necessary for rational genre, forming part of a participated vision of the world Hamada, 2006, 2012a; Radford, 2015; Schloßmann, 2010). In this contemporary vision, the challenges that remain are, among others, to integrate the cerebral, suggestive and physio logical aspects linked to feelings within the same process; to relate the binary, conscious and unconscious origin of the feelings themselves; and to attain their inheritable, singular and universal nature with their contingent character dependent on literal, artistic and social condition(Hamada, 2012b; Sumpter, 2020).

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Accurate and fast computations with Green matrices

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ABSTRACT

This paper provides a direct time complexity system to gain the bidagonal corruption of Green matrices with high relative delicacy. In addition, when the Green matrix is nonsingular and completely positive, this bidagonal corruption can be used to cipher the eigenvalues, the inverse and the result of some direct system of equations with high relative delicacy. A numerical illustration illustrates the advantages of this system.

1. INTRODUCTION

Let us recall that an algorithm computes to high relative delicacy (HRA) when it only uses products, quotients, additions of figures with the same sign or deductions of original data(1). In other words, the only interdicted operation is the deduction of figures which aren't original data) with the same sign. Chancing an acceptable parameterization of the matrix is the first step to decide algorithms with HRA. Among the classes of matrices for which algorithms to HRA have been constructed, we can mention some sorts of nonsingular completely positive matrices see, for case(2-4). Let us recall that a matrix is completely positive (CP) if all its minors are nonnegative and it's rigorously completely positive (RCP) if they're positive see(5,6). As shown in(7), for a nonsingular TP matrix A, if we know its bidagonal factorization HRA(A), also we can perform numerous algebraic calculations with HRA with the software of(8). For case, its eigenvalues, its singular values, its inverse and the result of direct system $lyoff = b$, where b has interspersing signs. In this paper, we give a system of O(n) operations to gain bidagonal factorizations of Green matrices with HRA. Recall that the bidagonal factorization (BD) (A) arises naturally in the process of Neville elimination see(9). This process is an elimination procedure, similar to Gaussian elimination, which, roughly speaking, makes bottom in a column by adding to each row an acceptable multiple of the former base. Green matrix see(1) can be considered as separate interpretation of Green function see(10,11). These functions arise in the Sturm - Liouville boundary-value problem. They're important operations see(10). A class of Green matrices is given by the Schoenmakers - Coffey matrices, which have important fiscal operations see(11,12). For Schoenmakers - Coffey matrices, a parameterization of n parameters leading to HRA calculations was presented in(3). We now present a parameterization of 2n parameters leading to HRA calculations for Green matrices.

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**Emergent equilibrium phenomena in active and passive matter:
A unifying theory**

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ABSTRACT

Later endeavors towards a hypothesis of dynamic matter utilize concepts and strategies from hydrodynamics, motor hypothesis, and non-equilibrium factual material science. Be that as it may, such approaches ordinarily don't appear to recognize the basic include of a few sorts of dynamic matter (especially the natural ones), specifically, the part of reason, and the actually specialist concept of the interest of greatest utility, which we accept is the significant contrast between dynamic and inactive matter. Here we present a novel game-theoretic system, factual teleodynamics, that accounts for this highlight expressly and appear how it can be coordinated with customary measurable mechanics to create a unified hypothesis of arbitrage harmony in dynamic and inactive matter. We propose a range of self-actualizing capabilities, going from none to totally key decision-making, and imagine the different illustrations of dynamic matter frameworks occupying someplace in this range. We appear how factual teleodynamics diminishes to recognizable comes about in statistical mechanics within the constrain of zero self-actualization. At the other extraordinary, in an financial set-ting, it gives novel experiences almost the rise of pay convergences and their reasonableness in an perfect free-market society.

1. INTRODUCTION

Dynamic matter portrays frameworks composed of expansive numbers of self-actualizing substances or operators, which expand and center vitality coming about in customarily out-of-equilibrium framework behavior (Marchetti et al., 2013; Toner et al., 2005; Narayan et al., 2007; Ramaswamy, 2010). Organic illustrations of such frameworks incorporate self-organizing bio-polymers, microbes, schools of fish, and flocks of feathered creatures. Nonliving dynamic matter illustrations incorporate self-propelled particles, layers of vibrated granular bars, etc. A central conceptual perplex is our advancing understanding of dynamic matter is why and when does a collection of dynamic substances that looks like a dy-namic, out-of-equilibrium framework at the infinitesimal scale, carry on visibly like a basic balance framework of inactive matter.

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Semiconductor catalytic activity in the presence of electric fields

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ABSTRACT

For the primary time, it was illustrated that the catalytic properties of semiconductors can be actuated utilizing an outside electric field as it were. More especially, the TiO₂ and Fe₂O₃ were found to create take note able sums of carbon monoxide from carbon dioxide-water vapor gas blend beneath the electric field with the quality within the IRAY-ten extend. The detailed handle, i.e. the actuation of semiconductors utilizing the electric field is more effective than the utilization of UV-vis radiation in terms of vitality effectiveness and sum of items shaped.

1. INTRODUCTION

Semiconductors are well-studied materials that have been broadly utilized within the make of gadgets counting diodes, transistors, and co-ordinates circuits [1,2]. The plausibility of catalytic application of these materials, on the other hand, gets distant less consideration. Primarily, the awesome burden of endeavors put on the examination of their photo catalytic properties, i.e. when the catalytic movement of semiconductors is brought by free charge carriers produced upon the assimilation of photon [3,4]. Nevertheless, the catalysis on semiconductors is far reaching and to a greater degree than might appear at to begin with look. Usually since most metals, when immersed to the discuss (or other oxidative species), have their surface secured with a lean oxide film. Subsequently, the chemical responses that are considered to be happening on the surface of catalytically dynamic metal, are, in fact, may proceed on the layer of semiconductor.

At the display, there's a endless body of explanatory inquire about appearing that electronic forms happening in a semiconductor administer its physicochemical properties counting photocatalytic ones [5-8]. For occurrence, the degree of formation of free carriers (i.e. electrons and gap sets) and their ensuing recombination within the semiconductor decide its movement in different forms, such as oxidation of natural compounds [9,10], lessening of carbon dioxide [11] and others [12,13]. In arrange to drive the semiconductor to conduct, the electrons in it must get limit vitality to cross the band crevice and to reach the conduction band. In common, the electrons can be energized by assimilation of electro magnetic radiation or the seamness of an electric field or collision with another electron [14-16].

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A Case Study on Reducing Traffic Congestion- Proposals to Improve Current Conditions

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ABSTRACT

In recent years, traffic congestion has been regarded as one of the most important global concerns facing all nations. The roads in Bhubarh City have seen increased traffic jams and delays, especially the ones that surround and lead to the University of Bhubarh, the Babu Azadpur campus, and the college complex. This study's main goal is to make some recommendations for ways to reduce traffic jams and longer delays on these roads. Field traffic information and surveys where the level of service (LOS) on the highways was evaluated using Highway Capacity Software (HCS 2010), and the acquired data was analyzed using SPSS. According to the results, Baghlat Street has a LOS that reaches level F, whereas levels D to C are found on adjacent streets. To enhance Baghlat Street's LOS, two ideas have been put forth: (1) implementing a park-and-ride system, and (2) widening Baghlat Street by adding two lanes in each way. After LOSs for both plans were assessed, the findings indicated that the first proposal had fared better.

Keywords: Traffic Congestion, Delay, Level of Service (LOS), Park-And-Ride, University of Bhubarh (UOB)

1. INTRODUCTION

One of the most important worldwide problems that all countries are currently facing is traffic congestion, according to recent studies. Bad road surfaces, a lack of capacity for the road, careless driving, improper parking, poor road markings, a high volume of vehicles, inadequate traffic management, inadequate drainage systems, the presence of heavy goods vehicles (HGVs), excessive speeding, poorly designed intersections and roundabouts, and a lack of public transportation are some of the factors that contribute to traffic congestion. There are a lot of these things on the highways in Bhubarh City. The number of cars on the highways has also increased, with a rise in HGV usage in recent years. Additionally, prior planning to accommodate this large number of vehicles is lacking. Consequently, especially during peak hours, the city's highways continue to be congested and narrow[5].

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A Green Way of Producing High Strength Concrete Utilizing Recycled Concrete

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ABSTRACT

Several research works have examined the impact of recycled aggregates from leftover concrete on the performance of structural concrete produced in the last few years. Recycled aggregates from demolition and construction waste can be used to protect natural aggregate supplies, lessen the need for landfill space, and encourage the use of sustainable building materials. Bonded cement mortar on recycled concrete aggregate, however, has lower strength, more porosity, and a larger capacity to absorb water than natural aggregate. This has a negative impact on the mechanical and durability properties of freshly prepared and hardened concrete formed from recycled concrete aggregate. In-depth experimental research was conducted to investigate the mechanical characteristics and acid-attack resistance of regular and high-strength recycled aggregate mixes. Course and fine aggregates made from recycled materials were used. The proportions of the course and fine aggregates were followed in the preparation of the recycled concrete samples.

Keywords: Recycled Aggregate, RA, High Strength Concrete, Mechanical Properties, Durability, Sulphate Attack, UPV.

1. INTRODUCTION

In the last twenty years, many building projects in Egypt have either outlived their planned lifespans or experienced defects as a result of using noncompliant materials or using subpar construction techniques. The presence of antiquated buildings that have been demolished due to modernization and industrialization may also have a big impact. The primary source of recycled aggregate (RA) is the crushing and processing of old concrete structural elements. RA may also include a variety of other materials, including glass, wood, paper, plastic, tiles, bricks, metals, and other waste products, in addition to crushed concrete. The presence of old cement mortar sticking to the natural aggregate in its center is what separates recycled concrete aggregate from natural aggregate. The quantity of mortar adhering drops.

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A Review of Advances in Peat Soil Stabilization Technology: Exploring the Potential of Palm Oil Fuel Ash Geo-polymer as a Soil Stabilizer Material

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ABSTRACT

The purpose of this study is to present the most recent advancements in chemical stabilization technology for peat soil stabilization. This review investigates the application of conventional stabilizers, such as OPC, as well as non-conventional stabilizer materials, such as chemical solutions, geopolymer materials, and blends of Palm Oil Fuel Ash (POFA) and OPC, to improve the Unconfined Compressive Strength (UCS) properties of peat soils in accordance with ASTM D 4699 specifications. The majority of stabilized soil samples that were created using OPC, POFA-OPC blends, and alkaline solutions did not meet ASTM specifications. Limited research has been done on the application of waste-derived geopolymers for treating peat soils, whereas the majority of POFA geopolymer materials have been utilized to ameliorate clayey and silty soils. The ASTM soil strength standards were met by the strength gains obtained by soil stabilization using geopolymer, which was an extremely positive outcome.

Keywords: Peat Soil, Ordinary Portland Cement, Palm Oil Fuel Ash, Geopolymer, Soil Stabilization, Unconfined Compressive Strength.

1. INTRODUCTION

Due to their origin in the decomposition of organic matter, such as plant leaves and roots, peat soils are characterized as extremely heterogeneous materials and are usually dark or black in color. Peat soil is defined by the ASTM D 4427 standard as soil that contains more than 75% organic matter from a geotechnical engineering perspective. Due to its high natural moisture content, high water-holding capacity, low shear strength, and high compressibility, peat soil is considered geotechnically troublesome, making it one of the hardest soils on which to build roads and structures. Peat soils may generally be categorized using a number of factors, including the distribution of particle sizes, the degree of humification, the amount of fiber, the amount of ash, and the degree of acidity. The Fibre Content and Degree of Humification are the two most widely used classification criteria for peat soils. As previously mentioned, ASTM D 4427 classifies soils containing more than 75% organic matter as peat soil.

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Cold-formed Steel-Concrete Composite Beams with Back-to-Back Channel Sections in Bending

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ABSTRACT

The features of steel-concrete composite constructions are quite appealing, and these can be accounted for utilizing cold-formed steel rather than hot-rolled steel. This work offers a parametric finite element analysis and potential analytical methods for studying cold-formed steel-concrete composite beams under bending. The examined beams consist of concrete slabs joined by detachable shear connections and cold-formed steel channels arranged back to back. Analyzed was a solid concrete slab on a profiled metal sheet. The impact of corrugated web between the back-to-back channels of varying thicknesses is also examined in this study. The spacing between the shear connectors is greater in the case of a corrugated web. Additionally, various shear connection intensities, shear connector qualities, and their configurations are taken into account. Non-linear bending resistance and complete and partial shear connection assumptions form the basis of an analytical investigation. It is demonstrated that concrete slab design and beam bending capability are highly influenced by the steel channel's thickness and degree of shear connection.

Keywords: Cold-Formed Steel; Steel-Concrete Composite Beams; Detachable Shear Connection; Discrete and Continuous Shear Connection; Bending Resistance; Numerical Study.

1. INTRODUCTION

Compared to hot-rolled sections, cold-formed steel (CFS) sections have gained popularity recently because to their advantages, which include lower cost, less self-weight, simpler handling at the construction site, and quicker construction. Built-up CFS sections in structures allow for the composition of highly efficient structural shapes. Furthermore, by employing various connection types amongst its components, a higher resistance of built-up sections can be achieved. For instance, the bending resistance of steel sections varies depending on the form of connection, according to a study on the bending resistance of back-to-back built-up CFS members. Through numerical analysis, Schwab & Madhavan look into the present design expressions of back-to-back CFS beams.

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Setting up software engineers for Robot System Development

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ABSTRACT

The subject of robotics is fast growing and requires software engineers. However, the majority of our undergraduate students lack the necessary skills to handle the particular difficulties involved in software development, for contemporary robotics. We present a course that we designed and taught in this effort to better educate students to write software for automated systems. The training is distinct in that 1) It highlights the unique difficulties in developing software for robots in pairs utilizing the software engineering methods that could aid in managing those difficulties, 2) it offers many of chances for first-hand learning at the border between software engineering and robotics, and 3) makes learning how to create these kinds of systems easier. As we outline the course's innovations and guiding principles, as well as its substance.

KEYWORDS: Software Engineering, Education, Robotics

1. INTRODUCTION

Over the past two decades, the field of robotics has significantly expanded. Global robotics research projects have multiplied and currently include flagship programs such as the US National Robotics Initiative [16], the Together Through Innovation robotics program in Germany, the US DARPA Challenges [1, 3, 29], and Japan's New Robot Strategy [24]. The robotics sector, which is expected to increase by 25% between 2020 and 2023 [2], has been revitalized by such research initiatives along with an emerging market. It is anticipated that this expansion will give rise to new positions requiring specialist knowledge in robotics and the software that powers these kinds of devices.

Massive open online courses (MOOCs) or specialized graduate-level courses have been the main ways in which calls to train our software engineers for this robotic revolution [32] have been answered. The graduate-level courses cover a wider range of topics but concentrate on particular domain platforms [22], or they are narrowly focused on specific robotics topics like AI, control theory, or mechanisms. But these courses ignore the fact that robotics significantly depends on about software and the method used in its development.

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Software Engineering Courses: Project-Sized Scaffolding

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ABSTRACT

Even while computer science graduates are frequently not required to deal with legacy code bases, they will almost surely work on an existing project when they enter the job with millions, if not thousands, of lines of code already in place. To ensure that a realistic experience for pupils without making them feel overwhelmed, We utilized scaffolding that was already a part of an open source project. In the third year of our program in software engineering, We requested that pupils finish five tasks, ranging from adding features to addressing bugs, using this job that is scaffolded. Our support system included of improved documentation, instructional videos, completion videos, and improved task descriptions together with completion advice. Following this run For our course project, we gathered input using a survey (n=87) and a narrow focus. Students, it turned out, valued the authentic experience, but they advise adding more scaffolding. Specifically in the source code, to more effectively balance the level of complexity as well as education gets practice.

1. INTRODUCTION

Guidelines for computer science curricula now advise software engineering courses to work with established products rather than the conventional practice of developing apps from scratch, as working on existing products makes up over 65% of the work done by working software developers [5, 11, 18]. Students engage in real engineering projects as part of this project-based learning, or PBL. Issues relating to traits they will come into in the workplace, like an extensive feature set, complex design, and a sizable code base, requirements for the quality of source code [33]. Working with is not just actual tasks are more beneficial for learning and also inspire and involve PBL is one of the active learning strategies that students [10] have been demonstrated to help lower failure rates and increase exam scores. While PBL encourages and engages students, education researchers warn that instructors must provide adequate scaffolding and supports [4] to avoid having students become stuck on unnecessary tasks or feel overwhelmed and give up rather than moving on to learn the concepts they are trying to learn.

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AEPUS: an Instrument for the Automated Extraction of Pecton angles in Low Signal-to-Noise Ratio Ultrasound Images for Plane Wave Imaging

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ABSTRACT

Ultrasound (US) is an ideal instrument for studying the mechanics of muscle contraction during complicated functional activities, such as movement, due to its real-time operation and processing capabilities. Muscle fascicle lengths and pecton angles changing the ability of skeletal muscles is closely correlated with fascicles. To generate forces, which serve as fundamental parameters. To be observed. While the most effective method for obtaining these characteristics derived from US data is manual, it is time-consuming and prone to errors. Accessibility to recording equipment with large data generation capabilities such as manual technique is not practicable due to the dynamics of muscle. Determining the necessity of automated methods for measuring muscle photographs. However, given the ongoing improvements and technological breakthroughs for ultrafast US and plane-wave imaging, existing techniques are severely constrained.

1. INTRODUCTION

A portable, non-invasive, and well-recognized method for researching human musculoskeletal functioning in vivo is ultrasound (US) [1]. Muscle mechanics during difficult functional activities may be examined in real time with the use of US. For instance, Pecton angles are seen in biomechanical investigations on muscles. And fascicle lengths to determine the capacity for force generation [2]. Actually, in clinical groups, awareness of changes brought on by either short-term or long-term therapy can include vital for creating fresh treatment plans [3]. These muscle characteristics were extracted from US photos. Necessitates tedious manual labelling. Therefore, in order to handle larger sequences, precise automated procedures are required, picture collections. Comparing these tools to a single-hand annotation can significantly cut down on processing time and subjectivity of the findings [4], and in order to meet this demand, several there have been proposed methods for picture analysis [5]. Feature tracking algorithms, which monitor the locations of fascicle sections over picture sequences, are a popular method for measuring pecton angles. Specifically, A common use of the Lucas-Kanade optical flow method is follow the end points of the manually indicated fascicle [6, 7].

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A Framework of machine learning for les closure terms

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ABSTRACT

In this study, we investigate whether artificial neural networks (ANN) can forecast large eddy simulation (LES) closure terms just using coarse-scale data. In order to do this, we propose a coherent framework for LES closure models, emphasizing the use of numerical approximation errors and implicit discretization-based filters. We look into implicit filter types that mirror the discretization operator's behaviour and are inspired by the solution representation of discretous Galkin and finite volume schemes. A global Fourier cutoff filter serves as an example of an explicit LES filter in general. We calculate the precise closure terms for the various LES filter functions inside the ideal LES framework using direct numerical simulation results of fading homogeneous isotropic turbulence. Only coarse-scale input data is used to train several artificial neural networks (ANN) with a multilayer perceptron (MLP) or gated recurrent unit (GRU) architectures to forecast the calculated closure terms. The accuracy of the GRU architecture is significantly higher for the specified application than that of the MLP networks, reaching up to between the precise closure terms for all studied filter functions and the predictions made by the networks, there is a 99.9% correlation.

1. INTRODUCTION

Artificial neural networks (ANN), in particular, have seen great success in the last ten years as machine learning techniques have advanced beyond human ability in games like Go while also pushing the boundaries of picture and speech recognition. The main factor for ANN's recent success with the development of massive datasets and the use of highly parallel graphics processing (GPU) [1], as well as the creation of user-friendly, high-performance machine learning libraries such as Tensor Flow and PyTorch. Artificial neural networks can generally approximate any functional connection that is continuous between the amount of input and output. Only using data, without making any presumptions about the nature of the function in question. Many universal approximation theorems in the literature demonstrate approximation characteristics. Considerable attention has been focused on applying neural network approximation skills to challenges in other scientific domains, such as turbulence research. As the Reynolds number increases, the flow increases. Direct numerical simulation (DNS) at this point for most applications, high Reynolds numbers remain computationally prohibitive.

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High-Efficiency Network Security for Automotive Ethernet with Encryption and Authentication

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ABSTRACT

The benefits of automotive Ethernet include excellent compatibility, low latency, and large bandwidth, which satisfy the demands of new energy vehicles for the development of integration of networks. Automotive Ethernet is not limited to addressing the issue with the more intricate and extensive wiring in the automobile electronics' intelligence, but it may also enhance the vehicle's many safety features, dependability, and comfort. Despite the car's Bluetooth connection to a smartphone, using the Internet and additional network systems to enhance driving equipment for the driver, but it also increases security and hacker assaults vulnerabilities and other issues with vehicle network security that cannot be disregarded, which has a major impact on driving an automobile safely, private, and may jeopardize public security. In this study, we examine the issue of encryption authentication and highlight the necessity of network security for automotive Ethernet. AES-128 encryption technique that has been enhanced and upgraded presented is an enhanced MD5 authentication algorithm concurrently. Using the simulation experiment of the enhanced AES-128 encryption technique is CANoe.

1. INTRODUCTION

Presently A DAVIS Fake Insights (AI), Web of Things (IoT), and robot controls are receiving a part of consideration. Robot innovation has changed since the primary introduction of robots in 1917. Nowadays, machines are display in our lives, supporting us in standard of living [1] - [5]. One of these famed innovations is counterfeit insights that has come to life as well as mechanical technology and machine apparatuses innovation, so robots can presently legitimately prepare and oversee data, and automatically perform certain tasks without human help, assisting people in mechanical industrial facilities. In any case, the capacity to see the environment (Ie) and make choices (to require activity) could be an exceptionally troublesome assignment for the computerized machines. Hence, the field of Counterfeit Insights (AI) is required for portable robots to unravel such issues, [3, 4, 5, 6].

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Software Architectures for Cloud Computing Systems With Mobile Apps

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ABSTRACT

The state-of-the-art in mobile computing technology is represented by mobile cloud computing (MCC), which uses cloud computing's nearly limitless hardware and software resources to allow context-aware and portable computation. A software's architecture abstracts the complications encountered during design Phases of development and evolution to successfully and efficiently implement MCC systems. Objective: Our goal is to map the state-of-research on taxonomy, classification, and systematic identification of software systems based on MCC architecture. We concentrate on examining the current obstacles, their Future research dimensions and architectural solutions. Our goals are to catalog, categorize, and map the current state of research on MCC-based software system architecture. Our study focuses on examining the current problems, their architectural solutions, and the scope of future studies.

Methodology: Based on 102 research publications (published between 2006 and 2017), we conducted a Systematic Mapping Study (SMS) using the Evidence-Based Software Engineering (EBSE) technique. The mapping study's findings are guided by a comprehensive mapping of the current research issues and a taxonomy categorization.

1. INTRODUCTION

By utilizing the abundant and pay-per-use cloud-based hardware and software resources, Mobile Cloud Computing (MCC) is the cutting edge of mobile computing technology, with the goal of reducing the resource poverty of mobile devices [1, 2]. Cloud computing servers take use of "pay-per-use" hardware/software services to provide nearly infinite processing and storage resources [3], making up for resource-constrained mobile devices [4, 5]. The mobility and context awareness of front-end mobile devices and the compute and storage services of back-end cloud servers can help the unification of mobile and cloud computing by enabling systems that are portable yet resource adequate. A range of MCC-based solutions have been put out in recent years by academic and industrial research to solve problems such mobile edge computing, context-aware medical services providing, real-time analytics of mobile-sensed data, and mobile applications as a service.

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Automated Code Generation Using the Domain Model and Use Cases

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ABSTRACT

In this paper, we propose a strategy to consequently create source code records from a utilize case demonstrate and a space course chart named USLSCG (Utilize case Detail Distinct (USL) based Code Era). In our strategy, a utilize case situation is absolutely indicated by a USL show. The USL demonstrate and the space course chart at that point are utilized as inputs to create source code records consequently. These source code records incorporate classes taking after three-layer applications and a SQL script record to make a database and store strategies.

List Terms: Generate source code, USL, Utilize case, USLSCG

1. INTRODUCTION

The computer program advancement life cycle is divided into a few fundamental stages. Within the its begin with organize, program necessities are reported within the SRS (Program Necessity Detail) report. These requirements are more often than not documented by UML (Bound together Modeling Distinct) models and articulations within the characteristic dialect. Within the moment state, plan records at that point are built from the SRS archive. Models in plan reports show diverse plan sees, for illustration, database plans, design plans, question plans, client interface plans, etc. Following state, the plan models are executed into the code source. At long last, the testing movement is performed to guarantee the quality of computer program items [1]. The input of plan and test stages are the program necessities within the SRS archive that are usually reported by utilize case graphs and printed utilize case depictions within the template-based common dialect [2]. Plan models are at that point input for software engineers to convert into source code records. These exercises are more often than not performed physically by designers. Finally, They will present program necessity dissemination reports which are ordinarily a few hundred pages to construct examination models, plan models, and test cases. They at that point change plan models into source code records. In any case, in computer program advancement, necessities as a rule alter amid improvement. So, when the program prerequisites alter, examination models, plan models, source code, and test cases must be modified.

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A Big Data Platform for Real-Time Video Surveillance

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ABSTRACT

Nowadays, keen home offices are unequivocally created with the back of different security cameras to secure not as it were a home but too a building. A huge sum of video information is delivered by these cameras each day. Hence, conventional information administration frameworks confront challenges in collecting, putting away, and analyzing huge video information. In such frameworks, it is troublesome to discover objects and their activities from video reconnaissance within the building since of either the expanding time or the need of brilliantly innovation holder. In this paper, we propose a novel huge information stage for real-time video reconnaissance investigation based on the combination of disseminated information systems and cleverly video handling libraries. The proposed platform is able to gather both real-time video streams and archived video information by utilizing Kafka and Spark Organized Spilling systems. Moreover, the proposed stage gives an brilliantly video preparing module for protest detection by utilizing OpenCV, YOLO, and Keras libraries.

List Terms: Spark Organized Spilling, Kafka, Video Questioning, Video Spilling, Video Observation

1. INTRODUCTION

As of late, the volume of video information has expanded significantly on the web from different sources such as YouTube, Facebook, and TikTok. These unstructured video information are stores of information and have a coordinate connection to real-world occasions. It gives data around people's intuitive and behaviors. Additionally, real-time video streams can offer assistance in behavior investigation whether it is of activity or human designs. The advancement of innovation has too driven to the improvement of security and healthcare frameworks. A huge sum of video reconnaissance information is put away so that it can be prepared when any occasion happens. In any case, physically analyzing video observation will take a part of time and exertion. Subsequently, video examination stages are inquired about and developed to oversee and analyze these video information. These more often than not considered to assess and optimize information transmission throughput and speed. Bhumraj-kang et al. [1] proposed a Hadoop biological system for supporting to a few highlights within the fabricating industry.

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Consensus Proof-of-Miner-Clustering-Authentication Block chain Technique for IOT Networks

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ABSTRACT

Utilizing blockchain advancement inside the Net of Things (IoT) security may well be a research trend in afterward a long time. With tremendous IoT frameworks, diggers will have to be affian a portion of index broadcast from IoT contraptions. This seems cause a delay in sure considerable trades to the record. This paper proposes a proof-of-miner-clustering confirmation assertion methodology of blockchain for IoT systems. Inside the proposed procedure, diggers in a blockchain orchestrate will be clustered, each digger in a cluster is competent for affirming trades from IoT contraptions inside the locale it supervises. Mating of advanced pieces between clusters is done by the circular robin procedure. Our assertion technique can apply to private or consortium blockchain frameworks, making a contrast to create inside the trade affirmation speed of diggers.

1. INTRODUCTION

In today's rapidly making computerized development time, the number and sort of IoT contraptions being put into utilize are growing day by day. The Around the world Data Organization gauges the sum of Internet-connected IoT contraptions reach 150 billion by 2025 [1]. Security for IoT frameworks are especially basic and pressing these days. With the current enhancement incline of IoT, the utilize of a security arrange based on blockchain for huge IoT frameworks with tall flexibility needs might be a sensible course of action, since this development has various control focuses, such as decentralization, mystery, and obligation [2-3]. In 2009, Satoshi Nakamoto displayed blockchain advancement, which may be a block-linked list [4]. Each piece includes a hash pointer that interfacing it to its parent piece and stores the professional's hash regard to a specific time. Starting piece is the title of the cluster's beginning square. A square structure consolidates a header which contains information organization of the square, and a body containing considerable trades. A blockchain organize has two sorts of hub: client hubs and miner/validator center points. Trades can be carried out by Client center points, within the crucial time. Diggers hold the record that records a course of action of affirmed squares. A understanding convention is utilized in a blockchain organize to synchronize record data between diggers.

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Effective Medium Access Control Mechanism for Internet of Things Sensor Networks Using Back off Priority

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ABSTRACT

Recent fast entrance of Web of Things (IoT) in different areas such as keen homes, healthcare, and mechanical applications has raised modern challenges on the QoS necessities counting information prioritization and vitality sparing. In IoT systems, information is heterogeneous and shifts in a wide extend of categories and direness. More basic information must be served more rapidly and dependably than normal information. In arrange to bargain with significant issues viably and move forward the execution of remote sensor systems in IoT, we propose an proficient Backoff Priority-based Medium Get to Control (BoP-MAC) plot that underlines different need information and shows the utilize of backoff instrument. In our proposed arrangement, information need is utilized to legitimately resize the backoff window at the MAC layer to guarantee that high-priority information are exchanged prior and more dependably.

File Terms-Backoff window, Web of things, MAC protocol, Remote sensor systems.

1. INTRODUCTION

These days, Web of Things (IoT) has been rising as one of the key computerized change innovations and anticipated to impact the worldwide economy with an assessed \$4 trillion to \$11 trillion and 75.4 billion associated gadgets by 2025 [1]. IoT has been one of hot investigate themes in a wide assortment of scholarly and mechanical disciplines [2-6]. Numerous inquiries about have been presented in arrange to manage with IoT challenges and issues counting QoS adaptability [2, 3], vitality effectiveness [4-6] and especially different need information arrangement [7-9]. In common, routine works consider independently or at the same time the prerequisite of information need and vitality utilization, and their strategies can be isolated into three primary categories that are MAC layer, directing and line need in organize layer, or application layer [6]. Be that as it may, each strategy category has its claim impediments. The application layer and priority-queue or steering approaches seem hypothetically prioritize a wide assortment of activity and information sorts, but they have a tall complexity that's not reasonable for the reality that, in IoT, sensors ordinarily have confined memory and vitality [8, 9].

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Analysis of DC Corona Audible Noise Using Schlieren Optical Measurement and Numerical Reconstruction Method

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ABSTRACT

DC corona audible noise (AN) constitutes electromagnetic interference from power grids and is a critical factor influencing the electrical design of power transmission and distribution equipment. The measurement method is pivotal for studying the generation mechanism of audible noise. This paper proposes a Schlieren optical measurement with a corresponding numerical reconstruction method to assess audible noise within DC corona discharge, quantifying it with the pressure field. Numerical experiments validate the accuracy of the pressure field reconstruction method. The relationship between the pressure field and sound pressure during DC corona discharge is experimentally explored. Results indicate a reconstruction error within 5%, with the Schlieren system capturing the gas expansion process and pressure field in the discharge region at the microsecond timescale. During corona discharge, the radial radius of the discharge region increases while its pressure decreases and overpressure increases. A non-linear proportional increase is observed between the pressure field and audible noise, with only a small portion of the pressure field converted into audible noise.

Index Terms: Schlieren method, electromagnetic interference, pressure field reconstruction, dc corona audible noise measurement.

1. INTRODUCTION

The generation of audible noise from DC corona discharge significantly affects the daily lives of residents residing in proximity to transmission lines and substations [1], [2], [3]. This results in environmental assessments and noise-related complaints, introducing challenges in the operation and maintenance of power transmission and transformation facilities [4], [5], [6]. The establishment of a comprehensive suite of measurement and reconstruction methods for the pressure field within the corona discharge region is imperative for comprehending the mechanism of audible noise generation. These methods play a crucial role in guiding corona effect evaluations and providing insights for the electrical design of power transmission and transformation equipment.

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Mitigating the Impact of Corona Discharge in Ultra High Voltage Systems through a Novel Mechanism Utilizing Dielectric Oil

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ABSTRACT

The utilization of ultra-high voltage in transmission systems offers a means to diminish electrical power losses attributed to the Joule effect. Nevertheless, unfavorable environmental conditions, such as pollution, high humidity, and elevated temperatures, can result in an ionization, leading to Corona discharge. This phenomenon can adversely affect the electromagnetic parameters of the transmission line, potentially reducing power transfer capacity or causing service interruptions. In response to these challenges, this manuscript introduces an innovative mechanism designed to be affixed to transmission lines, aimed at suppressing the impact of Corona discharge. This mechanism incorporates dielectric oil, which is released during Corona discharge, creating an insulating layer that shields the line from high electrical fields. The manuscript quantifies the impact of Corona discharge on the electrical characteristics of the transmission line using COMSOL Multiphysics 5.6 software.

Index Terms: Corona discharge, dielectric oil, parameters of transmission lines.

1. INTRODUCTION

With the increasing population, the distance between power plants and consumers has grown significantly, leading to longer transmission lines with higher longitude values. As electrical power losses are directly proportional to the longitude of the conductor, these losses become more pronounced [1]. To address this issue, the power industry has adopted Ultra-High Voltage (UHV) in transmission systems. It is known from literature that UHV implementation results in a substantial reduction in power losses. For example, a 1000 kV AC power line (EHV) exhibits a 25% lower ohmic loss compared to a 500 kV AC power line (Extra High Voltage) [1].

Another advantage of UHV is its capability to transport large blocks of electric energy over extended distances. The transmission capacity of a 1000 kV AC circuit is approximately 4 to 5 times that of a 500 kV AC transmission line [3]. Despite its economic attractiveness, UHV introduces a sensitivity to Corona discharge in the transmission system.

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In-Depth Study of the Corona Discharge Breakdown Thresholds in Groove Gap Waveguides and Enhancement Strategies for Inductive Band pass Filters

Dr. Jagadish Chandra Pati
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ABSTRACT

This study is focused on investigating the breakdown of corona discharge in groove gap waveguides (GGW) and inductive band pass filters (IBPFs) employing this technology. The primary objective is to enhance the peak power handling capability (PPHC) by analyzing the location of the maximum normalized electric field strength (EOMAX) concerning geometric parameters. Initially, the research examines wave guiding structures, comparing the transverse electric TE₁₀-like mode distribution of a GGW with that of an equivalent rectangular waveguide (RW). Subsequently, a design strategy is introduced, involving adjustments to the geometrical dimensions of the bed of nails, resulting in a significant reduction in EOMAX. The second part of the paper focuses on vertically polarized GGW IBPFs, where the inductive iris plays a crucial role. A design criterion is proposed for improving PPHC by modifying their dimensions.

Index Terms: Corona breakdown, gas discharge, groove gap waveguides, microwave band pass filters, Peak power handling capability (PPHC), power applications, voltage magnification.

1. INTRODUCTION

Amid the global energy security and heightened environmental concerns, multi-energy optimization strategies have gained considerable traction in recent years. Electrical energy, recognized as a clean power source, has garnered increased attention globally. The operational condition of transmission lines plays a pivotal role in ensuring the reliable transmission of electrical energy. Instances of transmission line galloping occur frequently and pose a significant challenge. When wind excites the transmission line, it induces a self-sustained vibration characterized by low frequency and substantial amplitude, thereby threatening the secure and dependable operation of the transmission line. The realization of a smart and dependable power grid necessitates real-time monitoring and early detection of transmission line galloping. Extensive global research efforts have made substantial progress in monitoring transmission line galloping.

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Comprehending the Electro-Rheological Characteristics of Ester Fluid Incorporating Nano Silica and Surfactants, along with Deep Learning-Predicted ECT

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ABSTRACT

The current investigation focuses on comprehending the influence of various surfactants on a nano-silica-infused ester fluid concerning its electrical and rheological properties. Achieving stability in the nanofluid is crucial, and this is accomplished by introducing ionic and non-ionic surfactants, namely cetyl trimethyl ammonium bromide (CTAB), oleic acid, and Span-80. Notably, CTAB as a surfactant demonstrates resistance to discharge and significantly enhances the breakdown strength by up to 39.5% in the ester nanofluid. The study observes that the fluorescent fiber technique is more sensitive in identifying the onset of corona discharge compared to the Ultra-High-Frequency sensor. The permittivity and tan δ of the fluid exhibit a marginal increase with the addition of surfactants, irrespective of the fluid's temperature.

The rheological properties of the liquid display only Newtonian flow behavior even with the inclusion of surfactants. Both the base fluid and the nanofluids exhibit a similar decay rate in viscosity at higher temperatures. Electrostatic charging tendency (ECT) establishes a correlation between rotation speed and static current, measured using the spinning disc technique.

Index Terms: ANN, corona, ECT, ester fluid, LSTM, nano fluids, Newtonian.

1. INTRODUCTION

Transformers play a crucial role in power system networks, and the longevity of these components hinges on proper insulation design. In recent times, there has been a growing interest in utilizing natural ester-based fluids as insulation in transformers due to their superior dielectric performance, high fire point, and biodegradability. Researchers worldwide have explored the addition of nanoparticles to these fluids to enhance their electrical, thermal, and rheological properties for transformer insulation. Commonly used nano-fillers include conducting particles, oxides, and nitride particles, which have proven to improve the dielectric performance of the liquid.

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Detection of Partial Discharges in Pressboards Submerged in Mineral Insulation Oil Utilizing Quantum Well Hall Effect Magnetic Field Sensors

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ABSTRACT

Insulation deterioration can lead to inefficient transformer operation, often initiated by Partial Discharge (PD) events. Detecting PD early is crucial for optimal transformer performance and functionality. This paper introduces a novel PD detection method employing a highly sensitive Quantum Well Hall Effect (QWHE) magnetic field sensor, comparing its performance with a conventional silicon magnetic field transducer. This study explores the application of QWHE in high voltage engineering, specifically for PD detection. The objective is to experimentally detect PD activity in pressboards immersed in mineral insulation oil using the QWHE sensor. Experimental data from both sensors are analyzed using Empirical Mode Decomposition (EMD) and Wavelet Decomposition (WD) methods, with a comparative analysis of PD signals. The findings indicate that QWHE sensors offer more precise and noise-free measurements, enabling early and accurate PD detection.

Index Terms: Empirical mode decomposition, Hall Effect sensor, partial discharge, quantum well sensor, wavelet decomposition.

1. INTRODUCTION

Operational reliability is a critical aspect of modern power system management, where the reliability of the system is heavily reliant on the performance of its components. Insulation issues arising from high-voltage operations are a major contributor to physical damage and system failures.

Real-time monitoring plays a crucial role in the early detection of these problems, leading to improved system reliability and reduced operational costs. Within this context, the identification of partial discharges (PD) in insulation materials holds great significance. Specifically, the examination and modeling of PD resulting from the breakdown process in mineral oil and pressboard insulators, commonly used in transformers, are essential for enhancing system reliability and minimizing costs.

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Selecting and economically ranking an isolated renewable-based combined heat and power (CHP) micro grid in a cold climate: A case study focusing on a rural healthcare center.

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ABSTRACT

Rural Health Centers (RHCs) are vital national assets that necessitate a continuous power supply for storing medications, providing healthcare services, conducting minor surgeries, and delivering various health services, especially in challenging situations such as the COVID-19 pandemic. In fact, ensuring uninterrupted electricity supply to these centers has become a noteworthy challenge. Consequently, this study aimed to identify the optimal combined heat and power (CHP) system utilizing renewable energy sources (wind, solar, and animal biomass) for the first time in an RHC in India. Various hybrid scenarios were assessed and ranked using HOMER v2.81. Additionally, the techno-economic-environmental-energy performance of vortex turbines was, for the first time, evaluated and incorporated into the software database. The findings revealed that the three top-performing scenarios were solar cell-battery (first scenario), solar cell-biomass-battery (second scenario), and solar cell-wind turbine-battery (third scenario), with levelized costs of energy (LCOE) of 0.393, 0.406, and 0.468 \$/kWh, respectively. In the most economically viable scenario, 25% of the required energy was generated by solar cells, while the remainder was produced by a gas boiler, resulting in an annual CO₂ emission of 7,650 kg. The third scenario, recognized as the most environmentally friendly, exhibited a reduction of about 60 kg in CO₂ compared to the first scenario.

1. INTRODUCTION

To enhance outcomes in the health sector of developing countries, the majority of policies concentrate on immediate factors, including the expansion of health institution networks, the training of healthcare personnel, and financial support [1]. Nonetheless, a key objective outlined in the United Nations Sustainable Development Goal and the "Global Strategy for Women's, Children's and Adolescents' Health (2016–2030)" is the attainment of sufficient health goals within an environment that necessitates the provision of fundamental infrastructure critical to the health sector. Electricity stands out as the foremost essential requirement [2,3] (see Figure 1).

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Boosting the Efficiency of Agricultural Supply Chains through the Implementation of Solar Tunnel Dryers.

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ABSTRACT

Solar tunnel dryers represent cutting-edge technologies that harness solar energy to efficiently and economically dehydrate agricultural products. By leveraging renewable energy sources, these dryers present a sustainable alternative to traditional drying methodologies. This article explores a solar tunnel dryer utilized for drying diverse agricultural goods in Chandragiri Mandal, Tirotpati (Kandha Pradeshi), India, adapting to local weather conditions. The dryer features a 1 mm thick polycarbonate sheet, measuring 30 feet in length and 12 feet in width, serving as both a collector for materials and for direct absorption onto the items being dried. With a capacity of approximately 300 kg, the dryer accommodates vegetables and other agricultural products. Notably, vegetables undergo drying in just 1 hour, reducing initial moisture content from around 85% to 45%, a stark contrast to the 18 hours required for open-air drying. The internal temperature of the dryer ranges considerably higher, between 30 and 60 degrees Celsius, compared to the ambient temperature. The study reveals that the solar tunnel dryer boasts an average thermal efficiency of approximately 55.1%. Key advantages of solar tunnel dryers include reduced drying time, enhanced product quality, and minimized post-harvest losses.

1. INTRODUCTION

Agricultural supply chains are crucial components of the food industry, facilitating the seamless movement of food from producers to consumers. Despite their significance, these supply chains often grapple with inefficiencies leading to food losses and diminished profitability. One notable area where inefficiencies persist is in the drying of agricultural products. In numerous countries, traditional methods like sun drying and open-air drying prevail, proving inefficient and contributing to substantial food losses. In response, solar tunnel dryers have emerged as a promising solution to bolster the efficiency of agricultural supply chains. Solar tunnel dryers, categorized as solar dryers, employ a tunnel-shaped structure to harness solar radiation and heat. This design creates a controlled environment conducive to the effective drying of agricultural products.

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Examining Transient Overvoltage in Photovoltaic Systems Considering the Frequency-Dependent Nature of Grounding Systems.

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ABSTRACT

Photovoltaic (PV) systems face vulnerability to lightning strikes, prompting the introduction of a novel and precise electromagnetic transient (EMT) model for grounding systems (GS). This approach incorporates the frequency-dependent (FD) characteristics of GSs to analyze overvoltage values in PV systems through time domain analysis. The wide-band model, proposed in this paper, proves highly accurate for various GS types (single-port and multi-port GS) and integrates the frequency dependence of soil electrical parameters, utilizing experimental data for conductivity and relative permittivity. Unlike previous approaches, this model can be implemented in the time domain without necessitating GS impedance matrix inversion, showcasing reduced complexity. Addressing a common limitation in existing studies, the present work considers the effects of the mounting system, metal frame, and mutual coupling in PV system modeling during lightning transients. Results highlight the significant impact of PV factors and the frequency-dependent nature of the soil on PV system overvoltages.

1. INTRODUCTION

The rapid proliferation of renewable energy sources, particularly the integration of solar photovoltaic (PV) and wind turbine generating (WTG) systems, has garnered significant attention in addressing global warming and climate change concerns [1]. These sources offer diverse advantages, including emissions reduction and lower operational costs. However, the inherent uncertainty in the power output of PV and WTG systems necessitates the optimization of microgrid scheduling, considering a mix of energy sources [2], and emphasizes the importance of microgrid protection [3]. Solar PV systems stand out as premier renewable energy resources for displacing conventional sources [4]. Various grid-connected PV systems, driven by recent technological advancements, policy support, and escalating demand, have witnessed extensive global expansion. A strategy to enhance voltage gain and alleviate voltage stress on connected switches in PVs involves the utilization of coupled inductors.

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Triary Sequence DC Input employed in an Asymmetrical Single Phase Nine Level Reduced Switch Inverter for Renewable Energy Systems, particularly suitable for photovoltaic applications.

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ABSTRACT

This paper introduces an innovative Asymmetrical Single-Phase Nine-Level Inverter (ASRNLI) that distinguishes itself from various existing configurations. The design achieves a staircase-like voltage pattern with the highest number of levels while employing a reduced number of components. In comparison to conventional systems, asymmetric multilevel inverters require fewer components yet manage to create a cascade structure with multiple output levels. The ASRNLI configuration comprises two independent DC sources and 10 switches, enabling it to generate any desired level. This setup offers several advantages, including improved output voltage quality due to the low blocking voltage of the switches. It proves particularly beneficial in scenarios where asymmetric DC voltage sources are available, such as in modern electric vehicles and AC micro-grids powered by renewable energy sources.

1. INTRODUCTION

Multilevel inverters (MLIs) have become a prominent choice for the integration of renewable energy sources, providing an excellent solution for power systems that require a high-quality voltage profile. In recent years, several scholars have introduced innovative MLI configurations aimed at reducing the reliance on non-essential components, including switches, gate drivers, and auxiliary power supplies, while simultaneously improving overall performance. This trend reflects a concerted effort to enhance the efficiency and reliability of multilevel inverters, making them more suitable for the evolving demands of modern power systems with renewable energy integration. Arora et al. [1] introduced a parallel-linked Neutral-Point-Clamped (NPC) Pulse Width Modulation (PWM) inverter designed for motor transmission. Various modulation techniques were explored to determine the optimal approach. In a separate work [2], Arora et al. proposed a novel PWM technique specifically for mitigating common-mode voltage in solid multilevel inverters. This technique is built upon the principles of the three zero common-mode vectors, representing a similar structure to traditional PWM in multilevel inverters and accurately depicted in an active two-level voltage converter.

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Assessment of the Reliability of Solar Power Plants Utilizing Parabolic Trough Reflectors

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ABSTRACT

In response to the challenges associated with fossil fuels, renewable sources such as wind, solar, and ocean energy are increasingly employed for electricity generation. Solar energy, in particular, holds significant potential in form, with parabolic trough collectors proving cost-effective for electricity production. This study focuses on evaluating the reliability performance of solar power plants utilizing parabolic trough collectors. A multi-state reliability model is developed, considering both component failures and power output variations due to changes in sun irradiance. To simulate the model's power status, the fuzzy c-means clustering method and XII index are employed. The resulting reliability model is then utilized for analytical reliability analysis of electric networks. Adequacy analysis numerical results, integrating parabolic trough collectors into the IBTS and IEEE-RTS systems, demonstrate enhanced reliability indices. However, the variation in sun irradiance leads to fluctuations in plant output, resulting in a less pronounced improvement in reliability indices compared to traditional plants. Furthermore, a comparison with Monte Carlo method outcomes validates the accuracy of the proposed methodology.

1. INTRODUCTION

In contemporary times, the integration of renewable resources into power networks for electricity generation has witnessed a substantial increase. Solar energy, characterized by its abundant availability and high density, has led to the widespread installation of various types of solar power plants globally. These include photovoltaic farms, heliostat-based power plants, linear parabolic collectors, parabolic dishes, and linear Fresnel collectors. Large-scale solar power plants are chosen for their access to abundant solar energy, environmental cleanliness, sustainability, and cost-effectiveness. Both photovoltaic and solar thermal power plants have been utilized for electricity generation. The photovoltaic system employs p-n junctions to convert solar radiation into electric power, while solar thermal power plants concentrate the sun's radiation on receivers through large mirrors, generating high temperatures. The thermodynamic cycle is then driven by a working fluid at high temperatures, producing vapor that, when directed through a turbine, generates electricity.

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Communication-Less Receiver-Side Thunderous Recurrence Tuning for Attractively Coupled Remote Control Exchange Frameworks

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ABSTRACT

Unique Compensating for deviations within the thunderous recurrence is vital in attractive reverberation coupling remote control exchange (WPT) frameworks. Hence, this consider proposes a communication-less collector side thunderous frequency-tuning conspire that compensates for the reactance within the collector without communicating with the transmitter. The proposed conspire comprises an inductor-capacitor-capacitor oriented topology at the transmitter and a half-bridge circuit at the recipient, whose working stage is set to be orthogonal to the recipient current. Resonance recurrence tuning can be accomplished by altering the DC voltage connected to the half-bridge circuit to maximize the control gain at the stack. The reactance response capacity of the proposed conspire is analyzed through tests on a 200 Hz WPT framework. When the auxiliary capacitance degraded from -20% to +20%, the proficiency corruption was kept up inside 6.7% with the proposed conspire, though the productivity debased by up to 33.3% without enrollment.

List Term: Attractive reverberation, reactance response, resonance recurrence, variable reactor, remote control exchange.

1. INTRODUCTION

Remote control exchange (WPT) frameworks are received as secure and helpful modes of control supply in viable applications. Among the different WPT innovations, WPT by means of attractive reverberation coupling (ARC) is as of now considered the foremost reasonable component for high-efficiency mid-range transmissions. WPT through ARC (MRC-WPT) can be connected in different means extending from low-power charging for portable gadgets to high-power charging for electric vehicles. Remote objects, such as dielectric materials, metallic objects, or ferromagnetic materials, close the transmitter and collector coils, cause inductance changes, driving to resonant recurrence deviation and a ensuing decrease within the control and effectiveness. In MRC-WPT frameworks, resonance report deviation may well be a basic concern for commonsense application.

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PIVY Computer Overview Promotion of E- Learning

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ABSTRACT

As an aid to teaching-learning, online communication systems are used to facilitate online learning, forms of virtualized computing and distance learning. The growth of e-learning platforms has exploded in the last two years. Data mining in educational computing uses facts generated from the Internet databases improve the paradigm of educational learning for educational purposes, as in the learning is computerized. Cloud computing is a suitable platform to support online learning solutions. It could be automatically changed, providing a suitable solution to change the consumption of computer resources in the long run. It also facilitates the use of data mining techniques in a distributed environment interacting with extensive e-learning resources. A summary of the current state of cloud computing is presented in studies and examples of infrastructure designed specifically for such a system.

Keywords: e-learning, cloud computing, virtual learning, SaaS, PaaS, IaaS

1. INTRODUCTION

E-learning was been thanks to its widespread use Internet and other digital communications systems and distance learning [1]. It benefits with different forms and functions that could be the best support classroom instruction. These include Virtual instructions, emails and web links, discussion whiteboard and other learning media, e.g things. As a result of network integration students, content producers and professionals, the learning is handled better. Learning together Web-based tools have many advantages the most prominent of which are tasks and 039; continuity and repeatability, adaptability, accessibility and simpler approach [16]. E-learning or virtual learning platforms are becoming increasingly popular among researchers technology (IT), especially after an outbreak Covid-19 and digital evolution, different educational levels included efforts such as massive open online courses (MOOCs), Blackboard, desire to learn (D2L) and virtual Study centers of various universities, is implemented worldwide as an electronic learning format [21,22]. Compared to a traditional attendance class virtual programs fully supported by e-learning paradigm, they have apparently optimal learning environment, a significantly higher frequency for them who can get their materials online [6, 13, 20].

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**Security and Privacy Aspects of cloud computing:
An Intelligent university case study**

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ABSTRACT

The trend of cloud technology is accelerating with the increase techniques such as utility computing, grid computing and distributed computing. Cloud computing has significant potential to provide flexible, cost-effective and efficient resources on the Internet and is a driving force – the most important computing technologies of today. The cloud provides the resources remote access and data storage, while virtual machines access data over the network resource. In addition, cloud services play a major role in the fourth industrial revolution. Everyone uses cloud computing in their daily life using Dropbox, several Google services and Microsoft Office 365. Although such an environment has many advantages, security issues such as data protection, information security, access control, cyber attacks and data availability and performance and has reliability issues. Cloud service providers must implement effective security and data protection measures to protect privacy, confidentiality, integrity, and availability of data services. However, there were no cloud service providers sufficiently secure and reliable services for end users.

Key Words:cloud computing; privacy concerns; security issues; block chain; data protection; information security.

1. INTRODUCTION

The cloud offers the ability to store and access data from anywhere with an internet connection. A cloud application allows users to easily store their location data on a remote server [1]. Beside According to Gartner [2], cloud computing is among the ten most important technologies today. Individuals and organizations use it to share files and data. The cloud service attracted the attention of the company community and academic researchers. Its architecture has formed information systems and is considered part of the driving technology of the future. The cloud service allows users to share data globally, services and resources. The best examples are Google Apps where anyone can access their data using it applications via a web server. Storing data in the cloud reduces hardware cost and improves performance reliability of storage [3].

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**Choosing Cloud Computing Software for Virtual Network lab Supporting
Operating Systems of Course**

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ABSTRACT

The article provides an overview of suitable cloud platforms for a virtual web lab, including in Linux network environments and is designed to support the course of operating systems. The study justifies the choice to use a private cloud as the deployment model and as the service model and justifies it. The decision to create cloud environments specifically adapted to educational needs, in a different way, implementation of ready (infrastructure as a service) cloud services provided by service providers. Related the work of cloud platforms for teaching operating systems is analyzed. The study also provides an overview the authors' previous research on virtualization tools and environments for an operating systems course and Cisco Cyber Security Operations Course. Basic and additional requirements of the cloud service. The operating system supporting software course was developed for the online virtual lab. Finally the paper compares Encalypso, OpenStack, CloudStack and OpenNebula cloud platforms and justifies the first of these cloud computing software and Another option.

Key Words: Linux, Operating Systems, Virtual Web Lab, Private Cloud.

1. INTRODUCTION

Most operating systems courses include practical assignments on real operating systems. In many in some cases, these tasks require students to be given administrator access to their individual case from the operating system. Also, operating system courses usually cover the Linux operating system, although most computers are used, university labs and student laptops are more likely to have Windows installed. Therefore, different virtualization techniques can be used. Internet-based virtual laboratories have become popular for teaching a variety of courses, [1] including courses in the operating system. However, the operating systems course is one of the courses whose needs are significantly more difficult to meet than the needs of most courses that could normally be taught through cloud services. Software as a Service model. The purpose of the article is to make the survey of cloud platforms suitable for the virtual network. For comparison, a laboratory containing Linux network environments in the course of operating systems. these platforms and choose the most suitable platforms.

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Analysis of Production Critical Factors by Application of Cloud Computing Service

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ABSTRACT

The advantages of cloud services are cost-effectiveness, availability, scalability, flexibility, and time-to-market and dynamic access to computing resources. Companies can improve the successful adoption of cloud services by understanding the critical factors. In order to find the critical factors, this study first reviewed the literature and prepared a three-layer hierarchical factor table to implement cloud computing service based on the technology-organization-environment framework. Then, a hybrid method combining two multi-criteria decision tools called Fuzzy Analytic Network Process method and concept of benefits was used to objectively identify critical factors for cloud adoption. It replaces the subjective judgment of the authors. The results of this study identified five critical factors such as security of access to data, security of data transmission, support of top management, management of backup in cloud and acceptance of employee. Finally, the paper presents the results and implications of the study.

Keywords: cloud computing service; multi-criteria decision making; critical factors; fuzzy analytic network process; technology-organization-environment.

1. INTRODUCTION

Business can use cloud computing to create innovative solutions, migrate critical applications and improve financial performance by eliminating expensive legacy technologies. In addition, it can help companies transform their business, increase flexibility and improve operational sustainability [1] also pointed out that the benefits of cloud computing include cost benefits, availability, scalability, flexibility, time marketing and dynamic access to computing resources. Recently, the architecture of cloud computing has added more and more versatile and extensible applications. Organizations in developed countries are increasingly adopting cloud computing, but the rate of adoption of this technology in developing countries has stagnated, despite its potential to accelerate digital transformation [2]. The adoption of cloud services is a type of digital transformation. Understanding its critical factors (CFs) will help companies improve the successful adoption of cloud services. Bryman et al. [3] defined CFs as a small number of events that can ensure the success of a company or organization manager. When companies focus on certain critical areas, called CFs, they are competitively successful.

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Visual Control Software Design for Micro-Drive Error Correction in an Electromechanical System.

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ABSTRACT

Aiming at the problems of low monitoring accuracy and large memory consumption of traditional monitoring software, a visual monitoring software for MEMS micro-drive debugging is designed in this paper. According to the characteristics of MEMS system and the driving principle of micro actuator, the functional module of visual monitoring software for micro actuator debugging is designed. It includes monitoring pulse button module program, visual display module program, monitoring quadrature signal module program and monitoring signal communication module program. Improve the monitoring accuracy through the connection between various modules. Select the material of the micro-drive and set its structural parameters, connect and debug the hardware of the drive, and test the performance of the designed software. The experimental results show that the software designed in this paper has high accuracy and low memory loss, the average accuracy is more than 90%, and the memory consumption is only 156 kb. It shows that this method can effectively monitor MEMS micro actuator, and the monitoring results are reliable.

Keywords: MEMS; Micro actuator; function module; Connect and debug; Visual monitoring.

1. INTRODUCTION

So-called MEMS (Micro company Mechanical Systems, MEMS), refers to the micro structure of the sensors, actuators and signal processing of small and integration in the integration of control circuit and other components, which can give and send the order information or information acquisition and processing according to the obtained information to work independently or in accordance with the outside world commands a micro computer electric parts, gear, or the micro system [1]. The devices developed by using MEMS technology can be applied in the fields of aerospace, aviation, military, biomedical, environmental monitoring and electronic consumption, etc., with a very broad prospect [2]. MEMS technology is gradually developing into a huge industrial cluster, and at the same time is pregnant with a very profound technological change, which will bring a new round of impact on human production and life [3, 4]. As a key part of MEMS, microdevices have been studied in many countries since the 1980s, and some achievements have been made in China.

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Software Requirements Engineering Training: Problem Questions

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ABSTRACT

The key problems of training Requirement Engineering and the following ways to overcome the contradiction between the crucial role of Requirement Engineering in industrial software development and insufficient motivation to master it in the process of Software Engineering specialist professional training were identified based on a systematic research analysis on the formation of the ability of future software engineers to identify, classify and formulate software requirements: use of activity and constructivist approaches, game teaching methods in the process of modeling requirements; active involvement of stakeholders in identifying, formulating and verifying requirements at the beginning of the project and evaluating its results at the end; application of mobile technologies for training of geographically distributed work with requirements; implementation of interdisciplinary cross-cutting Software Engineering projects; involvement of students in real projects; stimulating the creation of interdisciplinary and age-old student project teams.

1. INTRODUCTION

The first course in Software Engineering was developed under the guidance of Friedrich Ludwig Bauer [1, 2]; it contained only a brief overview of the process of determining the requirements for the software product such as functions, user needs and operating environment requirements. Just as 50 years ago, defining software system requirements is the first step in development which largely ensures its success. Recommendations for the development of curricula for Software Engineering bachelors define the competence to find compromises, the essence of which is to reconcile conflicting project goals, find acceptable trade-offs for cost, time, knowledge, existing systems and organizations. Students should engage in exercises that expose them to conflicting and changing requirements. Curriculum units should address these issues, with the aim of ensuring high-quality functional and nonfunctional requirements and a feasible software design [3, p. 21]. Requirements engineering is the process of identifying, formalizing and documenting requirements, that occurs during communication with a customer and other stakeholders who are not typically proficient in software engineering techniques. The identification of requirements demand from the Software Engineering specialist to apply the following general professional competencies [4].

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**Let's look at Predictive Power Advance Software Failure Prediction Models-
Experimental Studies Using Cumbing meters**

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ABSTRACT

Background: Fault prediction is a key problem in software engineering domain. In recent years, an increasing interest in exploiting machine learning techniques to make informed decisions to improve software quality based on available data has been observed.

Aims: The study aims to build and examine the predictive capability of advanced fault prediction models based on product and process metrics by using machine learning classifiers and ensemble design.

Method: Authors developed a methodological framework, consisting of three phases, i.e., (i) metrics identification (ii) experimentation using base ML classifiers and ensemble design (iii) evaluating performance and cost sensitiveness. The study has been conducted on 32 projects from the PROMISE, BUG, and JIRA repositories.

Result: The results shows that advanced fault prediction models built using ensemble methods show an overall median of F-scores ranging between 76.50% and 87.34% and the ROC(AUC) between 77.09% and 84.05% with better predictive capability and cost sensitiveness. Also, non-parametric tests have been applied to test the statistical significance of the classifiers.

Keywords: product and process metrics, classifiers, ensemble design, software fault prediction, software quality.

1. INTRODUCTION

Software fault prediction has been an important research topic in the software engineering field for more than three decades, increasingly catching the interest of researchers [1, 2]. According to IEEE terminology [3] the term fault is used to indicate an incorrect step, process, or data definition in a computer program (i.e., a BUG). In the literature, authors have addressed the software fault prediction (SFP) problem with two viewpoints, i.e., in the first viewpoint, they proposed new method or method contributions to increase fault prediction.

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Zero-Edge-of Trust Computing Environment; Block chain-Based Practical Formula

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ABSTRACT

Edge computing offloads the data processing capacity to the user side, provides flexible and efficient computing services for the development of smart city, and brings many security challenges. Aiming at the problems of fuzzy boundary security protection and dynamic identity authentication in the edge computing environment in smart city, the zero trust architecture based on block chain is studied, and a digital identity model and dynamic authentication scheme of edge computing nodes based on distributed ledger are proposed. Firstly, a digital identity model of two-way authentication between edge computing nodes and sensing terminal is established to realize fine-grained authorization and access control in edge computing. Secondly, based on the identity data and behavior log bookkeeping on the chain, the quantification of trust value, trust transmission and update are realized, and the traceability of security events is improved.

Keywords: block chain, Internet of things, zero trust, edge computing, secret sharing, consensus algorithm.

1. INTRODUCTION

Edge computing is an important form of computing in smart cities [1]. With the rapid development of 5G, chip technology and high-performance intelligent IoT terminals, the computing resources of traditional cloud computing center gradually sink to the sensing layer. In terms of system architecture, the new generation of information technology represented by cloud computing, micro services, big data and AI has significantly changed the IT infrastructure. In the aspect of information processing mode, the wide application of new algorithms such as image-based computing [2], collaborative trajectory [3] and machine learning [4-6] put forward higher requirements for the security, reliability and effectiveness of information infrastructure [7]. Edge computing unloading the computing power of the cloud center to the user side for data processing, it can alleviate the pressure of the centralized server on multi-service concurrency and network bandwidth, and realize flexible and efficient information processing [8].

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Analysis of UART Communication Protocol

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ABSTRACT

Universal Asynchronous Receiver Transmitter (UART) communication protocol is developed for transmitting signals between computer hardware devices. The main goal of Universal Asynchronous Receiver Transmitter (UART) communication protocol is to provide consistent and high-quality results. The proposed framework integrates with clock signal to generate frequency values with the concerned system statements. It eliminates the functional element that pretends selecting the baud rate value and defined structural elements. The proposed system has recognized a defined aspect of eventual attributes, which may indulge upon many processed sources. It has evolved through distinct accomplishment of constant value to calculate the system function by utilizing the terms and values of eventual attributes. It may be processed to operate on the system while ensuring inter-dependence. This has been performed via transmitter and receiver terminals that propagate the value of the defined resource statement function. It extends the system function by leveraging distinct outcomes. This approach can generate effective and quality resultant value to ensure the defined functional statements. The transmission of source and destination information may be beneficial for maintaining a system with a predicted value, which will be generated based on the defined system sources and determinants.

Keywords: Protocols, Transmitters, Receivers, Hardware, Hardware design languages, Edge computing, Clocks.

1. INTRODUCTION

In general, Universal Asynchronous Receiver Transmitter (UART) communication protocol is defined as a hardware type of communication protocol. This protocol is evolved as a asynchronous serial aspect as depicted in Fig. 1.1. The system evolves with configurable approach with no clock signal evolved among concern system approach. It has transmitting end, which transfer its value towards receiver end with interfacing node [1].

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Cage basic topology optimization considering thermo-mechanical coupling

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ABSTRACT

The execution of the cage can straightforwardly influence the benefit life of the bearing. This paper presents a cage topology optimization strategy for making stides the warm dissemination and basic solidness. Firstly, a multi-objective auxiliary topology optimization show is set up based on the SIMP strategy and MMA calculation, the impacts of drive and warm stack are considered comprehensively. Besides, considering the centrifugal drive and frictional warm, beneath the conditions of a given volume imperative, the bearing cage topology optimization show is carried out with warm dissemination shortcoming and compliance as the optimization destinations. Utilizing iterative calculations based on the MMA calculation and boundary smoothing preparing, the structure with the ideal fabric format is gotten. At last, compared with the starting structures, the most extreme temperature decreases almost 27% and the most extreme stretch diminishes almost 14.8%. The comes about appear that topology optimization can give a reference for the plan of bearing cages, which can make stides the basic execution whereas lessening weight.

1. INTRODUCTION

With the fast improvement of the aviation industry in ultra-high accuracy conditions, higher necessities are put forward for the execution of high-speed excessness ball orientation. As a key component of the bearing, the execution of the cage will influence the benefit life of the bearing. The center of bearing cage inquire about is warm simultaneous and energetic characteristics, and the sliding contact of the bear amid the working handle can cause the cage to warm and wear-out. More than 25% of bearing disappointments are caused by frictional warm between balls and cage. When the conventional cage plan, the auxiliary solidness of the cage is made stides by changing the cage fabric and the shape of the pockets, whereas overlooking the cage structure plan. In this manner, it is exceptionally vital to think about a novel cage, which can move forward both warm scattering and basic solidness of the cage.

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Today's High
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Energy flow analysis was used to design the low impact separation mechanism and point-type high load connection

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ABSTRACT

In this paper, based on the improvement of the non-pyrostatic mao affect association and partition gadget for overloading stack association of huge space vehicles, the plan strategy of association and partition gadget is considered. The conventional overloading stack association partition gadget encompasses a solid stacking capacity, but the discharge of framework vitality will cause a colossal affect amid division. This paper considers the exchange of affect vitality within the instrument plan prepare, diminishes division affect based on vitality stream examination. Based on the investigation of the DOF (Degree of Flexibility) imperative work of the division framework and the working prerequisites of the division instrument, the movability show of division framework was built up. Concerning to the inquire about on DOF limitations and discharge, the key of drive imperatives in DOF imperatives of the division instrument is gotten, and the partition instrument that can execute the drive imperatives and discharge is analyzed. Moreover, based on the vitality stream examination of the partition component, the plan strategy of the mao affect partition instrument is proposed, gotten a non-self-locking string combine association division instrument. The viability of the plan strategy was confirmed by the vitality transformation examination of the division component.

1. INTRODUCTION

The space association division instrument is the center component of the shuttle framework to realize locking, discharging and isolating expectations amid the dispatch and circle state. It is broadly utilized in rocket organize division, discipline and both partitions, sun oriented wing arrangement, payload discharge, in-orbit docking, and support, etc. Its work and execution specifically influence the victory or disappointment of shuttle dispatch and in-orbit work. The conventional association and division component realizes the association through the basic stacking capacity, and employs the pyrostatic operation to execute the basic disengagement and partition after entering circle. This expendable innovation has numerous issues, such as tall partition affect, hazardous contamination and non-reusable, which extremely limits its application in different issued shuttle, payloads and space missions.

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Research on powder metallurgy brake pads' wear and friction Characteristics is progressing

Dr.Ritanjali Sethy
Professor, Department of Mechanical Engineering
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ABSTRACT

The territory of China is generally complex, which leads to the complex and changeable working conditions of high-speed trains during braking. Considering the impact under diverse braking conditions on the execution of prepare brake cushions could be a issue commendable of in-depth discourse. In arrange to investigate the execution changes of powder metallurgy brake cushions amid prepare braking, this paper summarizes the grinding and wear properties and wear component of powder metallurgy brake cushions beneath diverse braking conditions, combined with the inquire about status of powder metallurgy brake cushion materials, it gives headings for the investigate of modern powder metallurgy materials. Give reference for the improvement of brake cushions of high-speed prepare within the future.

1. INTRODUCTION

The operation of the Shinkansen in Japan within the 1960s checked the first light of the high-speed train. China's high-speed railroad began late, but it has created quickly. From the "Four Vertical and Four Horizontal" in 2008 to "Eight Vertical and Eight Horizontal" nowadays, China has built a moderately total railroad arrange and high-speed railroad arrange. By 2020, China's high-speed railroad has worked for about 38,000 km. With the advancement of high-speed railroads, the speed of trains has steadily expanded, and the working speed of trains has ended up one of the vital pointers to degree the advancement level of a country's railroads. As the speed of the prepare increments, the braking execution of the preparation has gotten to be more vital. The brake cushion is a critical component of a high-speed prepare braking framework, its contact and wear properties and wear component has ended up the center of researchers.

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Fabrication of Hackaw Using Solar power

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ABSTRACT

This venture is on the plan and development of a sun based control hackaw machine for cutting of metal to diverse estimate and length with the assistance of sun based hackaw. The objective of this extend is to spare labor and time, vitality in cutting metals in arrange to achieve high productivity. It may be a cutting machine with teeth on its edge utilized extraordinarily for cutting fabric. The control to the hackaw is given by the sun based Vitality. The engine drives the flywheel associated to the shaft of the motor. The flywheel is associated through a connect that transmits the desired drive for cutting the work piece. At last interfacing pole is associated to the vertical arm associated to the horizontal arm. Revolving movement of the shaft is changed over into responding movement of the hackaw with the assistance of wrench and interfacing pole. Work piece of wanted length can be cut by nourishing it to hackaw by holding it into seat had hole. The different component of the machine were outlined and built. Test was carried out on the machine utilizing diverse metals.

1. INTRODUCTION

A hackaw may be a handheld device utilized to cut through materials like plastic tubing and metal channels. Its cutting component is given by detachable edges which include sharp teeth along their external edge. In most cases, a hackaw comprises of a metal outline that takes after a downward-facing. A handle of plastic, wood, or metal is regularly attached to one conclusion of the outline. The frame's closes include movable pegs that can be fixed to secure a edge in put, and extricated to expel it. Hackaw edges are long, lean strips of solidified steel that include a push of teeth along their cutting edge. Each conclusion of the edge is punched with a little gap that fits onto the saw frame's pegs. Most edges extend in length from ten to 12inches (25.4 to 30.48 cm), in spite of the fact that six-inch (15.24 cm) edges can be obtained to fit litter hackaw models. A pulper that applies drive, changes the come of a drive, or changes the quality of a constraint, in arrange to perform a errand, by and large including work done on a stack. Machines are frequently outlined to abdicate a tall mechanical advantage to decrease the exertion required to do that work.

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Kinematic synthesis of the three-position static balancing mechanism for an input torque

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ABSTRACT

The point of this work is to plan the links-spring instrument for adjusting, within the three positions of the working extend, a rotating plate subjected to a torque. An energy-related approach towards the conditions of the mechanical framework adjust for a discrete number of positions leads to the detailing of a crank of linking for a four-bar linkage which guides a coupler point through the enderend positions, where, at the same time, geometrical conditions (indicating the spring pressure) and kinematic conditions (characterizing the outspread component of the pressure after rate) are fulfilled. The limitally and imperceptibly isolated position arrangement is considered, be that as it may, as it were a component of the coupler point speed is basic. A common strategy was proposed for deciding the four-bar instrument geometry. Instrument reversal was connected in arrange to diminish the number of planned factors and rearrange the arrangement strategy.

Keywords: discrete balancing, torque balancing, machine design, and mechanism synthesis.

1. INTRODUCTION

The adjusting of a spatial and planar linkage-spring framework is of pivotal significance in lessening the vitality expended by machines whereas performing endorated working operations. The adjusting in a limited (discrete) number of positions may be a specific kind of linkage adjusting. The aim of this work is to plan (to choose the measurements and mechanical parameters) the links-spring framework for adjusting, within the three positions of the working run, a revolving plate stacked with a torque. An energy-related approach towards the conditions of the mechanical framework adjust for a watchful number of positions leads to the detailing of an arrangement of linking for a component which guides an working component through the enderend positions, where, at the same time, geometrical conditions (indicating the spring pressure) and kinematic conditions (characterizing the outspread component of the pressure after speed) must be fulfilled. In other words, the limitally and imperceptibly isolated positions means is considered. In this particular extend, the inflexible body movement is spoken to by the three limitally isolated positions related with three imperceptibly isolated positions.

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Optimizing the acceleration of the trolley system for Constant slewing in tower cranes

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ABSTRACT

The article depicts optimization of the method of increasing speed of the tower crane trolley development component amid the inflicting mode of the slewing instrument. A scientific show of the boom framework of the tower crane was utilized for the optimization of the trolley development. The show was decreased to a sixth-order direct differential condition with constant coefficients, which speaks to the connections between the drive torque and the arrangement of the stack and its time subsidiaries. Non-dimensional complex model (objective function), which takes into consideration the drive torque and its rate of alter in time amid the temporal handle, was created to optimize the mode of the trolley development component. Based on that, a variational issue was defined and fashioned in an expository shape in which root-mean-square (RMS) values of the quantities were connected. A complex ideal mode of increasing speed of the trolley development component was gotten and compared with the modes optimized based on diverse criteria. Preferences and impediments of the arrangements were examined based on the investigation of the gotten ideal modes of movement. The investigation uncovered moo- and high-frequency components motions of the trolley development component amid the transitory form. The conditions for their end were defined.

Keywords: trolley, optimization, movement, criteria, crane

1. INTRODUCTION

In arrange to extend the capacity of a tower crane, a few of its components frequently work mutually. An illustration of such a joint operation is the development of the stack trolley combined with the development of slewing instruments of the crane. In this case, there show up extra dynamical loads in elements of components and within the structure of the crane. These loads can be especially dangerous when one of the instruments is within the temporal process (starting or braking). The loads may cause moo- and high-frequency motions within the components of a crane component, which, in turn, lead to a diminish within the crane unwavering quality and increment the vitality misdisturbances within the crane instruments.

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Using quick heating to regulate the CNC lathe's thermal displacement

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ABSTRACT

Thermal blunder continuously exists in a machine device and accounts for an expansive portion of the full blunder within the machine. Warm relocation in X-axis on a CNC machine controlled based on a quick warming framework is displayed in this paper. Positive Temperature Coefficient (PTC) warming plates are introduced on the X-axis of the machine. A control temperature framework is developed for fast warming which assist makes a difference the warm relocation to rapidly reach solidstate. The framework at that point consistently keeps up steady remuneration of the warm mistake. The displayed quick warming procedure is simpler than the signal of machine warm mistakes by impedances within the numerical control framework. Cones about appear that the consistent state of the warm relocation within the X-axis can be processed in a shorter time. In expansion, warm mistakes in consistent and changing working conditions may be altogether diminished over 80% and 60%, separately, compared to those without utilizing the fast warming. Subsequently, the proposed strategy encompasses a tall potential for application on the CNC machine for making strides its exactness.

Keywords: rapid heating, CNC lathe, thermal displacement, ball screw, temperature control

1. INTRODUCTION

Machining productivity and exactness of machine apparatuses are key variables of machine device cost. In any case, the machine apparatus collected by a parcel of parts is warmed up and grows (i.e., warm relocation) beneath high-speed cutting condition; extending parts coverage influence fabricating exactness of the machine instruments. In 1990, Bryan demonstrated that the warm blunder accounted for 40-70% of the full machine instrument blunder. A few analysts have attempted to discover the way of decreasing the warm relocation. In 2012, May et al measured the temperature and relocation of a machine apparatus and they built a warm show based on test information to calculate the warm blunder. Their results about appeared that the warm mistakes decided through warm extension of machine components and the work piece were closely related to machine apparatus warm behavior. Because it is known, the warm development coefficient of carbon steel (screw of S45C) is 12E-6(U-C).

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Investigating the Effects of Irregular Degradation in Recycled Polymer materials from the selected properties of the extrusion process

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ABSTRACT

This work deals with the effects of disordered disintegration (shear instability) on recycling polyethylene terephthalate (PET) bottles in an extrusion process using a twin-screw extruder and hence its effect on the mechanical properties of the product and the amount of electricity consumption. The extrusion process was carried out for PET bottle sizes (4.75, 6.75, 7.15 and 10 mm) in addition to comparable raw material in the temperature (200-205 C) with speed 50 revolutions per minute. The results showed that the cut size has a direct effect on the crystallinity, which affects the mechanical and thermal properties such as elongation and tensile strength decrease as the shear strength increases size, but the modulus of elasticity increases with increasing shear size. The impact and hardness test proved it it was also observed that impact strength and hardness decrease as the cut size increases. extrusion process when putting the same number of products of different sizes into the machine and make sure that for comparison, the materials enter the machine immediately, we notice that smaller quantities are used less electricity compared to other different sizes except raw material from PET).

1. INTRODUCTION

Polymeric (plastic) waste is harmful to the environment and disposal of these wastes is a serious problem that can be implemented by recycling. Especially the current methods of disposal of plastic waste in landfills have caused serious environmental problems which threaten human health [1,2]. The concern was pollution resulting from the accumulation of polymer (plastic) waste, especially in water bodies. Plastic waste is also used as landfill and it occupies a large area on the earth. It is also possible to receive energy through the recycling process. Because polymer products are oil price increase based on oil, the material used to produce the polymers can be recycled. polymer waste is a sustainable and profitable business. Six special ones steps include processing the waste polymer for recycling. This includes collecting, sorting, cleaning, cutting, granulating and polymer formation.

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Fast stereoscopic PIV studying the statistics axial properties limited turbulent current flow in the pipe behind the axial fan

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ABSTRACT

The study of turbulent eddy flow in pipelines is one of the most difficult studies energy and turbulence. Axial fans in a tube, without guide sides, are widely used in practice and their problem energy efficiency is still widely debated. Analysis of energy and interaction of axial fans Design parameters are one of the most important issues in defining the energy efficiency potential of fans. On the other hand there is a three-dimensional velocity field in wall-bounded flow with high turbulence intensity on the other hand, is a complex wing geometry that creates a turbulent vortex flow. This article introduces the study of turbulence eddy current. Rankine-type, in an axially constrained system using a high-speed stereoscopic imaging velocimeter (HSI) PIV) The flow generator is an axial fan impeller with an outer diameter of 0.199 m and nine twisted blades. Reynolds number in the tube, Re = 176,129 is reached. The Reynolds weights, higher-order statistical moments and invariant maps are calculated based on the three-component velocity field. Here intense changes occur in all statistical parameters radial and axial direction. Four flow regions can be identified in the flow domain. The interaction of each of these four flow regions creates a very complex vortex flow that occurs behind the axial fan. Invariant maps defined reveals the turbulence structure.

1. INTRODUCTION

Investigation of the turbulence structure of the inner part (wall-bounded) eddy currents belong to the classical but also to the latest theoretical and numerical studies in the field of fluid mechanics. This article examines a turbulent eddy flow, Rankine type, axially limited, produced with a twisted-blade axial fan roller. The axial fan is built-in, this study is defined as free entry, chamfered exit according to the international standard ISO 5801 for testing fans. 1. Axially confined and unconfined turbulent eddy currents are discussed in Strohacheksky2 and Fig. 1. Axially limited cases are very common in practice. In addition, axial fans without guide shrouds in most cases there are still built-in tubes. Optimum flow ratio and basic coefficients are given in both cases Strohacheksky 2 This has important implications for design of the axial fan impeller.

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A study on employee welfare: A review

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ABSTRACT

This literature review examines the concept of employee welfare, focusing on its various dimensions and its importance in organizational contexts. The study explores existing research and theoretical frameworks related to employee welfare, encompassing aspects such as work-life balance, health and safety, compensation and benefits, career development, and overall well-being. Through a comprehensive analysis of the literature, this study aims to identify the key factors that contribute to employee welfare and understand their impact on employee satisfaction, engagement, and organizational outcomes. The findings provide valuable insights for organizations seeking to develop effective strategies and policies that promote employee welfare and create a supportive work environment conducive to employee well-being and overall organizational success. Keywords: Employee welfare, employee well-being, employee satisfaction

1. INTRODUCTION

Definition of employee welfare

The ILO (International Labor Organization) defined, "welfare as a term which is understood to include such services and amenities as may be established in or the vicinity of undertaking to perform their work in healthy, congenial surrounding and to provide them with amenities conducive to good health and high morale". According to Arthur James Todd, "welfare as anything done for the comfort or improvement and social of the employees over and above the wages paid, which is not a necessity of the industry".

Meaning of employee welfare

Employee welfare means, such services, facilities and amenities such as canteens, rest and recreation facilities, arrangement for travel to and for the accommodation of workers employed at a distance from their home, and such other services, amenities and facilities including social security measures as contribute to improve the condition under which workers are employed.

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A study on student's satisfaction towards online learning application with special reference to Coimbatore city

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ABSTRACT

Online learning helps students to create and communicate new ideas. You get the chance to uplift your skills and gain knowledge apart from school education. One of the prime importance of e-learning is that it helps students and teachers develop advanced skills. Keywords: online learning, applications, student, internet.

I. INTRODUCTION

Online education is a type of educational instruction that is delivered through the internet to students using their home computers. During the last decade, online degrees and courses have become popular alternative for a wide range of non-traditional students which include those who want to continue working full-time or raising families. Most of the time, online degree programs and courses are offered via the host schools online learning platform, although some are delivered using alternative technologies. The web-based learning has the potential to meet the perceived need for flexible pace, place and face. This study analyzes student's preference, satisfaction and perceived learning in an appbased system.

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