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NCISTA- 2020

CONFERENCE PROCEEDINGS

**A National Conference on "Innovations through
Science & Technology and their Application"**

Date: 22.12.2020

**Online Published In Association with-*International Journal of
Computer Science & Management Studies***



Organised by



ROLAND INSTITUTE OF TECHNOLOGY
Surya Vihar, Berhampur – 761008

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ABOUT THE CONFERENCE

The aim of this conference is to present a unified platform for advanced and multi-disciplinary research towards sustainable energy systems. During virtual conversations participants from remote areas faced sometime network issues but overall communication was good throughout the even. More than 30 international resource persons from different fields share their expertise with the young academicians and researcher with case studies and concrete examples within allowed time span. The scientific & technical program of the three days international conference have review talks, invited lectures, contributed oral presentations.

This proceeding includes papers from Physics, Mathematics and their applications. A sound understanding of the same shall help emergence of new ideas that can be helpful in building trained professionals who can serve in the knowledge-based industries. We are pleased to appreciate our dynamic reviewers who took time and effort for providing their valuable comments in time and help towards the improvement of quality of papers through rigours review process.

ABOUT THE INSTITUTE

Roland Institute of Technology, a premier Institute affiliated to Biju Pattnaik University of Technology, Rourkela, Odisha started functioning in 2001. It is accredited by AICTE, New Delhi and certified by ISO 9001:2008. Our B.Tech degree is accepted by 52 international universities spread across many countries. The institution has applied for National Board of Accreditation (NBA) and is under the process of NAAC accreditations.

RIT aspires for a leading global position in delivering world class engineering education, reinforcing worldwide state of the art of training methodology, process, upholding top-tier quality and ethical standards as the

institutions backbone for progressive growth. We in RIT design the blue print of the techno minds for future development and secure sustained strategic repositioning to effectively maneuver rapidly fluctuating global, regional, and local market conditions for implementing engineering in every sector of life. We deliver superior value, flexible, and integrated engineering minds to the society who are engineered for excellence having ethics, mutual respect for the sustenance of humanity and engineering in the core of their creative minds.

Providing quality technical education and training by well qualified and experienced faculty, extending state-of-art infrastructure such as Wi-Fi enabled campus, in campus hostels, Central library, Digital Library and Central Computing facility, Gymnasium and other facilities in the campus for all-round development of the students is our motto. The institution got good name for excellent result and good placement.

**CONFERENCE
PROCEEDINGS
(ORAL & PAPER PRESENTATION)**



Roland Institute of Technology
Surya Vihar, Berhampur, Odisha- 761008



J. JAYALAKSHMI
Chairman

MESSAGE FROM THE CHAIRMAN

It is a matter of great delight to know that the Roland Institute of Technology is organizing a national Conference on “Innovations through Science & Technology and their Application”. To mark this event, the college is going to publish a proceeding comprising all the technical papers presented in the conference. This is a

Multidisciplinary conference with the object of bringing together scientists, professors and research scholars from India and abroad in the broad areas of communication, technology and engineering

I wish the conference a grand success and hope it contributes immensely in the area of computing and engineering.

Dr. J.Jayalakshmi
Chairman



Roland Institute of Technology

Surya Vihar, Berhampur, Odisha- 761008



Dr. Sanat Kumar Patro
Principal RIT

MESSAGE FROM THE PRINCIPAL

The conference is necessary to bring at the culture of information exchange and feedback on developing trends in technologies. I am delighted to note that RIT, Berhampur is organizing the National Conference on “Innovations through Science & Technology and their Application”. Certainly, this type of conference not only brings all researches, students in one platform, but it also inculcates the research culture among the entire fraternity of Education in the country, thereby contributing to the development of the nation.

I hope that this conference would certainly induce innovative idea among the participants paving way for new invention and technologies in the field of application of optimization techniques and sustainable development in engineering sciences.

I Congratulate All Professors and the entire organizing team for initiating the conduction of such an important event at our institute.

I wish the conference a grand success.

Prof. (Dr.) Sanat Kumar Patro



Roland Institute of Technology
Surya Vihar, Berhampur, Odisha- 761008



MESSAGE FROM CONVENER

It gives me immense pleasure to invite all delegates, researches and students at Roland Institute of Technology, Berhampur, Odisha, India to the National Conference “Innovations through Science & Technology and their Application”. New Technology are introducing every day that will radically transform the future of this fields. The aim of the conference is promote excellence in scientific knowledge and innovations in the diversified fields of science, engineering and technology to motivate young researches and students. It is also offer the budding researches to different opportunities to present their work in front of eminent experts of individual fields.

As the convener of the conference, I extend my gratitude to all professors, Invited speakers, Chief Guest, Guest of honour, Keynote speakers, National Delegates, Invited Faculty member, researcher and students coordinators for their wholehearted participation in the national Conference. I would like to thank National & International advisory committee members, organizing committee and department faculty and staff members for their continuing support. I would like to thank all the authors and persons who directly or indirectly contributed their helping hand in the conference. Without their cooperation and full support, this conference would not have been possible

I wish the conference and the proceedings a grand success.

Dr. Sujata Panda

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| Sl. No. | Paper Published | Name of the Author | Page No. |
|---------|--|--|----------|
| 01. | Experimental methods in chemical engineering: Transmission electron microscopy—TEM | Dr. Girija Prasad Sahoo ¹ Mr. Kunja Bihari Nanda ² | 01. |
| 02 | A novel synthesis of grapheme quantum dots via thermal treatment of crude graphite oxide in a dry and alkaline condition, and their application in uranyl detection | Dr. Sunita Bal ¹ Mr. Praveen Kumar Patra ² | 02 |
| 03 | Efficient degradation of chloroquine drug by electro-Fenton oxidation: Effects of operating conditions and Degradation mechanism | Dr. Amit Kumar Jena ¹ Mr. Padarbindo Panda ² | 03 |
| 04 | Detailed molecular structure (XRD), conformational search, spectroscopic characterization (IR, Raman, UV, fluorescence), quantum mechanical properties and bioactivity Prediction of a parole analogue | Dr. Sagarika Pasayat ¹ Mr. Rajesh Das ² | 04 |
| 05 | Effects of surface tension on the dynamics of a single micro bubble near a rigid wall in an ultrasonic field | Dr. Priyabrat Mohapatra | 05 |
| 06 | Entrepreneurship and Innovation | Dr. Ramesh Chandra Rath ¹ , Miss Rojalin Sahu ² | 06 |
| 07 | An Influence of Marketing Department Depends on Legacy Marketing Strategies | Dr. Mousumi Parida ¹ Mr. Uma Sankar Pani ² | 07 |
| 08 | Role of Financial System in India | Dr. Tanmaya Kumar Pradhan ¹ , Dr. Ashalata Panigahi ² | 08 |
| 09 | Rural Credit: A Historical Overview and Contemporary Views in India | Dr. Jyotirmaya Satapathy | 09 |
| 10 | Constructional idioms of ‘insanity’ in English and Spanish: A corpus-based study | Dr. Bairagi Patra ¹ Mr. Mithun Sethy ² | 10 |
| 11 | English medium instruction lecturer training programmes: Content, delivery, ways forward | Mr. Ajit Kumar Satapathy ¹ , Miss. Manisha Dash ² | 11 |
| 12 | Effectiveness of digital-based interventions for children with mathematical learning difficulties: A meta-analysis. | Dr. Rama Chandra Dash ¹ Mr. Jayadeep Sahu ² | 12 |

| | | | |
|----|--|---|----|
| 13 | The influence of social relationships on outcomes in mathematics when using peer tutoring in elementary school | Dr. Sandhya Mishra | 13 |
| 14 | Changing paradigms of Engineering Education- An Indian Perspective | Dr. Chetan Kumar Sharma ¹ Mr. Rajesh Das ² | 14 |
| 15 | Creating theory-practice linkages in teacher education: Tracing the use of practice-based artifacts | Prakash Kumar Shukla ¹ Mr. Arakhit Bhol ² | 15 |
| 16 | An assessment of how climate change and UV radiation affect the toxicity of oil on coral reef animals | Dr. Paramandanda Jena ¹ Dr. Rina Rani Rath ² | 16 |
| 17 | Security of Quantum Cryptography for The Internet of Things | Bikram Kumar Sahu | 17 |
| 18 | Prioritizing and Identifying the Elements Influencing The Road Freight Accidents Model | Dr. Harish Chand Giri ¹ Dr. Rina Rani Rath ² | 18 |
| 19 | Regarding the Features of Earth Movement and the Enhancement of the Intake Mode for Complicated Layered Sites | Dr. Jyotikusum Acharya ¹ , Satyajeet Patnaik ² | 19 |
| 20 | Examining the Impact of Traffic Flow Management Techniques on Driver Behavior on Freeways | Dr. Narayan Tiadi ¹ Manisha Dash ² | 20 |
| 21 | Unreinforced Masonry walls can be reinforced in-plane using glass fiber-strengthened polyurea. | Ankita Jena ¹ Mithun Sethy ² | 21 |
| 22 | Robotics: From First Order Cybernetics to Third Order Cybernetics | Dr. Dhaneswar Parida ¹ Dr. Raghunath Kar ² | 22 |
| 23 | IOT-CAD: Context-Aware Versatile Irregularity Discovery in IOT Frameworks through Sensor Affiliation | Dr. Subhendu Kumar Pani ¹ , Sunil Kumar Sahu ² | 23 |
| 24 | Survey of Applications of Deep Learning For Cyber Security | Dr. Sachi Nandan Mohanty ¹ , Manik Chand Patnaik ² | 24 |
| 25 | Allocating resources and ensuring reliability in Mobile Cloud Computing | Dr. Aurobindo Kar ¹ Bhagaban Muduli ² | 25 |
| 26 | Predicting Network Security Situations Using Support Vector Machine and Grey Relational Analysis | Dr. Jibanananda Mishra ¹ , Simanchal Dash ² | 26 |
| 27 | Nuclear Command and Control Using Quantum Cryptography | Dr. Chinmaya Ranjan Pattnaik Dr. Rina Rani Rath ² | 27 |

| | | | |
|----|---|---|----|
| 28 | Industrial Parameter Control and Monitoring Using Cloud Computing and HMI with OPC Data Hub Software | Dr. Tanmaya Kumar Pattnaik | 28 |
| 29 | Whenever Regular Transactional Data Stream Item Set Mining | Sachin Kumar Patra | 29 |
| 30 | Resolution of Entities through Recursive Blocking | Dr. Pinaki Bhusan Nayak ¹ , Arakhit Bhol ² | 30 |
| 31 | Efficiently Mining Co-location Patterns for Range Query | Bhabani Sankar Panda ¹ Jagyan Data Behera ² | 31 |
| 32 | Hybrid drive system for off-road vehicles with Power trailers for use in arctic regions | Dr. Jyoti Prasad Patra ¹ , Shobhan Kumar Patro ² | 32 |
| 33 | App Store framework and technology in a new generation of power grid distribution and control systems | Dr. Dhanurjaya Mahar ¹ , Padarbindo Panda ² | 33 |
| 34 | Enhanced Fault-Tolerant A-Source Inverter-Fed PMSM Drive for Electric Vehicles | Dr. Jagadish Chandra Pati ¹ , Gouri Sankar Panda ² | 34 |
| 35 | An Enhanced Fault-Tolerant Power Converter for Electric Vehicle Propulsion | Dr. Ajaya Kumar Swain ¹ , Padarbindo Panda ² | 35 |
| 36 | Investigate of the Analog and Computerized Clamor Generators Characteristics for Security Gadget | Dr. Satyajit Mohanty ¹ Shobhan Kumar Patro ² | 36 |
| 37 | Agreeable Virtual Dormancy Control of PMSG based Wind Generator and Battery for Control Framework Soundness Upgrade | Dr. Jyoti Prasad Patra ¹ , Rashmita Nayak ² | 37 |
| 38 | Modeling of Double Energized Synchronous Generator With slip recurrence excitation | Dr.Arul Kumar P | 38 |
| 39 | Hybrid PV-T Solar Collector using Amorphous Type of Solar Cells for Solar Dryer | Dr. Bidyut Ranjan Das ¹ Gouri Sankar Panda ² | 39 |
| 40 | Performance Analysis of Partial Shading on Solar Photovoltaic System under Aluminum Reflectors | Tushar Kanta Satapathy ¹ , Ankita Choudhury ² | 40 |
| 41 | Stain detection method of solar panel based on Spot elimination | Dr. Manoj Kumar Pattnaik ¹ , Gouri Sankar Panda ² | 41 |
| 42 | The Impact of Cracked Solar Cells on Solar Panel Energy Delivery | Ajaya Kumar Nahak ¹ , Gouri Sankar Panda | 42 |
| 43 | Intelligent Patient Health Monitoring system use of IOT | Dr. Sudhansu Sekhar Khuntia ¹ , Dr. Saneeta Palo ² | 43 |
| 44 | A Voice based Navigation System for the Blind and An Ultrasonic Sensor | Dr. Sangate Pavan Kumar ¹ , Kunja Bihari Nanda ² | 44 |
| 45 | Smart Fabrics | Dr. Lokanath Sarangi ¹ Kunja Bihari Nanda ² | 45 |

| | | | |
|----|--|---|----|
| 46 | Plasma Antenna | Dr. Srinivas Mantha ¹ Parveen Kumar Patra ² | 46 |
| 47 | Internet of things for Smart Crime Detection | Dr. Sanjay Kumar Padhi ¹ , Partha Sarathi Padhy ² | 47 |
| 48 | Voltage Drop and Surge Compensation with a DVR based on an Asymmetric Multi-element Cascade Converter | Dr. Rakesh Muthukuru ¹ , Susmit Patro ² | 48 |
| 49 | Improved Microprocessor based Smart System For Home Appliances | Dr. Kommu Naveen ¹ Tanya Kumar Panda ² | 49 |
| 50 | Network Penetration security Survey a Recognition System based on machine learning | Dr. Bright Anand D ¹ Jitu Satapathy ² | 50 |
| 51 | Clustering under – Sampling data for improving The performance of intrusion Detection System | Dr. Mantravadi lalitha Mahalakshmi ¹ P.S. Padhy ² | 51 |
| 52 | An overview of how fretting fatigue behavior is affected by Cyclic Contact Loading | Dr. Nabnit Panigrahi ¹ Rakesh Ranjan Polai ² | 52 |
| 53 | Utilizing a tunnel boring equipment with a high-pressure Water jet to crush rock | Dr. Dillip Kumar Biswal ¹ , Jayadeep Sahu ² | 53 |
| 54 | Using fuzzy theory and dynamic equations, an energy control system for a parallel hybrid power system is developed | Dr. Ritanjali Sethy ¹ Jagannath Padhy ² | 54 |
| 55 | Analysis and testing of HMT stationary shift control with the impact of oil bulk modulus taken into account | Dr. Atul ¹ Rajesh Das ² | 55 |
| 56 | Modifiable pseudo-rigid body model for generalized cross-spring pivots under coupled loads | Dr. Soma Dalbehera ¹ Kshetra Mohan Sahu ² | 56 |
| 57 | Assessment of the collaborative robot UR5's unidirectional posture accuracy and repeatability | Dr. Bhabani Prasanna Pattanaik ¹ Khetrabasi Behera ² | 57 |
| 58 | Enhancement of bellows noise reduction efficiency using multilayer perforated panels | Dr. P. Palupandian ¹ Arun Kumar Swain ² | 58 |
| 59 | The use of a step-by-step design approach based on numerical simulations to a multi-stage multiphase pump | Debasish Panda ¹ Dr. Sujata Panda ² | 59 |
| 60 | Program creation for low pressure water jet cleaning patterns and performance assessment | Dinesh Kumar Bal ¹ Rajesh Das ² | 60 |
| 61 | Training and Development | Dr. Bijay Bhujabal ¹ Uma Sankar Pani ² | 61 |
| 62 | A Work-Life Balance: Prospects and Retrospect | Dr. Sitanath Raiguru ¹ Rojalin Sahu ² | 62 |

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-Ångström spatial goal. While impinging on a slight glasslike example, the quick electrons dissipate and diffract. The communicated electron design relies upon the neighborhood thickness, thickness, gem 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 firearm, openings situated along the optical way, and attractive focal points. With this mix of focal point 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 greatness bigger (Figure 1). Transmission electron microscopy (TEM) is a center portrayal 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 instinctive and instructive pictures that can be gotten make TEM a most loved strategy for some scientists.

A novel synthesis of grapheme 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 aGQDs). The aGQDs are nano-scale reduced graphene oxide pieces with the sizes around 5 – 10 nm. The aGQDs could disperse in water for their richment of oxygen-containing groups. The luminescence parcels were precisely delved. The aGQDS waterless result shows a bright unheroic-green luminescence under the UV illumination. either, the uranyl ions show a strong luminescence quenching effect on the a aGQD waterless so lution indeed at a low attention(10⁻⁷ M) compared with other common ions in natural water-body, which makes that these aGQDs 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 assiduity, which at the same time is also a radioactive and poisonous element showing significantly adverse impact on mortal health as well as all living brutes(1, , 3, 4). currently, owing to the global energy issues, nuclear assiduity 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(UO₂ b) is the most stable state in natural terrain, which possesses high waterless solubility, easy mobility and the maximum bioavailability(7, 8, 9). Due to the envi ronmental 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 infinitesimal immersion spectrometry(AAS)(10).

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 delved . 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 mama / cm² and the O₂ inflow rate up to 80 mL/ min at pH3.0 and using carbon felt cathode and boron- unravel 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 Fe₂p cure; still it drops with the increase of pH and CLQ attention. CLQ reduction follows apseudo-first order kinetics in all the trials.

1. INTRODUCTION

Chloroquine(CLQ), a general pharmaceutical medicine, is recom mended as the primary antimalarial forestallment medicine(Frosch etal., ; Lee etal., 2011; Price etal., 2014) and to treat conditions similar as amoebic dysentery(Singh etal., 2011, 2013), and rheumatism (lupus erythematosus)(Furst, 1996; Howard, 2007; Schrezenmeier and Dorner, 2020€). lately, public and transnational health or ganizations permitted the treatment of Coronavirus(COVID- 19) in certain rehabilitated cases by chloroquine(Cortegiani etal., ; Devaux etal., 2020;J. Gao etal., 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 defiled with CLQ will be discharged into the terrain.

Detailed molecular structure (XRD), conformational search, spectroscopic characterization (IR, Raman, UV, fluorescence), quantum mechanical properties and bioactivity Prediction of a parole analogue

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ABSTRACT

Pyrroles are an instigative class of organic composites 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- demitasse 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 simulations(B3LYP functional with 6 – 311pbG **). The electronic diapason was dissembled using time-dependent viscosity functional proposition with CAM- B3LYP functional in dimethylsulphoxide detergent. The luminescence diapason of the emulsion was studied at different excitation wavelengths in the dimethylsulphoxide detergent.

1. INTRODUCTION

Pyrrole is one of the most important among sweet five- membered heterocyclic composites as it's present in different bioactive composites like porphyrin in brim, chlorines in chlorophyll, and corrin ring in vitamin B12. Phenylpyrrole derivations are used as precursors of poly- N phenylpyrroles, a type of conducting polymer used in electrochemical capacitors(1), detectors(2), coating accoutrements used in solid- phase micro birth(3) batteries and different energy storehouse bias(4). Computational study of the high energy viscosity pyrrole composites also was reported(5). Microwave oven structural disquisition represents that the molecular shapes like bond lengths and angles are analogous within a many per cent. So, the pyrrole is veritably identical to an oblate symmetric top with a stingy degree of asymmetry($k \approx 0.94$). Pyrrole belongs to the C_{2v} point group, which has 24 normal modes of vibration.

Effects of surface tension on the dynamics of a single micro bubble near a rigid wall in an ultrasonic field

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

ABSTRACT

Aural cavitation is a veritably important hydrodynamic miracle, and is frequently intertwined in a myriad of industrial, medical, and diurnal living operations. In these operations, the effect medium of liquid face pressure on perfecting the effectiveness of aural cavitation is a pivotal concern for experimenters. In this study, the goods 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 aural cavitation, were delved at the microscale position. A coetaneous high-speed bitsy imaging system was used to easily record the temporary elaboration of single aural 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 themicro-jets, were anatomized 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

Aural cavitation, a process which basically refers to conformation, growth, and implosive flash collapse of a bitsy 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 assiduity(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 junking effectiveness 78 nm SiO₂ patches is attained when TritonX-100(a kind of surfactants) 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).

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 analysed in more detail. However, a full understanding of the interplay between all of those 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.

An Influence of Marketing Department Depends on Legacy Marketing Strategies

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ABSTRACT

This paper endeavoured 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 shut 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 creator 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, Kikubo Grocery Shops

1. INTRODUCTION

Marketing is invigorating on the grounds that it join the science and specialty 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 elating. Marketing is significant and vital on the grounds that, it occurs 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 fulfil individual and hierarchical objectives.

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.

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 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 requisites- 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.

Keywords: Developed, 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. 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.

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(CxG) has attracted important attention in recent times, utmost 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 a multi-linguistic prototype of the constructions. To that end, data from several giga- commemorative 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 idiomaticity, variability and cross-language analysis. In addition, applicable findings on the dialectal 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 idiomaticity is understood and viewed. Language is now conceived as an private continuum of which ‘ constructions ’ are the structure blocks(general phrasal 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 idiomaticity, 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 benefactions that advances the notion of constructional expression as a important tool for cross-linguistic comparison, contrastive analysis and verbal aspects of restatement. Our exploration follows the path of affiliated work on schematic phraseological units(or phrasemes) by Dobrovol'skij.

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. utmost programmes were delivered face to face but some were blended with a substantial quantum of online and independent work. Delivery styles could astronomically be classified into group classes, individual support and peer literacy. Microteaching with reflection, feedback and observation was a extensively recreating and largely rated exertion. 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(originally) linked as language. still, 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 surrounds that characterise EMI settings. On the other hand, we need to consider affective factors similar as confidence, stations towards EMI and provocation, as well as practical issues similar as coffers and speakers' vacuity. 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 gests were. A many overviews of EMI speaker training live, specially Costa(2015),O'Dowd(2018) and Jiménez- Muñoz(2020).

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 understudies 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 ponders with 1073 members met the ponder choice basis. A irregular impacts meta-analysis shown that digital-based mediations for the most part progressed scientific execution (cruel ES $\frac{1}{4}$ 0.55), in spite of the fact that there was a noteworthy heterogeneity over ponders. 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 (Rivera-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; Semenza et al., 2014). The earnestness of the numerical troubles can change impressively and so do the wordings 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 & Ras€ € anen, 2013; 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. Karagiannakis et al., 2014).

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 487, ten to twelve year-old understudies from 20 basic schools in three diverse school areas. The peer coaching method, a shape of combined arithmetic, set particular accentuation on intervention through key metacognition 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 an arithmetic 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, hone 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 & Golbeck, 1999). It is broadly detailed to have useful impacts on learning (for case Ginsburgh-Block, Rohrbeck & Fantuzzo, 2006; Rohrbeck, GinsburghBlock, Fantuzzo & 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 (Rohrbeck 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 clearly strategies for interaction, in which members get bland and/or particular preparing. A few peer mentoring strategies platform the interaction with organized materials, whist others endorse organized intuitively practices that can be successfully connected to any materials of intrigued.

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 slacks behind in investigate and development. At the worldwide level, building instruction is encountering a worldview move from teacher-centric to student-centric educating- learning prepare, substance based instruction to result based instruction, information looking for to information sharing classrooms, instructors to facilitators, conventional building disciplines to intrigue 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 ingeniare) are implied to think up and plan. They are the spine 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 majorly 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 robotization.

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 instructive 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 esteem 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 bolster understudy learning and decrease the “practice shock” of amateur instructors. Customarily, numerous have characterised 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 hone 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 instructive exercises in campus-based instructor instruction.

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 harmfulness 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 radiation (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 got to account for UVR as a standard hone 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; Haapkylä et al., 2007), and expansive oil spill occasions are of specific concern for environments of tall environmental significance, such as coral reefs. Later ex- amples of spills within the tropics and subtropics include the Deepwater Ho- rizon rough oil spill within the Inlet of Mexico in 2010 (Diercks 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 Dealer which grounded on a coral reef within the Solomon Islands in 2019 (Daley, 2019). Whereas huge spills and accidental releases happen rarely, their impacts can be disastrous and final for decades (Jackson et al., 1989; Boehm et al., 2007; Beyer et al., 2016; Snare et al., 2016).

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-channel 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 monstrous 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 aces 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 abuse that can happen over a computer organize like hacking, phishing, spreading computer infections, worms, or Trojans. Abuse may too incorporate the harm to the equipment, computer program, or electronic information sources.

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 Gilan Province, Iran in 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.

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 viscous-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 viscous-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 viscous-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.

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.

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 (2016) and Pohang (2017), there was a renewed emphasis on the technical and social elements 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 UMWs' seismic and structural performance. To improve the in-plane load-carrying capacity, ductility, and energy absorption, reinforcement should be implemented.

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.

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 intrigue nature of IoT frameworks. Be that as it may, the lion's share of works 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 astuteness of IoT sensors information and identify atypical episodes within the environment. We propose an 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 systems, 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, 38], equipment security [5, 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.

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, casual 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.

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 component, 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 (2) Adapting replication and checkpointing techniques to fault tolerance; and (3) 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.

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 intricate 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) theory and 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 technique, 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. [8], 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.

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 oversees this interconnected network. In addition to relaying data from a multitude of airborne, space-born, 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-born, and ground sensors throughout the network. It is designed to securely hold transmissions that must adhere to the strictest encryption standards.

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 gasses 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 in 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.

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 BFI-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 & Lossy 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.

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 crucial factor in the success of data-centric and -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.

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 booze stores 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].

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.

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 NGGPDCS 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 NGPGDCS1 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-scenario. 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.

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.

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.

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 run, 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 sorts of clamor generators :an a log and computerized .The reason of the work is to plan an a log and computerized clamor generators utilizing the National Rebellious Multisim 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;

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 inconsideration since of no CO₂ outflow and no dissipations offossil 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 investigates have been conducted to include virtual dormancy impact to off beat 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 Fluffy Rationale is received to plan the agreeable virtual inactivity control.

Keywords: Changeless Magnet Synchronous Generator(PMSG), Virtual Synchronous Generator (VSG), Fluffy Rationale Control (FLC), Wind Control Era

1. INTRODUCTION

As of late, renewable energies are drawing in consideration since of no CO₂ outflow and no dissipations 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 systemre currence moreover veers off from the appraised recurrence. In the event that the fullminute of idleness of the generators is huge, Rate of Alterof Recurrence (RoCoF) becomes less. Be that as it may, as the grid connection of renewable vitality sources increments, routine synchronous generators have to be be diminishedand 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.

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 coordinates lattice. Integration of wind firms force serious frequency variances within the lattice due to irregular wind speed varieties. 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 currence vacillations 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 tomahawks tolerate parcel of end eavors, two diverse ways of building field windings(DESG-1 and DESG-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 utilize for effective and resilient 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 stator 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 900 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 put900 separated and so as the stage contrast in two-phase excitation. In this manner, machine can energize with slip recurrence which comes about in keeping up consistent recurrence independent of the input mechanical speed.

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 hygienists' 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 device 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.

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 photovoltaic panels. The shading on the photovoltaic panels on the whole occurs due to clouds, tall buildings, dust, trees...etc. This effect can fluctuate the result current (I_{mp}), maximum power (P_{max}) and solar irradiation (W/m^2) parameters ought 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 (I_{mp}) 21.84%, Maximum strength (P_{max}) 22.34% and solar irradiation (W/m^2) 5.29% 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 systems..

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.

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 attainable 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 $I-V$ 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.

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.

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-Espeak, GoogleAPI, Pocket sphinx, 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.

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, nanoengineering, 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 tele-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 aristocratic 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 .

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 ionisation, i.e., the conversion of atoms to ions and electrons. For plasma to exist, ionisation is necessary. The term plasma density is a synonym to electron density.

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 aIoT-based configurable information service platform for product lifecycle management (PLM).

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-sag compensation strategy and the proposed voltage failure/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 loading dv/dt voltages.

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 connectors, remotes 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 seamless 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 communication. 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 frees from the internet hacks.

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 [5], 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].

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.

An overview of how fretting fatigue behavior is affected by Cyclic Contact Loading

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ABSTRACT

A harm marvel called fussing 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 nonlinear 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, crawl, and fussing are among the preeminent common instruments of disappointment. These disappointment modes are as a rule taken beneath thought inside the plan prepare of any building component. Fussing weakness may be a combined activity of fussing and weakness disappointments, which happens when two reaching surfaces are subjected to a ordinary stretch and an hub cyclic loadings at the same time. Fussing weakness happens due to the little plentyfulness sliding movement between the two mutually clamped surfaces. Worrying weakness may be a dangerous disappointment which can diminish the life of a component by a figure of regularly between 2 and 3 in spite of the fact that, variables as tall as have moreover been detailed. Fussing 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 fussing weariness life, diverse strategies have been proposed to assess fussing weariness life and most of perspectives of fussing weariness instrument such as split start area, break engendering course and worrying weariness life have been investigated.

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 planes 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 fly 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 planes 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 40% 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 expulsion 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 to 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 escalated, and play a critical part within the development of underground sections.

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 moo-, 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 extend, 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). A 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 moo speeds within the city, since a arrangement power source is easy to preserve within the ideal working run at moo 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, once the ICE was worked within the ideal working run through a legitimate energetic programming⁷ and a control administration strategy,⁸ the fuel economy of parallel cross breed vehicles can be higher than that of arrangement cross breed vehicles.

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 ceaselessly 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 sort 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 uprooting 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 stepless 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 stepless 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.

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 movements 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 joins 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 little 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 respected 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.

Assessment of the collaborative robot UR5'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 UR5 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 UR5 indicated by its maker.

1. INTRODUCTION

Due to the current pressure on required precision in generation as well as productivity and unwavering quality of automated and robotic lines, a require emerges to conduct numerous logical ponders 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 caught 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.

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 strides 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 strides 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 lessening 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 intemperate 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 burrow 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.

The use of a step-by-step design approach based on numerical simulations to a multi-stage multiphase pump

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ABSTRACT

Rot dynamic 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 send 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.¹ 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.

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, adapt 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 smashing 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, Guha et al. examined a moo weight cleaning waterjet framework through a test and numerical strategy.

Training and Development

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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 as 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.

Work-Life Balance: Prospects and Retrospect

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ABSTRACT

Work-life balance is the state of equilibrium in which personal life and professional life are balanced equally, without being detrimental to each other. It consists of flexible work arrangements which make room for other life programs and practices. The term is of recent origin, used in UK in late 1970s and in the USA in late 1980s. It describes the balance needed by a working individual between his working time and personal time. Besides his job, one has to fulfil one's personal interests, family obligations and leisurely activities. As the saying goes, all work and no play makes jack dull. Similarly, all play and no work too is dangerous. In recent times, technology enables men and women discharge their duties with ease, by the help of smart phones, emails, video, chat and others. They need not confine themselves to a 9 to 5 time schedule, as the previous generations had to. But balancing work and life is not as easy as it is advocated to be. There are a lot of dos and don'ts in this process.

Keywords: Unfair Work Load, Prevalence Rate, Male Dominance, Dual Earning, Occupational Hazards, Completing Pressures, Patterns of Reward, Neuro-skeletal Disorders, Spill over, Burnout Syndrome

1. INTRODUCTION

The United States of America recently granted paid parental leave to the new parents, to look after the new-born babies. It received a mixed response. Some new parents expressed their fear that it would lead to negative consequences in their profession. They would receive less training; forgo promotions and even future opportunities of being hired. It would lead to interpersonal conflicts, after they resume to work after leave. But analysts like Heyman (2017) aimed that it would reduce the chances of negative mental health outcomes and indicate a "long term attachment to the labour force". The level of absence from employment responsibilities is to be decided with meticulous care. Additional and unfair workloads may lead to unsatisfactory work-life balance. When motherhood is the determining factor, the employers may discriminate against hiring women of child-rearing age. Work in modern times is more intense than it was a decade ago. Hence work-life balance is needed now.