



25th World Conference on Applied Science, Engineering
and Technology
(WCASET)



Goa, India

29th - 30th December' 2019

Organized by

Institute For Engineering Research and Publication

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Preface

We cordially invite you to attend the **25th World Conference on Applied Science, Engineering and Technology (25th WCASET)** which will be held at **Nanutel Margao, Goa, India** on **December 29th - 30th, 2019**. The main objective of **WCASET** is to provide a platform for researchers, engineers, academicians as well as industrial professionals from all over the world to present their research results and development activities in relevant fields of Science, Engineering, Management, Education and Technology. This conference will provide opportunities for the delegates to exchange new ideas and experience face to face, to establish business or research relationship and to find global partners for future collaboration.

These proceedings collect the up-to-date, comprehensive and worldwide state-of-art knowledge on cutting edge development of academia as well as industries. All accepted papers were subjected to strict peer-reviewing by a panel of expert referees. The papers have been selected for these proceedings because of their quality and the relevance to the conference. We hope these proceedings will not only provide the readers a broad overview of the latest research results but also will provide the readers a valuable summary and reference in these fields.

The conference is supported by many universities, research institutes and colleges. Many professors played an important role in the successful holding of the conference, so we would like to take this opportunity to express our sincere gratitude and highest respects to them. They have worked very hard in reviewing papers and making valuable suggestions for the authors to improve their work. We also would like to express our gratitude to the external reviewers, for providing extra help in the review process, and to the authors for contributing their research result to the conference.

Since October 2019, the Organizing Committees have received more than 160 manuscript papers, and the papers cover all the aspects in Electronics, Computer Science, Information Technology, Science Engineering, Management, Education and Technology. Finally, after review, about 66 papers were included to the proceedings of **25th WCASET - 2019**.

We would like to extend our appreciation to all participants in the conference for their great contribution to the success of **25th WCASET-2019**. We would like to thank the keynote and individual speakers and all participating authors for their hard work and time. We also sincerely appreciate the work by the technical program committee and all reviewers, whose contributions made this conference possible. We would like to extend our thanks to all the referees for their constructive comments on all papers; especially, we would like to thank to organizing committee for their hard work.



Rudra Bhanu Satpathy

CEO

Institute for Engineering Research and Publication (IFERP)

Acknowledgement

IFERP is hosting the **25th World Conference on Applied Science, Engineering and Technology** this year in month of December. The main objective of 25th WCASET is to grant the amazing opportunity to learn about groundbreaking developments in modern industry, talk through difficult workplace scenarios with peers who experience the same pain points, and experience enormous growth and development as a professional. There will be no shortage of continuous networking opportunities and informational sessions. The sessions serve as an excellent opportunity to soak up information from widely respected experts. Connecting with fellow professionals and sharing the success stories of your firm is an excellent way to build relations and become known as a thought leader.

I express my hearty gratitude to all my Colleagues, staffs, Professors, reviewers and members of organizing committee for their hearty and dedicated support to make this conference successful. I am also thankful to all our delegates for their pain staking effort to travel such a long distance to attain this conference.



A. Siddh Kumar Chhajjer
Director
Institute for Engineering Research and Publication (IFERP)

Message from Keynote Speaker



Prof. (Dr.) Parvinder Singh

Dean (Faculty of IT & CS)

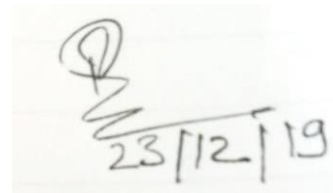
Deenbandhu Chhotu Ram University of Science and Technology

Murthal, Sonipat, India

It is my pleasure to be part of "25th World Conference on Applied Science, Engineering and Technology" which is to be held at Nanutel Margoa Goa, India on 29th -30th December 2019. I believe that this conference will be beneficial for academicians and research scholars to exchange and share the latest developments in their respective fields. These conferences provide a very good platform to bring researchers together from different parts of world and discuss their works.

The world is changing at a fast pace. The research results, which were once considered breakthrough in science and engineering fields, may not be relevant today. To keep pace with latest developments, the one should need to be updated and ready to change as per demand of society. Everyone in this world may not have vision to see in future. Therefore attending the conferences like WCASET and listening the resource persons may give opportunities to see the things in different perspective. Here, I wish to quote C. JoyBell C. – "The only way that we can live, is if we grow. The only way that we can grow is if we change. The only way that we can change is if we learn. The only way we can learn is if we are exposed. And the only way that we can become exposed is if we throw ourselves out into open. Do it. Throw yourself."

I hope that participants will get new directions from findings of other researchers in this conference and utilize it in their research work. I wish all the best to all contributors and attendees.



Prof. (Dr.) Parvinder Singh

Message from Keynote Speaker



Dr. Varsha Turkar

Professor and Head at Don Bosco College of Engineering

Dept of Electronics and Telecommunications

Margao, Goa,India.

It is a great pleasure to announce that Institute For Engineering Research and Publication (IFERP) is going to organize 25th World Conference on Applied Science, Engineering and Technology at Goa, India on 29th – 30th December -2019.

I warmly welcome all the delegates in this scientific meeting staged to address the issues in a wide spectrum of interrelated disciplines. I expect the participation of intellectuals from the various specialties in engineering and management. The present-day life is faced with plethora of problems related to management. Engineering and technologies issues requiring immediate addressal and redressal in a sustainable way through interdisciplinary approaches and collaborations worldwide. The conference will surely act as a great stimulus and active platform for students, researchers, academicians, industrial professionals and business delegates belonging to different disciplines from all over the world to present their research works, share ideas and strategies with each other in various areas of Management ,Engineering and Technology. The cerebral congregation in question can be an auspicious opportunity to interact with eminent experts of diverse disciplines, to establish research collaborations and to find suitable sites for scientific exchange of ideas and techniques. I believe this conference will help researchers in enhancing their capacities through genuine discussions and healthy interactions. I express my sincere gratitude to all the delegates and our organizing partners for making this conference an international knowledge sharing and dissemination event.

May 25th World Conference on Applied Science, Engineering and Technology at Goa, India 2019 be blessed with scintillating success!

Dr. Varsha Turkar

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WCASET - 19

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ABSTRACTS

25th WCASET - 19

Organized by

Institute For Engineering Research and Publication (IFERP)

Strategies for Low Engine Speed Torque Enhancement of Natural Gas Engine: Valve Overlap and Compression Ratio

P. J. Suple, Symbiosis Institute of Technology

C. R. Sonawane, Symbiosis Institute of Technology

S. S. Thipse, Automotive Research Association of India

J. P. Mohite, Tata Motors

Abstract:--

For a long time diesel engines are used as prime movers for commercial vehicles. However, since last two decades, many countries are promoting use of compressed natural gas (CNG) vehicles to improve air quality. Since then, CNG commercial vehicle engines have undergone rapid development, primarily to keep up with stringent emission norms.

A widely used CNG commercial vehicle is passenger mass transport bus. In some cities, authorities impose maximum speed limit for such buses considering safety. This limit may be as low as 40km/hr. Thus, with low vehicle speeds, frequent stops and starts, and traffic conditions, such vehicles demand high torque output at low engine speeds. In this paper, various approaches for the improving the torque of engine are briefly summarized. The objective is to observe effect of valve overlap and compression ratio for improving torque at low engine speeds as very limited literature exists that focuses on low engine speed zone.

Turbo-charging, direct injection, variable valve timing, electronic wastegate actuator etc. have potential for torque improvement. The extent of their impact on low speeds is not clearly evaluated. A six cylinder naturally aspirated engine is simulated and virtual output is verified against experimental data from test bed at full throttle, to verify effective representation of model, so that numerical simulation of different technologies can be performed before experimental activity. Further testing is done with a few different compression ratios and valve overlaps. It is seen that there is scope for optimizing torque and power at low engine speed zone

Index Terms

Natural gas engines, valve overlap, compression ratio

Strategies for Low Engine Speed Torque Enhancement of Natural Gas Engine: Observations with Turbocharger and Supercharger

P. J. Suple, Symbiosis Institute of Technology

C. R. Sonawane, Symbiosis Institute of Technology

S. S. Thipse, Automotive Research Association of India

N. B. Chougule, Tata Motors

Abstract:--

Diesel engines have been powering a range of commercial vehicles for a many years. Considering air pollution, there is a thrust on use of natural gas (NG). Thereafter, natural gas engines for commercial vehicles have been subject of development, particularly to meet drivability demands and emissions requirements. Bus used for intra-city mass transportation of passengers is probably the most common form of natural gas commercial vehicle. Considering typical city applications, such vehicles is characterized by low speeds, frequent gear changes, start-stops, traffic conditions etc. For better drivability, they need higher traction at low engine speeds. This study captures few means of torque enhancement and motive is to integrate a selective ones as not much research is available mentioning enhancements specifically at low engine speeds.

Turbocharging of natural gas engine is complicated due to high exhaust temperatures. As most turbocharger manufacturers cater to requirements of diesel engine, turbochargers for natural gas are simply not available. Many compromises are thus to be made. Under this study, four different turbochargers and one supercharger shall be simulated for experimenting and optimizing to enhance torque at low engine speeds. A virtual model of reference, naturally aspirated engine is built in appropriate software and its output is verified against test bed performance, to establish model faithfulness. Next, simulation runs with different turbochargers and superchargers are carried out. Various parameters are recorded and compared. Findings are recorded and it is noted that there is room for enhancement based on different hardware capabilities.

Keywords:

Natural gas engine, turbocharging, supercharging

Optical Fiber Methods for measurement of crack width in TPB concrete

B. Sobha, National Institute of Technology, Warangal

Abstract:--

Concrete being a multi phase material is used widely in construction industry. It has high compressive strength and cost is less. But it is prone to cracking due to limited tensile strength. Parameters like characteristic length, fracture energy G_f critical crack width w_c are used to understand cracks in concrete. One can estimate the crack width either by measurement of crack mouth opening displacement (CMOD/COD) or as crack tip opening displacement (CTOD). Though several non optical and optical methods exist, they fail to provide information on crack opening and crack width. The latter is an important index from durability point of view. To this end the advantages of adopting optical fiber methods over other and our findings in TPB tests on pre-notched plain concrete samples using optical fiber sensors and CMOD estimation will be presented. Their relative sensitivity and current trends will be discussed

Mathematical Model for Performance Prediction of SPV Powered DC Irrigation System

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Abstract:--

Selection of solar powered DC irrigation system is difficult for different sites with varying solar radiation and field conditions. Large numbers of SPV irrigation pumps are installed; however successful implementation is yet to be achieved. One of the reasons behind this issue is unavailability of performance details. This indicates the need for development of an effective mathematical model of SPV irrigation system, which can predict the performance results by simulation. This paper presents development of mathematical model of SPV powered DC irrigation system using MATLAB/Simulink. Model consists of solar array, BLDC motor, centrifugal pump and hydraulic pipe network. Model of SPV unit is developed using photo current, saturation current, reverse saturation current and output current. DC motor is modeled using speed, torque and efficiency. Hydraulic power output power equation is used to build a centrifugal pump and pipe network is modeled using hydraulic head and power equations. Further, all the sub models are integrated to establish the complete model. The proposed model is tested with the data of BEC campus and comparison is carried with experimental results of the SPV irrigation pumps installed in BEC Energy Park. It is observed that the experimental and simulation results closely match with each other. It is concluded that, developed mathematical model of SPV irrigation pump can be effectively used to predict the performance of the SPV pump details for varying climatic conditions and for different sites.

Innovative HR Practices In Banking Industry- An Indian Scenario

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Abstract:--

Banking Industry is one of the imperative financial supports of Indian financial system. Due to globalization and the liberal policies of Government, the pressure had built up on Indian Banks to formulate innovative HR practices to survive in the competition. Also the expectations of the employees have risen from the banks and also to retain good employees and enhance their efficiency it became indispensable to implement the innovative HR practices in the banks. This paper aims to provide an intuition to such innovations, related to Human Resource Management with the help of different perspectives in Indian banks both from public and private sector. Literature review is done for better understanding of the concept.

Keywords:

Innovative, HRM practices, Banking, Performance Management, financial system.

A Review Paper on Detection and Control of Hypertension using Brain wave sensor

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Abstract:--

Hypertension is a medical term of high blood pressure. It occurs when there is too high pressure inside the blood vessels. . When the heart pumps it sends blood adjacent to the walls of arteries by force cause pressure. This additional blood pumps by the heart and the narrower arteries, and then elevated blood pressure. The present paper deals about different existing methodologies and researches made for detection and analysis of hypertension without any physical medication. The paper also aims at analyzing the good outcomes and overcoming the barriers faced by the different methodologies and surveys. Here we have analyzed different approaches with the first method deals Hybrid Wavelet method and K-means cluster method. The second approaches with neuro-fuzzy and adaptive fuzzy logic, while the third paper focus on mining class association with multiple features. The last methodology is based on ANN based information gain algorithm for diagnosis of hypertension. The paper concludes by digging up the major advantages off all the methodologies and exposers to an effective and best method.

Index Terms:--

Hypertension, Hybrid Wavelet, K-means, PubMed. MeSH.

Identifying Phishing URLs using Cosine Similarity

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Abstract:--

Phishing is one of the serious issues looked by digital world and prompts budgetary misfortunes for ventures and people. Discovery of phishing assault with high precision has consistently been a difficult issue. Phishing site looks fundamentally the same as in appearance to its relating genuine site to beguile clients into accepting that they are perusing the right site. In this article, we acquaint with cosine-similarity centered phishing identification technique which calculates cosine-similarity between test vectors and training vectors. A high value of cosine-similarity indicates more similarity between the two vectors. The proposed technique is highly efficient. We test our technique using 100 URLs in testing dataset and 300 URLs in training dataset. Experiments show that the proposed technique classified the test data with 98.7% accuracy.

Ways of Capturing the Rural Market through Effective Advertising and Promotion in India

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Abstract:--

Rural market is one of the most popular and upcoming markets in India and most of the companies especially FMCG companies are looking to stake their claim on the market. The rural market isn't one of the easiest markets to capture and many FMCG companies have been facing a lot of difficulties in controlling the rural market and earn high profits. One of the major areas where FMCG companies lack is how to attract the customers towards their brands product. Advertising and promoting brands in rural areas isn't an easy task at all. Rural customers are now becoming aware of the market situation and also about the various brands available in the market of the same products. The FMCG companies should invest intelligently into the rural market and also should know the various modes of communication which would genuinely promote their brands among the rural customers. The study focuses upon the study of rural customers as well as FMCG shops operating in those rural areas.

The technique used for collecting the data was Multi Stage Sampling technique and the method used for collecting the data was Convenience sampling. The study was conducted in 3 districts of Jammu Division (Jammu and Kashmir) and from each district 2 villages were taken as the sample size. 100 rural customers and 60 FMCG shops were taken for collecting the required data and the whole study is based upon the responses given by the rural customers as well as the owners of the FMCG shops. The place of research was selected based on the convenience and approachability.

Keywords:

Rural Customers, FMCG companies, Advertising, Promotion

Pattern of Traffic Movement Changes Due To Land Use Alteration

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Abstract:--

Any development and operation alteration of an area that will directly or indirectly affects the operation of road traffic should be screened for traffic impacts. Traffic congestion is one of the major problems faced by road users that has access to Parameswara road in Palembang. The phenomenon of road alteration along the Parameswara road needs to be identified to analyse overall road performance and to predict the actual picture or simulation model of effects. The dynamics of land use and performance of road movement patterns are predicted as potential factors of congestion. Therefore, the purpose of this study are to analyze the delay and length of vehicle queues due to land use activities on Parameswara road as well as to recommend efficient strategy in reducing the delay time and vehicle queue length, thus, increasing the road performance. Hence, this research incorporates Vissim 8.00 microsimulation program to simulate existing or current conditions, and predicts road conditions for the next 5 (five) years and 3 (three) by endorsing alternative solutions for traffic congestion.

Key words:

Land Use, Level of Service, Delay, Queue Length.

Maximum Permissible Level of Wind and Solar Based DG Penetration in Sub- Transmission System without Violating the Techno-Economic Benefits

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Abstract:--

The electric utilities are facing the challenging issues such as quality, reliability of power supply, voltage stability, power loss and economic concerns. This is due to increasing power demand and utilization of Distributed Energy Resources (DERs) into the modern power system. DERs include solar Photo Voltaic (PV) system, small wind generators, battery energy storage systems etc. These elements had added new complexity in design planning and operation of distribution system. In this paper, the maximum permissible limit of wind and solar based Distribution Generation units (DGs) injection on the sub-transmission system was predicted without violation the technical and economic aspects. The objective is to reduce the power loss and improve the voltage profile considering net economical cost benefit to the distribution utility. The study was carried on the standard IEEE 14-bus sub-transmission system. The results illustrate the maximum permissible limit of wind and solar based DG penetration on the test system are 40% and 75% respectively in terms of technical aspects. Similarly, the permissible level of economical cost benefit is 100% for solar based DG and 55% for wind based DG. Comparing solar and wind based DG injection into the test system, solar based DG contributed positively to the test system with techno-economic benefits.

Index Terms

Sub-transmission system, Distributed Generation, Wind and Solar, Techno-Economic Benefit, DG Penetration Level.

The Effect of BSF Layer on the Performance of CdTe Solar Cell by Numerical Analysis

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Gopal Panda, Department of Physics, Sarvepalli Radhakrishnan University, Bhopal

Abstract:--

CdTe solar cell is very popular photovoltaic because of lower cost and higher stability. The main issue is to create stable ohmic contact between CdTe absorber layer and back contact. Only technique used to solve this is to insert BSF layer between CdTe and back contact. This paper highlights the performance of reference and proposed cell. From simulation it can be seen that by inserting BSF layer cell efficiency can be improved with optimum thickness of CdTe layer. The reference cell shows the efficiency 19.68 % ($V_{oc}=0.7838$, $J_{sc} =29.845294$, $FF =84.14$). After inserting BSF layer and with optimum thickness of absorber layer cell efficiency is increased up to 22.92% ($V_{oc}= 2.6232$, $J_{sc} =30.770710$, $FF =28.39$).

Keywords:

CdTe thin film solar cell, BSF layer, SCAPS-1D.

A Study of Customer's Perspicacity about Bank Credit Facilities at NKGSB Cooperative Bank Ltd. (Chinchwad Branch)

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Prof. Balkrishna Chavan, Assisant Professor, Dr. D.Y.Patil Centre for Management and Research, Chikhali,Pune,

Prof. Monica Gorkhe, Assisant Professor, Dr D.Y Patil Institute of Management Studies ,Akrudi , Pune

Abstract:--

Specific types of credit facilities are: revolving credit, term loans, committed facilities, letters of credit and most retail credit accounts. Companies frequently implement a credit facility in conjunction with closing a round of equity financing (raising money by selling shares of its stock). A key consideration for any company is how it will incorporate debt in its capital structure, at the same time it must consider the parameters of its equity financing. The company must look at its capital structure as a whole, determining how much capital it needs immediately and over time, and the combination of equity and debt that it will use to fulfill those requirements. Credit facilities can involve several different forms of credit, ranging from revolving credit to a line of credit that is available for the company as a source of standby funding. While there are several reasons why a company would establish some type of credit facility, the strategy is usually a means of creating a backup source of revenue for various projects. For example, a corporation may choose to issue a bond as a means of raising money for a specific project. Along with establishing the bond issue, the corporation arranges a standby line of credit or possibly a term loan to function as a backup in the event that the project fails to generate enough revenue to honor the terms of the bond. The study is carried out from January 2019 to April 2019 to understand the customer's perceptiveness about various credit schemes (Retail Loan) at NKGSB Cooperative Bank Ltd.

Key Words:

Corporation, Letters of Credit, Term Loans, Credit Facilities, Customer's Perceptions

JEL Classification: E5, E580.

IOT Based Automated Toll Gate Collection System Using RFID and Image Processing

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Maroju Karthavyu, Sikkim Manipal Institute of Technology

Abstract:--

Nowadays, the larger part of the roadway toll gate is physically worked in most of the countries, where an administrator collects the money from the driver and reverts with a receipt. Since, this method is excessively lagging thus we regularly experience the roads turning to parking lots at the toll gates. To overwhelm these complicated scenarios this paper introduces The Automated Toll Gate Collection System to make the toll collection process more efficient and smoother.

The Automated Toll Gate Collection System uses Radio Frequency Identification (RFID) technology which is the systemized technique used to gather the toll naturally from the moving vehicle when they pass the toll gates. In this framework, every vehicle will hold an RFID tag and it contains a unique identification number which will be consigned with the R.T.O authorities. In this automated toll gate collection system, we face a few issues. So, as to conquer these initial problems the proposed system is additionally created with an image processing technique. Thereby this system provides a faster toll collection through RFID and Image Processing. So, when the vehicle crosses the toll gate its tax sum is deducted and furthermore gets an SMS through the GSM technology about the details of the payment, where the amount will be deducted from their prepaid balance. As the vehicle doesn't need to wait in a line, it guarantees efficiency, fuel conservation and furthermore contributing in setting aside of cash. In this paper, the case making and working stream out of the framework with both the technologies were described and the information about how the trading between the drivers and toll gate authorities takes place fluently.

Prediction of Customer Buying Intention due to Chatbot System: Application of TAM Model

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Pearl Motwani, Vellore Institute of Technology

Abstract:--

The purpose of this research paper is to determine the true picture of chatbot system with respect to buying behaviour of customer. Four factors related to TAM model of chatbot system namely Perceived Usefulness, Ease of Use, Security and Attitude are considered as independent variables, while intention related to buying of product is considered as dependent variable. All the factors were found to be contributing to the buying intention. Non probability judgmental sampling method was used for the collection of primary data from 924 respondents. Various machine learning algorithms including logistic regression, naïve bayes, decision tree, random forest and gradient boosting were used to develop, train and test the model. Highest accuracy was found to be from the random forest and gradient boosting algorithm.

Index Terms:--

Chatbot system, TAM model, Usefulness

Impact of NGO initiatives on Empowerment of Rural women

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Abstract:--

India is an agrarian economy. Majority of Indians lives in the rural areas. A number of challenges in the area of health, education and employment are an obstacle to women development in rural areas. Numerous programmes have been initiated by the Government of India and for the development of women in rural areas. Apart from Government various non-governmental organizations, local self-governance institutions and Self-help groups play a significant role in the empowerment of rural women which is instrumental to their development. The present study aims at analyzing the impact of NGO initiatives on women empowerment. Primary data was collected from 310 women beneficiaries of NGOs working for the cause of rural women with the help of a self designed questionnaire. The study identified a positive impact of NGO initiatives on the empowerment of rural women. Thus we can conclude that NGOs in India are effectively working towards socio-economic upliftment of the poor women in the rural areas thereby attaining the goal of rural management.

Keywords:

Agrarian, women development, empowerment, rural management.

Exploring Entrepreneurial Intent of Female Students Pursuing Professional Courses

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Abstract:--

Revolutionary changes in the corporate environment have led to enormous opportunities for women entrepreneurs. Our increasing dependency on service sector has created many entrepreneurial opportunities especially for women where they can excel their skills while maintaining balance in their life. The basic purpose of this study is to explore the factors influencing entrepreneurial intentions among the female students in various professional institutes in India. The self structured questionnaire was used to collect data from 330 undergraduate females pursuing courses from various professional institutes in India. Using SPSS, Factor analysis and regression analysis were used to analyse the data. The result of the regression analysis reveals that factors Personality traits, motivation, perseverance and opportunity explorer significantly influenced the entrepreneurial intention of the students. The study will be helpful to the governmental organizations for the promotion of entrepreneurial activities in India through the development of curriculum for entrepreneurial education in the higher education institutes in India.

Key Words:

corporate environment, opportunities, entrepreneurial intentions, significantly, promotion, entrepreneurial education.

Perception of Marketing Professionals towards Digital Marketing: Application of TAM Model

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Dr. Sharda Haryani, Prestige Institute of Management and Research, Indore

Dr. Sukhjeet Matharu, Prestige Institute of Management and Research, Indore

Abstract:--

Digital marketing is a latest marketing model that involves marketing activities with respect to information technology to improve customer satisfaction by fulfilling their requirements. Online advertising is more cost-efficient for measuring ROI on advertisement and effective for brand building and increasing number of customers for companies to achieve success. The purpose of this research paper is to determine the true picture of digital marketing with respect to business process outcomes. Four factors related to TAM model of digital marketing namely Perceived Usefulness, Ease of Use, Security and Attitude are considered as independent variables, while satisfaction related to business process outcomes is considered as dependent variable. Non probability judgmental sampling method was used for the collection of primary data from 220 marketing professionals who have adopted digital marketing in their business. Regression analysis using R software was done to study the results and found that all the four factors are significant for achieving effective results in an organization.

Keyword:--

Digital Marketing, TAM model, e-marketing, online marketing

A Review on Routing Protocols and Deployment Challenges Concerning Underwater Wireless Sensor Network

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Abstract:--

Autonomous underwater vehicles (AUVs) is the technological advancement possessing tremendous application potential in monitoring real-time maritime activities. Many of the applications make use of sensor nodes deployed at different depth in the interested region. The nodes beneath the water communicates with node near water surface using multi-hop communication assisted by suitable routing protocols. However, the communication is governed by environmental constraints. Also, there are issues like large propagation delay and limited link capacity. The pipe blockage removal application is one such application where environmental conditions are dynamic. Therefore, there is need to pay significant attention to construct reliable scheme and resource aware efficient routing protocol between the source and the sink node. Here, we present the broad review on issues concerning underwater pipe blockage removal and compare various routing protocols reported in recent literature. The study mainly aims at comparing the available routing protocols, test beds, simulation platforms, and analysis tools available with research community.

Keywords:

Under water wireless sensor network, routing protocol, deployment strategies.

Numerical Modelling and Experimental Validation of a Magnus Wave Energy Converter

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Abstract:--

This paper explores the numerical modelling and validation of a Wave Energy Converter based on lift forces generated by a horizontal spinning cylinder using the CFD package OpenFOAM. Waves are created in the numerical wave tank using a method for solving partial differential equations based on volume integral whilst dividing the domain in-to a discretized set of volumes (Finite Volume Method). Waves are absorbed at the far end of the wave-tank using a damping region that modifies the momentum equation to minimize wave reflection. Previously published experimental results are being used to validate the simulation. Initially, a large difference between the surge and heave forces of the simulation and the experiment was observed. The large values of mesh non-orthogonality and the coarseness of the mesh were found to have a significant effect on the quality of the results. The non-orthogonality was reduced by modifying the mesh to produce a smooth transition from its finer to coarser parts. In addition, the K-Omega SST turbulence model with a more laminar influence around the cylinder wall provided an improved solution when compared to the K-Epsilon model. The current objective is to reduce the pressure residuals, which are considered to be a remaining major source of error in the numerical model.

Energy Efficient for Heat Exchanger, Refrigeration and Air Conditioning

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Abstract:--

Scientifically, it is difficult to predict the relationship between global temperature and greenhouse gas (GHG) concentrations. The climate system contains many processes that will change if warming occurs. Critical processes include heat transfer by winds and tides, the hydrological cycle involving evaporation, precipitation, runoff and groundwater and the formation of clouds, snow, and ice, all of which display enormous natural variability. The equipment and infrastructure for energy supply and use are designed with long lifetimes, and the premature turnover of capital stock involves significant costs. Economic benefits occur if capital stock is replaced with more efficient equipment in step with its normal replacement cycle. Likewise, if opportunities to reduce future emissions are taken in a timely manner, they should be less costly.

Study On Flavanoid Content in Gamma Radiation Processed Onion (*Allium cepa*)

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Abstract:--

Extraction and identification of flavanoids in gamma radiation processed onions were carried out. A fresh onion were procured from farm and used for experiment. Onion bulbs were finely grinded and powder was prepared by using liquid N₂. Finely ground powder was kept at -72 °C till further analysis. Extraction was carried out in methanol, hexane and ethyl acetate. Extracted sample identified on commercially prepared TLC plate by spotting sample and standard simultaneously. Plate was run in suitable solvent system and after drying developed in iodine chamber. Developed spots were identified by compared with spots of standards. Quercetin was the major flavanoid found in onion. Further quantification of quercetin and effect of gamma radiation and storage on quercetin content in onion is under study.

Index Terms—

Onion, gamma Irradiation, flavanoids, quercetin

Localization of Brain Tumor in fMRI data using Machine Learning Techniques

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Abstract:--

Functional magnetic resonance imaging (fMRI) has been adopted almost universally by disciplines that endeavor to understand how the brain works. As basic scientists tune the technique, clinicians are increasingly able to apply brain mapping with fMRI to their clinical practice. We present here a guide to using fMRI in a clinical setting. We discuss the basic considerations of functional brain mapping in patients with brain tumors including: patient screening and training, paradigm design, data analysis and interpretation of the fMRI scans. The fMRI monitors the growth and function of brain tumors. Resection of brain tumors involving eloquent cortical areas has remained a challenging task. Intra-operative electric direct cortical stimulation (DCS) and mapping can accurately identify and define eloquent cortical areas, can examine their spatial relationships with the tumor, and can facilitate aggressive tumor resection. However, DCS mapping requires either an awake craniotomy and a cooperative patient, at least for language area mapping, or a second operative procedure for extra operative cortical stimulation and mapping via previously implanted subdural electrodes.

Keywords:

fMRI, Machine learning, Algorithm.

An Analysis on point mapping Methods-Elliptic Curve Cryptosystems

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Abstract:--

With the development of global computing network in the name of Internet and World Wide Web, facilitating sharing surfeit of information over the network, the cases of pilferage of information by the undesired recipient have also increased many folds. To prevent pilferage and hacking of information over such communication networks, the researchers have proposed and implemented varieties of security models. Security is the most challenging aspects in the internet and network applications. Internet and network applications are growing faster. So the importance and the value of the exchanged data over the internet or other media types are increasing. The various text security models or algorithms for key exchange to establish a secure communication have been in use since decade such as RSA, D-H, AES; DES etc. all these algorithms hold lot of encryption and decryption computation. The time complexity in the decryption side is also comparatively high. Decryption of messages using those algorithms is not possible for a person with no computational knowledge. That means only an algorithmic knowledgeable person can decrypt or uses such security provisions. Thus for avoiding pilferage of information, various models of symmetric and asymmetric cryptography schemes are proposed. Elliptic curve cryptography scheme based on geometrical interpretations, it's a classic combination of algebraic properties with geometric techniques. The advantage of public key cryptography is that it is more secure than private key cryptography. ECC is one such method of public key cryptography along with RSA. The key attraction of ECC over RSA is that it offers equal security even for smaller bit size, thus reducing the bandwidth, processing complexity. In ECC, the operations such as point inverse, point addition, point subtraction, scalar multiplication are performed on the points obtained from an elliptic curve. These point operations are useful in performing encryption and decryption operations.

Keyword—

Cryptographic techniques, Symmetric, Asymmetric, Cipher text, public key, private key.

Modeling and simulation of urban microclimates: Study of the impact of urban materials on the comfort in outdoor spaces

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Abstract:--

Today, the majority of the world's population lives in urban area. This situation has made all urban planners and designers under the challenge of creating cities that are receptive and responsive to the needs of their inhabitants. Public urban spaces are a vital ingredient of any city as they have the power to connect societies and cities, to alleviate resource consumption and to reduce the environmental impacts in cities. These spaces vary between parks, squares, playground, and more featuring various color and ground surface materials such as asphalt, concrete, marble, porous stone, grass, water, etc. Depending on the physical properties and albedo value of the surfaces, these features certainly effected the microclimatic conditions and the outdoor thermal comfort by affecting solar radiation absorption and emission, as well as ground-surface evaporation. The thermo-radiative energy balance of outdoor spaces is closely linked to the nature of the construction materials of the buildings and urban spaces. This research work aims to study the relationship between materials of urban spaces and outdoor thermal comfort in public outdoor spaces through modeling and numerical simulations by using SOLENE-microclimate.

Review on Methods for Enhancing Distance Relay Performance in Series Compensated Transmission Lines

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Abstract:--

The electrical power grid is undergoing a continuous revolution due to ever increasing dependence of modern society on electrical power and hence protection of such a wide, complex dynamic power system is a big challenge for protection engineers. Transmission lines are highly susceptible to the various kinds of faults and their protection is very essential to enhance reliability and security of power system. Transmission lines are loaded closer to the threshold value of their thermal and stability limits. Installing fixed or controllable compensation capacitor in series with the transmission lines provides a vital solution for this. Compensation systems help to increase transient stability limits of power grid, enhance power transfer capability of transmission lines, reduce losses, optimize power-flow and improve its power-quality. With the advent of power electronics Flexible AC Transmission Systems (FACTS) are widely used as compensation systems for transmission lines. However, protection of compensated transmission lines is a crucial task as compared to uncompensated lines as inserting capacitors in series with transmission lines change magnitude and direction of fault currents and voltages. This has a large impact on the operation of protective relays and fault locators. Distance relays which are popularly used for the protection of transmission lines mal function due to wide variations in post fault voltage and current values. Several practical and theoretical schemes have been developed by the researchers to improve the performance of distance relay connected in series with the transmission lines such as Higher Order Statistics, adaptive Kalman filtering, discrete wavelet transforms, travelling wave schemes, fuzzy logic, Artificial Neural Network and many others. This paper is an attempt to throw light on these various methodologies in terms of their merits and demerits.

Online Power Transformer monitoring by using LABVIEW and IoT

ANU, Assistant Professor, Shri Vishwakarma Skill University, Haryana

Abstract:--

In this proposal, plan and usage of a versatile inserted framework to screen and record key parameters of a conveyance transformer like load currents, Voltage level and encompassing temperature. The possibility of on-line monitoring framework coordinates a Wireless-Fidelity (WI-FI) Modem, with an independent single chip microcontroller and diverse sensors. It is introduced at the circulation transformer site and the above parameters are recorded utilizing the analog to digital converter (ADC) of the installed framework. The got parameters are prepared and recorded in the framework memory with a constant access on LabVIEW. In the event that any irregularity or a crisis circumstance happens the framework sends a trigger to over-burden insurance hardware which turns off the circuit and the IOT stage and LabVIEW containing data about the variation from the norm as per some predefined guidelines modified in the microcontroller for the protection of the transformer. This framework will assist the transformers with operating easily and distinguish issues before any cataclysmic disappointment.

Keywords

LAPVIEW, IoTs, distribution transformer, Arduino microcontroller, current sensor, current transformer, etc.

Crypto-biometric using substitution encryption and discrete cosine transformation for secure data Communication

Bhagya P, Visvesvaraya Technological University, Belagavi

Abstract:--

In the future development of digital data exchange, security of any data/info becomes much more crucial in data storage and transmission. Since Biometric verification/identification is becoming an active area of research in the field of E-business and security applications, there is a large increase in usage of biometric samples in various fields. So, it has become a more essential to secure the biometric samples/images from unauthorized usages. One biometric which is popularly used is Fingerprint, because of its acceptability. This paper proposes a secure encryption method with Fingerprint biometric recognition. For encryption process, Substitution encryption method is used. In this paper, we use discrete cosine transform (DCT) method in the frequency domain to secure the data in the sample image. The fingerprint that comprises the hidden data will be used to extract and restore the secret data by the end user. Mean square error (MSE) and Peak Signal to Noise Ratio (PSNR) is calculated to depict the proposed method is more effective and efficient.

Keywords:

Biometric, Substitution Encryption method, Crypto-Biometric

A Review Paper on Automatic Overtaking System for Avoiding Accident

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Bhakti R. Bansod, Computer Engineering Department VIIT Pune, India

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Prof. Aniket Katade, Computer Engineering Department VIIT Pune, India

Abstract:--

Transportation has become one of the significant parts of our lives. Over time, the technology of our vehicles has changed dramatically. Today large numbers of cars run continuously. Nowadays, the number of accidents is increasing day by day due to the negligence of the driver.

We have found that the existing system for Accident Avoidance includes controlling only the speed of a vehicle and applying brakes. But, our policy will not just help to overtake the cars automatically without any manual efforts but also will help to identify whether the driver is a drunkard or not? Hence, by using the principle of Fuzzy Logic, the sensors or the probes present on the vehicle will be used to collect and calculate the distance between the neighbouring obstacles or vehicle and itself. When this distance reduces, the sensors that are present on the car will sense them, and the overtaking mechanism will take place. Implementing this system will surely reduce the number of road accidents.

Index Terms

Vehicle, Obstacle, Overtake, Sensors.

Governments Failure on Global Digital Geopolitical Strategy

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Abstract:--

Governments in all countries of the world today want organized and controlled societies that operate under a single set of rules and commands. Many governments around the world want and seek information that will allow them to control social groups and populations. Governments around the world set up ghost companies that were created to mislead the public and then collect information, data and then data from various sources or in collaboration with other third parties around the world. Somewhere here the game is changing, companies that are set up for information analysis often work for the benefit of third parties and governments. In a globalized world it is difficult to control the flow of data from both the extraction source and the final recipients. Governments think they have the capacity and ability to control the origin of information and its validity, but no one can guarantee the integrity of the information and how it came about. Many people believe that people who have authority also have control and power, this is not the case, control, power and authority is given to the one who has the knowledge and information to carry out his/her purpose with the right choices.

Among us there are companies, public and private for different purposes, companies can be set up by non-friendly countries of high interest to gather information. The goal remains the same, the creation of a digital profile with the habits and needs of people who are in the research and interest field. Of course this is not only possible in the physical world but also in the digital world. In the digital world it is very easy to create a digital human profile when you are even on the government side it is easier because then there is Internet Service Provider (ISP) support so the candidate's digital footprint can be easily searched. But even when you're not on the government side, companies with the right technology can trap the prospective victim to build their profile online.

So governments around the world aren't the only ones who want to know the habits of citizens, but what happens when governments themselves fall victim to it?

Shear Strengthening of R.C Beam Column Joint Using Post Installation of Headed Anchors

K. Padmanabham, Research scholar (Ph.D), Andhra University Engineering College

K. Rambabu, Professor, Andhra University Engineering College

Abstract:--

Post installation of headed anchoring is an advanced technique proposed in this study for structural strengthening of R.C beam- column joints (BCJ). Previous research work on seismic damage of joints are widely correlated with shear deformation and bond slip of anchored reinforcement in joint core. To mitigate complex issues of reinforcement congestion, anchorage, fabrication and placement of reinforcement in congested geometry of BCJ, a novel technique of “Post Installation by Headed Anchor” (PIHA) is proposed in this paper. It is an effective measure used to enhance the implicit properties of joint core for shear, stiffness, confinement and ductility aspects. This method produce viable solution of conventional practice of R.C Precast and Cast in-place beam-column joints under monotonic and cyclic loads. Headed anchors provides good supplement to hooked anchorage system in joints to improve shear, bond and ductile properties of joint which results delaying the ultimate failure. This paper focused on theoretical aspects of proposed PIHA system so as to evaluate its strength and parametric influence against shear failure of BCJ. Principle observations are made according to “Theory behind post installation of headed bars, Fastening techniques, Force transfer mechanism, Failure modes, and Implicit strengthening of R.C beam-column joint

Design and Analysis of Different Full Adder Cells Using new Technologies

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Dr. Rajendra Prasad Somineni, Department of Electronics and Communication Engineering, Vallurupalli Nageswara Rao Vignana Jyothi Institute of Engineering and Technology (VNR VJIET), Telangana, India.

CH. Raja Kumari, Department of Electronics and Communication Engineering, Vallurupalli Nageswara Rao Vignana Jyothi Institute of Engineering and Technology (VNR VJIET), Telangana, India.

Abstract:--

CMOS transistors are most widely used for the design of computerized circuits, when scaling down the nanometer technology these devices faces the short channel effects and causes I-V characteristics to depart from the traditional MOSFETs, So the researchers have developed the other transistors technologies like CNTFET and GNRFET. Carbon nanotube field effect transistor is one of the optimistic technologies and it is a three terminal transistor similar to MOSFET. The semiconducting channel between the two terminals called source and drain comprises of the nano tube which is made of carbon. Graphene nano ribbon field effect transistor is the most optimistic technology here the semiconducting channel is made of graphene. When contrasted with barrel shaped CNTFETs, GNRFETs can be prepared in situ process, transfer-free and silicon compatible, thus have no passage related and alignment problems as faced in CNTFET devices. This paper presents different 1-bit FACs like TG MUX-based FAC (TGM), MN MUX-based FAC (MNM), proposed TG Modified MUX-based FAC (TGMM) and another proposed MN Modified MUX-based FAC (MNMM) are designed using different technologies like CNTFET and GNRFET at 16nm technology with supply voltage of 0.85v and simulation is done by using Synopsys HSPICE Tool and the proposed designs are best when compared to the TGM and MNM FACs in terms of Static and Dynamic powers Dissipations and Delay.

Key Words:

Full Adder cell(FAC), TGF Modified Mux, MN Modified Mux, CNTFET, GNRFET, Power Dissipation, Delay and HSPICE Tool.

Comparative proteomics and physiological analysis reveal the role of nitric oxide signal in *Ephedra foliata* Boiss. & Kotschy ex Boiss. response to salt stress

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Abstract:--

Ephedra foliata Boiss. & Kotschy ex Boiss., (family - Ephedraceae), is an ecologically and economically important threatened Gymnosperm of Saudi Arabia. Stress adaptation of this Gymnosperm to environment stress is in the focus because of its relevance to fodder and range production. In this study, we applied the comparative proteomics and physiological approach to study the underlying mechanism of *E. foliata* response to salt stress. The specific proteins of antioxidant isozymes were identified as a biomarker for characterizing high salt stress tolerance showing significantly differential accumulation after salt stress. Among these proteins, a set of proteins associated with nitric oxide (NO) metabolism enzyme and oxidative enzymes, cell damage and cell autophagy processes. Further analysis revealed that a set of antioxidant enzyme, as well as S-nitrosogluthathione reductase (GSNOR) activity, were induced to balance the cellular redox status during the short term of salt stress. Long term of salt stress gradually inactivated the antioxidant enzymes and GSNOR activity through protein S-nitrosylation, leading to the oxidative damage to cell viability. Based on these data, we propose that the range plant *E. foliata* apply multiple strategy to adapt the salt stress; during this process, the GSNOR activity and protein S-nitrosylation level play the important role.

Keywords:

Ephedra foliata, Salt stress, Nitric oxide, Antioxidant enzymes.

Chatbot Analysis and Evaluation

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Abstract:--

Chatbots are specifically machines which work with data to stimulate responses similar to human. Chatbots are towards inclination in the world of technology. In marketing field, in order to maintain a proper client relationship chatbots are highly used which provide 24*7 services. Opting a proper machine learning algorithm, improves the features and reliability of the chatbot.

PROBLEM STATEMENT:

Analysis on working of chatbot for different usecases using retrieved based model and generative based models in closed and open domains using machine learning.

TECHNOLOGY:

Machine learning and Python

SCOPE:

Bots are being used in the wide variety of industries, scope is even increasing exponentially. Customer service is purely going to be based on chatbots in future. Many AI (Artificial Intelligence) chatbots are also evolving using NLP (natural language processing) for efficient queries or to do a specific task using voice and text interface.

X-ray study of Fe₂O₃ nanoparticles prepared by chemical route technique

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V.Seshasai Kumar, Kakatiya University Warangal

Abstract:--

A chemical route technique has been adapted to synthesis of Fe₂O₃ nanoparticle powders. The resulting nanoparticle powders were characterized by X-ray diffraction (XRD) and scanning electron microscope (SEM). The Debye temperature, mean-square amplitudes of vibration, Debye-Waller factor, particle size, lattice strain, and vacancy formation of energies of Fe₂O₃ nanoparticles have been obtained from X-ray integrated intensities. The integrated intensities have been measured with a JEOL JDX-8P diffractometer fitted with a scintillation counter using filtered CuK α radiation at room temperature and have been corrected for (TDS) thermal diffuse scattering. The Debye temperatures obtained for Fe₂O₃ nanoparticles have been compared with the values obtained from other methods. The x-ray Debye temperatures obtained in the present investigation have been used to estimate the vacancy formation energies for Fe₂O₃ nanoparticles.

The θ_M Debye temperatures of Fe₂O₃ nanoparticles have been obtained for the first time. Analysis of XRD reveals that the effect of Debye temperatures is decreases with decreasing particle size due to the softening of the thermal vibrations of atoms of nanosized particles as the average particle size varies from 154.30nm to 48.26nm for different concentrations of Fe₂O₃ nanoparticles.

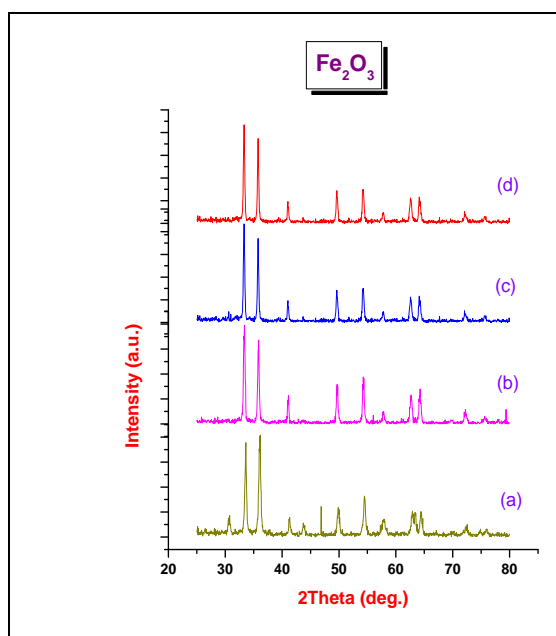


Fig. 1, (a-d) XRD patterns of Fe₂O₃ nanoparticle powders for different compositions, respectively

Analytical Study On Component Based Precast Beam Column Joints Using Headed Anchorage System

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Abstract:--

The accelerated construction practice of precast system with high quality, economy and safety conditions are well established in the conventional design practice. But the adoptability of precast system are under hesitation at seismic conditions since the global performance of structure severely influenced by inelastic response of critical joints. Seismic design of precast structures are often exhibit design uncertainties and rational constructability issues In this context, the past seismic collapse of precast joint failures and associated research findings well identified the responsibility of joint integrity. Extensive research work done in this context is based on emulative and component based joint connections, but are lagging in practice due to constructability issues. The locations of joints and connection between the elements are more prominent in seismic performance. This paper proposed a study on how to establish precast joints and design methodology, arrangement of component elements in seismic R.C beam column joints. In this process post installation by headed anchor system used to establish monolithic action of beam column joint at par with cast-in-place joints. It is an innovative technique to enhance shear capacity and ductility of joint through its implicit strengthening

Key words

Beam-column joint, Post installation, Reinforcement Detailing, Component element.

Effects of Battery Manufacturing for Hybrid and Electric Vehicles: A Comparative Study

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Abstract:--

Hybrid and electric vehicles have gained momentum in the automobile sector as they are moving towards a cleaner and greener future when compared to their fossil fuel counterparts. They also need to adhere to the upcoming norms such as BSVI in India and EURO based compliance in the other countries. This paper highlights the various types of hybrid vehicles (HV) and electric vehicles (EV) present in the Indian market as well as in the rest of the world (parallel hybrids, series hybrids, plug-in hybrids, two mode hybrids). The study looks at the components of a standard HV and discusses the impact of the HV's and EV's to the environment and the market. The primary focus is the comparison between the amount of greenhouse gases that are produced by the manufacturing of electric vehicles or hybrid vehicles and its batteries with that of a conventional internal combustion vehicle. For this, a basic understanding the nature of electric vehicles and its necessity in the global market as well as the Indian market has been presented, finally concluding with a discussion on whether the shift to electric vehicles results in decrease of the total production of the carbon emissions in the environment.

Keywords

Hybrid vehicles, Electric vehicles, Lithium ion battery, Carbon emissions, Greenhouse gases

A Literature Survey on Various Applications of Soft Computing in Medical Image Analysis

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Abstract:--

Proper diagnosis of various health related issues is proved to be a complex process and to overcome those complexities in medical field, a variety of sophisticated result oriented techniques are required. Medical diagnosis requires and involves a number of human abilities, uncertainties, health related ambiguous symptoms, very high precision and immense medical records. Various research relevant to Soft computing techniques proven to be successful in the generation of more effective solution. This review paper is focused to present a outline on the diagnosis system of various diseases and the research done on various soft computing used in this analysis during past few years

Key words:

medical Diagnosis, Soft Computing, Fuzzy Expert System, Artificial Neural Network, Genetic Algorithm, Particle Swarm Optimization

Human Age and Gender Determination Using Fingerprints

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Abstract:--

This paper presents a review of various existing methods to determine human age and gender using fingerprints. Broadly two methodologies are reviewed i.e. Ridge based human age and gender determination & Image based human age and gender determination. Ridge based techniques uses ridge information with its variant statistics measures for classification of a human fingerprint into different classes of age groups and male/female distinction. These methods do not involve separate classifiers for classification rather determines different thresholds for different classes for classification. On the other hand, Image based techniques uses image processing concepts both in spatial and frequency domain like image transformation in frequency domain. These methods also need separate classifier like KNN (K-Nearest Neighbourhood) classifier, SVM (Support Vector Machine) etc to determine age and gender of a specific human fingerprint. Considering the two approaches different research papers are reviewed and their accuracy is stated for the difference. In the end advantages and disadvantages are concluded for both methodologies along with the future scope in this field.

Keywords—

Age, Gender, Fingerprints, Ridge based classification, Image based classification

Parametric Review of various Routing Protocols and effects of clustering on them in WSN

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Uma Sharma, Assistant Professor, Bansthali Vidhyapeet, Jaipur, India

Umesh Kumar, Assistant Professor, IT Govt women engineering college Ajmer, Rajasthan, India

Abstract:--

With the recent advancement in technologies, a wireless sensor network comes into the light. It is used to monitor the environment conditions such as sound, temperature, etc. Military surveillance, weather forecast, bridge monitoring, under water movements and so on are the applications of Wireless Sensor Network. A Sensor node is deployed in an environment in such a manner that it forms a network comprising of several sensor nodes. Sensor nodes gathering information and transmit it to a requested party through an electrical signal and during transmission energy loss befall. To accomplish this task routing protocols are used described in this work. Routing protocols helps in transmitting information between nodes. Routing is performed with the help of clustering schemes. There are many promising routing protocols that try to forestall energy loss during transmission but lack some or the other manner.

Keywords:

Wireless Sensor Network, Routing Protocols, Clustering Schemes

Probability Distribution Similarity Using Uncertain Data Based Clustering

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Dr. Mohit Gangwar, Dean-Engineering, Bhabha University, Bhopal

Abstract:--

Clustering is an essential task in data mining. The fundamental purpose of clustering is gathering the same object data in a massive dataset and identifying resemblances between the objects. Clustering of uncertain data is a more complex task in both modeling similarity between unsure data objects and developing efficient computational methods. Clustering uncertain data problems has been explained by utilizing many modern data mining techniques and numerous methods. Techniques have newly been convenient for clustering uncertain data based upon the conventional dividing clustering methods like k-means and density-based clustering methods like DBSCAN for uncertain data, they will be resolved by geometric distances between objects. Computing the resemblance between the data objects will be based upon a correlation distance measure and further clustered with occurrence based clustering or hierarchical clustering methods. Such methods cannot handle uncertain elements that are geometrically no conflict. In the recommended system, we could use probability that are the fundamental attributes of uncertain objects and are analyzed in measuring likeness between uncertain objects. The extremely suitable technique Kullback-Leibler divergence is employed to operations the distribution relationship between two uncertain data items. First the probability division method for a model, uncertain data object then thereafter estimate the similarity between data objects using distance metrics, then finally best clustering techniques such as partition clustering, density clustering.

Keywords:

Clustering, Clustering uncertain data, density based clustering, partition clustering, KL-divergence

A Various methods for Identification of Obstructive Sleep Apnea Using Electrocardiogram Features

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Abstract:--

Sleep is critical to health and well-being. Poor quality sleep is analogous with a wide range of negative outcomes ranging schizophrenia to cardiovascular syndromes. Sleep disturbances may increase several unresponsive outcomes including daytime sleepiness, degraded cognitive performance, irritability, obesity and depression. Occurrences of breaks in the respiratory breathing process during sleep are called “Obstructive Sleep Apnea”. Abundant algorithms and models have been designed, proposed and developed using Electrocardiogram features to detect sleep apnea syndrome. The ECG signal represents the electrical activity of heart. Mostly the cardiac diseases can happen due to sleep apnea which needs to be diagnosed in the critical stage. This survey paper aims to bring the different techniques to identify sleep apnea syndrome by using the ECG features, because ECG features have been found most effective and efficient to detect the sleep apnea disorders. In this paper a comparative analysis has been prepared between the different techniques used.

Keyword:

Apnea-hypopnea index (AHI), Electrocardiogram (ECG) features, Heart Rate Variability (HRV), Obstructive Sleep Apnea (OSA) and Sleep

Automatic Plant Watering System

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Neha Lokhande, AISSMS's Institute of Information Technology, Pune , India

Yogesh Patil, AISSMS's Institute of Information Technology, Pune , India

Abstract:--

Our project introduces an automatic plant watering system that uses water discretely. It works on the principle of dielectric permittivity. The soil moisture sensor senses the moisture in the soil and gives the input to the microcontroller. According to the input the microcontroller smartly decides whether to switch ON the pump or not. As soon as the soil moistens, the water supply stops using relay. This system also includes AC to DC converting circuit. This circuit helps to use the system flexibly and conveniently. It is compatible for standard household power supply. Using this system, we can have controlled and adequate water release from reservoir on as-and-when-required basis without any human intervention. This saves on water and human efforts.

Keywords:

Autonomous system, Dielectric Permittivity, Relay, Discreet water consumption.

An Optimized Order Reduction of Large-Scale Systems Adopting Affine Arithmetic

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Prof. D Vijay Kumar, AITAM, Srikakulam

Prof. P Mallikarjunarao, Andhra University, Visakhapatnam

Abstract:--

In this paper, a reduction method for higher order/ large scale uncertain continuous systems is presented. This adopted method for higher order reduction is Affine Arithmetic, which is self-approved arithmetical analysis. This method is a most familiar with reduce the envelop effect of ordinary interval arithmetic and elements are represented in the affine forms of certain fundamental variables, which is the sources of data uncertainty or approximations in the period of computation. In this proposed method of higher order reduction for uncertain system plants doesn't change the nature of their original plants. This projected method produces stable reduced order models for given original higher order established system and it gives better track of rounding and transition errors for each measured value by automatically.

Keywords:

Affine Arithmetic; Order Reduction; Uncertain Systems.

Location based people's reactions on government Citizenship Amendment Bill 2019 in India

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Bhasker Pant, Graphic Era deemed to be University Dehradun Uttarakhand

Vijay Singh, Graphic Era deemed to be University Dehradun Uttarakhand

Abstract:--

Analyzing citizen reaction based on location for any country is major part for decision making process. In this paper we worked on the case of citizen amendment bill 2019, and build a model to analysis the location, size and time of people reaction using data collected from the popular social media platform twitter. We express and plot the reaction via the action of retweet the message. For retweeting action, we use the time series analysis (TSA) approach. Samples dataset of tweeter data collection for following government action Citizenship Amendment Bill are (N= 72000) and used hash tags for data collection are #CAB, #CABBill, #CAB2019, #CAB_nahi_chalega. Characteristics of any reaction of any event is about the event like who reacted, when reacted, where and how. In our research paper we model a system for when, where and how (retweet or not) people's reacting. Event may have any political, movie release, game, terror attack, natural disaster.

Index Terms—

Data Mining, Twitter, location-based analysis, Information flows, Information propagation, Sentiment Analysis.

Relationship Between Location-Wise Air Quality and Public Perceptions in Dhaka City

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S M Nihab Ahsan, Graduating Student of Civil Engineering Department, Military Institute of Science and Technology, Dhaka, Bangladesh

Md Shafinur Rahman, Graduating Student of Civil Engineering Department, Military Institute of Science and Technology, Dhaka, Bangladesh

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Abstract:--

Air pollution due to particulate matter (PM) is perhaps the biggest environmental risk factor for human health. It is inevitable to incorporate public opinion in setting up air quality standards and policy formulations. There had been very few instances where public opinion is taken into considerations especially in the least developed and developing countries to estimate the level of exposure.

The present paper introduces an approach to determine the health impact of air pollution, assessing the relationship between the variation of location, exposure duration, and public opinion.

A cross-sectional study by convenient sampling technique was carried out at four sites of Dhaka city in Bangladesh. A total of 200 people (50 people from each location) of different age groups and gender were interviewed in the survey. Air quality data was obtained from fixed-site monitoring stations and low-cost air quality monitoring sensors after necessary validation with equivalent standard equipment. An extensive statistical analysis was carried out using MS Excel and IBM SPSS software. To check the relationship between location-wise air quality and seven probable health risks related to PM concentration, a chi-square test was performed.

Results show that 80.5 percent of the respondents opined that they are very much affected by air pollution. It is found that 94.5 percent of the total respondents considered emissions from motor vehicles as the most common cause of pollution. A strong association was found between skin disease and location-wise level of exposure (Cramer's $V=0.43$). However, four risks were moderately dependant and two were weakly dependant on location. Cross-examining the air quality data and public perception it was evident that health risk is highest at the location of maximum pollution.

This paper highlights only seven indicators of health risks. A further epidemiological and clinical study is needed to conform to the results of this study.

Keywords:

Air quality, field survey, health risk, particulate matter (PM), public perception

Probability Distribution Similarity Using Uncertain Data Based Clustering

Afreen Sheikh, Bhabha Engineering Research Institute, Bhopal

Dr. Mohit Gangwar, Dean-Engineering, Bhabha University, Bhopal

Abstract:--

Clustering is an essential task in data mining. The fundamental purpose of clustering is gathering the same object data in a massive dataset and identifying resemblances between the objects. Clustering of uncertain data is a more complex task in both modeling similarity between unsure data objects and developing efficient computational methods. Clustering uncertain data problems has been explained by utilizing many modern data mining techniques and numerous methods. Techniques have newly been convenient for clustering uncertain data based upon the conventional dividing clustering methods like k-means and density-based clustering methods like DBSCAN for uncertain data, they will be resolved by geometric distances between objects. Computing the resemblance between the data objects will be based upon a correlation distance measure and further clustered with occurrence based clustering or hierarchical clustering methods. Such methods cannot handle uncertain elements that are geometrically no conflict. In the recommended system, we could use probability that are the fundamental attributes of uncertain objects and are analyzed in measuring likeness between uncertain objects. The extremely suitable technique Kullback-Leibler divergence is employed to operations the distribution relationship between two uncertain data items. First the probability division method for a model, uncertain data object then thereafter estimate the similarity between data objects using distance metrics, then finally best clustering techniques such as partition clustering, density clustering.

Keywords:

Clustering, Clustering uncertain data, density based clustering, partition clustering, KL-divergence

Assessment of Competency Level of Safety Engineers in the National Capital Region

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Abstract:--

Building construction is on the upswing especially in the National Capital Region of the Philippines due to the demand of development. Safety has been subject of many tragedies, studies, debates and improvements. It is undeniable that construction is everywhere since it is the one of the many priorities of both the private and public sectors. Safety engineers are the responsible for the assurance of implementing the acceptable levels of safety standards. Their primary goal is to manage, eliminate and reduce risks. They monitor the work environment, inspect buildings and machines, and implement safety features. The severity of a particular failure may result in fatalities, injuries, property damage and loss of money. Safety engineers reduce the frequency of failures and ensure that the consequences are not life threatening. Trainings and seminars are some of the key activities to hone and develop a competent safety engineers. Thus, presence of a competent safety engineer is one of the keys to maintain the working environment with zero accident workplace.

Index Terms

Safety Engineers, construction, competent, safety standards and zero accident workplace

Minimization of Harmonics, Vibrations and Acoustic Pressure in BLDC Motor Drive using Variable Inductor Filter

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Sanjaykumar L. Patil, College of Engineering, Pune, India.

Abstract:--

Harmonics with corresponding vibrations and its alleviation is very essential for high rating and high-performance Brushless DC (BLDC) motor drives. BLDC motor drives have substantiated an increasing demand for various automobile as well as industrial applications in recent times. Due to wide frequency range, these drives are most suited for variable speed drive applications. For longevity of motor drive system and to improve overall drive performance, harmonics and accompanying vibrations mitigation plays a vital role. High frequency current ripples can result in significant damage to the motor winding insulation and bearings. This paper proposes a servo controlled innovative inductor filter scheme which reduces current harmonics, which helps to reduce resulting torque ripples over complete speed range (and hence over wide frequency range) of BLDC Motor. Reduction in torque ripples result in minimization of motor structural vibrations and acoustic pressure. The strategy is implemented on a three phase 2 kW, 48 V, inverter fed BLDC motor drive using TI's DSP TMS320F2812 controller followed by simulation using MATLAB/Simulink. For accurate instant position of variable inductor, a position control for DC servomotor with curve fitting technique is used. Experimental results confirm the potency of the proposed strategy. The current harmonics and corresponding motor vibrations are compared for performance of BLDC motor drive with and without the variable inductor filter.

Gen Z, Female Workforce- The Organizational Change Agents

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Abstract:--

The three selected Government Research Institutes (GRI) in Malaysia, namely Malaysian Palm Oil Board (MPOB), Forest Research Institute Malaysia (FRIM) and Malaysian Agricultural Research and Development Institute (MARDI) being research agencies under specific ministries of the government, are constrained by statutory restrictions in their options for R&D commercialization path – technology licensing is currently the preferred option. In the case of MPOB, technology licensing for the production of palm-based trans-free liquid santan was taken up by two industry players. The market need was well qualified and the commercial production technology was appropriately developed; the major commercialization challenges were in the forms of the need to increase brand and product benefits awareness so it could be accepted by mainstream consumers as alternative to coconut milk. In the case of FRIM's High Temperature Drying (HTD) system, it was developed to address rubber wood furniture industry's need for chemical-free technology and shorter processing time. The commercialization challenge is to convince industry players of the benefits from adopting HTD technology. In the case of MARDI, Clearfield Production System for rice was developed in collaboration with BASF to address the problem of weedy rice. User acceptance (i.e. rice farmers) has been encouraging since substantial financial benefits can be realized. All three cases exemplified clear industry-driven market needs that led to successful R&D commercialization via technology licensing.

Keywords:

Gender diversity, Gen Z, Organization change, Work culture and values.

Utilization of Bagasse Ash as a Brick Material

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Abstract:--

The industries disposes large amount of wastes through its products. And the wastes from various industries get increasing in recent years. In this mainly sugarcane cane industries produces high amount of wastes. It is the type of agricultural waste which can be disposed through several methods and condition. The fibrous waste from the sugar cane is said to be bagasse and on burning the fibrous wastes this may provides the bagasse ash. Based on the incinerating conditions the SiO_2 and alumina content get varies on the ash. Using this materials with the addition of lime, steel slag at different proportions are used for the manufacturing of bricks. The ultimate aim is to reduce the cost of bricks. The brick mould of size $225 \times 95 \times 75 \text{mm}$ is used for the manufacture of the bricks. And the compressive strength test is carried out at 14 days.

Keywords :

Bagasse ash, m-sand, steel slag, lime, fly ash, compressive strength etc.,

Identification of QRS complex from Obstructive Sleep Apnea Signals Using Heart Rate

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Abstract:--

Obstructive sleep apnea (OSA) is a respiratory episode; it is observed that there is a relationship with in the peripheral system such as cardiovascular system. Both elongated QRS duration and sleep apnea are connected with hypertension, unexpected cardiac death and heart failure. In this paper a novel method was developed in order to indentify the QRS complex, RR intervals and also cardiac arrhythmia diseases like Bradycardia, Tachycardia based on heart beat per minute. Inadequate contribute of oxygen to heart, which leads to problems in its functioning. Initially, the effect of halting causes the emerging of low heart rate, i.e. bradycardia condition and lowered oxygen level in the blood. This condition is sensed by brain and it then commands the arteries to pump blood at a higher rate, which in turn increases the heart rate, i.e. Tachycardia condition. The episodes of bradycardia and tachycardia that result due to apnea effect are harmful. MIT-BIH Polysomnographic Database and ECG-Apnea database are collected as input from the PhysioNet website are used in this study and the implementation of the proposed methodology is evaluated. The analysis outcomes denote the efficiency of the proposed method, totally 88 data sets were considered, and detected the QRS complexes depending on the Pan Tompkins method which is modified in this work and to identifying the cardiac disorders like Bradycardia and Tachycardia arrhythmia based on the heart rate.

Keywords:

Arrhythmia, Electrocardiogram (ECG), Obstructive Sleep Apnea (OSA), QRS complex, R-R intervals.

Analyzing the Impact of Information and Communication Technology for Improving National Security: A Study in Context of Development as Well as Challenges

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Abstract:--

This paper examines the impact of technological environments on National security development, and the risks of those developments in constancy and security. Information technology play vital role in security and development of any countries. It can be used for spread and exchange ideas and strategies for internal and external security. Some time it is used to gather help for peace missions and security policy. Information technologies also implements and coordinate internal and external security plans and operations at national level. On the Risk side, information and communication technology could be attack and exploit in the ways that threaten stability and internal and external security. It can take down or jam computer and also information and communication systems. Mass media and social media some time used to propagate lies around the world and help to penetrate or attack computer networks to stealing secret data and information. This paper focuses on developments benefits and trends of information technology in national security. This paper also examines the Risks and challenges of information technology in internal and external security. Basically this paper summarizes the prospects for the improving National Security, particularly the risk of terrorism.

Keywords:

Technology, National Security, Development, Internal, External, Information and Communication.

Review on Speed Control Algorithms for Permanent Magnet DC Motors

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Abstract:--

In past few years, permanent magnet motors have deeply penetrated in various industrial applications like milling and drilling and also in robotics among others. Permanent magnet DC (PMDC) motors specially have been used in many small-scale applications including robotic toys and home appliances due to their advantages over conventional DC motors like high torque to weight ratio, high efficiency, less noise, ease of control over wide speed range and can be manufactured in really small sizes and power ratings. This paper presents a study of systematically categorized approaches for speed control of PMDC motors based on control systems and recent developments in software and hardware aspects respectively. This paper evaluates newer platforms used for performing speed control of PMDC motor and generalizes them for their advantages and disadvantages for average user and discuss their utility for this purpose.

A Survey on Various Approaches for the Classification of Sleep Stages

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Abstract:--

Sleep is an important part of our everyday procedure, where we spend about one-third of our time by sleeping. Sleep is important to a number of brain functions to communicate with others. Over the years, many different sleep analysis methods have come into existence. Especially in the last few years, new methods have turn out with the appearance of new technologies for the detection of sleep stages. The primary goal of this work was to provide a literature summary regarding the sleep stages and classification between the each sleep stages, and also aimed to summarize and compared current methods to evaluate sleep stages. This paper gives a synopsis on the most appropriate approaches in terms of pre-processing, feature extraction, feature selection and classifiers adapted for right reorganization of sleep stages.

Keywords:

Automatic sleep stages, classifiers, polysomnography, slow-wave.

Different methods for detection of Snoring Episodes from Nocturnal Signals

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Abstract:--

To the best of our knowledge, Sleep apnea and snoring are often confused: snoring is simply the abnormal noise made during sleep where as sleep apnea is a disorder of the individual commonly snores but also has interruption of breathing. Snoring is the most wide spread disorder which increases with age and sometime this is the most serious issue in adult which leads for the significant sleep disorder. Obstructive sleep apnea (OSA) is a serious respiratory disorder. In current years the research of snoring identification has got rapid evolution in detecting the diseases. In this paper review paper we summarize the different approaches / algorithm performed till today and also present an overview on the most suitable method for the identification of OSA based on the analyzing the snoring sounds from the respiratory signals

Keyword:

Acoustical analysis, Obstructive Sleep Apnea, Polysomnography, Snoring, Support Vector Machine (SVM).

Bridging the Gap between Theoretical Studies and Practical Learning for Management Students

Soumya Vadavi, Assistant Professor, BIMHRD, SBS Society, Tathawade , Pune.

Abstract:--

Would you be able to envision somebody instructing you to swim or drive a vehicle, inside four walls of a classroom? It is unimaginable!! You need to get into the water to get the hang of swimming and you must be out headed straight toward get the hang of driving. A few subjects are aptitude based and practice situated. Theoretical information of skill- based mostly subjects has to be supported by follow. Hypothetical information of aptitude based subjects should be upheld by training. . Getting theoretical information has no worth till students will apply it for sensible functions

Key words:

Practical knowledge, theoretical concept, management students.

The Importance of Emotional Intelligence at Work Place

Sunita Chauhan, Information Technology Department, Ganpat University , Mehsana,Gujarat,India

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Abstract:--

This paper talks about how important it is to have the high Emotional Intelligence Quotient at workplace. The ability to understand others feelings and control self-feelings is emotional intelligence. The skills involved in emotional intelligence are self-awareness, self-regulation, motivation, empathy, and social skills. HR departments across the globe are saying EQ needs to be taken seriously. According to Rex Huppke, accepting the complexities of human emotion in the workplace will offer practical benefits, such as better employee engagement and a happier workforce. We have discussed effective ways fostering emotional intelligence skills in organizations, a proposed model to improve EQ and graphs from the feedback of several employee working in organizations After all we are human beings every day, not just when we leave the office.

Keywords :

Emotional intelligence, Emotional Quotient, self-awareness, social-awareness, self-management, relationship management

An Analysis on Various Audio and Video Steganography Techniques: A Review

Supriya, Student, Electronics and Communication, Rastra Sant Tukadoji Maharaj Nagpur Unversity

Abstract:--

Steganography is an art of concealing the secrete message that's being send out the opposite non-secret text. Security is that the most elementary issue in cutting edge correspondence. Data security infers protecting electronic safety efforts that are related to unapproved access to PCs, enormous information bases and on-line information it's shields data from contamination. Cryptography and steganography are two clear systems receptive offer security. Steganography bases on covering data with the top goal that the message is intangible for outcasts and simply seems to the sender and anticipated recipient. It's vital instrument that grants mystery transmission of data over and over exchanges channel. Steganography could be a strategy that is employed to cover the message and keep the identifying proof of lined message. Distinctive present day techniques for steganography are:

a) Video Steganography b)Audio Steganography

Audio and Video steganography are front line steganography of covering data such that the bothersome people might not get to the information.

Keywords :

Steganography, Audio Steganography, Video Steganography

Facial expression Recognition using Fibonacci weighted Neighborhood Pattern

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Dr. G.Karuna, CSE Department, Gokaraju Rangaraju Institute of Engineering and Technology, Hyderabad, India

Abstract:--

Facial expression recognition is progressively receiving attention now a days. A person will express feelings through their emotions. The expressions are the external signals express the internal feelings of an individual..Universally there are seven emotions anger, fear, disgust, happiness, sadness, surprise, contempt. In this paper , we use Fibonacci weighted neighborhood pattern method for facial expression recognition. The present paper compares LBP with FWNP method. First divides the image into small areas, then evaluates FWNP features on face images. LBP is incredibly sensitive to noise and can't distinguish between a powerful and a weak pattern. This limitations of LBP can be overcome with FWNP .

Keywords :

Fibonacci weighted neighborhood pattern method (FWNP), Facial Expression Recognition (FER),Local Binary Pattern(LBP).

Detection of Faults in Wireless Sensor Network using Bayesian Approach and DFD Scheme

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Abstract:--

Wireless Sensor Networks are the network of several interconnected sensor nodes. The deployment of these sensor nodes is in comparatively harsh and complex environments. As a result of which the sensor nodes are prone to serious damage. This may lead to sensor node becoming faulty and giving false results. This may affect the analysis of the data supplied by these sensors in critical areas like medical, oil and gas industries, security etc. In order to improve the quality of data, prolong lifespan of the network, to deduct response time of the network, fault detection has been a trending topic of many researches. Consequently, this paper tries to deal with the above mentioned issue by mitigating the disadvantages of DFD scheme and trying to resolve the issue by applying Bayesian approach.

Keywords :

Fault Detection, Wireless Sensor Network, DFD scheme, Bayesian Approach, Industrial Internet of Things (IIOT)

Manipulating Geotagged Photos Using Content Based Method to Recommend Tourist Destination

Dionito F. Mangao Jr, Research Unit Head, Cavite State University Naic Cavite, Philippines

Abstract:--

In this modern day, social media data is opening a new world to investigate tourism related research. In this study, the researcher describe efforts to bring these tourism data together by manipulating and developing tourist destination recommender system for travelers, based on social media geotagged data using content based method-algorithm. First the researcher investigate why travelers geotagged and where this public geotagged data comes from. Then, process and prepare the data, and develop a model of user preferences and similarities of what tourists want through a series of validation, interviews and surveys. Finally, the researchers develop a tourist recommender system application to guide travelers and promote MIMAROPA, Philippines tourism site. Today, we need tools for discovering relationship between data items or segments within images, classifying images based on their content and social media can be used to help people travel, but also develop perspective on what social media tells, and does not tell, about tourism using data mining technique and algorithm. This also matches tourists' needs specifically for travelers looking tourism places and open a new opportunity for a new generation of researchers to explore tourism data and hopefully beneficial to tourism agency to establish a culture of sustainable tourism.

Modelling Contaminant Transport for the Design of Waste Containment Facilities

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Abstract:--

The waste containment facilities such as landfills and cutoff walls with soil liners are designed based on the rates of contaminant transport. The contaminant transport is modeled with Advection-Dispersion Equation requires software assistance. This paper explains the utilization of various methods to estimate the contaminant transport parameters from column test results. The analytical method was implemented by creating a MATLAB program, the Finite Layer technique was used with POLLUTE software tool and the Finite Difference method with different schemes was tested with two software tools i.e., MATLAB and EXCEL spreadsheet. A new spreadsheet solution for reactive solute is created based on the Finite Difference method.

Keywords:

Column test, Dispersion coefficient, Distribution coefficient, Breakthrough curve

Standardization of Business Process in a Startup using Project Management Tools

Dr. DK Shinde, MTECH Project Management, VJTI, Mumbai

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Abstract:--

When a startup starts initially all the process for each level activities viz operational, marketing, HR etc. all are just for time being there is no consistency in the steps within those processes, to make the productivity efficient the processes are standardized and this standardization process requires in depth amount of time from all the process owners, if at the initial stage a standardized process is incorporated within an organization then the startup may be efficiently working on a long term basis, this is to be dealt in this paper. How can standardization of process within a start up in an early phase of their blooming helps them to succeed on a long run. This project basically looks at the Standardization of process for a startup firm and has basically looked up all the best resources to arrive at the need of standardized processes and has proposed a standardized model that can be adopted for making standardized processes for any startups.

Index Terms-

Business Process, Standardization, Process management, Milestones.

Grid Power Smoothing Control for Direct Drive PMSG Variable Speed Wind Energy Conversion System with Multilevel Converter

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Vinod Yadav, Department of Electrical Engineering, College of Technology and Engineering, Udaipur

R.R. Joshi, Department of Electrical Engineering, College of Technology and Engineering, Udaipur

Raunak Jangid, Department of Electrical Engineering, College of Technology and Engineering, Udaipur

Abstract:--

This document uses an affordable boost converter configuration, a multilevel converter and a PI controller for a wind turbine connected to the permanent magnet synchronous generator (PMSG) for coordinated network operations. Seeing the inconstant wind flow, the wind turbine generator produces variable voltage and variable frequency. Power converter comprises of an uncontrolled three-phase diode rectifier, a DC-DC boost converter and a three-phase inverter. Direct drive PM Synchronous Machine (PMSM) maximum power point tracking (MPPT) approach with single stage AC/DC conversion is presented. The proposed topology employs five level multilevel converter to convert the three phase AC generated voltage by the PMSG to a fix DC link voltage in a single stage. In this PI controller, DC link voltage is maintained at constant by varying duty ratio of switch and continuously detecting output voltage. The advantage of employing multilevel converter is to have voltage controlled rectifier leading to direct power angle control. This paper shows an output power smoothing control strategy for the wind energy conversion system without any other energy storage devices (ESS), which is based on the control of the wind turbines (WT). The model of the direct drive permanent magnet synchronous generator (PMSG) based wind generation is built based on Matlab/Simulink and the efficiency of the proposed power smoothing control strategy is verified by the simulation results. Experimental laboratory prototype is to be continued in the future work.

Keywords

PM synchronous generator, Maximum power point tracking, power angle, Direct power control, multilevel converter.

Impact of Fiber Nonlinearities in Optical Communication Systems

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Abstract:--

Nonlinear effects in optical fibers impose different limitations on the communications link, and an understanding of such effects is almost a prerequisite for actual lightwave-system designers. On the other hand, they offer a variety of possibilities for all-optical signal processing, amplification and regeneration. Using conventional optical fibers for these applications, a length of several kilometres is usually required due to their relatively small nonlinear parameter ($\gamma \sim 1.3\text{W}^{-1}/\text{km}$). Such long fibers pose some practical limitations, concerned namely with the size and stability of the system. The required fiber length is reduced to about 1km using highly nonlinear silica fibers with a smaller effective mode area, and hence, a larger nonlinear parameter ($\gamma \sim 11\text{W}^{-1}/\text{km}$). A further reduction in fiber length by one order of magnitude has been achieved in recent years using nanowires and microstructured optical fibers with an extremely small effective mode area and significantly enhanced nonlinear characteristics. Another main advance was the production of highly nonlinear fibers using materials with a nonlinear refractive index higher than that of the silica glass, namely lead silicate, tellurite, bismuth glasses and chalcogenide glasses. Using such fibers, the required fiber length for nonlinear processing can be dramatically reduced to the order of centimetres.

In this lecture we review the effects – both detrimental and potentially beneficial – of optical nonlinearities both in conventional and in highly nonlinear fiber systems. Such lecture will be based on my book “*Nonlinear Effects in Optical Fibers*”, published by John Wiley & Sons, with the sponsorship of the Optical Society of America.

Energy Management and Control of Standalone Hybrid Wind-Solar PV System

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Dr. Jai Kumar Maherchandani, Department of Electrical Engineering, Assistant Professor, College of Technology and Engineering, Udaipur, India

Dr. R. R. Joshi, Department of Electrical Engineering, Professor, College of Technology and Engineering, Udaipur, India

Bheru das Vairagi, Department of Electrical Engineering, Research Scholar, College of Technology and Engineering, Udaipur, India

Abstract:--

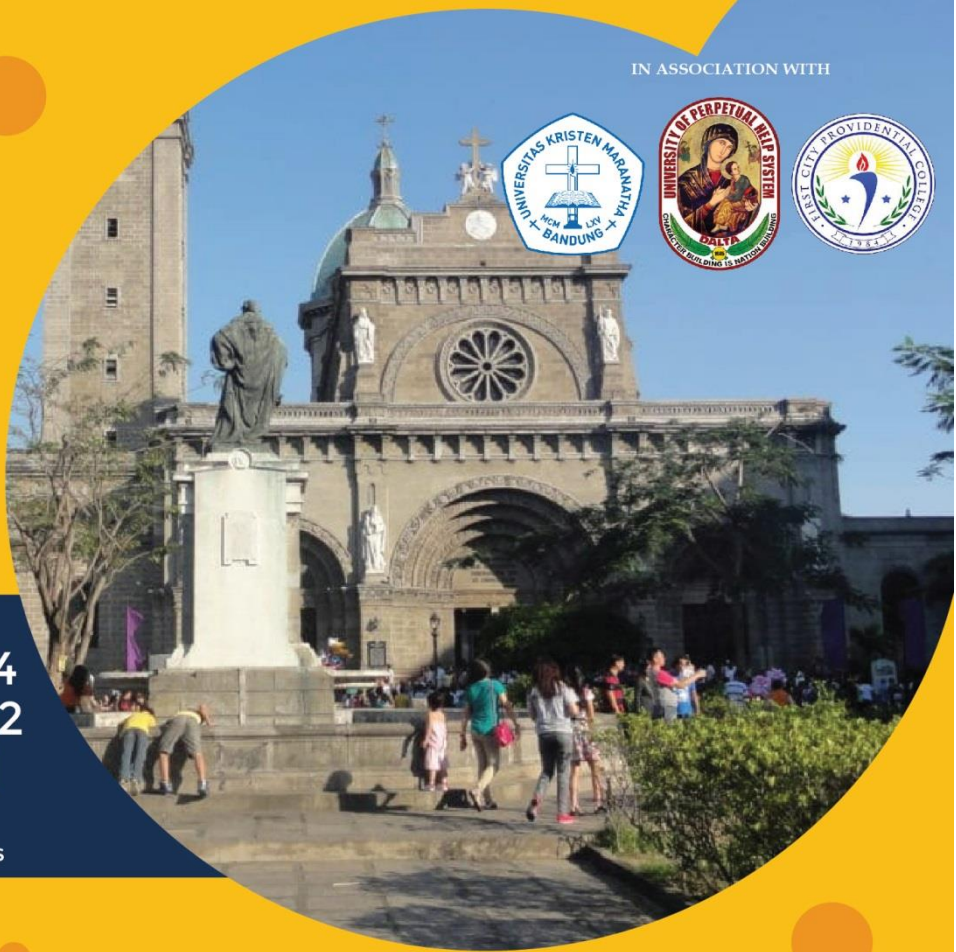
This paper presents the energy management and control strategy of a hybrid solar PV-wind system. The developed control strategy is implemented of the proposed hybrid system entails two main buses i.e., an AC bus and a DC bus in the proposed system. An 8.5 kW wind turbine and 10 kW solar PV array with their respective converters and optimal torque (OT) based MPPT controllers are connected to the DC bus. The battery is also connected with DC bus through the bi-directional DC-DC converters. The AC bus is interfaced with the DC bus through the fuzzy-based controlled inverter. The AC bus provides three-phase power to the load connected. The battery is used as an energy storage system (ESS) throughout excess power as well as a standby device during demand. The proposed hybrid system works in such a way to approach to keep up the State of Charge (SOC) of the battery beyond 80%, which, therefore, energy management in this system. Simulation results using MATLAB/Simulink illustrate the performances of the proposed energy management system under several operation modes.

Keywords—

PV Array, Wind Turbine, Battery, Energy management unit, standalone hybrid system



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