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Proceedings of 6th World Conference on Applied Science Engineering and Technology
(WCASET – 18)

Goa
02nd-03rd January' 18

Institute For Engineering Research and Publication

RUDRA BHANU SATAPATHY.,

Director,

Institute for Engineering Research and Publication.

Dear Delegates

We are elated to meet geniuses and wizards of science with the dawn for an awesome year 2018 at World Congress of Applied Science, Engineering and Technology (WCASET-18) at Goa, India. We are glad to interact with professionals from India and oversea with a wide and vibrant areas of science and technology .We are proud to announce the commencement of 6th WCASET-18 at largest democracy involving tremendous response of participation throughout world after our series of successful conferences by IFERP-Institute for Engineering Research and Publication .Our continuous dedication and firm determination to globalize innovation is possible because of our active members and brilliant delegates who have added values and acknowledged us with their presence at 6th WCASET-18,Goa.

Our elite reviewer committee receives 326 scientific submissions out of which we were bound to accept only 74 abstracts with acceptance ratio of 22% thus maintaining our commitment of quality towards academics. Making the conference worth of attaining and listen to world class speakers our team has rendered dedicated coordination with all concerned with WCASET. Behalf of our management I express hearty gratitude to editorial board and organizing committee members for successful arrangement of WCASET-18 at Citrus Hotel, Goa from 2nd to 3rd of January 2018.

Therefore we wish all our speakers, delegates and organizing committee members a prosperous new year 2018 and the best for wcaset-18, Goa.

Sincerely,

Rudra Bhanu Satapathy,

Editorial:

We cordially invite you to attend the *6th World Conference on Applied Science Engineering and Technology (WCASET - 18)* which will be held at *Citrus Hotel, Goa* on *January 2nd-3rd, 2018*. The main objective of *WCASET-18* 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 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 September 2017, the Organizing Committees have received more than 326 manuscript papers, and the papers cover all the aspects in Electronics, Computer Science, Information Technology, Science Engineering and Technology. Finally, after review, about 74 papers were included to the proceedings of *WCASET - 2018*.

We would like to extend our appreciation to all participants in the conference for their great contribution to the success of *WCASET 2018*. 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.

Editor-In-Chief
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Acknowledgement

IFERP is hosting the 6th *World Conference on Applied Science Engineering and Technology* this year in month of January. The main objective of WCASET-18 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.

Er. R. B. Satpathy
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6th World Conference on Applied Science Engineering and Technology – 2018

<u>Keynote Speaker</u>

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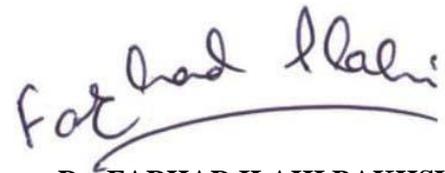

<u>BIOGRAPHY:</u>

Farhad Ilahi Bakhsh received Diploma and B. Tech degree in Electrical Engineering from Aligarh Muslim University (AMU), Aligarh, India in 2006 and 2010, respectively. He was awarded University Medal (Gold) for standing first throughout Diploma In Electrical Engineering. He has been awarded first position in SPOTLIGHT and third position in overall solar conference during cognizance 2010 in Indian Institute of Technology Roorkee. Then he pursued Masters in Power System and Drives from the Aligarh Muslim University. In Masters he secured first position in his branch. He joined IEEE during Masters and since then he is an IEEE member.

He also worked as head of Research & Development cell, IEEE student chapter, AMU for around two years. Under this cell, he developed five new systems i.e. A rotor power control based flexible asynchronous AC link (FASAL) system, A miss-call based switching system for multiple loads or appliances, A power controller circuit based flexible asynchronous AC link (FASAL) system for induction generator applications, A combined voltage control and rotor power control based flexible asynchronous AC link (FASAL) system and A waste fluid pressure based energy generation system. Among these five systems, four system has been published by an official Journal of Patent Office.

Then he pursued Ph.D. from Indian Institute of Technology Roorkee, India. During his Ph.D. he developed a new method for grid integration for wind energy generation system which has been recognized worldwide. Currently he is serving as Assistant Professor in Department of Electrical & Renewable Energy Engineering, School of Engineering & Technology, Baba Ghulam Shah Badshah University, Rajouri, J & K, India. Recently he developed an automatic solar tracking system which has been appreciated by IEEE India Council, Centre for Embedded Product Design, Centre for Electronics Design and Technology, Netaji Subhas Institute of Technology in association with IEEE Delhi Section & IEEE CAS, Bangalore Chapter.

He delivered an Invited talk on "Grid Integration of Wind Energy System" gin Department of Electrical Engineering at Zakir Husain College of Engineering and Technology, AMU, Aligarh. He also delivered a series of lectures in one week workshop on "Basics of MATLAB Programming & Simulink" held at School of Engineering & Technology, BGSBU. He was keynote speaker in "National Conference on Future Innovations & Research In Science & Technology," held at IIMT Engineering College, Meerut, India, 22-23 April, 2017 sponsored by IEEE U.P. Section.

He have more than 40 published papers in International reputed Journals, International reputed Conferences and National Conferences. Moreover, he have four published patents in his credit. His research area of interests includes Power Systems, Power Electronics, Drives, Renewable Energy Systems and Alternate Energy Vehicles.

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WCASET – 18

6th World Conference on Applied Science, Engineering and Technology

Goa

2nd – 3rd January, 2018

ABSTRACTS

WCASET - 18

Organized by

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Comparing feasibility of long distance transmission and locally generated solar energy over a period of 25 years in remote locations of the Indian Himalayan Region

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Abstract:--

It has been widely observed, especially in the Indian scenario, that development projects (road construction, energy infrastructure, etc.) which require large investment are usually implemented without considering alternate scenarios/solutions while other technologies/mechanisms are available. This study incorporates the use of Cost Benefit Analysis in order to ascertain the importance of determining the feasibility and efficiency of an energy project in a remote location of the Himalayas. The focus is upon electrification of remote villages which are located in challenging environments and difficult mountain terrain. The village Khati (Bageshwar district, Uttarakhand, India) is 20 kilometres far from the electricity distribution sub-station (village Karmi) and inaccessible by road, till date, and is located above 2210amsl. Net benefits from utilization of transmitted energy from sub-station was compared with a hypothetical situation of net benefits generated from utilization of same amount of energy being supplied from a solar power plant located in the village. The net benefit for the two scenarios has been calculated for a period of 25 years with the help of Net Present Value method. Benefits were much greater (more than Rs 2300 thousand) while having a decentralized local solar plant than the regular supply of transmission from centralized electricity grid. This study demonstrates the importance of feasibility analysis in such alternate scenarios especially in executing developmental projects in remote locations having difficult terrain and unstable climatic and environmental conditions.

Keywords:--

Cost Benefit Analysis, Net Present Value, Rural electricity, Remote Villages, Khati Village, Pindari Valley, Solar Energy

Modeling of Laser Engraving process on PMMA using Taguchi Technique

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Abstract:--
      Laser engraving process is a non-conventional machining process used for engraving and colour marking on different materials which cannot be marked by conventional processes. It has other advantages over conventional marking process like superior surface finish, greater repeatability, accuracy etc. It is also cheaper because it does not use any tool bits which can wear with passage of time. L9 Taguchi design is adapted to perform the laser engraving experiments considering different input parameters as scan speed, maximum power and minimum power. The effects of critical influencing parameters were observed on Engraving Depth (ED), Material Removal Rate (MRR), Surface Roughness (SR) and Width (W). ANOVA test was also conducted to depict the significance of fit. The use of CO_2 Laser System is expected to yield better surface finish of work piece as Polymethyl Methacrylate (PMMA).

Keywords:--
      Laser Engraving, Taguchi Design, PMMA, Optimization, ANOVA.

Economic Comparison of Steel Bridge options for 35m span

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Himanshu Jaiswal., Executive, Dedicated Freight Corridor Corporation of India Ltd., India.

Abstract:--
        The significance of the transport sector lies not only in the specific services it renders, but even more in unifying and integrating influences it renders on the economy. Railways, an integral part of transport network, play a crucial role in facilitating trade. In a large developing country like India, railways are a medium of long-distance transportation of passenger and freight. Good physical connectivity in urban and rural areas is essential for economic growth and bridges plays crucial role in achieving this target. Generally project planners perform comparative cost analysis up to Composite Cost (material cost & placement of span) without considering lifecycle cost and effect of depth of girder on cost of approaches. In this present study, analysis of superstructure for 35m span has been performed under IRC loading with STAAD software and design has been carried out as per relevant IRC codes. An attempt has been made to include the factors of lifecycle cost and increase in overall cost of superstructure due to increase in the length of bridge approaches. After designing, estimation and costing of superstructure has been carried out. Afterwards taking into consideration of all the cost stages like Basic material cost, Composite cost, Lifecycle cost and Combined cost, it is seen that Composite steel girder comes out to be economical option for the first three stages but the scenario changes in case of Combined cost and Steel Truss comes out to be best choice.

Keywords:--
        Composite Steel Girder, Steel Truss, Basic material cost, Lifecycle cost, Combined cost, and Sacrificial shuttering, etc…

A Hybrid Approach for Age Estimation and Face Recognition using IFAD

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Abstract:--

A new filter called age filter is proposed for age estimation. Age filter is proposed by using first order Derivative of Gaussian kernel, 2D Hessian Matrix with Gabor filters. Wrinkle vessel segmentation is done by matched filter. The wrinkle vessels are extracted by age filter. Age estimation is the prediction of age of a person from his biometric traits. Because of the particularity and complexity, it is attractive yet challenging to computer-based application system designers. Can a computer perform the same as a human being? Technology advances in computer science and engineering have given a positive answer to this question. There are two basic tasks in this field, computer-based age synthesis and estimation. Age synthesis is re-render a face image aesthetically with natural aging and rejuvenating effects on the individual face. Age estimation is to label a face image automatically with the exact age (year) or the age group (year range) of the individual face.

Keywords:--

Face recognition, age filter, Principal Component Analysis.

A dimensionless approach to model granule size variation in UASB reactor: Model development and its validation

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Abstract:--
Granule size and its variation plays an important role in satisfactory performance of upflow anaerobic sludge blanket (UASB) reactor especially in treatment of industrial and low strength domestic wastewaters. The present study is aimed to model the granule size variation based on fourteen quantifiable variables influencing the granulation and granular size development in UASB reactor. They include organic loading rate, inflow rate, gas production rate, volatile suspended solids, total suspended solids, specific methenogenic activity, sludge volume index, operation time, time for which constant organic loading rate was maintained during the reactor operation, effluent COD concentration, polymer dosing, liquid upflow velocity, granules settling velocity and reactor diameter. Dimensionless mathematical functions are developed for granule size variation using these variables. The non-linear multiplier function with each dimensionless terms as power function is subjected to non-linear regression and the function so developed has been then validated using the experimental results from literature. The results show that the developed non-linear function is capable of predicting the granule size variation in UASB reactor satisfactorily with maximum error in prediction being less than 5.5%. The results of sensitivity analysis show that the liquid inflow rate is the most sensitive parameter among the fourteen variables considered in simulation of granule diameter.

Index Terms:--
Dimensionless variables, Granulation, Granule size variation, non-linear multiplier function, Polymer dose, UASB reactor

Minimizing Resource utilization using Particle Swarm Optimization in Delay Tolerant Networks

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Abstract:--
　　　Delay Tolerant Networks is a store and forward approach in which messages are delivered to the nearest potential forwarder by replicating copies of the messages. But, the various node resources such as buffer, energy, etc. are limited, thus making the DTN, a bit challenging.
There exists a trade-off between the delivery ratio and overhead. Increasing the number of message copies helps to improve message delivery ratio, but also increases the overhead. On the other hand, reducing the number of message copies helps to decrease overhead while increasing message delivery delay and reducing message delivery ratio. So, the number of message copies distributed in the network has high importance. By means of controlling the number of message copies, we try to reduce overhead while maintaining message delivery ratio in a good range (delivery ratio >90%). Since in DTN, increasing the number of message copies delivered to the destination is important, increasing message delivery ratio as much as possible is essential for us. We use Particle Swarm Optimization to choose the appropriate number of message copies. First, we limited the number of copies of the messages being transferred to 54,000 which is lesser than the original number of message replicas by five-folds. We manage to keep the value of delivery probability to 94% of the actual value, even after implementing PSODTN. Then, we implemented the prioritization of the messages so that the messages of high priority get transferred first.

Keywords:--
Delay Tolerant Networks (DTN), Opportunistic Network Environment (ONE), Particle Swarm Optimization (PSO), Prioritization, Overhead ratio, delivery probability

Weight loss Corrosion studies of AL7075 Metal Matrix Composites Containing Beryl Particulates

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P.V.Krupakara ., Vice-Principal, Adarsha Institute of Technology, Bangalore.

Abstract:--
 This paper deals with the high corrosion resistance developed by the metal matrix composites when compared with that of matrix alloy. Matrix selected is Al7075 and reinforcement selected is Beryl particulates. The composites are prepared using liquid melt metallurgy technique using vortex method. Preheated but uncoated beryl particulates are added to the melt. Metal matrix composites containing 2, 4 and 6 weight percentage of beryl are prepared. Matrix was also casted in the same way for comparison. Corrosion tests were conducted at room temperature (230 C) using conventional weight loss method according to ASTM G69-80. The corrodents used for the tests were 0.025, 0.05 and 0.1 molar solutions of sodium hydroxide and 0.25 M moisture of sodium chloride and sodium hydroxide.. Corrosion rates were calculated using the formula 534DAT/W. In each case the corrosion rate in all corrodents decreases with increase in exposure time for matrix and metal matrix composites. Hence the composites are more suitable for the use in saltish or marine environment.

Performance and Emission Characteristics of a CI engine using Dual blend biodiesel

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Abstract:--
        Biodiesel is one of the biodegradable and renewable fuels, which is originated from vegetable oil or animal fats. Soybean and Rapeseed biodiesel is a kind of bio fuel which is gaining approval in the marketplace due to many environmental and trade and industry benefits. It can be used unaccompanied or in a blend, directly in compression ignition engines, exclusive of any modifications. This paper analyze blending of these two biodiesel and the usage of soybean and rapeseed biodiesel as an alternative fuel in Diesel engines. It covers engine combustion, performance and emissions characteristics. Research results reveal that soybean and rapeseed biodiesel, either pure or blended with each other, has lower heat release rate, lower thermal efficiency and higher brake specific fuel consumption. Carbon monoxide (CO) and particulate matter (PM) exhaust emissions are lower than diesel, while carbon dioxide (CO_2) and nitrogen oxides (NOx) are higher in comparison to Diesel fuel.

Index Terms :--
        dual blend, emission, rapeseed, soybean.

The Patrons for Predicting Veracity of Rail Mishaps Using ID3 Algorithm

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E.Benila., UG Scholar, St.Joseph's Institute of technology, Shollinganallur, Chennai-600 119, Tamil Nadu, India.

Abstract:--
Data Mining is the emerging technique for Knowledge Discovery in Databases. Data Mining gains Information by processing the raw data. The main advantage of Data mining is to predict accurate information from huge amount of data and thus paves way for decision making. In this project, the main advantage of data mining process is implemented to predict accurate information from the railway accident datasets provided by the railway department. Over 11 years' railway datasets provided by the railway department are analyzed to predict the cause for major rail accidents and thus contribution is made to the railway department for reducing the accident rates. Here Structured provided by the user as well as Un Structured data from railway datasets are mined using Text Mining technique. High level of veracity in Text Mining is obtained by using ID3 Algorithm. ID3 Algorithm analyzes the Unstructured data and predicts the cause for rail accident in a most predominant manner. Finally Report is generated from the mined information and the generated report is represented graphically and geographically by analyzing the latitude and longitude locations.

Keyword:--
railway accident; decision making ;ID3 Algorithm

Effect of nanoparticles on UCS and compaction properties of Soil

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Kuldeep Verma., M.Tech, SVNIT, Surat

Abstract:--

It is only recently that the addition of nanoparticles in the soil for the modification of property gains recognition. Nanoparticles are particles which have a limit from 1nm to 100nm. Samples are collected from Gujarat. Nanosilica was added in the soil to measure the variation of properties in the soil-nano matrix. The present paper discusses a study carried out to find out the improvements in the properties of the soil-nano mix in varying percentages. The samples were thoroughly mixed with nanosilica and water and then kept overnight in air-tight containers to ensure proper mixing. Unconfined compression test and compaction characteristics with the addition of different nanoparticles in the soil are conducted on specimens with varying percentages. The effects of these nanoparticles in atterberg limits were also investigated. The main objective of this study was to quantify the variation in properties with the addition of different nanoparticles in soil. Based on the test results it was found that the addition of nanosilica in the soil gives a substantial improvement in the properties studied.

Keywords ::--

Nanoparticle, unconfined compression test, soil, improvement.

Experimental Study of Esterification of Carboxylic Acid with different alcohol using various Catalysts

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A.K.Poonia., National Institute of Technology Raipur.
Nishant Joshi., National Institute of Technology Raipur.

Abstract:--
      Esterification of carboxylic acids (acrylic acid, acetic, propionic, butryic) with different alcohols (ethanol, methanol and propanol) catalyzed by hydrochloric acid has been carried out in stirred batch reactor under atmospheric pressure. Effect of different catalysts was also studied in the present work. A comparison between homogeneous catalyst (HCL and Hydrogen iodide) and heterogeneous (Dowex) has been carried out. It is observed that HCL catalyzes esterification reaction rapidly followed by Hydrogen iodide and Dowex. The maximum conversion of 45.7% of acryilic acid is observed at 420 mins under operating conditions as molar ratio of reactants = 1, reaction temperature = 333.15K.

Index Terms:--
      carboxylic acid, catalyst, esterification

An Experimental Study of the Heat Pipe based Evacuated tube Collector for Water Heating

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Abstract:--
  The objective of the present study is to enhance the heat transfer & efficiency of the Heat Pipe based Evacuated Tube water heater. Heat Pipe based Evacuated Tube collector is made of Borosilicate glass of 58 mm outside diameter and 49 mm inside diameter and length of 1800 mm. The Heat pipe of Evacuated Tube collector is made of copper with length 2000 mm and 12 mm outside diameter and 10 mm inside diameter. The experimental set up is situated 29° 58' N and 76° 53' E at NIT Kurukshetra. The results expressed that Heat Pipe based Evacuated Tube water heater is more efficient than without Heat Pipe based Evacuated Tube Water heater. The Heat Pipe based Evacuated Tube collector efficiency is 72 % and water outlet temperature is 64°C in summer and 52°C in winter. The present research is also focused on the use of various fluids in Heat Pipe.

Index Terms:--
  Evacuated Tube Collector, Renewable Energy, Solar Radiation, Ethylene Glycol, Collector Efficiency.

Comparative Analysis between P/O & I/C Based MPPT Techniques for Optimal Electricity Generation from Solar Energy

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Vijay Kumar Garg., Electrical Engineering Department, UIET Kurukshetra, India

Abstract:--
  Maximum power point tracking (MPPT) is an algorithm used to track the maximum power under the varying external atmospheric conditions such as irradiance, temperature, at a point where maximum power is obtained is called maximum power point. This paper presents the comparative analysis between perturb & observe method and incremental conductance techniques. Perturb & observe technique is used to detect current and voltage of PV array and it also calculate that operating point which gives the maximum power by using its algorithm. Incremental Conductance measure incremental changes in current and voltage and MPP is obtain at a point where conductance of PV array and incremental conductance are same. MATLAB software used for the performance evaluation of both techniques under varying atmospheric conditions.

Keywords:--
  Perturb & Observe Incremental Conductance, MPPT Maximum Power Point Tracking, and PV Panel.

Control and Analysis of Wind Power Generation System in a Microgrid with Fuzzy Control of DC Grid

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K. Mahesh., Asst. Professor, EEE Dept., BVRIT, Narsapur.
Dr. N. Bhoopal., Professor, EEE Dept.,BVRIT, Narsapur.

Abstract:--
     This Paper proposed method which allow flexible operation of the multiple parallel which is connected to the wind generation which neglecting the required voltage and frequency synchronization. In this paper we are implementing the design of a dc grid which is depend upon the wind power generation system in the poultry farm. Therefore the control scheme which is utilized for separate controller for the inverter when the grid is connected and the islanded operation have been proposed. A model predictive control algorithm which is used for the better transient performance with respect to the change in the operation condition which is proposed for the inverter operation. Fuzzy controller is denoted as human decision making mechanism which provided the operation for the electronic system with the expert decision. Fuzzy logic controller is introduced for the fluctuations of the micro grid which are controlled with the constant regulation of power. And a separate controller have been developed for the wind turbine which is used for maintain the power to mitigate the variation error. Therefore we are comparing the controller with the fuzzy controller. Therefore to determine the capability of the proposed micro grid which is connected and islanded from the distributed grid which is obtained by discussed.

Index Terms: –
     Wind power generation, Fuzzy controller, dc grid, energy management, model predictive control.

Effect of Nano filler on mechanical properties of stainless steel glass fibre reinforced fibre metal laminate

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Abstract:--
        Recent advancements in the the field of fibre-metal laminates (FML's) proved the superiority of fibre metal laminates over monolithic aluminium alloys in aerospace and aircraft structures. In this research flexural strength and izod impact energy absorption of stainless steel based fibre metal laminate (SS FML) with and without nano-clay was compared for the different orientations of glass fibre layers. Three point bend test and izod impact test were performed on universal testing machine and pendulum type Izod impact testing machine respectively. SS FML sheets were prepared using hand layup process. Standard size flexural and impact test specimens were cut from the prepared sheets according to ASTM standards. It was found that flexural and impact properties of SS FML were improved drastically after the addition of nano-clay in to the composite matrix due to the dispersion of nano-clay particles in the composite matrix. The flexural and impact properties of SS FML were decreased as the angle of orientation of fibres was increased from 0° to 90°.

Keywords:--
        Fibre orientation; Flexural strength; Izod impact energy absorption; Nano-clay; Hand layup

Prediction model based on Market Basket Analysis using a joint approach of Artificial Neural Network and Genetic Algorithm

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Dr. Binod Kumar., Director, Jayawant Institute of Computer Applications, Pune, Maharashtra, India.
Dr. S. D. Gore, Rtd. Professor, Department of Statistics, Savitribai Phule Pune University, Pune, Maharashtra, India.

Abstract:--
      Market Basket Analysis (MBA) is one of the data mining tools that are used for discovering co-existence or co-occurrence of categorical observations. Market Basket Analysis is useful in recognizing purchasing patterns of customers in relational market from the relevant transactional data. However, it is still very difficult to get valuable information hidden in large databases. The proposed approach uses a novel technique to reduce such difficulties. Initially, the proposed work uses the Extended HCleaner Algorithm which efficiently removes noise from the datasets. Then, the preprocessed datasets are converted in to the ANN model. From the ANN model, the weights between the products are determined. The products which contain the maximum weights are further sent to the Apriori algorithm, where it calculates combinations of the products. The result acquired from the Apriori algorithm is sent to next level of predictive model. It contains the two components: (1) similarity calculation through cosine similarity technique and (2) genetic algorithm. The cosine similarity is used to find the association between products which is further sent to the genetic algorithm to find the best solution through optimization. The results acquired from the proposed work are compared with the existing techniques based on the precision, recall, F-Measure, and time. It is shown that the proposed work provides more accurate prediction than the existing techniques.

The impact of Technology on At-Risk Student's Achievement.

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Abstract:--

In university education a lot of emphasis is placed on the use of a technology enhanced learning environment in teach- ing to enhance the student learning experience. This paper sought to investigate the impact of such environment in the performance of at-risk students in math courses. This pa- per reports on a study conducted on at-risk students to in- vestigate whether the utilization of a technology enhanced learning environment had any impact on the final grades achieved by students. Moreover, we compared student's per- formances to determine whether students using a computer- assisted learning and technology enhanced learning envi- ronment learned better than traditional classroom learn- ers. The sample of the study was 50 at-risk engineering students enrolled in different math courses. For data collec- tion, grades were taken for students enrolled in math courses where no instructional technology were used. Then the same students took another math courses taught in an enhanced learning environment. Data were analyzed using StatCrunch software. At the end of the study, it has been concluded that studying in an enhanced learning environment increased the academic success of at-risk students in mathematics courses compared to the traditional classroom.

Keywords:--

Educational Technology; Student's Assessments; Mathematics

Techno-economic analysis of CSS and MSSIE for sea coastal area

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Abstract:--

Its highly essential to have a economic feasibility test to newly developed product before commercialization. This paper reports techno-economic analysis of the CSS and MSSIE. This paper presents the economic analysis of conventional solar still (CSS) and Modified solar still integrated with sand bed earth (MSSIE) considering 12 year of span which is half of the distiller units made with up of FRP material. Cost of distillate output have been evaluated as 1.2, 1.33, 1.47 and 1.29, 1.44, 1.59 INR/l at the rate of 8, 10 and 12% for CSS and MSSIE with GI tray respectively where as AWC for MSSIE will get reduced by 9.2, 8.3 and 8.8% as compared to CSS for the same rate of interest. It has been noted that for the sea coastal area MSSIE is most suited devise for the desalination.

Keyword:--

Solar Earth stills, Economic analysis, Passive solar distillation

Identification of Disfluent Fillers in Continuous Speech for Gujarati Language

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Abstract:--
　　Speech Recognition is evolving field of research which includes methodologies and techniques to represent speech into text. Speech Recognition System (SRS) involved with difficult tasks related to its result and accuracy.　There are many reasons for the need of improved system; one of the major difficulties is repetitive occurrences of disfluent words or phrases in continuous speech.　Disfluency can be identifying as breaks or irregularities occur during continuous speech. Some of the basic reasons for speech disfluency are stress, tired, unfamiliar content or environment, lack of knowledge regarding speech etc. Categories of disfluency include repetition or correction, interjection, filled pause, false start. Disfluency degrades the system accuracy due to confusion and unmatched pattern according to standard language set. Major 4 steps are included to identify these problems which include: division of acoustic signal into frames, calculation of F0 and standard deviation, formant frequency analysis and comparison with threshold value. The identification process analyzed for detection of disfluent word in speech for male and female is 91% for routine Gujarati. Presented result for word repetition detection achieved is 79.3%, for false start result is 81.2%, for Interjection 84.5% and for filled pause it is 92.6%. This paper presents disfluency detection methodology for Gujarati language and its impact on speech recognition system.

Keywords:--
　　Disfluency, fillers, filled pause,Gujarati, Speech Recognition

A comparative Study of Hybrid Electric Vehicles

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Farhad Ilahi Bakhsh., Department of Electrical & Renewable Energy Engineering, Baba Ghulam Shah Badshah University, J & K, India.

Abstract:--
　　Two big problems which restrict the development of automobile industry are environmental pollution and energy storage. With this concern, Hybrid electrical vehicle has been developed to achieve energy saving and emission reduction. A conventional vehicle actuated with only internal combustion engine cannot enhance the fuel economy due to wide range operation requirement of power train. Instead of this, a Hybrid electrical vehicle which uses ICE and two motors can effectively improve the efficiency of power train. This type of Hybrid electrical vehicle provides four modes of operation, including Electrical vehicle (EV) mode, range extending (RE) mode, hybrid mode, and engine mode. Despite continuous development in HEV's: short range, long recharging time and cost still act as barriers for their widespread adoption. Therefore, the increasing interest in the development of HEV's, has break in new designs of HEV's namely Series Hybrid electrical vehicle, Parallel Hybrid electrical vehicle, Battery electrical vehicle, Plug-in Hybrid electrical vehicle, Range extending Hybrid electrical vehicle. This paper reviews technology used in HEV's, their types, effect of different technology mixes for efficient battery recharging and their development towards sustainable, efficient and environmental friendly transportation.

Keywords :—
　　Series Hybrid electrical vehicle, Parallel Hybrid electrical vehicle, Battery electrical vehicle, Plug-in Hybrid electrical vehicle, Range extending Hybrid electrical vehicle.

Severe Plastic Deformation of Ti-6Al-4V Alloys through Machining

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Geethalakshmi K., Dept. of Mechanical Engineering, P. C. College of Engineering, Verna, Goa-India.
Debasis Sen., Solid State Physics Division, Bhabha Atomic Research Centre, Mumbai-India.

Abstract:--
    In the recent years, severe plastic deformation (SPD) has been increasingly used as a material processing method for producing nanostructured materials. However, most of the SPD processes are time consuming and require repetitive routes to obtain the envisaged nanostructure. Severe plastic deformation through large strain deformation machining is a unique method that produces nanostructured materials in a single step. In the present work, large strain deformation machining of a titanium alloy, Ti-6Al-4V, is studied by employing various machining parameters.

Keywords :—
    Large strain deformation, Machining, Ti-6Al-4V alloy, Severe Plastic Deformation, Ultrafine grain

Overview of Hybrid Electric Vehicles

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Abstract:--

The demand of non-renewable energy sources constantly increases due to the increase in the combustion vehicles. The combustion vehicles pollute the environment resulting in the ecological disturbance. In order to reduce carbon dioxide emission in the atmosphere which is mainly due to the combustion vehicles and from the factories. It is important to use hybrid electric vehicle as it is environmentally friendly and thus uses battery which can be recharged either through plug in or also even by regenerative braking. It also works on fuel and thus by the use of rechargeable batteries the fuel consumption is low thus helps in the preserving the non-renewable resources to some extent. This paper demonstrates the overview of hybrid electric vehicle, its classification and design.

Review Study of Expansive Soil Stabilization using Waste Material –A Step towards Sustainable aspect

Khushbu Gandhi., Sardar Vallabhbhai National Institute of Technology.
Shruti Shukla., Sardar Vallabhbhai National Institute of Technology.

Abstract:--
  Expansive clay soils are extensively distributed worldwide, and are a source of great damage to structure. In monsoon they imbibe water and swell and in summer they shrink on evaporation of water there from. The wetting and drying process of soil result into failure of substructures in form of settlement and cracking. It is, therefore, necessary to mitigate the problems posed by expansive soils. The world is facing challenges related to material use and waste generation. For sustainable geotechnical practices, industrial waste material can be used as an improvement of such soil which is economical also. This short review study is to analyze the behavior of waste material in geotechnical application. This paper is focused on review study of expansive soil, method, characteristics, available solution of problem, effectiveness of it and small experimentation to check the effectiveness of waste material rice husk ash and bagasse ash stabilization on expansive soil of study area. This may achieve the double objective of reducing the problems of expansive soil, and also providing a use of wastes thus eliminating the economic and environmental cost involved in managing them.

Index Terms:--
  expansive soil, rice husk ash, bagasse ash, Stabilization

The extraction of natural cashew nut-shell liquid from the cashew nut by using protic and aprotic solvents, and study of its physico-chemical parameter

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Abstract:--

India is the largest producer and processor of cashews (Anacardic occidental L). Cashew nut shell liquid. (CNSL) is a by-product from cashew nut processing. CNSL is a dark brown viscous liquid present inside a soft honey comb structure of the cashew nut shell. Application of (CNSL) and its derivatives are widely used in polymer-based industries, Synthesis of chemicals and intermediates including bactericides, insecticides and surface active agents. In this work extraction of cashew nut shell liquid from cashew nut shell (CNS) was carried out by using Soxhlet extraction method in presence of polar & non-polar solvents. From the extracted CNSL, anacardic acid was selectively isolated and acid free CNSL was treated with liquor ammonia to separate the cardanol and cardol in stepwise manner. Comparison between extracted CNSL and S-CNSL of Physico-chemicals characteristics. They were all characterized using quantitative analysis by HPLC.

Resource Recovery of Heavy Metal Containing Sludge for Bricks Production

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Abstract:--
　　　Significant quantities of sludge are generated as a waste material or by product from steel industries. They usually contain considerable amount of heavy metals, which causes serious environmental issues on disposal to landfill sites. Therefore it is desirable to recover the valuables and utilize these wastes. The aim of present study was to investigate the feasibility of the replacement of raw material for brick production by heavy metal containing sludge (HMS) from steel surface finishing industries. The sludge-fly ash, sludge-clay and sludge-clay-fly ash were mixed in proportions varying from 5% to 50% (by weight) to produce bricks with 15-17% optimum moisture content, molded to dimension 19 x 9 x 9 cm^3 and firing temperature 900 ℃, 1000 ℃ and 1150 ℃ for 6 hours. The physical and chemical properties showed that the above mentioned mixtures can be used for brick production.

Key Words:—
　　　Steel industries, Heavy metals, ETP sludge, disposal to landfill, Utilization of waste, Fly ash, Clay, brick production.

Experimental study of biogas and bio-manure using thermophilic digestion of different substrates

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Abstract:--

   Experiments have been conducted to determine the augmentation of nutritional values (organic carbon, nitrogen, potassium and phosphorous) of bio-manure. The main substrates have been taken as wheat husk; paddy straw; dairy waste; poultry waste; municipal solid waste and kitchen waste. The substrates have been digested under thermophilic conditions (55 °C). The results shows an enhancement in nutritional values in bio-manure where poultry waste has been found to be the best amongst the mentioned substrates. The increase in temperature results in lower retention time and thus reduces the loss of nutrients. The experimental results also show that the intermixing of crop residues with animal waste reduces the quality of bio-manure.

Keywords:--

   Thermophilic Digestion, Substrates, Nutrients, Bio-digester, Organic C and NPK.

Information hiding in low bit -rate speech codec:
A Review

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Ninad Bhatt, Professor & Head, EC Dept., C.K. Pithawala College of Engineering & Technology, Surat, Gujarat, India.

Chandani D. Maheshwari, Assistant Prof. EC Dept, Silver Oak College of Engineering & Technology, Ahmedabad, Gujarat, India.

Abstract:--

The purpose of this review paper is to provide concrete information about information hiding in low bit-rate speech codec. In recent years, due to the uninterrupted escalation of network bandwidth and the augmentation of network convergence gravitating, Voice over Internet Protocol (VoIP) is extensively used. This paper addresses the literature survey of information hiding in low bit rate speech codec in time, frequency and wavelet and spectrum domain. The technique reviewed here are least significant bits(LSB),vector quantization, phase coding(PE),analysis by synthesis(ABS) based, quantization index modulation(QIM) which deals with information hiding in low bit rate speech codec. Information hiding is deliberate in terms of embedding capacity, signal to watermark ratio, hiding capacity.

Keywords: -

Information hiding; speech steganography; stego-signal; embedding; VoIP

A comprehensive study of surface geometry, humidity and dry patches on falling film heat transfer

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Abstract:--

      Heat transfer through falling film evaporation has wide industrial applications like in cooling towers of thermal power plants and refrigeration and air conditioning industries. There are various factors which can improvise the falling film evaporation performance or effectiveness like enhanced tube surface geometry and working conditions. The relative humidity of air has a great influence on falling film evaporation. Also, dry out of the surface of tubes because of excessive thermal loading or less flow rate of cooling water film has significant role in the effectiveness of falling film evaporation. Thus, a comprehensive review has been conducted to study the effects of surface geometry (horizontal smooth and plain tubes, porous structures, finned and enhances surfaces, liquid feeder configuration etc.), falling film pattern, dry out crisis phenomenon and relative humidity of air. Finned and enhanced surfaces were supposed to increase the heat transfer rate than the others. Dry out phenomenon which occurs due to instability problem can be checked by stability factor or minimum wetting rate. Humidity of air leads to increment in mass transfer coefficient and heat flux.

Nirbhayam (Safety through Smartphone)

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Tarun Gajjar., LDRP Institute of Technology and Research, KSV University, Gandhinagar, Gujarat.
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Abstract:--
We belong to the country which always focuses on giving respect to others and that especially includes women. There is a saying that "a true measure of a man is how he treats someone who can do absolutely no good to him", but on the other hand we are hearing about the incidences which happen with them on daily basis. Women are facing problems like rape, sexual harassment, domestic violence and the list goes on. Efforts are made by the government to resolve this problem but they failed to bring satisfactory results as the number crimes are escalating rapidly day by day. After hearing about several rape cases, even the people of this country tried to resolve the problem but it still persists. The police department is trying their level best to improve the situation but it's incapable to do so because of the lack of technology provided to them. Mainly the scenario is that the rescuer is far away from the sight of the incident which in turn results in the mishap to happen. So, here we are proposing a unique prototype of iOS mobile application, in which we will be able to consume the handy technology that has become the daily driver to go through our day. With the use of our application, everyone will be able to help the victim who is in unfavorable situation irrespective of gender and age.

Keywords:--
Mobile Computing, People safety, iOS Application Development, Cloud Computing.

Role of Reinforcements on the Mechanical and Tribological Behavior of Aluminum Metal Matrix Composites – A Review

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M.S. Charoo., Assistant Professor, Mechanical Engineering Department, National Institute of Technology, Srinagar.

Abstract:--
　　The target of this review is to explore the fundamental mechanical and tribological behavior of different reinforcements on Aluminum matrix composites (AMCs). Aluminum matrix composites are the new emerging materials of this generation which can be tailored and engineered to obtain specific required properties for special applications. AMCs are recognizably different category of advanced engineering materials having superior properties over other conventional aluminum alloys. AMCs exhibits attractive properties of high hardness, better yield strength, strength to weight ratio, high thermal conductivity, low coefficient of thermal expansion, superior wear and corrosion resistance. Due to this they have repealed keen interest in recent times for various potential applications in aerospace, automotive and various other structural applications. Use of AMCs is constantly growing over the years, because of its better physical, mechanical and tribological properties as compared to other metal matrix composites. Extensive research and development has been made in the Al-based MMCs with every possible alloy and different reinforcements so as to get the material of desired properties. By suitable use of metal matrix and the reinforcement a wide range of properties combination can be obtained. The fundamental mechanical and tribological behavior of different reinforcements under dry and lubricated sliding conditions is recently being studied. It is shown that various reinforcement were used in metal matrix can be successfully employed to decrease friction and wear in tribological applications. A comprehensive review is provided with the aim to analyze such properties of different reinforcements. Moreover, the application of different reinforcements in the field of tribology for reducing friction and wear for better lubrication will be explored.

Keywords:--
　　Metal matrix composites (MMCs); Aluminum matrix composites (AMCs); Reinforcement; Wear; Coefficient of friction (COF).

An approach towards sustainable development by synthesizing biodegradable plastic from *Musa acuminate* and *Musa balbisiana*

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Abstract:--
  The diminishing supply of petroleum along with the pollution caused due to the non biodegradability of petroleum based plastics, has led to an increased interest in the field of bio-plastics. Polyhydroxy alkonoates (PHAs) or Polyhydroxy butyrates (PHBs) are the bio-plastics that can numerous traditional plastics which are currently made up of petrochemicals. The biological origin of the PHAs and PHBs assures the same desired commercial properties with the advantage of being naturally biodegradable, hence imparting minimum pollution load on environment leading towards sustainable development. Similar bio-plastics can also be prepared from the fruit wastes which can prove as potential alternatives for the commercially available conventional plastics. The present research work aims at preparation of bio-plastic from the banana peels scientifically known to be Musa acuminate & Musa balbisiana . Bananas, scientifically known to be Musa acuminate & Musa balbisiana, are considered as a popular fruit which is consumed worldwide with a yearly production of over 145 million tons1 in 2011. The fruit can be consumed after the removal of the banana peel. Because of this removal of the banana peel, a significant amount of organic waste is generated. The banana peels are amalgamated with glycerol as plasticizer and sodium metabisulphite as antimicrobial .The preparation is achieved in two phases. The first phase comprises of levigation of banana peels with unique concentration of different chemicals followed by the second phase in which this paste is transformed into sheets by heating in oven at 125-135 ^{0}c temperature. Its properties like tensile strength, creep, thickness has also been studied in this research work. The obtained sheet can be restructured for its designated uses.

Keywords:--
  Banana peel, Bioplastic, Biopolymer, Biodegradation.

Speaker Identification System Using Watermarking Technology for Spoofing Attack of Voice Conversion: A Review

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Abstract:--

　　　Task of Speaker Identification (SI) technique is to determine which authorized speaker provides an utterance. Voice conversion (VC) method pacts to hide the identity of speaker. In Spoofing attack, manipulated voice is employed as the system input which is voice conversion. It is obligatory to protect speech samples from Spoofing attacks like one mimicry artist can mimic the voice of many person so at that time this system fails to provide security. The security check of watermarking pattern juxtapose speech samples from database to identify speaker at the end of the methodology. This paper addresses the review of various techniques of Speaker identification, spoofing attack of Voice Conversion and the techniques of embedding watermarking patterns on various speech samples to avoid the false identification of a subject in Speaker Identification System.

Key Words: -

　　　Speaker Identification (SI); Voice Conversion(VC); Watermarking; Spoofing Attack.

Effect of Load Balancing on Punching Shear Stress And Deflection of Post Tensioning Flat Slab With Different Grade of Concrete

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Dr.S.A.Vasanwala., Professor, AMD,SVNIT, Surat.

Abstract:--
Flat slabs are a widely adopted solution now a day for buildings, because of their economic and functional advantages. The main objective of this paper is to analysis of post tensioning flat slab by changing the different parameter such as span of slab, grade of concrete and load balancing and comparing the result such as deflection and punching shear.
Grade of concrete and load balance directly influence to the deflection and punching shear of flat slab. So in this paper concrete grade varies M-35 to M-50 is considered and load balance varies from minimum 25% to maximum 100% is considered. The use of ADAPT-PT builder 2015 is recommended because of its friendly use and quick calculation capabilities. Use of the ACI Code equivalent frame method of analysis was performed using said software.

Index terms:--
Post tensioning two-way flat slab, two-way concrete design, Grade of concrete, Load balancing, Deflection, Punching Shear, Design-tool ADAPT-PT/RC 2014.

Effect of Metakaolin on mechanical properties of different grades concretes inclusion of recycled aggregates from C& D waste and ceramic waste.

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Abstract:--
As concrete is the second highest utilized material after water in the world, the improvement in the performances of concrete is the requirement of today's era. Also the use of mineral admixture like Metakaolin helps to achieve good performance of concrete even prepared by utilizing recycled construction and demolition (C&D) waste aggregate and recycled ceramic waste aggregate. In present study Ordinary Portland cement has been partially replaced by Metakaolin in different grades selected recycled aggregate concrete(RAC) and recycled ceramic waste aggregate concrete(CAC). The deficiencies in different mechanical properties of these selected concretes with respect to reference concretes has been observed experimentally and there were retained by replacing cement with Metakaolin(MK) about 7.5% by weight of cement.

RFID Loco Tracking Using IoT

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Abstract:--
The paper presents a solution to provide an intelligent locomotive tracking and management system to improve the existing railway service in the Diesel loco shed Hubli. The goal of our project is to exploit the precise collection, storage of the details like the entry and exit of the loco along with the date, the lane number, the position of the loco through most advanced communication technologies to support value added services for the administration of the loco shed. The project has been analysed with possible solutions. The project presents our research in embedding a control system into an automatic updating and storage of details using different technologies in its design, development, testing and implementation. The system designed and developed has an authorized user access and thus the information is secured.

Keywords:--
Loco, RFID, Internet of Things, communication.

Soil-Raft Foundation-Structure Interaction Effects on Seismic Performance of Vertical Irregular Multi-Story RC MRF Building

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Dr. S.A. Vasanwala., Professor, Applied Mechanics Department, SVNIT, Surat.

Abstract:--
      Current Practices shows that the effects of Soil Structure Interaction may be detrimental to the seismic response of structure and neglecting SSI in analysis may lead to un-safe design. Despite this, the traditional design procedure usually involves assumption of fixity at the base of foundation avoiding the flexibility of the foundation, the compressibility of soil mass and subsequently the effect of foundation settlement on further rearrangement of bending moment and shear force demands. To comprehend the influence of soil compressibility on the behaviour of super structure, on attempt has been made in this study by analyzing G+9 story vertical irregular building with and without soil structure interaction. Equivalent static load; response spectrum and nonlinear time history analysis suit with Bhuj time history record are used for analysis of the moment resisting frame reinforced concrete building. The parameters being used for relative study of soil structure interaction are story shear, story drift ratio and story displacement. Numerical results obtained using SSI model conditions are compared to those corresponding to fixed-base support conditions. Present studies shows that the effects of soft soil deposit may be adverse to the seismic response of structure and neglecting SSI in analysis may lead to un-safe design.

Key words: --
      Raft foundation, Soil Structure Interaction, Story Displacement, Story drift, Story shear, Soil.

Green Chemistry:-The New Era of Science and Technology in Our Modern Society

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Abstract:--
     Growing public awareness about the state of the environment, chemical product safety and new chemical regulatory policies is driving demand for leaders who are able to understand the science underlying environmental challenges and develop innovative solutions. Chalcones belong to the flavonoid family and display several pharmacological activities which are very important. They can be used as an initial compound for synthesis of a lot of compounds. In this research chalcone derivative are made via green chemistry route and analysed their physical and antimicrobial activity.

Index Terms:--
     Chalcone derivates, Microwave synthesis, Antimicrobial agents.

A review on mechanical, microstructure and tribological characteristics of Al7075 matrix composites

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Abstract:--
     Aluminium alloy 7075 is an alloy with zinc as principal alloying element. As compared to many other steels its strength is quite comparable. It has good fatigue strength, but less resistance to corrosion than many other Al alloys. This paper explores the feasibility of developing high performance composites with low cost, for various applications like automotive and aerospace. Further, the fabrication, mechanical and tribological characteristics of AMCs has also been reviewed. The optical microscope analysis of the Al 7075 AMCs shows that the reinforcing particles are evenly distributed in the matrix alloy. Moreover, the porosity levels have been found to be suitable for the composites fabricated through liquid route. The mechanical properties such as hardness, tensile and compressive strength of composites have been observed to be either comparable or better to the other composites. It has been found from the previous research that the presence of hard ceramic phase leads to direct strengthening of composites. Based on the data from the literature, the application area of Al 7075 AMCs has been put forward in the present review. It has been inferred that the hybrid composites give more reliability and flexibility in the design of components depending upon the reinforcement and matrix material.

Index Terms:--
     Aluminium matrix composite, Mechanical behavior, wear behavior, Tensile strength, compressive strength, hardness, Al 7075.

Rheological determination of thermally treated Water clover leaves puree

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Abstract:--
   Rheological behavior of water clover (Marsilea vestita) leave puree is important for the design and establishment of processing units. All rheological measurements were carried out in the temperature range of 28-60°C. The Power law fit with yield stress provided a good description of the flow behavior of the puree and behaved as a shear thinning fluid. The storage modulus (G') exhibited larger than the loss modulus (G'') for the puree under oscillatory shear tests. Puree showed decrement in the consistency index from 337.65 ± 0.94 to 189.24 ± 0.67 significantly ($p<0.05$) with the increment in the temperature level.

Keywords:--
   Power law, Rheology, Water clover leaves.

A study on Keystroke dynamics for Touch screen

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Abstract:--
At present maximum people store private and sensitive data on their Smartphone. Consequently, the demand is growing for secure mobile authentication methods. Setting a password-based authentication is the most frequently used method to protect data from intruders. However, people tend to use password, which can be easily remembered, hence easy to crack. Therefore, additional mechanism is needed to enhance the security of password based authentication. One such complementary method is to use the typing pattern of the user, known as keystroke dynamics. Keystroke dynamics or typing dynamics refers to the automated method of identifying or confirming the identity of an individual based on the manner and the pattern of typing on a keyboard. Keystroke dynamics is a behavioral biometric, Keystroke dynamics on mobile referred as Touch dynamics and refers to the process of measuring and assessing human touch rhythm on touch screen mobile devices (e.g. smartphones and digital tablets). In this paper we are mentioning the different patterns to authenticate the touch screen mobiles.

Mathematical Logic and Logical Equivalence Implementation to find the Intermediate Key Management for DES Encryption Algorithm.

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Anil Kumar C J., Associate Professor,Computer Science and Engineering , A T M E College of Engineering Mysuru .

Dr Puttegowda D., Professor, Computer Science and Engineering, A T M E College of Engineering Mysuru.

Abstract:--
    The objective of the study is to look into a new method to generate an intermediate key for a symmetric key given in DES encryption algorithm. Using the concept of Mathematical Logic and Logical Equivalence an intermediate key is generated. Intermediate key used at sender and the receiver side .There are two equations used one on the sender side and another on the receiver side both giving the same intermediate key. Mathematical logic is the science dealing with the methods of reasoning; these are the statements that are called propositions. Propositions are the statement which in a given context said to be true or false .These propositions are connected by the logical connectives and they are "not", "and", "or", "if then", "if and only if". The propositions formed using this logical connectives is called compound propositions. Two propositions u and v are said to be logically equivalent whenever u and v have the same truth value. This is denoted by u$\Leftrightarrow$v and it's represented as u and v are logically equivalent. During the generation of the intermediate key u is used at the sender side and v is used at the receiver end to provide the same intermediate key .This paper proposes a new method in generating an intermediate key for DES algorithm.

Keywords:—
    DES, DES encryption, Logical equivalence.

Sand Bed Solar Stills for Coastal Areas: Studying Heat and Mass Transfer using ANN Model

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Abstract:--

Clean potable water is a human birthright as much as clean air. Its demand increasing day by day due to several factors, viz. industrialization and human's population growth around the globe etc. Solar stills have long been recognized to have clean and potable water in remote areas. Easy-to-operate and very low maintenance may be one of the major regions behind it. In present work, the real situation near the seashores, where wet sand is available in abundance quantity containing brackish water. A laboratory scale of 1m2 basin area has been used to conduct experimentation Experimental result paves the way to have purified water on the coastal area using solar energy only with a low-cost setup. The two experimental arrangements were compared for the heat and mass transfer within the single slope solar still and the yield in the month of May at Raipur (Latitude 21.16N and longitude 81.42 E) India. It has been observed that the daily distillation yield is more in the second case where the surrounding mass of sand has been converted as heat storage that enhances heat and mass transfer. The wet sand top surface temperature that resembles the water temperature of solar still of both arrangements and a neural network model was developed to forecast the yield of solar still considering nine input parameters.

Keywords:—

Solar distillation; Glazing effect; Earth water still; Sand bed solar still.

Evaluating Factors Affecting Delay in Residential Building

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Saurabh Jain., Civil Engineering Department, Chhotubhai Gopalbhai Patel Institute of Technology, Uka Tarsadia University.

Abstract:--
　　Delays are one of the largest issues in construction industries of India. It directly or indirectly affects the economic growth of the country. Hence it is very essential to identify the causes of delay. The objective of this study is to evaluate and identify the critical factors affecting delay in residential project in south Gujarat region. Mainly 69 factors which are affecting delay in construction projects are summarized based on interaction with expertise from civil field persons and were grouped into 10. Field survey is conducted for determining the delay reasons through questionnaire which was distributed to contractors, builders, architects, consultants and site engineer. The data which is collected, analyzed through Relative Important Index (RII) method. Through analysis, top five critical factors are identified as Delay in material delivery, shortage of labour, change in design, difficulties in coordination between various parties, contract modification by owner. Among major groups, the top critical group was identified as labour related factors. The finding of this research can be helpful to contractors, owners, architectures and other civil professionals to identify factors which responsible for delay and can find suggestions/ methods to minimize the impact of delay in construction work.

Keywords:—
　　Delay, Residential projects, Relative Important Index, labour, design.

Effect of TSS and Temperature on the Density of Gongura Leaves Puree.

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Amit Keshav., National Institute of Technology Raipur, Chhatisgarh (India).
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Abstract:--

The effect of temperature and TSS on the density of Gongura leaves purees is reported. The densities of the gongura puree were determined at TSS (1.6-5.60brix) and temperatures of between 10 and 60^0C with 10^0C increments. The density of Gongura puree was strongly affected by TSS, while it was relatively less affected by temperature. Different mathematical models are try to fits the results obtained as a function of temperature and density with varying TSS but linear model fitted best with $R^2 > 0.97$.

Index Terms:--

Gongura puree, Density, Temperature, TSS.

Experimental Analysis of a Flat Plat Liquid Desiccant Dehumidification System

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Abstract:--
      The continuously increasing energy demand in building space cooling and depleting conventional energy resources have provoked the need for generating renewable and sustainable energy technologies. Pre-eminent among the air conditioning technologies are absorption cooling that works on the low grade energy which is mostly delivered by solar energy. Liquid desiccant dehumidification technologies are the most optimistic option because of their lower regeneration temperature, higher coefficient of performance and ability to be used in night hours. But problems like desiccant carryover, process air pressure drop and incomplete wetted walls needs to be further investigations. The desiccant system investigated in the present study includes a flat plate energy exchanger for mass and heat transfer between process air and desiccant solution. It imparts high contact surface area and minimises the air pressure drop and carryover of desiccant droplets as there is a film contact between air and desiccant instead of direct intermixing which is associated with spray tower and packed bed dehumidifiers. It also provides complete film over an entire surface of flat plate which is the limitation of falling film absorbers. Diluted desiccant is heated into a heater tank consists of heating coil and reactivated in the regenerator. The system comprises of an absorber, a regenerator, a solution heat exchanger to precool and preheat the solution and a cooling tower and a sets of solution pumps. Calcium chloride was used as desiccant material with 40 % by wt. concentration. Experiments were conducted by varying concentration of desiccant solution and process air flow rates. Performance of the dehumidification system is represented in terms of dehumidification and regeneration effectiveness and moisture absorption rates.

Bandwidth Extension of Speech Signal: A Review

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Abstract:--
   The narrowband frequency range from about 300 Hz to 3.4 kHz. So, the audio quality of telephone network is restricted. Bandwidth extension(BWE) is used to extend narrowband(NB) frequency range to wideband(WB) frequency range which is 50 Hz to 7 kHz and wideband frequency range to super wideband(SWB) frequency range which is 50 Hz to 14 kHz. This bandwidth extension can be realized with or without side information. The Bandwidth extension is performed by adding missing frequencies artificially at the receiver using information contained in narrowband signal or either using some low bit rate side information. The basic principles of bandwidth extension addresses by this review paper and discuss different methods of bandwidth extension from narrowband to wideband and narrowband to super wideband.

Keywords:--
   Bandwidth extension; narrowband; wideband; super wideband

Hybrid Electric Vehicles: An Art of Review

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Farhad Ilahi Bakhsh., Department of Electrical & Renewable Energy Engineering, Baba Ghulam Shah Badshah University, J & K, India.

Abstract:--
This paper gives the overview of work done by various scientists on hybrid vehicle. Here the illustration is given as which methodology they used while working on it. Various new practices were introduced to get the better results. Most of the scientists which worked on this project were keen to overcome the drawbacks of previous ones. In this paper the nut shell of 25 research papers is given. For every paper a brief review is given which highlight the main strategies used in that particular work. The main focus of almost every scientist was to reduce the dependency on fossil fuels which are likely to get extinct thereby increasing fuel economy. In critical situations we need storage so HEV also provides storage in terms of battery. As we all are aware of fact that pollution is caused by fossil fuel based vehicles like diesel vehicles, petroleum vehicles etc. so HEV is one of the best solutions to overcome this effect. The scientist have taken every effort to improve the quality of HEVs to serve the people with better advancement and also to make it eco-friendly without disturbing the quality of atmosphere. There are different types of HEVs present and work is done upon them to improvise their quality so that they could serve better. Various types of HEVs and the methods and strategies applied on them is given in this paper.

Index Terms:--
SOC (State of charge), PMSM (Permanent Magnet Synchronous Motor), VSC (Vehicle System Controller), SCS (supervisory control system), FT (fixed transmission), ECMS (equivalent fuel consumption minimization strategy).

GHFP: Geocasting with HTOF using Flooding and PRoPHET Algorithm

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Abstract:--
     Delay Tolerant Networks (DTNs) make efficient communication possible in challenged environments wherein the connectivity is intermitted or no end to end path has been established. They follow Store-carry-Forward mechanism in which the information is sent to an intermediate station, where it is kept for certain duration and is later sent to either another intermediate station or a final station. Geocasting involves sending the message to a specific cast, followed by dissemination of message within the cast. In this treatise, we propose Geocasting with HTOF using Flooding and PRoPHET Algorithm (GHFP), an optimized geographic routing algorithm. We also delve into single copy routing schemes that use only one copy per message, thereby significantly reducing the resource requirements. Highest TTL Out First (HTOF) buffer management policy is used to enhance the network performance. Under the GHFP algorithm, the devices do not exchange any location-related information, and hence there's no risk of any intrusion into the user's privacy. DTN offers services in communication challenged areas which renders GHFP algorithm advantageous for message trans-mission in diverse fields like war and disaster prone regions, areas where government censorship imposes restrictions on the content that can be transmitted and also in advertising in expanses having high user density. The result analysis indicates that the GHFP algorithm is efficient in terms of latency and network overhead.

Index Terms:--
     Buffer Scheduling, Delay Tolerant Networks, Geocasting, Highest TTL Out First, ONE Simulator, PRoPHET

Energy Management Strategies in Hybrid Electric Vehicles (HEVs)

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Abstract:--
  The hybrid electric vehicle achieves fuel and lower emissions than conventional internal combustion engine vehicles, they have very less and fewer emissions than conventional ICE. The HEV recapture significant amount of energy during braking that is normally wasted, due to regenerative braking by converting kinetic energy of vehicle into electricity depending upon the power rating of motor. The different techniques are used in HEVs. Fuel economy is improved by ATKISON CYCLE over OTTO CYCLE, shifting down the engine during traffic stops, improved aerodynamics using low resistance tires. Power steering hybrids come in many configurations for example, a hybrid may receive its energy by burning petroleum, but switch between an electric motor and combustion engine.

Index Terms:--
ARIMA (Autoregressive Integrated Moving Average), DP(Dynamic Programming), GIS (Geographic Information System), HEV (Hybrid Electric Vehicle), ICE (Internal combustion engine), MPC (Model Predictive Control), OLPT (Operation Line Power Track), PHEV (Plug-in Hybrid Electric Vehicle), RL (Reinforcement Learning), SPSS (Single Point Start-Stop), SOC (State of Charge).

Effect of Colloidal Nano Silica on Durability of High Strength Concrete Subjected to Acid Attack

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Abstract:--

Nanotechnology is one of the most active research areas that relates with number of disciplines including Civil engineering and it may have great impact on the field of construction materials. The literature survey shows that little is reported to evaluate the durability aspect of HSC(High strength concrete) incorporating Colloidal Nano silica (CNS). This paper deals with studying the effect of CNS on durability properties of HSC subjected to acid attack (H_2SO_4,and HCL) by conducting the tests such as Compressive strength, Weight loss, SCM ,ESD and linear regression analysis etc. The experimental study is carried out on M 60 grade of concrete with varying percentage of P-63 grade of fly ash from 5% to 25 % and P-100 grade of fly ash with constant 10 % replacement by weight of cement (b.w.c) also percentage of CNS varies from 1% to 5% b.w.c The result shows that 20% replacement of cement by fly ash and 3% addition of CNS gives satisfactory results when compared with other mix proportions.

Key Words:--

HSC, CNS, Acid attack, weight loss, strength.

Wireless Sensor Network for Building Monitoring

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Abstract:--
Many of the civil structures such as buildings, bridges, dams etc. experience degradation with the passage of time. It is, therefore, necessary to check the performance of a structure through continuous Risk Monitoring (RM). To mitigate these risks in a building deployment of intelligent wireless sensor network (WSN) is necessary. The main advantages of WSNs compared to conventional monitoring technologies are fast deployment, minimised interference with the surroundings, self-organization and low maintenance cost. However, since WSN nodes are battery powered and data communication is the utmost energy consuming task, the energy conservation aspect in WSN is of considerable importance. Because of the small capacity of batteries and the limited and unreliable recharging opportunities, energy consumption must be controlled very strongly. In this paper, a model of the energy optimisation of WSN is performed on a hypothetical building. Sensors are deployed in random and regular pattern in the building and optimisation of energy consumption in WSN is done by using Low-energy adaptive clustering hierarchy (LEACH) protocol. Simulations of WSN are done with the help of Mat lab and established that energy consumption is comparatively higher in the random deployment as compared to the regular deployment.

Keywords:--
Low energy adaptive clustering hierarchy protocol, MATLAB, risk monitoring, wireless sensor network.

Experimental study on clayey soil stabilization using sand-fly ash-waste rubber

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Abstract:--
 Fly ash and waste rubber are generated in large quantities and are dumped haphazardly damaging the environment. The effective use of these waste materials in stabilization of clayey soil will solve their dumping problem and will help in protecting the environment. The present study deals with the influence of blending of sand and fly ash into clayey soil along with proportion of randomly distributed waste tyre rubber chips on various characteristics such as compaction and strength. The clay: sand (60: 40) mix was found to have maximum dry density followed by other proportions. Results revealed that maximum dry density reduced and optimum moisture content increased on blending fly ash with clay: sand mix. Further, maximum dry density reduced and the optimum moisture content increased on inclusion of rubber scraps in clay: sand: fly ash composite and California bearing ratio was observed to be improved. The mixture of clay: sand: fly ash having proportion 54: 36: 10 with 1.5% rubber chip was found to be optimum which can be used efficiently in sub-grade of pavements. The use of stabilized soil sub-grade resulted in lesser requirement of materials for flexible pavement as compared to that by using the un-stabilized soil.

Keywords:--
 Clay, sand, fly ash, waste rubber, compaction and sub-grade.

Secure and Efficient Technique for Network Enhancement using Hash Value and Confidence in MANET

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Dr. Shivnath Ghosh., Associate Professor, Computer Science & Engineering Maharana Pratap College of Technology, Gwalior

Abstract:--
　　In the current years, the wireless network can be infrastructure or infrastructure less in which there is no centralized structure. Mobility Ad Hoc Network (MANET) is the set of nodes where they can communicate to each different wirelessly. They act as a router and forward data at the receiver through the intermediate nodes. It is vulnerable to many attacks due to wireless nature and there are many techniques to eliminate these attacks from the network. In this paper, we send the data through the secure path for which multiple paths are formed. For multiple paths, there are many protocols used and then we calculate the confidence value and reputation value to detect the malicious nodes in the path. Finally we get the secure path for the data transmission towards the destination. In this way, the performance of network is improved and the security is also enhanced.

Key words:-
　　Wirelessly Network, Infrastructure, Routing Protocol, Trust, Confidence value and Security.

Rheological behaviour of composite suspension containing ANP

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Abstract:--

A composite propellant suspension system containing aluminium nanoparticles (ANP) is formulated and prepared in this study, which exhibits a measurable yield stress, viscoelastic nature and a thixotropic behavior under shear rate ranges. Multiple rheological studies (flow and dynamic studies) are performed in the present work. Results are presented from experiments measuring the thixotropy, dynamic strain, frequency sweep, apparent viscosity and yield stress behaviors, in the suspension systems. The formulated composite propellant suspension is observed to be thixotropic in nature with some yield stress. The dynamic rheology studies show, the applied frequency and the strain affect the viscoelastic properties of the composite propellant suspension system. In the frequency sweep experiment, the composite suspension behaves like a nearly frequency-independent viscoelastic solid.

Production of Hydrogen Rich Syngas with Catalytic Cracking of Rice Husk Tar

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Abstract:--
        The presence of tar content in the product gas is a major problem with the biomass gasification process as it prevents its further utilization. Heterogeneous cracking of tar using catalyst is the most effective way to overcome this problem. The present study provides specially a method for converting biomass to hydrogen rich syngas in a two-stage process. The heterogeneous experiments of rice husk tar cracking were performed in a two-stage gasifier using different catalysts. The products of heterogeneous tar cracking were evaluated for optimizing hydrogen rich syngas formation considering the effects such as temperature, carrier gas and quantity of catalyst. Tar conversion of about 91% was achieved. Tar cracking at higher temperatures resulted in the formation of hydrogen rich syngas.

Index Terms:--
        gasification; pyrolysis; catalytic cracking; hydrogen

Investigation of increased UV absorbance, reduced band gap and high quenching luminescence efficiency of quantum dot dispersed nematic mesogen

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Abstract:--

The dispersion of $Cd_{1-x}Zn_xS/ZnS$ core/shell QD (x=0.85) in nematic liquid crystal into different concentrations has been examined. The spectroscopic parameters such as UV visible absorbance, photoluminescence (PL) and Fourier transform infrared (FTIR) spectra have been observed for pristine and QD dispersed nematic system. The UV visible absorbance spectra brings to light one absorbance peak corresponding to π-π^* transition. Increased UV absorbance with decreased band gap for dispersed system reveals the strong photo absorption (i.e. quenched luminescence). The remarkable results have been found for 0.1% and 0.25% wt/wt QD dispersed nematic system with an average of 51.7% and 61.7% quenching in PL intensity. The FTIR spectra explain the symmetric and asymmetric C-H stretching vibrations which confirm the quenched PL intensity. The UV visible absorbance, PL and FTIR studies have been performed in order to disclose the nature of QD dispersed nematic system. The upshot of the present study finds its relevance in the field of various display and photonic applications as well as in the photovoltaic devices.

Key words:-

Nematic liquid crystal; Quantum dot; UV visible spectroscopy; Photoluminescence; FTIR

Wireless automation of Continuous stirred tank reactor process using lab view and arduino

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Abstract:--
In many chemical process industries continuous stirred tank reactor plays major role to provide final end product with maintaining temperature, level, flow and pressure at its pre specified set point trajectory. Controlling those physical parameters are difficult because of its non linear behavior. The model has heat and volumetric balances, and a very realistic feature is that instrument, actuator and process non-linearity's have been carefully measured, for instance to take account of the volume occupied by heating coils in the tank. Experimental data from step testing and recordings of real disturbances are presented. The model in Simulink and the experimental data are available electronically and some suggestions are given for their application in education, system identification, fault detection and diagnosis.The performance of the CSTH process has improved and the parameters are maintained at their desired level of the set points with minimum Integral Square Error (ISE), minimum rise time, minimum peak over shoot and minimum settling time. The real time plant is interface with Labview with NI data acquisition card, Zigbee based wireless data transmission and the experimental results are discussed in this proposed work.

Key words:-
Disturbance; Experimental validation; First-principles model; Hybrid model; Lab VIEW; Performance analysis; System identification; Zigbee

Optimal PID Controller Parameters Tuning of Ball and Beam System

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Abstract:--
        Ball and Beam System (BABS) is a nonlinear and also an unstable system specially designed for understanding various control problems. The Proportional Integral and Derivative (PID) controller is mostly used to stabilize the ball on the beam. Initially, the PID controller is designed using Skogestad Internal Model Control (SIMC) tuning method for stabilizing the ball at specified position on the beam. The behavior of the BABS is based on the parameters of PID controller. The parameters of PID controller are optimized using Particle Swarm Optimization (PSO) for improving the performance of the ball and beam system. The settling time is used as a performance criterion for optimization. The simulation results show that the PSO based PID controller gives better performance when compared to the SIMC based PID controller of BABS.

Key words:-
        Ball and beam system (BABS), PID controller, SIMC and PSO

A Survey Report on Elliptic Curve Cryptography

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Abstract:--
　　　Information is an asset that has a value like any other asset. As an asset, information needs to be secured from attacks. To be secured, information needs to be hidden from unauthorized access (confidentiality), protected from unauthorized change (integrity), and available to an authorized entity when it is needed (availability).During the last three decades, Computer networks created a revolution in the use of information. Information is now distributed. Authorized people can send and receive information from a distance using computer networks. Although the three above mentioned requirements-confidentiality, integrity, and availability- have not changed, they now have some new dimensions. Not only should information be confidential when it is stored; there should also be a way to maintain its confidentiality when it is transmitted from one computer to another. The scorching enlargement in the use of mobile and wireless devices demands a new generation of Public Key Cryptography schemes that has to accommodate limitations on power and bandwidth, at the same time, to provide an ample level of security for such devices. Elliptic Curve Cryptography (ECC) is rising as an attractive public-key cryptosystem for mobile/wireless environments. Compared to long- established cryptosystems like RSA, ECC offers the same security with smaller key sizes, which results in faster computations; lower power consumption, as well as memory and bandwidth savings.

This is particularly useful for mobile devices which are typically limited in terms of their CPU, power and network connectivity. Nevertheless, the true crash of any public-key cryptosystem can only be evaluated in the context of a security protocol. Elliptic Curve Cryptography (ECC) has become the ideal choice for the insidious computing environment because of its suitability to the devices having limited bandwidth, battery power, less computational resources and less memory.

Key words:-
　　　Cryptography, ECC, Integrity, Authentication.

Anomaly Detection Method for Electronic Voting Machine

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Abstract:--
    A method for detecting electrical anomaly in circuit of interest is proposed and implemented. This method describes the use of FPGA and current sense amplifiers for real time monitoring of electrical circuits in EVM. The FPGA uses ADC and multiplexer to poll the circuit currents in round robin method. The diagnostics data recorded in used to assess the health of the unit as a whole. Necessary action is taken if any anomaly is detected. The present work is related to detect the anomaly in the functioning of an electrical circuit in Electronic Voting Machines 'units.   Diagnostics is required in EVM to ensure fail proof and tamper proof voting process.

Keywords:--
    Electronic Voting Machine, Electrical anomaly, FPGA based diagnostics

Risk Evaluation of Pedestrian Crossing at Indian Urban Roundabout

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Abstract:--
      Performance assessment of road infrastructure like Signalized intersections, Roundabouts, interchanges, islands, etc. is the daunting task of different traffic conditions in the developing countries like India. This paper suggests a quick and reliable safety performance evaluation technique for all types of intersections by developing safety hazardous index (SHI) based on the stated preference survey carried out to prioritize the intersection for countermeasures, and for the enhancement of safety characteristics at junctions. This study attempted to identify and categorize various types of risk factors associated with intersection safety systematically independent of crash data. Stated preference survey has been carried out on selected five distinct kinds of intersections depending on traffic characteristics, geometrics, Type of control, etc. Detailed methodology has been developed based on the user decision rating that has been collected and analyzed using AHP technique. The results viz. safety indices obtained from the traditional method were compared with crash data and surrogate analysis. The reliability of results from developed safety hazardous index (SHI) is thoroughly assessed by comparing with direct methods like crash data and surrogate safety analysis, and the results are quite acceptable. The developed methodology is robust for quick and reliable evaluation of road intersection in road crossing safety criteria. The developed safety hazardous index also indicates the hierarchy of road intersection for appropriate remedial measures.

Index Terms:--
      Pedestrian crossing, Intersections, Roundabout, Risk.

Application of Green Highways Credit System on Highway Project

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Prof. Amit Shriwas., Assistant Professor at NICMAR, Goa.
Avijit Mirdda., Student of NICMAR, Goa.

Abstract:--
       Road Transport is a critical infrastructure for economic development of a country. It influences the pace, structure and pattern of development. The capacity of National Highways in term of handling traffic (passenger and goods) needs to be in keeping pace with the industrial growth. India is having one of the largest road networks of over 46.99 lakh km. It comprises National Highways, Expressways, State Highways, Major District Roads, Other District Roads and Village Roads.
A growing demand of passenger and public transport has led to significant increase in air pollution and greenhouse gas (GHG) emissions. A study conducted by the Central Pollution Control Board (New Delhi, India) in six cities – Delhi, Kanpur, Bangalore, Pune, Chennai, and Mumbai, concluded that the transport sector contributes to more than 30 percent of the ambient air quality in these cities – either directly from the vehicle exhaust or indirectly via the re-suspension of dust on roads due to vehicular movement. The health impacts of air pollution from the transport sector are significant – and the nature of the issue is that those areas with the most population density are most affected. Government has taken many initiatives for green highways. By using a live case study project we have implemented a credit system for Green Highway system.

Keywords:-
       Highway, Sustainability, Green Road Rating System and Environment.

Behaviour Based Authentication: A New Login Strategy for Smartphones

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Abstract:--
In today's world, we are having enough user name and passwords to remember; often causing accounts to be locked due to forgetting them. Here, we propose a different perspective of login, where you only need to remember your recent activities on the smartphones, which will be posed in such a way that a genuine user could easily answer. The proposed system will collect the events happening on the phone and put intelligent algorithms to generate challenges specific to user. The challenge-response will give a score to the user, where a threshold is set to allow or disallow user from entering into the system. The proposed model uses machine learning based techniques to learn user's behavior and creates a continuously improving user profile. The system found to be effective with 85% accuracy, where out of 30 real world test users 26 could easily able to authenticate themselves.

Review on Performance analysis of various Cloud Computing tools

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Mr. S. S. Chavhan., Department of Information Technology,Yeshwantrao Chavan College of Engineering, Nagpur, India
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Abstract:--
        Data processing and data storage trends are changed due to cloud computing environment. Cloud computing technology is abstracted, controlled and high-scalable   computer infrastructure which hosts applications for clients. In cloud computing, the sensors provide more security and more scalability. Sensor networks can be used for collecting various data as they are distributed, consisting of different sensor nodes. Cloud computing provides plenty of application, platforms and   infrastructure over the internet. It may be combined with the sensor network for various application areas which brings various WSNs deployed for different applications under one roof. It can be viewed as a novel, single, virtual WSN entity through cloud computing infrastructure. This paper presents a brief overview of various performance analysis for various cloud computing tools which can be used in various sensor cloud computing applications.

Keywords:—
        Cloud Computing, Sensor Networks, distributed systems, WSN.

Evaluation of Ductility Enhancement for Confined Concrete Column with Variation in Engineering Properties of Materials

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Abstract:--
      In Earthquake Resistant Structures, Ductility Parameter is an essential attributes of structures because ductility serves as a shock absorber in a building. Ductility is the ability of a structure to undergo a large deformation without collapse. It depends on the ductility of individual components and structural configuration, including relative strength of individual components and redundancy. The important material of construction are concrete and reinforcing steel for which an assessment of ductility considering variations in engineering properties is required for the design purpose, especially for earthquake resistant design consideration. Curvature Ductility, Plastic Rotation Capacity and Over Strength Factor, Energy per length are important attributes of ductility evaluation of an RC section. In this research paper, an effort has been taken to investigate the effect of variation of engineering properties of constituting materials on the ductility of an RC section. It has been found that for a given RC section of defined grade of concrete and lateral ties spacing and its diameter will effects the ductility parameter. while in case of section with defined grade of reinforcing steel the higher grades of concrete improve the ductile behaviour of section.

Evaluation of different sources of silica on the yield and quality of "Alphonso" mango in Kokan Region of Maharashtra

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Abstract:--

Mango, known a "king of fruits" is third largest fruit cultivated throughout the tropics and subtropics. The productivity and quality of mango is highly constrained by major factor like nutrient deficiency disease and pest incidence. Proper nutrition is pre-requisite for a tree to sustain the normal crop load to maturity. Higher rates of nutrient utilization by developing fruits, lead to a competition for survival of fruits on a tree. Soluble silicon ranges from 2 to 375 ppm in various soils. Silicon though not considered as beneficial nutrient, has well documented beneficiary role in nutrient uptake and mitigation of abiotic and biotic stresses by plants. Keeping this in view, investigation was carried out to assess the impact if application of silicon sources along with chemical fertilizer can improve on yield, quality of fruits and leaf nutrient content of mango (Mangifera indica L.) in Lateritic soil of Konkan region".

The present study is a part of doctoral research, conducted on the 25-year old mango orchard at Dapoli, located at 17o45`, North latitude and 73o12`, East longitude at an elevation of 280 meters above Mean Sea Level. The climate of Dapoli is warm and humid with the mean annual rainfall 3000 mm during June-September. According to the Agro-climatic zone of Maharashtra, the soil comes under high rainfall with lateritic soil type. The soil was moderately acidic in reaction having pH 4.96 with 0.043 dSm-1electrical conductivity. The status of organic carbon 8.9 g kg-1, available nitrogen 326 kg ha-1, available phosphorous 6.8 kg ha-1, available potassium 384 kg per ha. To assess the impact of various silicon sources both soil applications (calcium silicate and rice husk ash) and foliar applications (potassium silicate and stabilized silicic acid (Silixol, a commercial product)) were used. Soil applications were done twice in year (July and September), while foliar applications were done on pre flowering stage, peanut stage, marble stage fruit and three weeks before harvest. For foliar applications approximately 30liters of water was sprayed per tree.

A significant increase in number of fruits per tree was recorded in all treatments of silicon sources when used at the lowest concentration. Among the two soil application sources, calcium silicate was better than rice husk ash resulting in yield increment more than 90%, while among the two foliar sources, Silixol had attributed to more than three-fold increment in yield. This observed was supported by the better nutrient status of leaves and fruits done at various stages. For horticultural crops including mangoes, sugar content is a key quality attribute. Sugar content measured as TSS, increased substantially following the application of silicon sources as silicon has a well-documented role in sugar accumulation pathways. Shelf life of fruits had also increased by 5 days following the application of Silixol, compared to other silicon sources. To conclude, present study reveals that silicon sources plays a distinctive role in improving the yield and quality of Alphonso mangoes of Konkan region and the foliar application of Silixol has a potential of increasing the profitability of mango growers substantially.

Removal of Ammonical Nitrogen using Biological Bacterial process.

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Abstract:--
   The study culminates in the development of a hybrid process in abatement of one environmental problem of the industries generating ammonical wastewater. The removal of NH4-N from Pharmaceutical wastewater was conducted successfully on a laboratory sale. The Scope of this research or experiment was to study the Biological Process by the use of mixed bacterial culture for the treatment of Pharma wastewater. Mixed bacterial culture with different concentration were used for biological nitrification and denitrification process for a comparative study. In biological process, different concentration of bacterial inoculum were innoculated in anaerobic condition. The results shows around 90% reduction in COD and Ammonical nitrogen by this process.

Context-Dependent Dynamic Authentication and Authorization Framework for Tactical Systems

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Abstract:--
Authentication plays key role in tactical systems. Improper authentication and authorization mechanisms can cause a huge damage in tactical scenarios. In this paper, a context dependent dynamic authentication and authorization framework is proposed for tactical systems using Complex Event Processing (CEP) technology. It continuously monitors the battlefield situations and generates dynamic authentication and authorization plans required for that situation. An authentication plan can be a simple authentication check like asking for 4 digit pin number or it can be multi factored multi-level authentication process. When situation is safe, then it provides a user friendly authentication model without putting much burden on user. But in suspicious situations, it uses dynamic complex authentication model to defend intruders. Proposed framework is extremely useful in tactical systems. It can also be used in other domains where authentication is critical.

Keywords:--
Dynamic Authenitcation; Complex Event Processing (CEP); Security; Multifactor Authentication; Dynamic Authorization; Context Dependent Access Control;

Pedestrian Crossing at Round about Using Central Composite Design Approach

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Abstract:--
　　Safe pedestrian's crosswalk is one of the important design aspects of the sustainable transportation system, but guidelines of developing countries give little importance in the geometric design of roundabout. The aim of this study to gap acceptance estimation and safety assessment of surrogate safety measures by implementing multiple bumps barrier (MBB) embedded with Zebra crossing at roundabouts. The central composite design methodology approach was employed for pedestrian crosswalk volume estimation to a short spatial range (20 to 30 m) for given duration. The factors and response (F&R) analysis data such as gaps, a perception time, average pedestrian crossing speed was used as input in central composite design approach. The polynomial transformation analysis response was estimated regarding average headway, augmented accidental time, number of pedestrians able to cross the study path. Further, the interferential cuboidal surface response was also analyzed to maintain the adequacy of the varying parameter to an optimum number of pedestrian passage at surrogated study path. The pedestrian safety index (PSI) was estimated using weightage of selected parameters of roundabouts. Results show that surrogated MBB reduces the waiting time and decreases the perception of accidental hazards. Pedestrian crosswalk volume indicates 90% safe crossing at 2 seconds resulting in the gap between pedestrian and approaching vehicles. Similarly, PSI index observation shows that MBB scores 21% as the highest efficiency among study parameters. The study suggests the use of multiple bump barriers on Zebra crossing provide traffic calming techniques for design safe pedestrian crosswalks at the roundabout.

Keywords:--
　　Roundabout, Zebra crossing, Multiple Bump Barriers, Pedestrian Safety Index.

Solar driven disinfection of Natural wetlands effluent for reclamation of Wastewater in rural areas

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Abstract:--

The increasing demand of freshwater for daily needs has raised serious problems all over the world especially in arid and semi-arid countries. Reclamation and recycling of wastewater are now considered as the important part of life management around the world. Several studies have point out that Wastewater is a main contributor of a multiple type of pathogenic microorganism which transmits various waterborne diseases to human life. In this context, the adoption of wastewater treatment technologies having low operational and maintenance cost and also minimum environmental impact are widely acceptable.

In order to overcome with these issues, an integrated treatment system involving Constructed Wetlands and disinfection systems based on Ultra-violet (UV) and Anodic Oxidation (AO) have been piloted in India through a research project "SWINGS". This project has been carried out at three places in India (Aligarh, Kalyani and Amarkantak) with aim to treat the wastewater for its reuse in agriculture, public flushing and fish farming. In this paper we present the results of inactivation of three microbial groups, Total coliforms, fecal coliforms and E-coli as an indicator to test disinfection efficiencies. Different experimental parameters has been checked and compared. Study has revealed that coliforms removal in both the systems was extra-ordinarily very high (99.9%). At many times, the effluent after AO & UV was found with almost zero coliforms. However, the E-coli in the effluent were always found nil. As these systems are running on solar energy and require no chemicals make them better proposition than any traditional method like chlorination. The capital & maintenance cost for such novelise system is competitively low.

Keywords:--

Wastewater, Disinfection, Solar energy, Constructed Wetlands, Anodic Oxidation, Ultraviolet treatment.

Assessment of Heavy metals contamination effected by solid waste and wastewater

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Abstract:--
With the fast development of industrialization and human activities and vast urbanization, the discharge of waste and wastewater containing heavy metals to environment has increased. Various industries produce and discharge wastes containing different heavy metals into the environment, such as metal plating, mining, surface finishing industry, energy and fuel production, fertilizer and pesticide industry and application, metallurgy, iron and steel, electrolysis, electro-osmosis, leather etc. This study then analyzed the contamination sources in soil as well as groundwater, the ecological and integrated risks. The spatial distribution of the contamination level and ecological risk were determined using GPS. No. of samples were collected from Aligarh industrial influence areas groundwater were analyzed for heavy metals samples. The data reveals that the groundwater in the area is significantly contaminated with heavy metals such as Cr, Mn, Zn, Cu, Pb and Fe are found during analysis. This study also emphasized the importance of partition in industries areas, the extensive application of spatial analysis methods, and the consideration of human health risks in future studies.

Permeability and Strength Analysis of Granular Subbase Layer Using EAF Slag

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Abstract:--
An attempt is made to study the optimum utilization of Electric Arc Furnace (EAF) slag in the granular layer construction of pavement as per the combination recommended by Indian specification. To decide the suitability of the EAF slag for use in pavement construction, the physical properties like gradation of slag, crushing test, impact test, soundness test, specific gravity and water absorption test carried out. Strength and drainage characteristics are considered to be the core parameters in evaluating the suitability of Granular Sub Base (GSB) layer material. For that California Bearing Ratio (CBR) test and Constant Head Permeability test along with Modified Proctor test conducted. The test has been carried out on parent aggregate & combination of parent aggregate with different % of slag. It is observed that slag can be used as a pavement material considering the index properties. EAF slag has impact value 7.91 %, crushing value 28.34 %, specific gravity 3.09, water absorption 2.89 % and loss of weight is 5.07 % in magnesium sulfate reagent in soundness test. For 30% and 50% slag in aggregate-slag combination. CBR value were observed to be maximum for all Grading, from strength point of view aggregate-slag combination gives good result, CBR results range between 124 to 163 for these two combinations. All the aggregate-slag combinations satisfy permeability criteria (300 m/day) required for Granular sub-base layer combinations, which range between 336.96 m/day to 829.44 m/day

Index Terms:--
EAF slag, GSB layer, Permeability test, CBR test

Review on Machine Learning Algorithm

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Abstract:--
 Nowadays machine learning has become a vital part in Artificial Intelligence. The main objective of Machine learning is to provide an solution to a computer to solve a specific problem based on the past data. It enables the machine to understand and take action according to the pattern recognized. It can be explained and practically seen in Robotics. Machine learning helps to take a efficient decision without any human concern. One of the existing applications include categorizing the mail between spam and non - spam messages. The concept of machine learning can be applied by the analysis of Supervised Learning, Unsupervised Learning and Reinforcement Learning. This Special topic provides several contents of machine learning to enhance the security and to establish advanced technologies. The material presented here shows varies methods to employ Machine learning effectively.

Index Terms:--
 Machine Learning, Supervised Learning, Unsupervised Learning.

MEASUREMENT OF HARDNESS OF WATER USING CAPACITANCE BASED SENSOR

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Abstract:--
    Salinity measurement is important because it plays a significant role in measuring subsequent parameters like density etc. This method describes a method to measure the salinity of water using capacitive transducer which has two parallel plate electrodes. The electrodes are immersed continuously in the water so that the area and distance between the plates doesn't change. The change in capacitance is converted to proportional voltage using Schering bridge. This can be analyzed under various conditions before made into a handheld device where the data can be stored. This method is simple and reliable which can be used for industry purpose.

Index Terms:--
    salinity; capacitive transducer; schering bridge