3rd NATIONAL CONFERENCE ON

EMERGING TRENDS IN SCIENCE AND ENGINEERING

NCETSE 2019

APRIL 25 - 27, 2019

SOUVENIR

Organized by:

**SHRI MADHWA VADIRAJA
INSTITUTE OF TECHNOLOGY AND MANAGEMENT**

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National Conference on Emerging Trends in Science and Engineering

25 – 27 April, 2019

SHRI MADHWA VADIRAJA

INSTITUTE OF TECHNOLOGY AND MANAGEMENT

(Affiliated to VTU, Belagavi, Approved by AICTE New Delhi and Government of Karnataka)

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ABOUT NCETSE 2019

In this era of knowledge, the higher education institutes are not restricted just to knowledge transfer from teachers to students, but are also involved in knowledge assimilation, knowledge generation, and knowledge dissemination. The prime objective of NCETSE 2019 is to bring experts, researchers and innovators from academia, R&D and industry in the related fields together and provide them a forum for knowing what is happening in the research arena (assimilation), identify and conceptualize new ideas (generation) and sharing their valuable findings and thoughts. The conference also aims to create research interest in the minds of young graduates to pursue research as their career. NCETSE 2019 will facilitate and promote interdisciplinary research among researchers and help in reducing the gaps between different disciplines.

Potential Themes

Civil Engineering

Alternative Construction Materials and Technologies
Coastal Engineering
Transportation Engineering
Environmental Geotechnics
Waste Management
Sustainable Management of Water Resources
Environmental Impact Assessment
Sustainable Construction and Green Buildings
Project Planning, Scheduling and Control
Remote Sensing and GIS Applications
Green Technology for Smart Cities

Computer Science and Engineering

Artificial Intelligence and its Applications
Big Data Analytics
Machine Learning & Deep Learning
Computer Vision
Cyber Physical System
High Performance Computing
IOT & Cloud Computing
Natural Language Processing
Semantic Web
Software Engineering & Architecture

Theoretical Computer Science
Wireless & Mobile Networks
5G and beyond

Electronics and Communication Engineering

Analog & Digital Circuit Design
Analog & Digital Communication
Applied Electromagnetics
Artificial Neural Network and Fuzzy Logic
Cryptography and Network Security
Digital Image and Video Processing
Micro & Nano Fabrication Technologies
Renewable Energy Sources
Smart Grid Technology
VLSI and Embedded Systems Design
Wireless & Satellite Communications
Wireless Sensor Networks

Mechanical Engineering

Advanced Measurement Systems
Advances in Manufacturing Technology
Applications of Computational Techniques
Computational Material Science

Green Supply Chain Management
High-Speed Precision Machining & Inspection Technology
Machine Vision System
Mechanical Reliability Theory & Engineering
Micro & Nano Composite Materials
NEMS/MEMS Technology and Equipment
Smart Materials & intelligent Systems
Vibration Noise Analysis and Control

Mathematics, Physics and Chemistry

Probability & Statistics
Number Theory & Linear Algebra

Mathematical Modeling and Simulation
Graph Theory
Geometry Analysis and Fluid Mechanics
Computational Methods in Fluid Dynamics
Thin Film & Characterization
Single Crystals & Applications
Semiconductor Devices
Polymers, Glasses & Ceramics
Photonic Materials
Graphene & Novel Materials
Nano Chemistry
Metal Alloys & Composite Structures
Green Chemistry
Electroplating
Catalysis
Biomedical Applications of Polymers

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NCETSE - 2019
STUDENT SYMPOSIUM
25 APRIL 2019

08:30 – 09:30 A.M.	Registration
09:30 – 10:00 A.M.	**Inaugural Session** **Welcome Remarks:** Principal, SMVITM, Bantakal

10:00 A.M. – 12:30 P.M.	Concurrent Sessions

Track A: Computer Science and Engineering *Seminar Hall (Admin Block)*	**Track B: Computer Science and Engineering** *Lecture Hall 204 (Admin Block)*
Moderator: Dr. Vasudeva	**Moderator: Mr. Adesh N. D.**
3D RECONTRUCTION OF MANDIBLE USING PANORAMIC TECHNOLOGY	INSURANCE POLICY RECCOMMENDATION SYSTEM USING MACHINE LEARNING
5G: A MOBILE WIRELESS TECHNOLOGY	INTELLIGENT PILLBOX
A REVIEW ON IBM SUMMIT	INTELLIGENT VEHICLE TRAPPER
A REVIEW ON METHODS TO IDENTIFY PLANT DISEASE USING IMAGE PROCESSING AND ANN	LI-FI : A REVIEW PAPER
AIR POLLUTION MONITORING AND PREDICTION SYSTEM	MINING YOUTUBE TRAILER FOR PREDICTING THE GROSS INCOME OF THE MOVIE
11:15 – 11:30 A.M.	**Tea Break**
DECISION SUPPORT SYSTEM FOR WATER QUALITY MONITORING BASED ON PH, ELECTRICAL AND TEMPERATURE	SENTIMENTAL ANALYSIS OF STUDENT FEEDBACK USING MACHINE LEARNING TECHNIQUES
OMR BASED ATTENDANCE MANAGEMENT SYSTEM	DIET RECOMMENDATION SYSTEM FOR CHRONIC DISORDERS
DIGITAL ELECTORAL SYSTEM	OPTICAL CHARACTER RECOGNITION
EXAM SEATING ARRANGEMENT SYSTEM	REVIEW ON VISIBLE LIGHT COMMUNICATION
12:30 – 1:30 P.M.	**Lunch Break**

01:30 P.M. – 03:00 P.M.	Concurrent Sessions
Track A: Computer Science and Engineering *Seminar Hall (Admin Block)*	**Track B: Civil Engineering** *Lecture Hall 204 (Admin Block)*
Moderator: Mr. Manoj T.	**Moderator: Mr. Anand V. R.**
TRANSPORT VIGILANCE AND FINE AUTOMATION	ANALYSIS OF CRACK IN REINFORCED CONCRETE STRUCTURE USING INFRARED THERMOGRAPHY AND ANSYS
TV SHOW POPULARITY ANALYSIS	MODIFICATION OF EXISTING SEED DRILL MACHINE
VEHICLE THEFT DETECTION USING IOT	DESIGN AND FABRICATION OF RADIANT COOLING PANELS USING OPTIMIZED FLOW PARAMETERS
VIRTUAL OGMA: A REAL-TIME STRATEGY GAME WITH SPEECH CONTROL	PERFORMANCE EVALUATION OF COAGULANTS USING NATURAL AVAILABLE MATERIALS
MONITORING AND MODELLING OF RIVER FLOOD USING HIGH RESOLUTION SATELLITE IMAGE	
03:00 P.M. – 04:00 P.M.	**Valedictory Note: Dr. Katta Venkataramana**
04:30 P.M. – 04:45 P.M.	**Snacks and Tea**

NCETSE 2019
DAY 1 – 26 APRIL 2019

08:30 A.M. – 09:30 A.M.	Registration and Breakfast		
09:30 A.M. – 11:00 A.M.	Inaugural Session Welcome Remarks: Principal, SMVITM, Bantakal Inaugural Speech: Dr. P G Diwakar, Scientific Secretary, ISRO, Bengaluru		
11:00 A.M. – 11:15 A.M.	Networking Coffee Break		
11:15 A.M. – 12:00 Noon	Invited Talk: Dr. Paresh Chandra Deka, NITK Surathkal		
12:05 P.M. – 01:15 P.M.	Concurrent Sessions		
Track A1: Computer Science and Engineering *Seminar Hall (Admin Block)*	Track B1: Computer Science and Engineering *Lecture Hall 204 (Admin Block)*	Track C1: Civil Engineering *Lecture Hall 010 (EC Block)*	Track D1: Civil Engineering *Lecture Hall 011 (EC Block)*
Fake Image Recognition using Metadata and Error Level Analysis using Machine Learning	Congestion and Collision Avoidance Using Secure Priority based Distributed Approach for Wireless Sensor Network	Comparative Studies on the Strength Parameters of Poly Propylene Fiber Reinforced Concrete & Steel Fiber Reinforced Concrete	A Study on Risk Assessment and Mitigation Techniques for City Surveillance Projects
Analysis of PID Control Algorithms for Transfer Function Model of Electric Vehicle	Reliable Data Security Architecture for Optimized QOS Using Multipath Routing Protocol in WSN	Assessment of Suitability of CHIRPS Rainfall Data for Streamflow Forecasting Using GA-ANFIS	Assessment of Coral Bleaching along Andaman Islands during 2016
AI Based Self Driving Toy Car	Enhanced Fuzzy Based Secure Architecture to Detect the Malicious Activity	Crop Pattern Change and Crop Water Requirement Analysis using Remote Sensing and GIS Techniques: A Case Study	Assessment of Road Safety Audit of NH-69 (Bhadravati-Shivamogga), Karnataka State, India
Ambient Assisted Living: A Review on Human Activity Recognition and Vital Health Sign Monitoring using Deep Learning Approaches	Fuel Tanker Truck Safety System	Estimation and Quantification of Erosion Prone Regions in Joginamane Sub-Watershed of Uttara Kannada District: An Approach using RS and GIS	Strength and Durability Studies of Recycled Aggregate Concrete Blended with Additives
Comparison of Machine Learning Algorithms for Diabetes Dataset with and without Feature Selection	Implementation of Infant Monitoring Smart Cradle using Internet of Things	Implementation of 4D/5D BIM in Large Scale Construction Project	Challenges of Earned Value Management Application in Indian Construction Industry
01:15 P.M.– 02:00 P.M.	Lunch Break		

2:00 P.M. – 2:45 P.M.		Invited Talk: Dr. Arun Isloor, NITK Surathkal	
2:45 P.M. – 03:45 P.M.		**Concurrent Sessions**	
Track A2: Basic Science and Mechanical Engineering *Seminar Hall (Admin Block)*	**Track B2: Basic Science and Mechanical Engineering** *Lecture Hall 204 (Admin Block)*	**Track C2: Electronics and Communication Engineering** *Lecture Hall 010 (EC Block)*	**Track D2: Electronics and Communication Engineering** *Lecture Hall 011 (EC Block)*
A Review of Transition Metal Oxides as Electrode Materials for Super Capacitors	Smart Automatic Urinal Flusher and Cleaner for Clean India Mission	Detection of Arrhythmia by The Analysis of De-Noised ECG Signal Using Wavelet Transform Technique	32-Bit RISC Microprocessor Design with 5 Stage Pipelining Verilog HDL and Implementation on FGPA Board
An Age-Dependent Stochastic Two-Stage Model for Carcinogenesis	Effect of sintering time and reinforcements on the density, hardness properties of aluminium reinforced with CNT and FA composites.	Energy Efficiency Analysis using IEEE 802.15.6 Standard in Body Area Network	Wind Hydro Coordination for Enhanced Worth of Wind Power and Potentials in Karnataka State of India
Cryptographic Advantages of Algebraically Constructed Near Bent Functions	Study And Comparison of Mechanical and Thermal Ability Properties of Composite Materials Reinforced using Natural Fibers and Ash as a Filler Materials	A Silent Verbal Interface System For Speech Disabled Person Using ICT	Performance Analysis of Grid Connected Solar Photovoltaic Power Plant (GCSPYP) GB
Arithmetic Progressions in Quadratic Residue	Design and Fabrication of Radiant Cooling Panel using Optimized Flow Parameters	Intelligent Traffic Management using Wired Sensor Network	Auto Removal of Bright Spot from Images Captured Against Bright Source of Light
3:45 P.M. – 4:00 P.M.		**Networking Coffee Break**	
4:00 P.M. – 4:45 P.M.		**Concurrent Sessions**	
Prior Solutionising Deformation Consequence on the Aging Characteristics of Steel Powder Reinforced Al 7075 Composites	Design and Fabrication of Pepper Separator and Collector	Real Time Animal and Bird Repellent System	Design and Fabrication of automatic food serving system
Investigation of Microstructure, Mechanical and Corrosion Behaviour of Ball-burnished Biodegradable Mg-Zn alloy	Design and fabrication of water tank cleaner	A Novel Approach to E-Science - Serverless Semantic E-Science Framework (SSE-SF)	Smart Automatic Urinal Flusher and Cleaner for Clean India Mission
Modification of Existing Seed Drill Machine	Studies on Production of Bio-Fuel using composite materials	Mathematical principles for predicting reliability control parameters of pipe armature for transport energy systems	Smart Headlight System

DAY 2 27 APRIL 2019			
8:30 A.M. – 9:00 A.M.	**Registration and Breakfast**		
9:15 A.M. – 10:00 A.M.	**Invited Talk: Dr. G. S. Dwarakish, NITK Surathkal**		
10:00 A.M. – 11:45 A.M.	**Concurrent Sessions**		
Track A3: Computer Science and Engineering *Seminar Hall (Admin Block)*	**Track B3: Computer Science and Engineering** *Lecture Hall 204 (Admin Block)*	**Track C3: Civil Engineering** *Lecture Hall 010 (EC Block)*	**Track D3: Civil Engineering** *Lecture Hall 011 (EC Block)*
Labour Management Android Application	Soldier's Health and Position Tracking System Using IOT	Effect of Lime and Alkali Activated Fly Ash on Black Cotton Soil Stabilization	Implementation of Techniques and Its Management on Constructional Activities
Performance Evaluation of Address Auto Configuration Protocols in Mobile Ad-Hoc Wireless Networks	Pancyclicity of Double Vertex Graphs	Study of Settleable Particulate Matter Present in Ambient Air at Gulbarga City using Dust Fall Jar and Natural Receptor	Laboratory Investigations on Performance of Enlarged Pile Head Breakwater
Preventing Blackhole Attack in Manet with a Reliability Index based AODY Protocol	A Survey of Various Multicast Routing Protocols with and Without Crops Layer Techniques in Manet	Chemical Analysis of Various Ureolytic Bacterial Activity and Its Effects on Strength of Concrete	Modeling Actual Evapotranspiration using the Advection Aridity Model
Deep Learning in Data Science	Structural Topology Optimization for Static and Dynamic Load Cases	Numerical Investigation of Wave Interaction with Enlarged Pile Head Breakwater	Physical Model Studies on Enlarged Porous Pile Head Breakwater
Data Visualization for analyzing the effect of climate change for Patna city	Study of Entrepreneurial Intention among final year Engineering students of coastal Karnataka region	Studies on Eco-friendly Alkali Activated Concrete Incorporating Industrial Wastes	Integrated Spatial assessment of land and water resources in watershed for sustainable growth
Soft Computing Approach to Predict Rainfall	Computer Assisted Development of Mechanical Alignment Fixture for Precision Assembly of Thrust Vector System	Numerical Modelling of Wave Transmission Through Porous Enlarged Pile Head Breakwater	Risk Information Model Involving Construction of High-Rise Buildings in Selected Zones of Udupi District Having Laterite Soil
11:45 A.M.– 12:00 Noon.	**Networking Coffee Break**		
12:05 P.M. – 1:00 P.M.	**Awards and Valedictory (Seminar Hall – Admin Block)**		
1:00 P.M. – 02:00 P.M.	**Lunch**		

Assessment of Road Safety Audit of NH-69 (Bhadravathi-Shivamogga), Karnataka State, India

Jayaprakash M C[1], Shreyas K S[1], Vikram M C[2], Manasa Nair[1]
[1] Mangalore Institute of Technology and Engineering, Moodabidri,
[2] Jawaharalal Nehru National College of Engineering, Shivamogga

Road Safety Audit (RSA) is a formal procedure for assessing accident potential and safety performance of new and existing roads. RSA is an efficient, cost effective and proactive approach to improve safety of the road users with leading to any trend of accidents and their impacts. RSA appears to be an ideal tool for improving road safety in India, as basic and accurate data on accidents have yet to be collected in a scientific way as well as in a systematic method. It is evident from the traffic composition for the countries like India, where heterogeneous traffic with varying vehicle types differing in their vehicle static and dynamic characteristics.

The project stretches considered is NH-69 (Bhadravathi to Shivamogga – Karnataka State) ranging 22.1 Kms. The present study deals with road inventory, signage inventory, traffic volume count survey, spot speed study, Speed and delay study and other surveys such as topographic survey and Accident data has been collected for the stretch for a period of 2012-2016 is collected and analysis is carried out. The study aims to evaluate Road Safety Audit of a section of four-lane National Highway (NH)-69 and will focus on evaluating the benefits of the proposed actions that have emanated from deficiencies identified through the audit process. Missing road and median markings to be done and speed signs should match with speed. Access and service lanes are also deficient which requires immediate improvement.

A Novel Approach to e-Science - Serverless Semantic e-Science Framework (SSe-SF)

T Rubin Jose[1], P Sojan Lal[2]
[1] School of Computer Sciences, M G University, Kottayam, Kerala, India.
[2] Mar-Baselious Institute of Technology and Science, Kothamangalam, Kerala

Serverless implementation for a semantic e-science framework (SSe-SF) is all about pushing code to a compute service and networking with third party services and APIs to get the work done. The underlying infrastructure both hardware and software are hidden from the user. Serverless semantic e-science framework (SSe-SF) includes Knowledge Search and Navigation, Identity Management, URI/ Content Negotiation, RDF & RDF Schema annotated information resources, Shared Ontologies, Read-only Onto-Repository & Vocabulary, Onto-learning and merging, Semantic reasoners and Semantic data storage.

Li-Fi: A Review Paper

Ganpat Patel, Ashutosh Kumar
Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal

This paper based on developing a Li-Fi based system and analyses its performance with respect to existing technology. The paper is also the study on advantages and disadvantages

of Li-Fi in transferring data from one computer to another. Use of this technology can reduce many real-life common problems like speed and security of currently used data transfer technology. This concept was proposed by the German physicist Harald Haas he studied about transmission of information through illumination by sending information through a LED light. It achieves high data rates as compared to conventional wireless technologies like Wi-Fi, Bluetooth, Wi-max etc and also to overcome the shortage of bandwidth we can use light to transfer the data. We can encode our data into light by changing the light at which the LEDs flicker on and off to give different strings of 1s and 0s and as we know every digital signals or information is converted into 0s or 1s and all these flickering will be unnoticed by the open eyes as its frequency is much higher and for different channels it uses the mixtures of red, green and blue LEDs to alter the light frequency encoding a different data channel.

Comparative Studies on The Strength Parameters of Poly Propylene Fiber Reinforced Concrete & Steel Fiber Reinforced Concrete

Ganesha Mogaveera[1], Umesh S S[1], Anand V R[2]
[1] Mangalore Institute of Technology and Engineering Moodabidri
[2]Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal

Fibre reinforced concrete has a higher flexural strength than that of unreinforced concrete and concrete reinforced with welded wire fabric. The present work focuses on the effect of polypropylene fibers and Steel fibers on strength parameters of concrete such as compressive, tensile and flexural strength and also on the suitability of using the better fibers in the construction. Steel fibers of crimped type and Polypropylene fiber of recron type having aspect ratio of 30 are used in this study. The main aim of this work is to study the strength properties of steel and polypropylene fiber reinforced concrete of M25 grade having mix proportion 1: 2.25: 4.26 with W/C ratio of 0.50 containing fibers of 0%, 0.25%, 0.50% and 0.75% by volume of concrete. A result data obtained has been analyzed and compared with a control specimen (0% fiber). The strength parameters as well as the cost comparison are also made in this work and Steel fiber came out as the better fiber for a proportion of 0.50%. Steel fiber reinforced concrete is castable or sprayable composite material of hydraulic cements, fine or fine and course aggregates with discrete steel fibers of rectangular cross-section randomly dispersed throughout the matrix. Steel fibre strengthen concrete by resisting tensile cracking. Steel fibers reinforce isotopically, greatly improving the concrete's resistance to cracking, fragmentation, spalling and fatigue. Cost of the steel fiber is more compared the Polypropylene fiber, but the strength is very high compared to Polypropylene fiber.

Energy Efficiency Analysis Using IEEE 802.15.6 Standard in Body Area Network

Harshitha S, Durga Prasad
NMAM Institute of Technology, Nitte

Wireless Sensor Network finds application in the field of medicine in the name of Wireless Body Sensor Network (WBSN). It plays an important role in sensing the data and transferring the same to the base station for processing the data and then storing them. One of the main

problems faced by WBSN is the energy consumption by the nodes. As most of the energy is consumed by communication block of the sensor or node, it is essential to regulate the energy consumption. One of the strategies to achieve energy conservation is to modify the algorithm so as to achieve better energy efficiency. Therefore, it is essential to switch to a protocol that consumes lesser amount of energy so as to continue the communication process. In the proposed system, initially CSMA protocol is invoked where the nodes will sense the channel before transmission. As the energy of the nodes decreases below the threshold value, Stop and Wait protocol is invoked where the packets are transmitted without sensing the channel and with no re-transmission of the lost packet. Also, number of packets that are lost during the transmission are analyzed for both the cases. Throughput for the network in both the protocols is determined.

Detection of Arrhythmia by the Analysis of De-noised ECG Signal Using Wavelet Transform Technique

Deeksha Bekal Gangadhar, Dr. Ananth A. G.
NMAM Institute of Technology, Nitte

Heart disease is one of the dreadful diseases in the world. Using Electro Cardio Graph (ECG), electrical activity of the heart is recorded by placing the electrodes over the skin. The tiny electrical changes from the electrophysiological pattern of heart muscle are detected by the electrode placed on the skin. Cardiac problems are detected from these patterns. ECG signals are prone to various noises and it becomes difficult to detect and diagnose these diseases. Therefore, effective de-noising technique is developed to obtain noise free signal. PSD of the low frequency signal found to determine if the signals obtained are normal or not. In spite of progress in telemedicine, reading of ECG signals are inaccurate resulting in improper diagnosis and hence delay in the patient's treatment. Therefore, the design and development of strategies for the classification of arrhythmias are carried out. Arrhythmia is classified on the basis of three condition namely, normal, tachycardia and bradycardia condition. These conditions are determined by the R-R interval detection of the ECG signal and the heart rate calculation using Discrete Wavelet Transform (DWT) technique.

Modeling Actual Evapotranspiration Using the Advection Aridity Model

Ananya S G, Lakshman Nandagiri
National Institute of Technology Karnataka, Surathkal

Evapotranspiration is a major process in the hydrological cycle. Between 40 to 60% of precipitation is returned back to the atmosphere in the form of evapotranspiration. Therefore, estimation of Actual Evapotranspiration (AET) is important in studies related to hydrology, agriculture and climate. However, due to the fact that calculation of AET using conventional methods require data pertaining to climate, vegetation/crop and soil moisture levels, estimation of spatial AET becomes a very tedious task. The Complementary Relationship Areal Evapotranspiration (CRAE) hypothesis has been proposed as a simpler alternative to estimate AET from large spatial domains using only routinely observed meteorological data thereby circumventing the need for data on soil-vegetation. The

objective of the present work was to apply the CRAE hypothesis in Karnataka State, India and evaluate the accuracy of estimates using MODIS satellite-derived AET estimates.

The Advection Aridity (AA) model which is based on the CRAE hypothesis was chosen to estimate AET using historical climate records of the Afzalpur and Hungund stations. The AA model uses the Penman equation to estimate the Potential ET and the Priestley-Taylor equation to estimate Wet Environment ETwhich are needed to estimate AET. Accuracy of AET values obtained from the AA model were validated using the MODIS MOD16A2 evapotranspiration product, which provides an 8-day composite AET estimate at 500 m resolution. AET estimated by the AA model compared favourably with MOD16A2 with the average Coefficient of Determination (R2) for the two stations being 0.8095.

While the results of this study have shown that the AA model provides reasonably accurate AET estimates with minimum data, further studies need to be carried out to improve the accuracy through local calibration of parameters.

Studies on Eco-Friendly Alkali Activated Concrete Incorporating Industrial Wastes

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In the present scenario, the production of green and sustainable concrete has become a must to substitute the ordinary Portland cement (OPC) concrete. It is a well-known fact that the manufacture of OPC requires burning of its raw materials which lead to a huge amount of carbon dioxide liberation; thus, it requires large amount energy dissipation. The concrete produced using alkali activation has become renowned methods to replace the conventional OPC, which gives answer to find a way to produce environmental friendly concrete. In the present study, the alkaline activator used to activate the binder was sodium hydroxide solution dispersed in liquid sodium silicate. The use of industrial waste materials such as fly ash, GGBS, and waste glass powder were used as the binding ingredients, and stone crusher dust was used as fine aggregates. The experimental investigation shown that a quality concrete can be easily produced using alkali activation of industrial wastes satisfying its strength requirements. The statistical models developed shown that there is a significant relationship between various cube and cylinder strengths. Thus, alkali activated concrete (AAC) can effectively reduce the environmental hazards associated with OPC concrete, which also provides an effective way of utilizing major industrial by-products.

An Age-Dependent Stochastic Two-Stage Model for Carcinogenesis

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This paper presents an age-dependent stochastic two-stage model of carcinogenesis. A normal cell divides into two normal cells if its age is not greater than that of a positive constant T1; otherwise, it divides into one normal cell and one intermediate cell. An intermediate cell divides into two intermediate cells if its age is not greater than that of a positive constant T2; otherwise, it divides into one intermediate cell and one malignant cell. It is assumed that,

once a malignant cell is produced, it generates a malignant tumour with probability 1. It is also assumed that all cells are subject to death or differentiation. We obtain an expression for hazard function of the occurrence of the first malignant cell.

Laboratory Investigations on Performance of Enlarged Pile Head Breakwater

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Coastal erosion and accretion are complex processes which depends upon the many factors like geological, wave, tide, current, sea level rise, sediment transports and human activities along the coast. As per literature, West coast of India is mainly affected by coastal erosion due to direct wave attack and energy concentration. To reduce wave energy reaching the beaches, pile breakwater is one of such option that can be adopted for marina and fishery harbours where complete protection from waves is not required. To enhance the wave attenuation capacity of pile breakwater, an innovative enlarged pile head is introduced. The breakwater is modified by increasing the area near the surface where wave energy is concentrated. Experimental investigations on enlarged pile head breakwater in single row were conducted in a two-dimensional wave flume under the influence of monochromatic incident waves.

For the present study,1:30 scaled dimensions were adopted to describe the model and wave parameters. Enlarged pile head of diameter 0.064 m with heights of 0.08 m and 0.16 m are chosen for the present study. Experiments were conducted for water depth of 0.30 m and 0.40 m and wave periods ranging from 1.4 sec to 2 sec, and wave heights ranging from 0.08 m to 0.14 m were generated. The influence of water depth, Incident wave steepness, relative spacing between piles, and varying height of pile head on transmission coefficient (K_t) was investigated. Study revealed that transmission coefficient is minimum at lower water depth of 0.30 m for all piles.

Numerical Modelling of Wave Transmission Through Porous Enlarged Pile Head Breakwater

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The construction of conventional breakwater under hostile natural conditions like deeper water depths, higher wave heights, soft grounds is a difficult process and uneconomical. Catering to these needs pile breakwaters was developed. For the best dissipation of wave energy closer spacing of piles is recommended, but providing smaller gaps hinders the sediment movement. This study focuses on piles of two cross-sections, with the upper portion having a larger diameter compared to conventional single cross-section. By increasing the diameter of the piles, we can provide smaller spacing at the top for wave attenuation and simultaneously enough spacing at the bottom for sediment movement. Numerical modelling attempted with open source software REEF3D a CFD (Computational Fluid Dynamics) tool to know the response of the structure under regular waves. In the numerical model, wave flume conditions are simulated in a numerical wave tank with a scale of 1:30. The studies are made on the structure with porosity on 25% of the surface area on the head portion facing seaward

side with the diameter of pores equal to 0.1D (Where D is the diameter of the enlarged pile portion). Three different water depths are considered for modelling, with wave heights ranging between 0.06 m to 0.16 m and time periods 1.4 s to 2 s. Also, the experiments are conducted for 0.4D and 0.8D spacing between the piles and their responses are analyzed. The results show that porous enlarged pile head breakwaters are efficient up to 30% as water depth decreases from 0.5 m to 0.3 m and as the wave steepness increases, transmission coefficient decreases up to 45%.

Physical Model Studies on Enlarged Porous Pile Head Breakwater

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Breakwaters are the structures constructed to safeguard structures against damage due to excessive wave energy. To obtain the tranquil water conditions in harbours and to facilitate the exchange of water in and out of the harbour, perforated pile breakwater is considered as a viable option. They also help to protect the beaches against erosion. Physical model studies were performed on a single row of enlarged porous pile head breakwater in a two-dimensional wave flume of the Marine Structures Laboratory of the Department of Applied Mechanics and Hydraulics, National Institute of Technology Karnataka, Surathkal. The concept of increasing the size of the head portion is to have a larger area of the structure to be in contact with waves thus increasing the turbulence to dissipate wave energy. Porous breakwaters are suitable for creating increased wave energy loss. For the present study, 1:30 scale modelling is used to describe the dimensions of enlarged porous pile head breakwater and wave parameters. Enlarged pile head with diameter (D) of 0.064 m and heights 0.08 m and 0.16 m are used in the study. Porosity was provided on 25% of the surface area of the head portion facing seaward side with hole diameter of 0.1D. Experiments were conducted for water depths of 0.3 m and 0.4 m and wave heights ranging from 0.08 m to 0.14 m with wave periods of 1.4 sec to 2 sec.

The influence of water depth, incident wave steepness, relative spacing between the piles, porosity and varying height of pile head on wave transmission are studied. The transmission coefficient (Kt) decreases as the relative spacing between the pile (b/D) decreases. Enlarged porous pile head have significant effect on wave transmission at lower water depth of 0.3m for all piles.

Numerical Investigation of Wave Interaction with Enlarged Pile Head Breakwater

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Indian coastline is very diverse and dynamic in nature. This property of the coast has led to continuous back and forth shifts in shoreline. Localized coastal erosion has been a common problem on the west coast of India. One of the eco-friendly control measures for such kind of localized erosion is to dissipate the energy of waves impinging on the shores is by constructing offshore breakwater. Pile breakwater is one such type of offshore breakwater that consists of a number of closely spaced piles. Here, the energy attenuation of incident waves takes place

as a result of turbulence created due to wave and pile interaction. Construction of piles at closer spacing is highly challenging and the material requirement is also very high. This problem can be addressed by increasing the pile head diameter which is at the top of the pile, where wave energy is concentrated.

In the present study, open source Computational Fluid Dynamics (CFD) tool, REEF3D is used. In this software, required wave conditions are simulated in a numerical wave tank which is a three-dimensional replica of wave flume. The numerical models to be investigated are placed in a numerical tank with a scale of 1:30. The models corresponding to three different water depths are used for analysing their response against monochromatic waves. Also, the change in breakwater structural response has been examined for these models by varying the spacing between piles. The range of wave heights considered are 0.06 m to 0.16 m and time periods are 1.4 sec to 2 sec, which in actual conditions corresponds to about 1.8 m to 4.8 m and 7 sec to 11 sec respectively. The study has shown that, in terms of transmission coefficients, enlarged pile head breakwater is 15 to 22% efficient as water depth decreases.

Estimation and Quantification of Erosion Prone regions in Joginamane Sub-watershed of Uttara Kannada District: An Approach Using RS and GIS

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Conservation and optimum usage of surface and subsurface water can be done by the development of watershed management. Remote Sensing (RS) and Geographic Information System (GIS) are very efficient in quantifying morphometric parameters and giving an idea about the geological and hydrological conditions of the area under consideration. In this regard Joginamane sub-watershed is chosen for the prioritization of its micro-watersheds and to assess its erodibility and other critical problems and potential threats. The study area is located in the Siddapura taluk of Uttara Kannada district and covers an area of 64.86 sq. km. With the help of GIS, the basic morphometric parameters are accurately determined and the applied parameters are derived from the basic parameters. The study area is divided into nine micro-watersheds and these are prioritized based on morphometric analysis in a GIS platform. On the basis of compound ranking for each of the micro-watersheds, prioritization is carried out and its erosional potentiality is analysed. Based on the obtained results two micro-watersheds fall under high priority and require conservative measures, other five micro-watersheds fall under medium priority range and the remaining two under low priority.

AI Based Self Driving Toy Car

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Artificial Intelligence (AI) is a technique with objective to design and develop a system which can think, reason, learn, work and justify like human. This objective can be realised by designing a set of complex algorithms that mimics how the human brain works. Self-driving car is one of the AI based system which can mimic the human car driver.

In the proposed work, the authors have presented the design and development of Self driving Toy car using Feed forwarded and Back Propagated neural network. The proposed toy car is expected to sense the surrounding environment like road, landmarks, traffic signals, pedestrians, vehicle, etc and drive like human driver with more accuracy and precision.

As an initiative the prototype of the self-driving toy car will be designed using Raspberry Pi, Vision Sensors, UV Sensors and RC Car. The car driving algorithm will designed making using Neural Network and implemented using Python Programming Language. The prototype Road Environment of 5-meter length will be designed. Training and Testing Data set will be developed for the given prototype. The Car will be trained using the training data set and precision will be measured. The toy car is trained till it can learn self-driving. The trained car will be tested and accuracy will be determined. The training and testing of car will be repeated until the toy car performance is satisfactory.

Challenges of Earned Value Management Application in Indian Construction Industry

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The predominant goal of a construction industry is to cessation the projects on schedule and within the budget, with proper usance of all the resources. But most of the project runs over budget, lagging behind the schedule. Earned value management (EVM) is one of the techniques to overcome the issues related to the schedule and budget. EVM helps to track the project performance by delivering the schedule variance, cost variance and their performance index. The objective of this study is to survey the challenges in applying earned value management to the ongoing projects in the Indian construction industry. After, conducting structured questionnaire survey and interviews some of the challenges in application of EVM were recognized. Depending on the personal comments given by different construction managers fifteen numbers of challenges are observed and each of them is briefly discussed. Lack of knowledge on EVM, shortfall to accept the new technique and fear of making wrong decision are top rated challenges gleaned from the study.

Implementation of infant monitoring smart cradle using Internet of things

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In this rapidly advancing new era a constant monitoring of infant/child (1 year) becomes difficult for jobholders. Infants or a child needs parents' attention twenty-four hours a day and seven days a week, which is very important but it is practically impossible due to other priorities like house hold activities, official works and personal works. There are two options available for parents to take care of their baby one is baby care center and other is to hold a nanny is which involves lot of passion. Now a day's there are many incidents are happening in social media featuring human attack to the toddlers in a cruel way. So, there is a need of safe and secure place to take good care of the children's need with minimum human involvement. This project proposes a feasible solution using an Internet of things "The automated cradle" which gives a reliable and efficient baby monitoring system. The

automated cradle is designed with sensors to detect cry of baby through voice module and swing the cradle with music till baby stops crying. It also sends notification to mobile which beeps an alarm when mattress gets wet. This project is useful for parents who are busy in their career, nurses in infant care.

Real Time Animal and Bird Repellent System

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n forest zone and agricultural field human-animal conflict is a major problem where enormous amount of resources is lost and human as well as animal life is in danger. Hence, prevention of unwanted intrusion is necessary. In our proposed project we are designing a system which detects the motion using PIR sensor, after the detection of the motion of the intruder, the camera in that region is triggered to take the image of the intruder. Image captured by the camera is processed by using the suitable image processing algorithm (CBIC). According to the type of the intruder (animal or bird), the corresponding(ultrasonic)repellents are activated. This is the way of making the intruder uncomfortable, so that the intruder escapes from the field under observation.

A Survey on Various Multicast Routing Protocols with And Without Cross Layer Techniques In MANET

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MANET is the wireless, infrastructure-less, continuously self-configuring network which plays an important role in the point-to-point communication and multipoint communication. Since unicast routing suffers from certain drawbacks, the Multicast Routing is introduced for the efficient and secured communication but it does not guarantee QoS. The Cross-Layer Multicast Routing is later introduced to increase the Quality of Services and for the effective communication. By using the CLMR Protocols, we can elite the information from multiple layers and these can also be used to increase the performance of overall network. The CLMR uses several protocols which will increase QoS and increase the signal strength when compared to the nCLMR. This paper presents the survey based on various multicast routing protocols with cross layer and without cross layer techniques in MANET.

Performance Analysis of Grid Connected Solar Photovoltaic Power Plant (GCSPVP)

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The renewable power generation has gained increased attention in the recent times among the stakeholders as a result of its obvious edges over the conventional counterparts. The bulk power generation using Solar Photovoltaic technology has been successfully implemented in many parts of the northern Karnataka. However, for the effective implementation of the new

projects it is essential to understand the possible glitches in the system. This needs the proper understanding of various performance parameters applicable to GCSPVPs. This paper presents a comprehensive performance analysis of a real time grid connected 20MW solar power station located in northern part of Karnataka. The National Renewable Energy Laboratory's (NREL) System Advisor Model (SAM) tool is used for the evaluation of different performance parameters. The obtained results are validated by comparing the results with the real time data obtained from the authorities. The obtained results are expected to provide a strong base for evaluation of performance parameters for different operating conditions and to create awareness among different stakeholders to explore the possibilities of implementation of such projects in future.

Congestion and Collision Avoidance Using Secure Priority Based Distributed Approach for Wireless Sensor Network

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In wireless sensor network (WSN), data scheduling, is impeded by congestion and packet collision. In order to overcome these issues, in this paper, a Priority based Distributed Scheduling for Congestion and Collision Avoidance in WSN has been proposed. In this technique, the system in which data packets generated by sensor nodes are categorized into high and low priority based on the importance of the data and time stamp. To prevent collision, a receiver backed or initiated MAC protocol is applied. Further, the congestion status of the network is checked cluster wise and node with the least congestion level is selected as the head of cluster group (CH). If the congestion status is high, then distributed storage maintenance (DSM) mechanism is applied. According to DSM, some gateway nodes which are nearer to the CH are chosen and the high priority packets are sent to those nodes for storing using the packet exchange policy. With the help of simulation, it has been proved that this approach minimizes the congestion and the intra cluster collisions.

Assessment of Suitability of Chirps Rainfall Data for Streamflow Forecasting Using SVM

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Streamflow forecasting can offer valuable information for optimal management of water resources, flood mitigation, and drought warning. This study aims to evaluate the effectiveness of CHIRPS satellite rainfall data in comparison to IMD gridded rainfall data for the development of multi-step ahead streamflow forecasting models. Daily rainfall data for three decades (1983-2012) over the Nethravathi Basin, Karnataka, India is used for the analysis. The analytical results of the streamflow time series reveal that the seasonality is the most significant component followed by the trend component in the long-term streamflow series. Hence, the Support Vector Machine (SVM) and Genetic Algorithm optimized ANFIS (GA-ANFIS) models are developed for seasonal streamflow forecasting and comparatively evaluated using various statistical indices like NNSE, RRMSE, and MAE. The results indicated

that the models developed using CHIRPS rainfall data showed better performance in comparison to models using IMD rainfall data as inputs. The analytical results of the streamflow time series reveal that the seasonality is the most significant component followed by the trend component in the long-term streamflow series. The SVM models were capable to capture the unexplained residual components in the streamflow time series which could be due to the variability of climate.

Chemical Analysis of Various Ureolytic Bacterial Activity and Its Effects on Strength of Concrete

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Concrete structures are very susceptible to cracking, creep and possess low tensile characteristics under extreme environment. Application of ureolytic bacteria presents an easier, cheap and environment-friendly approach for improving strength of concrete. In this study, five bacteria were accessed for their concrete healing activities in Pozzolanic material. All bacteria with the exception of Proteus inconstans showed good calcite precipitation due to urease activity. This carbonate precipitates were utilized in filling up cracks and voids present in the final material. Bacillus coagulants showed maximum improvement in concrete properties with 52.80 MPa, 3.61 MPa and 6.51 MPa of compressive, split tensile and flexural strengths after 28 days of curing. Maintenance over a longer curing period resulted in improved densification in concrete matrix. Scanning electron microscopy (SEM), Energy dispersive spectroscopy (EDS) and X-ray diffraction (XRD) further confirmed the presence of increased calcite crystals in bacterial samples as compared to conventional concrete.

Implementation Of 4D/5D BIM In Large Scale Construction Project

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"BIM" (Building Information Modelling) is a term which has been around the global construction markets for more than a decade now. Most of the construction projects in Europe, North America and Oceania continent have been widely implementing BIM as an integral part of the whole construction process. However, Indian construction market is yet to implement BIM in its entirety. Some of the Indian government projects require contractors to mandatorily implement BIM along with their conventional processes, also few of the private contractors have been trying to include BIM into their construction projects as BIM has been gaining its ground throughout the globe with its positive impacts on time-line of long-term construction projects. This Research work aims to analyse & explore different factors influencing the Indian construction market to implement BIM. It identifies the reasons for reluctance of Indian contractors to implement BIM in their projects. This research project studies the implementation of 3D, 4D & 5D BIM in a Cricket Stadium Project by means of various BIM tools including Revit, Primavera P6, Navisworks, Synchro, Dynamo etc and compare the results with outputs of conventional methods to study the factors involved in positive implication of BIM and prepare most efficient workflow from the results for effective

and efficient implementation of 4D/5D BIM in other construction projects from the perspective of a GC (General Contractors).

A Study on Risk Assessment and Mitigation Techniques for City Surveillance Projects

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Smart City, a magical word in the infrastructure industry, is going to enhance the living standard of the citizens once it comes into reality. The Indian government is planning to have 100 Smart Cities by the end of 2020. While the urban communities have been identified and work has already started in most of them, there are a lot of underlying aspects that need to be addressed. One of them, according to the Smart Cities Council of India, is the need for the growth of video surveillance security in India and development of surveillance standards. Being the first of its kind in India, City Surveillance projects are one of the most challenging, highly dynamic and risky projects as these projects are of national importance. Risks and uncertainties are all part of a project, particularly in large and complex projects. Risks can have a strong influence on different phases of projects including the feasibility study, design, planning, construction, and even marketing and operation phase. The main aim of this study is to identify all the critical risk factors in city surveillance project from the viewpoint of the developer of the project and to assess the relative importance of the critical risk factors. The risk factors are identified through the questionnaire survey from the experts and through a literature survey. The RIPC4 models are developed using risk factors as input and project cost variation as a percentage of total cost and schedule variation as a percentage of planned duration as output. The model enables the developer to predict the likely changes to estimated total cost and planned duration due to risks occurring in the development of the project. It gives an idea regarding the impact, probability, countermeasures, critical success factors for the various identified risk. So, this study can be used to develop the necessary mitigation methods for those risks.

A Review of Transition Metal Oxides as Electrode Materials for Supercapacitors

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Supercapacitors find their extensive application as bulk energy storage devices due to the advantages like high specific capacitance, conductivity and consequent high-power capacity besides the ease of maintenance. The problem associated with the supercapacitors in terms of low specific capacitance and poor life cycle due to the conventional carbon and polymer-based electrode materials has led to the need for exploring the other materials for the electrodes. The transition metal oxide-based electrodes have grabbed the attention of the concerned stake holders as electrode materials in the recent times which overcome the drawbacks of the conventional electrode materials. This paper reviews the different transition

metal oxide materials and their properties as applicable the electrodes for the supercapacitors for the enhanced performance.

Arithmetic Progressions in Quadratic Residues

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One of the efficient ways to prove the celebrated quadratic reciprocity relation for two distinct odd primes is using the multiplicative property of the quadratic Gauss sum, G. This result can be extended to obtain the Legendre symbol, (a/p), for a=2. Using Gauss theorem for an odd prime p and an integer a, not a multiple of p, one can actually express the Legendre symbol as its own discrete Fourier transform (DFT). By using this relation to manipulate Gauss sum, it is possible to derive a formula to find the count of arithmetic progressions of length three among quadratic residues modulo a prime p. And thereby analyze progressions of longer length and derive for the exact progression count of any given length.

Assessment of coral bleaching along Andaman Islands during 2016

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Coral bleaching is a major issue affecting the marine waters. The main reason behind the bleaching phenomena is thermal stress caused by elevated temperatures. The Andaman Islands has experienced coral bleaching in the past. In order to tackle the situation, assessment of coral bleaching is necessary. This study deals with the analysis of both thermal stress and spectral characteristics of coral reefs. Sea surface temperature (SST) data was used for generating HotSpots (HS) and Degree of heating weeks (DHWs). Landsat data sets are used for extracting spectral signatures along islands of North Bay, Interview, Flat, North sentinel and Little Andaman Island. The hotspot analysis was used to generate spatial distributions maps of affected areas and its correlation with environmental parameters such as wind speed and latent heat flux was found. The results reveal that the coral bleaching was more at south and southwestern part of Andaman compared to north and middle Andaman due to the accumulation of heat during April and May months. The spectral signature profiles of coral reefs were identified and the reflectance were slightly higher in May compared to March. This is due to coral bleaching, as coral reefs get expelled and the bright, broadly reflective calcium carbonate skeleton influences reflectance. Thus, based on analysis the results can be used for further coastal management studies.

Soldier's Health and Position Tracking System using IoT

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The paper reports an Internet of Thing (IoT) based health monitoring and tracking system for soldiers. The proposed system can be mounted on the soldier's body to track their health

status and current location using GPS. This information will be transmitted to the control room through IoT. The proposed system comprises of tiny wearable physiological equipment's sensors, transmission modules. The system also consists extra features with the help of military if he in need. The GPS modem sends the latitude and longitude position with link pattern with help of military can track the current position of the soldier. The system is very helpful for getting health status information of solider and providing them instant help. Hence, with the use of the proposed equipment, it is possible to implement of low-cost mechanism to protect the valuable human life on the battlefield.

Pancyclicity Of Double Vertex Graphs

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Let G be a graph of order n. The double vertex graph of G denoted by U_2(G) is the graph whose vertex set consists of all nC2 unordered pairs of V(G) such that two vertices {x,y} and {u,v} are adjacent if and only if they have a common element and if x=u then y and v are adjacent in G. A graph is said to be Hamiltonian if it has a cycle that passes through each vertex of G exactly once.
A graph is pancyclic if it has cycles of all length from 3 to n. In this paper we discuss some properties of U_2(G) and further obtain condition for pancyclicity of doublevertex graphs.

Intelligent Traffic Management Using Sensor Network

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Vehicular travel is gaining importance everywhere, particularly in large urban areas. The current technologies that support vehicular travel like inductive loops, surveillance camera etc., are expensive and also require high maintenance cost. Further the accuracy of these devices also depends on environment approaches attempt to optimize traffic lights control for a particular density and configuration of traffic. However, the major disadvantage of using these techniques is that the dynamic behaviour of traffic density and configurations change is difficult to model constantly. Traffic seems to be an adaptation problem rather than an optimization problem. This paper tries to address the above issue, and hence we propose algorithms which perform adaptive traffic light control using wired sensor network setup. This paper aims at analysing methods to build an intelligent system that can blend and support some of the existing technologies of traffic control and therefore reduce the average waiting time of vehicles on a junction. Therefore, we implement the algorithms which are adaptive to traffic flow at any intersection point of roads.

Performance Evaluation of Address Auto configuration Protocols in Mobile Ad-hoc Wireless Networks

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The TCP/IP protocol allows the different nodes in a network to communicate by associating a different IP address to each node. In wired or wireless networks with infrastructure, we have a server or node acting as such which correctly assigns IP addresses, but in mobile ad hoc networks there is no such centralized entity capable of carrying out this function. Therefore, a protocol is needed to perform the network configuration automatically and in a dynamic way, which will use all nodes in the network (or part thereof) as if they were servers that manage IP addresses. This article reviews the major proposed auto-configuration protocols for mobile ad hoc networks, with particular emphasis on one of the most recent: D2HCP. This work also includes a comparison of auto-configuration protocols for mobile ad hoc networks by specifying the most relevant metrics, such as a guarantee of uniqueness, overhead, latency, dependency on the routing protocol and uniformity.

Auto Removal of Bright Spot from Images Captured Against Bright Source of Light

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An image captured with sun or bright source of light in the background often produces a bright spot in the image. Typically, the image of a scene taken during sunrise or sunset contain bright spot. The colour of bright spot may be blue, green, orange, white or yellowish that mainly depends on the overall background. In many cases, bright spot, haze or flare can appear anywhere in the image which is due to internal reflection in the lens. The light reflected from the surface of the internal lens or scattered by the imperfection of lens cause unwanted bright spot. The angle of incidence of light is the main reason which could be avoided by taking the picture at a proper angle such that the spot is placed directly on the source of light which needs some expertise. For images which have already a bright spot in the image can be removed manually which needs the knowledge of additional software tools. Besides, manual correction becomes a time-consuming process for a large number of images. In the proposed work, we address this issue by identifying the bright spot automatically and its removal with gap filling. To achieve this, we use speeded up robust features (SURF) to detect the bright spot, and exemplar based in-painting algorithm to fill the gap after its removal. We test the proposed method on several images captured against sunlight. Experimental results on bright spot images show that the proposed method is effective and corrected images look more natural without any artefacts.

Comparison of Machine Learning Algorithms for Diabetes Dataset with and without Feature Selection

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Diabetes Mellitus is considered as a major health issue across the world and sometimes it may lead to kidney failure, heart problems, blindness and also death. By predicting some of the symptoms of diabetes we can try to prevent these diseases at an early stage by using various learning models. The main purpose of this study is to compare the performance of machine learning classifiers with and without feature selection to classify patients with and without diabetes mellitus. The machine learning classifiers used in this approach are Logistic Regression, Random Forest and Decision Tree and the feature selection technique used is the Recursive Feature Elimination (RFE) technique. The experimental results obtained show that the machine learning classifiers with feature selection provide more accuracy than without feature selection.

Enhanced Fuzzy Based Secure Architecture to Detect the Malicious Activity In MANET

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MANET is the self-organized and self-configurable network where the mobile nodes move arbitrarily. It also has features such as open medium, dynamic topology, distributed cooperation, congestion, energy constrained, variable capacity links and security. Due to security vulnerabilities and dynamic nature of network, wireless mobile adhoc networks may be unprotected against packet dropping attacks by any unauthorized node. This paper proposes fuzzy based secure architecture (FBSA) for mobile ad-hoc network in which node classification and detection of malicious activity is done through fuzzy detector. After detection of malicious activity, comparative study is performed on various parameters such as packet delivery ratio, average throughput, total packet forwarding and percentage of detection with variation in node speed.

Reliable Data Security Architecture for Optimized QoS using Multipath Routing Protocol in WSN

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A wireless sensor network (WSN) refers to group of spatially dispersed dedicated nodes called as sensor nodes that organize themselves into a multi-hop wireless network. Wireless Sensor Networks (WSN) is one of the major achievements in the field of communication. It is a promising approach, but it does not provide optimal route discovery all the time due to the major issues of resource constraints of sensor nodes and various application requirements. The Reliable Data Security Architecture for optimized QoS using multipath routing protocol is designed for finding the nearest Optimal Multi-hop communication link from source to the destination by considering various QoS metrics for WSN. In this protocol original message to

be secured is split into parts that are transmitted in multiple paths. The parted messages are encrypted on its course of transmission which improves security at next level.

Implementation of Techniques and its Management on Constructional Activities

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Precast construction technique is the time effective; it requires less time to execute than cast-in-situ method. Time save in construction would compensate the overall profit for the owner. Precast technology achieves better concrete quality control with less wastage of materials. In this paper, G+3 commercial multi-storied building is planned and compared with the precast construction and cast-in-situ construction for cost analysis using Payback Period Method and Net Present Value Method. Scheduling is done using Primavera. Primavera (P6) proves to be efficient tool in monitoring, scheduling, controlling and updating the project at any stage of construction process. Through payback peri-od it is able to deduce that, the initial investment can be recovered approximately one month before the cast-in-situ method when we are employing precast approach. Also, considering an investment criteria i.e. Net present value method shows that, a higher profit is obtained towards the investment in precast than in cast-in-situ method. Hence, precast construction method proves to be profitable when compared to conventional method of construction.

Risk Information Model Involving Construction of High Rise Buildings in selected zones of Udupi district having Laterite Soil

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The current study done is based on the geotechnical study of lateritic soil samples collected from eight different places in and around Udupi district located in Karnataka state (India). The aim of the study is to know the effect of these laterite soil properties on the foundation cost of high-rise buildings and to prepare a Risk Information Model which will denote the risk involved in the construction in the places covered in the Zonal Map. A technically efficient tool for forming the risk matrix is applied here along with the help of five points Likert scale. All the required geotechnical tests including specific gravity, Atterberg limits, sieve analysis, standard Proctor test and unconfined compression tests. These tests were conducted in the laboratory and based on the safe bearing capacity (SBC) of collected soil samples, grading is done listing the soil profiles as weak, good and vulnerable for the purpose of construction.

Preventing blackhole attack in MANET with a reliability index based AODV protocol

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Mobile Adhoc Networks (MANET's) are autonomous and wireless networks. It operates without the use of existing infrastructure. Routing protocol can be divided into proactive, reactive and hybrid protocol. The routing protocol for MANETs copes up well with dynamically changing topology but is not designed to accomplish against the malicious nodes. The same is true for one of the routing protocols i.e., AODV. It experiences black hole attack in which the malicious node becomes the part of the network which in turn damages the whole network. A malicious node simply receives the packets by advertising about having a shortest path and discards it which degrades the performance of MANETs. This paper proposes a novel approach which is based on reliability index that detects and avoids malicious nodes in early stages of route establishment. The simulation result shows the gain in the performance when compared with performance during attack.

Wind – Hydro Coordination for Enhanced Worth of Wind Power and Potentials in Karnataka State of India

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The augmented demand for the power across the globe has resulted in the growth of non-conventional sources of energy as an appendage to the conventional sources. The large-scale grid connected wind power systems have become one of the better alternatives among renewable energy-based power generation methods. However, the intermittency of wind power is one of the major limitations in the effective harvesting of energy leading to its reduced worth. Several methods are proposed and implemented to overcome the issue of wind power intermittency. In this paper a coordinated approach between wind and dispatchable and geographically proximal hydro power station is proposed to enhance the value of wind power. A MATLAB SIMULINK model of a wind power station is developed. Three potential sites with the conducive operating conditions for the implementation of the proposed scheme have been considered for the analysis. The results obtained are correlated to the enhanced worth of wind power.

Analysis of PID Control Algorithms for Transfer Function Model of Electric Vehicle

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An Electric Vehicle is a plug-in electric automobile that is propelled by one or more electric motors using energy typically stored in rechargeable batteries. As electric vehicles are making big waves in automobiles world, modelling and simulation of Electric Vehicle have got high

attention among researchers. Controlling an Electric Vehicle is not an easy task, as the design and operational parameters vary along with the road conditions. The article presents the design and simulation of conventional control algorithms for Electric Vehicle. The transfer function model of the Electric Vehicle is considered for the design and analysis in MATLAB/Simulink platform. It is found that Proportional Integral Derivative (PID) controller is simple and feasible, along with better-closed loop performance with and without disturbance. The work includes the control of the electric vehicle by designing three different control algorithms: i) Cohen-Coon (CC), ii) Wang-Juang-Chan (WJC) and iii) Chine-Hrones-Reswick (CHR) algorithm for the second-order transfer function model. The resulted controller is also simulated using equivalent First-Order Plus Dead Time (FOPDT) model of an electric vehicle. A comparative study has been carried out using its time domain specifications. Also, Performance Indices such as Integral Square Error (ISE), Integral Absolute Error (IAE), Integral Time Absolute Error (ITAE) and Integral Time Square Error (ITSE) are evaluated in order to identify the superiority of control techniques.

Structural Topology Optimization for Static and Dynamic Load Cases

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In the optimization discipline, topology optimization is a special kind of problem which gives an intuition of the optimal design for the structural domain. Topology optimization has been efficiently used in order to achieve weight savings in structures. In the period of developing infrastructures, we should optimize each and every structural member to its maximum efficiency. This paper presents a study on structural topology optimization in a general 3D domain. The methodology adopts the compliance minimization with volume constraint using the Solid Isotropic Microstructure with Penalization (SIMP) method. In SIMP approach, the design domain is discretized into small rectangular elements within which constant and isotropic material properties are assumed. Optimization solutions for both static as well as dynamic problems are presented. In static problems, objective function can be formulated as minimum strain energy. When a structure subjected to dynamic loads such as wind and earthquake loads, Eigenvalue optimization is beneficial. Structural stiffness can be related to Eigen frequency which can be utilized for evaluation of dynamic behaviour. For dynamic problems, maximization of Eigen-frequency can be taken as an objective with volume constraint.

Ambient Assisted Living: A Review on Human Activity Recognition and Vital Health Sign Monitoring Using Deep Learning Approaches

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The rise in life expectancy rate and dwindled birth rate in new age society has led to the phenomenon of population ageing which is being witnessed across the world from past few decades. India is also a part of this demographic transition which will have the direct impact on the societal and economic conditions of the country. In order to effectively deal with the

prevailing phenomenon, stakeholders involved are coming up with the Information and Communication Technology (ICT) based ecosystem to address the needs of elderly people such as independent living, activity recognition, vital health sign monitoring, prevention from social isolation etc. Ambient Assisted Living (AAL) is one such ecosystem which is capable of providing safe and secured living environment for the elderly and disabled people. In this paper we will focus on reviewing the sensor based Human Activity Recognition (HAR) and Vital Health Sign Monitoring (VHSM) which is applicable for AAL environments. At first, we generally describe the AAL environment. Next, we present brief insights into sensor modalities and different deep learning architectures. Later, we survey the existing literature for HAR and VHSM based on sensor modality and deep learning approach used.

Smart Headlight System

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In today's automotive industry the issue of drive safety & comfort is of great importance. Nowadays, the number of vehicles on the road are increasing drastically and accident rate is also increasing. Especially at the night most of the accident are occurred due to dazzling of headlight. Driving the vehicle at night, dawn and dusk with existing headlight system is risky because it does not provide brilliance on the roads and won't be focused on the required area. Due to this constrain, paper describes the introduction of smart headlight system, an improved technology for better power of sight and safety of the drivers during night time. When the vehicle is following other vehicle, headlights will switch to low beam and when there is a vehicle approaching our vehicle, only right-side headlight switches to low beam with reduced intensity. When the vehicle is moving up the hill or down the hill, the beam of the headlight automatically switches depending on the vehicle inclination.

Prior solutionising deformation consequence on the aging characteristics of steel powder reinforced Al 7075 composites

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Globally, in the application of structural materials, aluminium composites are emerging as pioneer materials due to balanced properties like ductility, strength, hardness and weight to volume ratio. It is obvious that addition of harder steel powder reinforcements to the softer aluminium alloy matrix will yield in larger benefits as energy efficient method, durability and recyclability for the composite. In fact, improvement in hardness levels at low temperatures in softer matrix aluminium alloys is the order of the day for wear related applications. Aluminium alloy composites especially Al 7075 matrix containing solid state soluble elements like copper, zinc and silicon with or without wetting agents like magnesium are heat treatable and got medium strength. The alloy matrix dispersed with solid reinforcements like carbides, oxides, fly ash and steel powder contribute for the property improvement by tailoring the suitable heat treatment with flexibility in process parameters. Cold deformation assisted heat

treatments, prior to or post solutionising challenge conventional heat treatments like age hardening or precipitation hardening. When the cold deformation is provided before solution treatment increases hardness by strain hardening with increased nucleation sites for phase transformation. When partial solutionising is given to the cold deformed composite retains the partial strain hardening effect on the specimen compared to complete solutionising. The retention of partial strain hardening followed by further aging develop complex interaction effect of strain hardening coupled with controlled precipitation of intermetallic on the composite for drastic uplift in hardness property.

During conventional age hardening hardness and strength of the samples increase. Reduction in peak hardness value with increasing aging temperature is the renowned behaviour of age hardenable composites. The obtained peak hardness value is further increasing when cold deformation is supported with prior intentional deformation. Considering these features, it is proposed to perform prior solutionising deformation followed by subsequent aging on the stir cast Al 7075 –steel powder reinforced composite and analyse the microstructure and hardness distribution pattern by varying the steel powder quantity (0, 3 and 6 wt%), deformation density (10 and 20%) and aging temperatures (100 and 180oC). There was better distribution of reinforcements in the matrix, finer grained phases with increase in the deformation density, higher peak hardness with the increase in deformation density and reinforcement quantity in the matrix. Higher peak hardness is observed at lower aging temperature with reduction in the peak age duration in the composites at all other variable conditions like, reinforcement quantity, degree of deformation.

32-Bit RISC Microprocessor Design With 5 Stage Pipelining Verilog HDL And Implementation on FFPGA Board

Shwetha Nayak, Sampath S Shetty, Sharanya Shetty, Shriraksha S Shetty, Chetan   R
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The main objective of this paper is to design and implementation 32-bit RISC processor using Xilinx FPGA Tool for embedded and portable application. The processor has been designed with Verilog, synthesized using Xilinx, simulated using ISE Sim simulator and implemented on Xilinx Spartan 3 XC3S50 FPGA that has 32 available I/O pins. The design will help to improve the speed of the processor, and to give the higher performance of the processor. The most important feature RISC processor is that it is very simple and support load or store architecture. The important components of this processor include the ALU, Register bank, pipeline, and memory.

FPGA are slower than ASICs but have the advantage of shorter time to market, ability to be re-programmed in the field for error correction, upgrades, flexibility and low cost. The use of hardware description language allows FPGA to be more suitable for different types of designs where errors component failures can be limited.

Air pollution monitoring and prediction system

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Environmental Air Pollution Monitoring System is used for monitoring the concentrations of major air pollutants using gas sensors. The main target of this project is to monitor the air quality using sensors and analyze the existing trends in air pollution and make prediction about future. The major objective is to inform the public about the air quality, raise the awareness and also to develop warning systems for the prevention of undesired air pollution episodes and to create awareness in order to reduce the amount of air pollution caused due to various sources. The system is also used to get the approximate quantity of pollutants present in air thereby giving awareness to the people of that specific region. Thus, the amount of pollution caused due to various sources can be reduced, leading a healthier and safer environment.

Study of Settleable Particulate Matter Present in Ambient Air at Gulbarga City Using Dust Fall JAR and Natural Receptor

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As more advanced the civilization becomes, more complex the problems related to the man's environment. The population explosion has led to a greater demand for more food, more water, more shelter demand for more manufacturing of goods etc. satisfaction of these demands has led to a nervier ending pollution of air, water and earth.

Over the course of tens of thousands of years man successfully learned to exploit ecological system for substance. Today the world environment has changed. Humans out of ignorance, short sightedness, greed or desperation have polluted air and water, undermined the productivity of the land through accelerated soil erosion, creeping deserts, increased flooding and declined soil fertility. The activates of man often disrupts the balance among the constituents which are necessary to life.

A man intakes air equal to 4/5th of his body weight. the air, constitutes several gases alike oxygen, nitrogen, co2, etc, generally, the composition of air is 79% N2. 0.03% CO, and nearly 20% 02. This composition of air is favorable to human beings and sustaining Various other life forms on this planet, earth. today dare to large population and Human activity, there is an imbalance in the constituents, which has an adverse effect on the man and environment.

Historically, air pollution is not a new phenomenon. Natural form of air pollution such as volcanic eruption, were know and feared by prehistoric man. The emissions included massive quantities of fine dust and toxic gases. man –made pollution probably dates back to the early cave man who discovered fire. Having discovered this as an invaluable source of energy for keeping him warm and cooking food, often he was forced to flee from his cave coughing and chocking from the noxious smoke and gases from his primitive fire.

Now, with the industrial revolution the problem of air pollution magnified with lots of emissions of smoke, flash, dusts, gases etc., into the atmosphere. Now, it has reached such a stage, the very existence of mankind is at question.

Strength and Durability Studies of Recycled Aggregate Concrete Blended with Additives

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Concrete is one of the important construction materials across the globe. With the rapid growth in construction activities, it is important to assess the amount of construction and demolition waste being generated and analyse the practices needed to handle this waste from the point of waste management and disposal and also with regard to waste utilization in concrete from the sustainability aspects. Construction and Demolition (C&D) waste constitutes a major portion of total solid waste production in the world, and most of it is used in landfills. Research by concrete engineers has clearly suggested the possibility of appropriately treating and reusing such waste as aggregate once again in concrete, especially in applications such as bed concrete and in road beds for pavement i.e. where works are of less importance as regards to the strength. The use of such waste as recycled aggregate in concrete can be useful for both environmental and economic aspects in the construction industry. In present study, five concrete mixes were used; first mix had only natural coarse aggregate and in remaining mixes natural coarse aggregate was partial replaced by 10%, 20%, 30% and 40% recycled coarse aggregate. In all the mix cement was replaced by 10% additives such as GGBS and silica fume. Here an attempt is made to assess the strength and durability characteristics of concrete made using construction and demolition waste recycled coarse aggregate.

Labour Management Android application

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Our daily life is adapted to technology, Our life us easier through applications. The LABOUR MANAGEMENT ANDROID APPLICATION is the one in which customers can find their labour and the labour can find work. There are three intended users System admin, Customers and Labours. The labour will have to register himself in the application. Customers searches for the labourer according to his requirements. Here the wages will be given only through the cash. This application or the system will help the people to make their work simpler.

Nowadays, people are finding difficulties in finding the right workers to do their work done. Workers may not be available when they are required or may not be efficient in their work. Also, many workers will not get work daily and they may face difficulties to satisfy their needs. This causes a serious problem to person whose work is to be done and workers.

Monitoring and Modelling of River Flood using High Resolution Satellite Image

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Flood is an unavoidable natural disaster which is caused due to heavy rainfall. It is major problem faced in many areas around the globe. This causes severe damage to the properties and lives. Flood occurred frequently in the recent years which are of isolated and affecting wide areas of the territory. That flood prone areas need to be examined in the light of how they might be affect or be affected by the development. This project focusses on detecting the damage of flood through which we can detect the possible losses(disaster). Damage caused by the flood is detected by knowing how much area is covered by flood. Here a flood prediction system is developed to detect the damage caused by flood and also find out the raising level of water in the water bodies using ultrasonic sensors. Lastly the flood damage report will be generated based on the population density, built up area and vegetation.

Soft Computing Approach to Predict Rainfall

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As we know agriculture was the predominant of our country and economy. This project mainly aims in prediction of rainfall using machine learning techniques. While a regular rain pattern is usually played vital for healthy agriculture but too much rainfall or too little rainfall can be harmful, even it led to devastating of crops. This project represents a mathematical method called Linear Regression to predict the rainfall. We have selected a real dataset which consists of past years rainfall rate according to various seasons. Results of this application help farmers to make a correct decision to harvest a particular crop accordingly to crops seasons. India's foremost occupation is agriculture and its economy mainly depend on the agriculture of the country. Hence prediction of rainfall is important for better growth of the country. Accuracy of rainfall forecasting has great importance for countries like India whose economy is largely dependent on agriculture. Heavy rainfall is a cause for natural disasters like flood and drought which are encountered by people across the globe every year. And so, accuracy of rainfall forecasting has great importance for countries like India that is largely dependent on agriculture. Due to dynamic nature of atmosphere, statistical techniques fail to provide good accuracy for rainfall forecasting. Recurrent artificial neural networks (RNNS) have played a crucial role in forecasting rainfall data. Meanwhile, support vector machines (SVMs) have been successfully employed to solve nonlinear regression and time series problems. We have selected a real dataset which consists of past years rainfall rate according to various seasons. Results of this application help farmers to make a correct decision to harvest a particular crop accordingly to crops seasons using soft computing approach.

Data Visualization for analysing the effect of climate change for Patna city

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Climate change is one of the main reasons for the increase in the disease of living being, this affects the lifespan of the same. Deforestation, change in Vegetation, chemical fertilizers are some the causes of climate changed. In order to understand the change in the vegetation a tool has been designed as it is very difficult to understand about climate change without the visualization. The Toolkit which has been developed for analysing the climate change in Patna used to visualize on Bihar map for different parameters like surface water, ground water, soil, noise, drain water. The data samples are collected for all the parameters in different surfaces, later the data needs to be Stored in the proper format as it becomes easier for the data visualization tool to access the data.

A very user-friendly data visualization is achieved based on the user's requirement. A Simple plotting along with the Heat Map and Graphs (Line, Bar graph) has been made for the user. This user-friendly toolkit has been done using web interface. Python provide lots of packages for the visualization as well as it has most popular web framework, here user is able to get the clear view about the concentration of the parameters in Patna city.

A Review on methods to identify plant disease using Image Processing and ANN

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As Agriculture is the back bone of the country maintenance of the plant plays an important role as many of the plants are exposure to the surroundings there is high chances of getting effected by the environmental pollutions. In many of the places the workers are assigned only to look after the plants condition, problem occurs when the land is too large and a greater number of workers needs to be assigned to look after it. In many cases the quality, quantity of the plants can be decided by the condition of the leaves of the plants, there should be an automation in finding out health condition of the plant, it is a good habit to find out the leaf condition during the earlier stage of disease. Image processing technique helps us in this situation.

By using image processing techniques one can able to get the difference in the several images even though several images are of same leaf, if the image got effected by any of the factors the effected portion can easily be identified by image processing tools or algorithms. This paper makes a survey on applying different image processing techniques for identification of the plant leaf infected area. further by using Neural network concepts we can get the stages of the leaf disease, the image is fed into the neural network and output is generated, that output is then mapped to the stages of the disease to get to which stage the plant is in.

Deep Learning Techniques Using Data Science

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Up until early 2000's climate predictions were made mainly using statistical methods. This prediction wasn't always entirely accurate. With the introduction of machine learning and deep learning in climate prediction, the prediction accuracy has improved dramatically. The sensors in the weather stations give massive amount of unstructured data. Due to the humungous amounts of sensors and data from it, it's almost impossible to compute all the necessary weather information in time. AI and deep learning help to overcome this problem using different models which can swiftly and accurately make this job simple. Accurate climate prediction is very important to predict is very important to predict any natural calamities or unexpected change in weather. This report highlights few of the deep learning models which can be used for climate prediction by scientists. This paper only takes scratches the surface of the capabilities of AI in climate change. More advancements in this field would lead to better simulations of the weather conditions which can then be useful to predict the extreme weather conditions accurately. Few of the authors have used unique models in their prediction of various temperature, rainfall, pollution levels etc. which have helped them to find the discrepancies in the climate if any.

Intelligent Vehicle Trapper

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In traffic surveillance, tracking of the vehicle is a crucial job. We are proposing a real time project which detects the vehicle and reads the number plate which will be helpful for tracking the vehicle. In most situations it is quite difficult to identify the vehicles which has been lost or through which some serious crimes have been done. It is necessary to capture the number plate of the vehicle and use this captured number plate to detect the vehicle. In order to track the vehicle, we need to extract the number from the captured image using OCR (Optical Character Recognition) technology. Using this system, we will be able to notify the respected persons regarding the detected vehicles.

Sentimental Analysis of Student Feedback Using Machine Learning Techniques

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Educational institutions attempt to collect feedback from students to study their sentiment towards courses and facilitates provided by the institution to improve the college environment. The textual feedback provides an opportunity to students to highlight certain aspects which are not directly covered by rating based feedback. In this paper, a method has been proposed for sentimental analysis using machine learning algorithms such as Multinomial Naïve Bayes, Support Vector Machine and Random Forest. A comparative

analysis is also conducted between these machine learning techniques. The experimental results suggest that Multinomial Naïve Bayes is more accurate than other methods.

3d Reconstruction of Mandible Using Panoramic Technology

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At present 3D reconstruction of jaw is obtained using CT scan or Cone Beam CT (CBCT) scan. If CT scan is considered to emit radiation equal to one unit, then CBCT emits one tenth radiations as that of CT scan. In this paper, we propose 3D reconstruction of jaw from panoramic X-rays. This will emit only one hundredth radiation as that of CT scan reconstruction. Also, the cost will be reduced to one tenth of CT scan reconstruction. The Panoramic X-Ray image being considered in this project is of low quality. This might affect the construction of 3D model. Therefore, it is necessary to do some enhancements to the image so that we get a better-quality image. Here we will compare different image enhancement techniques on the panoramic x-ray images. CLAHE is one of the best image enhancement techniques for our input image. We will consider a standard 3D model of the mandible in hand so that it can be deformed using the features of affected person. This 3D model is given to surgeons so that they can analyze it in advance before the surgery.

Virtual Ogma: A Real-Time Strategy Game with speech control

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The technology of Speech Recognition has played an increasingly significantly role in our daily life. With proper processing it can be used to control complex systems. In this paper, a Real Time Strategy (RTS) Game has been developed that makes use of this technology in the realm of gaming, where players could make use of alternate form of input such as voice in order to interact with the elements in the virtual world. As a result, player will experience a high level of immersion while playing the game. Recognition of player's speech is done using Microsoft Speech SDK due its low latency and high accuracy. It also provides a very good support for working with Unity, which is the game engine that we use to develop our game. Since we are reducing, if not, eliminating the use of conventional keyboard-mouse or controller, this would also work exceptionally well with mobile VR games that're played on Google Cardboard, Daydream View 2 or Samsung Gear VR, since they do not have a universal controller as of now.

Decision Support System for Water Quality Monitoring Based on Ph, Electrical and Temperature

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Ensuring the safety of water is a challenge due to the excessive sources of pollutants, most of which are man-made. The main causes for water quality problems are overexploitation of

natural resources. The rapid pace of industrialization and greater emphasis on agricultural growth combined with latest advancements, agricultural fertilizers and non-enforcement of laws have led to water pollution to a large extent.

As the society is not aware to what extent the water resource is being polluted, we are developing an affordable online decision support system for water quality monitoring. This system consists of sensors which compute the standard of water in real-time for effective action.

Objectives of proposed system is to collect the information of basic water parameters at set locations and at regular intervals in order to provide data which may be used to define current condition of water.

The data collected from the sensors are made available to the society through map as user interface. This system sends an alert to the public if there is any variation of water from the set standard.

Diet Recommendation System for Chronic Disorders

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Abstract: Recently there has been an increase in the number of diabetic and obesity patients at an alarming rate. Approximately 18 million people died from cardiovascular diseases every year where diabetes and obesity are one of the major factors. So, treating diabetes and monitoring obesity is required to efficiently manage health conditions of patients.

In this project, an android application has been designed and developed that recommends probable diet and exercise to help people manage their health.

This recommender system analyses the input parameters that are entered by the end users and provides personalized recommendations for users in the form of diet and exercises. This android based system can also remind users to follow the recommendations which are provided by the system. These features are extensible and convenient for use. The recommendation is done using User Based Collaborative Filtering.

This system asks the user to enter a predetermined set of parameters which are then matched with many other patient's parameters stored in the database. The database consists of past cases of patients who have been diagnosed with diabetes and obesity and treated for the same, this matching is done using Pearson's correlation. The matched patient's diet and exercise is then recommended to the current user. In this way, users can know their personalized health status and also, they can get the one healthcare guideline recommendation using which they can keep diabetes and obesity under control.

Intelligent Pillbox

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Untimed medicine administration can always show adverse effects on the health of the patients. The proposed system is designed to help these patients to take the required medicine in the right proportion at the right time. The basic ideology is integrating the principle of Alarm clock with Light based slot sensing on a normal pill box. The two

components of Intelligent Pillbox are Pillbox and Pill Helper. It is an application developed on the Android platform and communicates with a database. The functionalities of the application are organizing patient pills in terms of what pill to take, a time reminder when the patient must take the pills, and setting visual, audible, and buzzer. In cases where it is important to take the treatment at exact hours each day, the application helps especially patients with mild mental disorders or elderly.

Examination Seating Arrangement

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Presently, the seating arrangement for the examinations done manually. Initially examination section has to collect all the student examination registration details branch wise and year wise. These details include name, usn, branch, year, list of subjects registered for exam. The administrator needs to count the total number of students registered. Then admin needs to select the rooms and the divide the students among those rooms.

After dividing the rooms, admin need to prepare student list and faculty list for each based on the exam. Admin also needs to prepare the seating arrangement list for each room based upon the count. All this work needs to be done for each room, each branch and year. The examination management automation system atomizes the existing system of assigning seating arrangement. When a student registers for an examination this system stores student examination registered details in the database. These details are efficiently used whenever required. The system asks for subject of the exam to be conducted, set number, room details and allocate rooms. This also generates seating arrangement and students list and faculty assigned for each room.

The project Exam Seating Arrangement System has been developed to help the department maintaining the student details, earlier the records where maintained manually, with the help of this package the concerned departments will be able to improve the productivity, reduce the time, cost factors associated with the system. The automation of the system will help the organization in proper maintenance of the record, less man power, less man-days, less cost, proper and accurate functioning. The project keeps track of various details in modules such as student details, staff details and hall details.

Vehicle Theft Detection Using IoT

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The smart engine locking system is an embedded system, implemented to prevent unauthorized access of vehicles while parking in insecure places. The proposed system incorporates with a GSM and GPS modules. This instrument is installed in the engine of the vehicle whose current position is to be recorded and locked the engine in real time. Main objective of this instrument is to protect the vehicle from any unauthorized access by providing two locking status, theft mode and user mode. These two modes are controlled by Arduino UNO and GPS technology is used for finding current location of the vehicle. A GSM modem is also connected to the micro controller for sending message to the owner's mobile

if the vehicle is in theft mode. This system puts into the user mode if vehicle is handled by the owner or authorized persons, otherwise goes to theft mode. The most important concept in this design is introducing the mobile communications into the embedded system using GSM module. The entire design is on a single board.

OMR based attendance Management System for SMVITM

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The present Attendance Management System that is being used in college requires lecture to take attendance in class by marking absentees as 'a' and 'tick' mark for students who are present. Later after the attendance is taken the details has to be uploaded to the system monthly or before every internals. Here in the system the table consists of USN in rows and days in when the classes were held in column wise. The value for each cell will be set as '1' by default. Whenever a student is marked as absent on attendance sheet the value on the cell against students USN on particular day is set as '0'. This process is time consuming since there are 6 different classes and each class has 5 different subjects. So, our project 'OMR based attendance system' solves this problem. Here the attendance is taken using OMR sheets. The OMR sheet is prepared for different subjects and handled by respective faculties. The OMR sheet has USN of students row wise and days in column wise. Whenever a student is absent for the class the bubbles in the OMR sheet is darkened. When the student is present no changes has to be done. Later in order to upload the details to system the faculty needs to login using his name and password and click on camera for capturing the OMR sheet image. Once done capturing click on scan. The scanning returns the attendance details in excel format. The absentees are displayed as 0's and others as 1's. The Excel sheet also has details about the percentage of students' attendance and also the student who have attendance shortages are highlighted.

Optical Character Recognition

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Nowadays all over digitization technology is used. Text Recognition usually abbreviated to OCR, involves a computer system designed to translate images of typewritten text (usually captured by a scanner) into machine editable text or to translate pictures of characters into a standard encoding scheme representing them. OCR began as a field of research in artificial intelligence and computational vision. Text Recognition used in official task in which the large data have to type like post offices, banks, colleges etc., in real life applications where we want to collect some information from text written image. People wish to scan in a document and have the text of that document available in a .txt or .docx format.
Pre-processing is the first step in the processing of scanned image. The scanned image is checked for noise, skew, slant etc. There are possibilities of image getting skewed with either left or right orientation or with noise such as Gaussian. Here the image is first converted into grayscale and then into binary. Hence, we get image which is suitable for further processing.

After pre-processing, the noise free image is passed to the segmentation phase, where the image is decomposed into individual characters. The binarized image is checked for inter line spaces. If inter line spaces are detected then the image is segmented into sets of paragraphs across the interline gap. The lines in the paragraphs are scanned for horizontal space intersection with respect to the background.

Feature extraction follows the segmentation phase of OCR where the individual image glyph is considered and extracted for features. Classification is done using the features extracted in the previous step, which corresponds to each character. This classification is generalized such that it works for single font type. The height of the character and the width of the character. Similarly, the classification rules are written for other characters. This method is a generic one since it extracts the shape of the characters and need not be trained

A Review on IBM Summit

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Summit or OLCF-4 is a super computer designed for the use of scientific research. Summit is developed by IBM for use at Oak Ridge National Laboratory. Summit is the current fastest super computer as of November 2018. To know about Summit, we must have some idea about super computers. Super computer is a computer that performs highest operational rate of computers. A super computer is typically used for scientific and engineering applications which will handle large databases or do great amount of computation. At any given time, there are usually a few well-publicized supercomputers that operate at extremely high speeds. The term is also sometimes applied to far slower computers. Most supercomputers are really multiple computers that perform parallel processing. In general, there are two parallel processing approaches:

Symmetric multiprocessing (SMP)

Massively parallel processing (MPP)

The new system, Summit is eight times faster than Titan, which has until now been the fastest super computer.

5G: A Mobile Wireless Communication Technology

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This paper provides an overview of emerging and most talked term in network technology -i. e,5G. here we are going to give an introduction to 5G technology, Challenges in migration from 4G, need for 5g, architecture of 5G. The major contribution of this paper is the key provision of 5th generation technology of mobile communication the main aim of 5G is to provide high bandwidth to the mobile phones.

Currently 5G term is not officially used. In fifth generation research are being made on development of World Wide Web (WWW), Dynamic Adhoc wireless network (DAWN) and Real Wireless World. It is said that 5G technology will be released in 2020, which is going to make the tremendous changes in the wireless communication system.

Digital Electoral System

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Using the old or the present voting system no longer seems efficient due to various recurring errors. So, time has arrived that the system needs to be improved such that it will benefit the electoral procedure as well as the voters. Here we are proposing a Digital Electoral System. This paper mainly focuses on designing of a fully-fledged Digital voting system that facilitates users i.e. voters, candidates and Election Commission who will conduct election process (up to declaring results). Our proposed system is efficient adheres to voting protocol, simple and easy to maintain. It maintains details of voting, voters, candidate and election. The system is designed such that only the election commission has the permission to assess to the system, but modification of the data is not permitted. From registration of the voter or the candidate details up to counting of results the system is made fully secured. The system designed such that the place of voter and the candidate is the highlighted content in the backend for mapping. This system will decrease false voting and will increase voting percentages

Studies on Production of Biofuel Using Composite Materials

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This paper presents an experimental study on the production of biofuel using composite materials. The usage of bioethanol as an alternative fuel in vehicles not only helps in reducing the greenhouse gas emissions but also is much cheaper, durable and eco-friendly fuel. In this paper we have performed studies on the use of various composite materials for preparing biofuel and their comparison. Tests were performed to determine the concentration of ethanol in the different samples obtained. From the results the studies were able to obtain a renewable and eco-friendly energy, bioethanol with high efficiency and durability compared to gasoline used as a vehicle fuel.

Transport Vigilance and Fine Automation

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Wrong way driving has led to serious accidents. Transport vigilance and Fine Automation is a system to reduce wrong way driving and automating the penalty in case a person moves in wrong direction. The proposed system uses Arduino microcontroller for the vehicle identification and GSM module for alerting the owner of the vehicle regarding the fine deduction. Vehicles need to have RFID tag enabled in the windshield. Vehicles travelling in the wrong direction will be detected by the RFID readers and the movement of vehicle will be stopped for some time. Tag id of the vehicle will be sent to the server and amount will be deducted from the respective owner's account which he has to maintain with the RTO department. Message regarding the amount deduction   will be sent to the mobile number of the owner. In case if the violation happens more than three times, vehicle registration will be

cancelled. Ambulance, fire brigades and police vehicles are the exceptions in this system which will not have any RFID tag enabled in the windshield.

TV Show Popularity Analysis

Sushmitha, Shilpa, Vineetha, Supreetha, Anujna Rao

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TV Show Popularity prediction using sentiment analysis is one of the most interesting and challenging tasks. A critical demand along this line is to predict the popularity of online TV shows which can enable a wide range of applications, such as online advertising, and show recommendation. The problem motivation stated above suggest is that it is only the viewer of a program who is responsible for its popularity or failure and if we anyhow can identify the most common features of a program which, the viewers want most, and through some effective scientific methodology could insert these requirements in the proposed TV program well at the time of production.

The purpose of this work is to evaluate the performance of TV Show and also calculate how many people are liked to a particular show and predicting popularity of that show, based on the text reviews obtained from YouTube using Naïve Baye's classifier. We are getting reviews on social networking website like YouTube.

Insurance Policy Recommendation System Using Machine Learning

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Recommender Systems play an important role in human lives nowadays. They have been used in many electronic commercial activities. They are growing more popular due to the development of Internet of things, big data analysis and machine learning techniques. A large number of users and items are usually involved in the recommendation process. There are different types of recommendation systems such as content-based, collaborative filtering, hybrid recommendation system, demographic, key word based and knowledge-based recommendation system.

Our proposed recommendation system collects the user's preferences and suggest best policy based on their preferences. In this recommender system we use KNN algorithm to recommend the best policy to the user. The recommendation results are generated for each user. The effectiveness of our proposed method is demonstrated by the results of experiment with some real-world data sets. The system will make use of the individual user information, to suggest what suits the user, thereby making user acceptable.

Fake Image Recognition using Metadata and Error Level Analysis using Machine Learning

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In digital forensics, the detection of the presence of tampered images is of significant importance. The problem with the existing literature is that majority of them identify certain features in images tampered by a specific tampering method (such as copy-move, splicing, etc). This means that the method does not work reliably across various tampering methods. In addition, in terms of tampered region localization, most of the work targets only JPEG images due to the exploitation of double compression artefacts left during the re-compression of the manipulated image. However, in reality, digital forensics tools should not be specific to any image format and should also be able to localize the region of the image that was modified.

The paper presents a method to detect fake images. The detection of fake images using the metadata of the image and the image classification is also preformed using neural networks. Image metadata is used to get the details of the image. The neural networks use the image and the image that was derived by Appling error level analysis algorithm.

Mining Trailer Data from YouTube For Predicting the Gross Income of Movie

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Abstract: YouTube is a video sharing platform where any user can upload, view, comment, like, dislike and share any video. It also includes different categories of videos. One among them is the movie trailer. The trailers act as an advertisement that promote movies. The main purpose of the trailer is to attract an audience. In the decades since film marketing has become a large industry, trailers have become most suitable form for advertising the upcoming movies. The trailer metadata can be used to predict the future of movies in the theatres. The different features include the likes, dislike, shares, comments, lifetime of a trailer etc.

Several techniques were employed to make the income predictions. Most of them were based on the sentimental analysis of the comments obtained from the viewer whereas the other features were omitted.

Our project aims at predicting the gross income of particular movie by considering the data that are collected from YouTube as well as Wikipedia. The metadata that are collected from YouTube includes likes, dislikes, view count etc of the trailer of a movie for which we want to predict the gross income. These metadata are collected by using YouTube API. The data that are collected from Wikipedia includes budget as well as collection of previous movies of the actor who has acted in considered movie trailer.

The dataset is prepared by using the these collected data. Linear Regression algorithm is applied to this prepared dataset to predict the gross income of the movie.

Review on Visible Light Communication

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Visible light communication (VLC) refers to short-range optical wireless communication using visible light spectrum from 380 to 780 nm. VLC is rapidly emerging as a compelling technology for supplementing traditional radio frequency communication and enabling new wireless device use cases that are uniquely achievable with this technology. Li-Fi technology is used to transmit the data using Visible light communication by using light-emitting diodes. The problems in current wireless communication systems like shortage of wireless radio bandwidth and an increased risk of interference of radio frequencies can be overcome by this technology. High data rate downlink communication in homes and offices and high accuracy indoor positioning in retail stores are two of the most compelling use cases of this promising new technology.

Study and Comparison of Mechanical and Thermal Ability Properties of Composite Materials Reinforced Using Natural Fibres and Ash as A Filler Materials.

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Composite in composite material means, two or more materials combined on a macroscopic scale to form a useful material. In other words, combination of fiber and matrix where the fiber withstands load and makes the composite stiffer while the matrix is a binder which holds the fiber in place. The advantage of composite is, they exhibit the best qualities of their constituents and also some qualities that neither constituent possesses. These properties make advanced composites extremely attractive and purposeful in situations where component weight is critical. The following properties can be improved by forming a composite material: tensile strength, stiffness, non-corrosive, wear resistance, flexibility, high durability, thermal insulation. Fibers from various sources, natural and man-made, are used to make composites. Coconut coir, sugarcane bagasse, areca husk, paddy husks are some of the natural fibers that can be used. They are also environmentally friendly and economical. In the following experiment, we aim to develop mechanics-based experimental approach to estimate and compare the thermal conductivity and mechanical properties of composites made according to hand layup technique. The study is done on composite materials produced with natural fibers embedded with epoxy resin and varied amount of ash content. It aims to compare the effects of ash content in composites, in various properties like flexural strength, tensile strength, shear stress, torsional stiffness and impact properties. The higher percentage of ash content in the matrix is known to give a higher resistance to heat, a property that can be harnessed to tolerate friction heat in extensive mechanical work.

Design and Fabrication of Water Tank Cleaner

Sreenath R S, Nikhil S S, Chandhan M D, Vijaykumar Doddamani F, Dr. Sudarshan Rao K
SMVITM Bantakal

Water storage tanks must be cleaned periodically to avoid contamination. Until now, tank cleaning has typically involved laborers equipped with hoses, pressure washers, shovels. The cleaning process undertaken by manual labor at present is very ineffective due to limited accessibility of labor to every part of the vessel. In order to overcome the above problems an alternative method for efficient cleaning is developed. The project design and fabrication of water tank cleaner is proposed to clean domestic cylindrical overhead water tank effectively.

Investigation of Microstructure, Mechanical and Corrosion Behaviour of Ball-Burnished Biodegradable Mg-Zn Alloy

Likhithraj, Mahesh Acharya, Kiran, Karthik Bhat, Ramesh S, Gajanan Anne
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This study investigates the feasibility of improving surface integrity of the Mg-2%Zn alloy via a novel combined process of multidirectional forging (MDF) with ball burnishing technique. Mg-2%Zn alloy was subjected to multidirectional forging up to 5 passes at 280 °C and same sample is undergone ball burnishing at depth of cut of 3.5 mm and feed rate of 0.5 mm/min at a force of 250 N for 1 pass. Microstructure (OM and SEM), mechanical properties (tensile and microhardness) and corrosion behavior (potentiodynamic polarization and electrochemical impedance spectroscopy) were evaluated for developed samples. Electrochemical impedance spectroscopy and potentiodynamic polarization were employed to assess the corrosive resistance

Performance Evaluation of Coagulants Using Natural Available Materials

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Developing countries are facing portable water supply problems because of increased urbanization, lack of abundant fresh water and inadequate treatment facility. The cost of water treatment is increasing and the quality of fresh water is not stable due to suspended and colloidal particle load due to land development and high storm runoff, sewage and industrial waste releasing into the fresh water developing nation have high demand of portable water but due to the lack of financial support it is difficulty to full fill the treatment aspect. The coagulation is the chemicals water treatment where coagulants used are oxide of aluminium, oxide of iron which leads to high cost of treatment, maintenance of pH and treatment of huge quantity of sludge. As a result, the drinking water that reaches the consumers is not properly treated. Therefore, it is of great importance to find a natural alternative coagulant to treat the water which reduces the cost and sludge treatment problem. In the present study an attempt will be made by using natural available material like Moringa oleifera and a few other seeds, such as peanuts (Arachis hypogaea), cowpeas (Vigna unguiculata), urad (Vigna mungo) corn (Zea mays) for their effectiveness in water clarification

as natural coagulants in water treatment. After the treatment the performance evaluation of the different coagulants will done this kind of economical treatment is necessary for developing country to treat and supply the water.

Mathematical principles for predicting reliability control parameters of pipe armature for transport energy systems

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When assessing the reliability of transport energy systems, such calculation methods and sources of information about changes in the performance of its elements are required, which would allow predicting behavior, including pipefittings in various operating conditions. The question of the mathematical apparatus application and involvement of already known methods for assessing the quality and efficiency of transport energy systems is of particular importance for the science of reliability. These systems and their structural elements, including pipefittings, cannot be isolated from the influence of the environment and the processes that occur in themselves in the case of residual effects that accelerate wear and reduce their initial characteristics.

Smart Automatic Urinal Flusher and Cleaner for Clean India Mission

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Cleanliness in our nation is under risk. The public toilets should be clean and hygiene in our country. The government has introduced a mission called "Swatch Bharat (Clean India) Mission" in order to provide clean environment to the people. This project is supportive to encourage the clean India mission so that in future it plays a major role. Bad odour and unpleasant environment are created in toilets due to lack of cleanliness. Presently there is automatic flushing system but there are no automatic cleaning processes. So, this work

includes automatic cleaning system together with automatic flushing system.

Design and Fabrication of automatic food serving system

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In convention food serving system it produces an uneven stressful workday because of the period of demands, it is used only for small food service operators, number of workers needed are more and hyginity in the workplace is less.

The objective of the automatic food serving system is that when there is large number of people to be served, these systems will reduce food serving time. This system also helps to minimize number of labours for serving food and it reduces labour cost. This system can avoid larger queues because of speed in execution. It will help to minimize the wastage of food. Throughout the process hyginity is maintained.

The aim of the project is to achieve high service quality, food quality, consumer satisfaction. In food serving system, food is placed on the container which is in hopper shape. A plate is placed at the opening and it is provided at the bottom of the hopper shaped container. Plate presses the switch and circuit is closed thus; motor will rotate through battery. Motor is connected to the rotor conveyor and required amount of food from the container will be served at the opening provided. Piezo Electric Sensor is used to maintain the specific quantity of food and it is used to turn ON/OFF the motor.

Modification of Existing Seed Drill Machine

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Agriculture is one of the important sectors of economy in India. India is the second largest producer of wheat, rice fruits and vegetables and is the largest producer of pulses, spices, cashew and jute. In 2017-18, the production of food grain was estimated at 284.8 million tons. In India, most of the agricultural work is carried out with the help of human hands having to use conventional tools such as wooden plough in spite of having large-scale mechanization in some parts of the country. The various operations that includes in agriculture are ploughing, sowing, irrigation, weeding, harvesting and transporting the crops, etc. The minimum implementation of mechanization has resulted in lower yield rate and wastage. The use of seed drill machine helps the farmers to utilize most of the seeds and get a good yield. The seed drill is a device that is attached to the tractor that sows the seeds by ploughing the field at a particular depth in the soil where the seeds fall in uncontrolled manner. Since the setup is fully mechanical, the farmers do not have any option of controlling the seed fall and transferring the setup from field to field is a tedious job since the whole setup has to be dismantled manually. Our project aims at improving the existing seed drill machine with the implementation of motors and sensors that provides a greater flexibility for the farmers by giving them an option to control the seed fall desirably and make the transfer of the setup easier by the implantation of lifting mechanism using an electric jack.

Analysis of Crack in Reinforced Concrete Structure using Infrared Thermography and ANSYS

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Non-destructive evaluation method such as infrared (IR)and high definition cameras have been developing for high speed inspection without any lane closures to overcome rapid deterioration. In this study analysing of cracks using IR camera, ANSYS software and finding the crack width by numerical study. The testo 875-i thermal imager used to detect the temperature variations. ANSYS workbench 19.2 is employed for the knowing how the structure going to fail. It is necessary to know how the structure elements response for different loading conditions its possible by ANSYS. Crack width will be finding out by applying crack width formula. Comparing all the three methods, if the crack is exceeding the limit providing a solution for cracks. The solution is depended on type of crack.

Design and Fabrication of Radiant Cooling Panel Using Optimized Flow Parameters

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Radiant cooling methods have been proven to be most effective method to cool the room from ancient times; specifically, this method has been extensively used in Europe and up to some extent in U.S to heat the room since past 15-20 years. radiant cooling method is highly efficient when compared to conventional air-conditioning due to high water temperatures used and minimized air flow. Implementation of radiant cooling for existing buildings is described in this paper. This paper reviews analytical and experimental results of radiant cooling panels of size 0.27 Sq. mtrs which is used to cool the space of 0.37 Sq. mtrs. The scaled down model of the panel is simulated in ANSYS using different flow pattern and flow parameter and results are compared. In this paper we are discussing about the performance characteristics of a CRCP (Ceiling radiant cooling panel). Ceiling radiant cooling panels contain copper pipes that are connected to the non-visible side of the panel. The copper pipes run through the panel in a specific pattern, through which chilled water is passed.

Effect of sintering time and reinforcements on the density, hardness properties of aluminium reinforced with CNT and FA composites

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In this work, 0.5 wt.% carbon nanotube (CNT) and varying content of Fly ash (FA) reinforced aluminium matrix (Al/CNT-FA) composites were fabricated by powder metallurgy which involves powder blending, compaction and sintering technique. This study was mainly focused on to the development of a metal matrix composite (MMC) and to study the effect reinforcements and sintering time on hardness and density properties. It was found that as the FA content were increased; there were significant increase in density, hardness, up to certain limit beyond which it decreases. The increase in sintering time also had positive effect on density and hardness properties. The surface morphology was studied using scanning electron microscope to analyze the distribution of reinforcements. It was found that reinforcements were well dispersed and also refinement of the grains observed as the sintering time is increased.