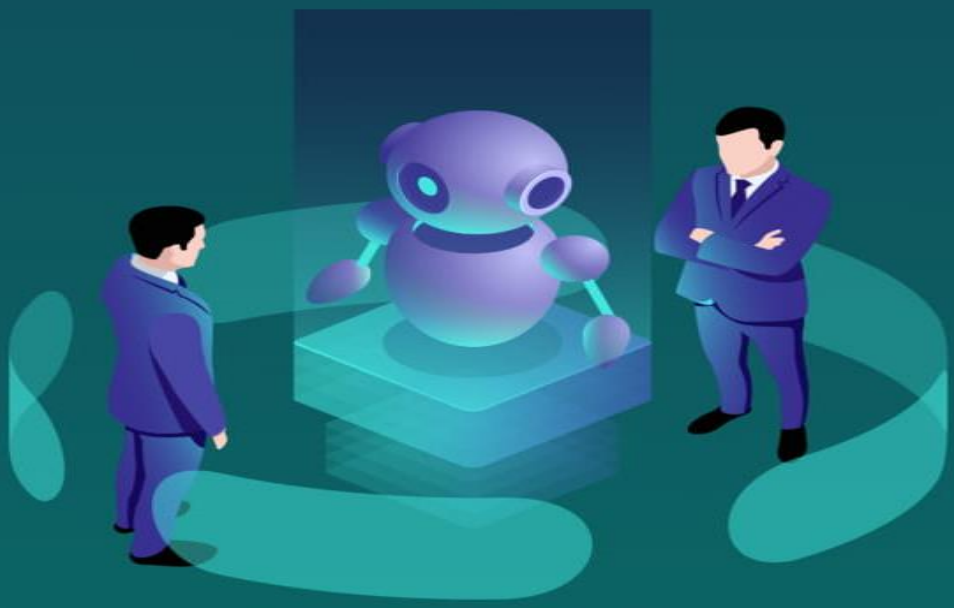
# PERI ICIRCC'20

7TH & 8TH FEBRUARY 2020

INTERNATIONAL CONFERENCE
ON

## INFORMATICS, ROBOTICS
## CONSTRUCTION & COMMUNICATION

ORGANIZED BY
CIVIL,CSE, ECE, EEE & MECH



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PERI
INSTITUTE OF TECHNOLOGY

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# Preface

PERI Institute of Technology (PERI IT) hosts the National Conference on Pure Emphatic Research Innovations in Science and Engineering" On 7th and 8th of February, 2020 at Chennai, Tamilnadu, India. The conference attendees included scholars, members of the business community, and students from all over India

This Proceedings Edition includes many of the conference papers of the authors who submitted their full papers on time. As such, it offers a window into current global scholarship and the continuing dialogue concerning evolving social, cultural, economic and business trends. These reflections offer an opportunity for cross-cultural exchanges and increased global understanding. We thank the conference presenters and participants for their insight and contributions.

I wish to thank the members of the PERISE conference Committee for putting the papers together for this proceeding.

I thank Chairman Shri. Saravanan Periasamy, COO Sasikumar Veerarajan, for their support and dedicated work to make the National Conference a big success. Professors at PERI Institute of Technology who contributed to the topics development of the conference and to the presentation process deserve special thanks.

On Behalf tf the Editorial Board.

**Dr. R. Palson Kennedy**

**With Warm Regards**
**Dr. R. Palson Kennedy, M.E., M.S., Ph.D., F.I.E.**
**Principal**
**PERI INSTITUTE OF TECHNOLOGY**
**Chennai – 600 048**

National Level Conference on **"INFORMATICS, ROBOTICS, CONSTRUCTION AND COMMUNICATION**

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**With Warm Regards**

**Dr.R.Palson Kennedy, M.E.,M.S.,Ph.D., F.I.E.,**

**Principal**

**PERI INSTITUTE OF TECHNOLOGY**

**Chennai-600048.**

**PERI INSTITUTE OF TECHNOLOGY**

**Shri Saravanan Periasany**
**Chairman**

## MESSAGE

I'm very happy to know that the departments of PERIIT of our Institution are organizing a National Level Conference on **"INFORMATICS, ROBOTICS, CONSTRUCTION AND COMMUNICATION** "on 7th Feb 2020 and 8th Feb 2020. I am confident that this conference ICIRCC'20 will be achieving its objective. Hope this will be highly benefiting all the participants presenting their papers.

I am sure that the deliberations of this conference will be relevant to the needs of our country, which is in the threshold of information technology, computer science, civil, electrical, electronics &Mechanical Engineering and also in the area of distributed Environment .It would pave the way for exploring new horizons in future technologies. I congratulate the organizers of this conference for contributing the cause of research and development.

I wish the conference a grand success.

**PERI INSTITUTE OF TECHNOLOGY**

**Mr. SasikumarVeerarajan**
**Chief Executive Officer**

## MESSAGE

I take immense pleasure in conveying that the departments of CIVIL, CSE, EEE, ECE & MECH "INFORMATICS, ROBOTICS, CONSTRUCTION AND COMMUNICATION (ICIRCC ’20)” on 7th Feb 2020 & 8th Feb2020. I am confident that this conference ICIRCC’20.

This conference will provide opportunity to the students and academic I am stoup date their knowledge and will make them contribute their mite to the humanity in an excellent manner.

I congratulate the organizers, faculty members and others who have evinced great interest and commitment in organizing this National Conference. I wish the conference a grand success.

**PERI INSTITUTE OF TECHNOLOGY**

**Dr.R.Palsonkennedy.Ph.D,**
**Principal**

## MESSAGE

I would like to express my heartfelt gratitude the management, Chief Executive Officer, Director, Dean Academics ,staff and students for the irmoral support that they have rendered towards the conduct of this National Level Conference on “INFORMATICS ,ROBOTICS,CONSTRUCTION AND COMMUNICATION " on 7th Feb 2020 8th Feb20. I am confident that this conference ICIRCC’20"- 7th & 8th Feb 2020.

India has been in the field of science & engineering any effort in thisdirectionwillhelpallcomputerscientists, electrical, electronice, civil& mechanical engineers and technologists of India to larger extent and makes our country self-sufficient in this area.

I hope this conference will be about the faculty, students and industries to widen their technical knowledge and improve their skills.

My congratulations are to the departments of, CSE, CIVIL, EEE, ECE & Mechanical four college for their sincere endeavor in organizing this conference. And I also appreciate all the authors of technical papers for their valuable contribution this conference.

I wish this conference ICIRCC’20 a grand success.

***ICIRCC'20***

International Conference On

**"INFORMATICS, ROBOTICS, CONSTRUCTION AND COMMUNICATION**."

Organized by CIVIL, CSE, ECE, EEE & MECH Departments

On 7th & 8th February 2020 at 10.00 AM

at

PERI CONFERENCE HALL,
PERI INSTITUTE OF TECHNOLOGY, Chennai-48, INDIA.

**Dr.T.V. Gopal,**
Professor
Department of Computer Science & Engineering
Anna University
Guindy Chennai -25
**,**

Has kindly Consented to be the chief guest & deliver inaugural Address

**Dr. Naruechorn Sangkachantra,**
**Dean,**
**Faculty of Information and communication Technology ,**
Silpakorn University, Bangkok, Thailand.

Will deliver valedictory Address

Shri . Saravanan Periasamy
Founder Chairman
PERI Education
Will preside over the function

Mr. SasiKumar Veerarajan
COO

Dr. R. Palson Kennedy
Principal & Convener

**Welcome Address by Principal ICIRCC'20 7th & 8th Feb 20.**

Honorable Chief Guest of the Day Dr T.V.Gopal ,Professor,DCSE,Anna University ,Guindy Chennai25.

Most respected Chairman of this Institution, Shri **. Saravanan Periyasamy,** Respected Managing Director, **Mr.Periyasamy**, beloved Chief Operating Officer, Mr. **Sasi Veerarajan**, VP,Heads of various departments, Participants, T & NT Staff, Dear Students, Members of Press and Invitees of the function, a pleasant morning to one and all .

It is an immense pleasure for me to extend a hearty welcome to each one of you on behalf of PERI IT. I would like to thank Dr T.V.Gopal Prof CSE Anna university Guindy campus for accepting our invitation and coming over here amidst his busy schedule. I whole heartedly welcome you sir ! He is my mentor, Guide & guru. In fact we have fixed the date on 5th & 6th March initially & prephoned to 7th&8th Feb. Thank you for your guidance & motivation given to me to conduct this kind of conferences.

I would like to mention valedictory Chief Guest **Dr Naruehorn Sangachandra,** DEAN-Faculty of Information & communication Technology, Silapkorn University, Bankok, Thailand. who has accepted to be as our Key note speaker & deliver the valedictory address on 8th Feb 20.

I would like to recall CG of 1st International Conference Dr Locahndaga Ranathunga of Mortuva Univ, Srilanka.(ICIRCC2018).and 2nd International Conference Chief Guest Dr Muaviyath Mohamed,National university of Maldives from Maldives.(ICIRCC2019).for their valuable participation .I welcome our beloved chairman in absentia, but sent a message to on this historic occasion of PERIIT to make it a grand success. I welcome our Chairman ,MD,COO in absentia. It is my duty welcome all the session chairs of the conference. It is my pleasure to welcome all the participants , Session chairs from various colleges, faculty members, organizers & our students on this morning.

**The 7 Biggest Technology Trends In 2020**

1.AI-as-a-service. Artificial Intelligence (AI) is one of the most transformative **Tech** evolutions of our times.
2.5G data networks.
3.Autonomous Driving.
4.Personalized and predictive medicine.
5.Computer Vision.
6. Extended Reality.
7.Block chain Technology.

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Informatics is: understanding the impact of technology and information on people. The development of new uses for technology.

Robotics and Automation deals with manufacture and applications of robots and computer systems for their control, sensory feedback, and information technology to reduce the need for human work. Hotel Completely operated by ROBO.

Construction & Communication - As standards are put in place, industrial and academic partners are gearing up to deliver a new generation of radio systems and network architectures. Flash technology

Great Mahatma Gandhi once said that live as you were to die tomorrow and learn as if you were to live forever. Think about that. And that's what it is all about today.

The Whole purpose of the Conference is to turn mirrors in to Windows & Windows in to Doors.120 **papers received 75+ selected & 50 papers will be presented.**

Your strong support & Active participation made this International Conference ICIRCC 20 a record breaking event.

In a short span of time if I forget to mention any of you again I extend my hearty welcome to all of you for your gracious presence here for ICIRCC'20.

Wish you all All the best With pleasant Regards

Dr.R.Palosn Kennedy

Principal & Convener-ICIRCC'20 PERIIT,

Mannivakkam

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# ICIRCC'20
# Informatics, Robotics, Construction & Communication

## 7th and 8th February 2020

## Chief Guest Address

Dr. T V Gopal
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I was the Chief Guest for the one-day National Conference on "Pure Emphatic Research Innovations in Science and Engineering [PERISE'16]" on 07 April 2016 at your Institution. Inter-disciplinary work was deemed necessary by my colleagues who spoke on this occasion.

I am sorry to have excused myself for the **Informatics, Robotics, Construction & Communication** [ICIRCC'18; 7th and 8th April 2018] due to other commitments. I am happy to be with ICIRCC'20.

I gather that the primary goal of the conference is to promote research and development activities in Electrical, Electronics, Computer, Information, Communication and Mechanical Engineering and to promote scientific information interchange between researchers.

> *"Scientists discover the world that exists; engineers create the world that never was."* - Theodore von Karman, co-founder of NASA's Jet Propulsion Laboratory

## Seeing THIINGS, YES but with the preparation of an Engineer:

- There's No Such Thing As a Stupid Question
- Socializing Can Be As Important As Studying
- It's Never Too Early To Start Networking
- Don't Burn Any Bridges
- Ask For Help When You Need It
- You Probably Won't Use Everything You Learn - But You Still Need To Learn It
- You Need To Push Yourself and Take Initiative
- You Can't Ever Settle For "Good Enough"
- Don't Worry About Getting Into the "Best" Schools
- Don't Limit Your Skills to Engineering Alone
- You're Not Guaranteed A Job After Graduation
- If You're Not Having Fun, You're In the Wrong Place

- Get Hands-On Experience
- You Need to Be a Team Player
- CGPA is Not the Single Figure of Merit
- Reflect On What Inspires You
- Start Your Portfolio Sooner Rather Than Later
- Take Good Notes and Hold Onto Them
- Look Outside of Your Desired Field
- Don't Get Lazy Over the Summer
- Use the Internet to Your Advantage

There is no single right way to implement the engineering design process.

Engineering requires that much time and skill is spent ensuring the delivery of products, projects or services to a required performance and quality specification, on time and within budget. A great deal of the education and training of the engineer is devoted to ensuring his or her ability to effect such a delivery. Because of this practical focus the importance of the early decision making processes is frequently not appreciated.

**"The engineer is a mediator between the philosopher and the working mechanic and like an interpreter between two foreigners, must understand the language of both, hence the absolute necessity of possessing both practical and theoretical knowledge." – Henry Palmer, Inaugural of Institution of Civil Engineers, 2 January 1818.**

**To my mind Engineering Design is the fulcrum for Informatics, Robotics, Construction & Communication – The theme of this conference.**

## Principles for Engineering Design:

- All design begins with a clearly defined need
- All designs arise from a creative response to a need
- All designs result in a system, product or project which meets the need

The Principles:

- Principle 1. Define shared and aggressive goals
- Principle 2. Collaborate across disciplines
- Principle 3. Design nonlinearly
- Principle 4. Reward desired outcomes
- Principle 5. Define the end-use
- Principle 6: Seek systemic causes and ultimate purposes
- Principle 7. Optimize overtime and space
- Principle 8. Establish baseline parametric values
- Principle 9. Establish the minimum energy or resource theoretically required, then identify and minimize constraints to achieving that minimum in practice
- Principle 10. Start with a clean sheet

- Principle 11. Use measured data and explicit analysis, not assumptions and rules
- Principle 12. Start downstream
- Principle 13. Seek radical simplicity
- Principle 14. Tunnel through the cost barrier
- Principle 15. Wring multiple benefits from single expenditures
- Principle 16. Meet minimized peak demand; optimize over integrated demand
- Principle 17. Include feedback in the design

PERI ICIRCC'20

# ICIRCC – 18





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# Department of Civil Engineering

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# DEPARTMENT OF CIVIL ENGINEERING

**CE001/001**

## Experiment on Partial Replacement of Coarse Aggregate with Broken Glass in Concrete

Sathish.S[1] ,Harshavardhan.R [2], Viswath Kumar.I[3], Hariharan.M[4], Mr.S.M.B.Syed Abuthair[5]
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***Abstract:*** Broken glass is a major components of solid waste stream in many countries. It can be found in many forms, including container glass, flat glass, such as cathode rays tube glass. At present although a small proportion of the post consumer glass has been recycled and reused, a significant proportion which is about 84% of the broken glass generated, is send to land fill. Glass is a 100% recyclable material with high performances and unique aesthetic properties which make it suitable for wide spread uses. Glass is widely used in hour lives through manufactured product such as sheet glass bottles glass ware and vacuum tubing. Glass is an ideal material for recycling. The use of recycled glass helps saves of energy. The increasing awareness of glass recycling speeds up inspections on the use of broken glass with different forms in various fields one of its significant contributions is to the construction field where the broken glass was reused for concrete production. The application of glass in architectural concrete still needs improvement thus laboratory experiments were conducted on strength characteristics of concrete made with utilizing broken waste glass as 5%,7.5%,10%,12.5% and 15% by weight of coarse aggregates for M20 mix. These mix excess were prepared following a specific W/C ratio of 0.4. the concrete specimens were tested for mechanical strength at differ ages of concrete the results obtained were compared with those of normal concrete

***Keywords:*** coarse aggregate; mechanical strength; concrete; broken glass

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**CE001/002**

## Application of Quantified and Cost of Building

Balaji.R [1], Hariharan.M [2] , Yogeshwaran.S[3], Ramprasad.S[4] , Mr. M. Hari Sathish Kumar[5]
*Student[1,2,3,4], Assistant Professor[5]*
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*PERI Institute of Technology[1,2,3,4,5.]*

***Abstract:*** One of the most valuable assets in any software industry is the correct estimation of effort and hence cost estimation (CE) of the software to be developed by them. Today, most of the construction companies are using computer aided software`s for cost estimation and cost control. The cost estimation is done before construction begins while the cost control is performed during the construction period. Moreover, different applications are available for cost estimation and cost control. The purpose of this study is to develop a system while could integrate the cost estimation and cost control processes.

***Keywords:*** Estimation, Cost Estimation, Cost control application.

**CE001/003**

## Intelligent Transport System

Anburaj.S.[1], Nishanthi.A[2], Navikash.K[3], Bagathsingh.K[4], Ms.Lavanya [5]
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***Abstract:*** Intelligent transportation systems (ITS) are receiving increasing attention lately, due to the benefits that wireless devices, combined with sensing technologies and ICT smart services, bring. We present the MobiWay project, leading to the development of a collaborative platform designed to support ITS applications by acting as a middleware connection hub. The chapter presents both the theoretical model being proposed by MobiWay, and its implementation for aggregating traffic data from large sets of users. We propose a scalable platform that is capable of storing and processing a large number of user supplied data. An **intelligent transportation system** (**ITS**) is an advanced application which aims to provide innovative services relating to different modes of transport and traffic management and enable users to be better informed and make safer, more coordinated, and 'smarter' use of traffic networks Interest in the intelligent transportation system comes from problems caused by traffic congestion and a synergy of new information technology for simulation real time and communications networks. Intelligent Transport System is designed for the southern gateway to the city Perungalathur. The GST Road from Tambaram and the Chennai Bypass Road converge here and traffic during peak hours moves only by inches.

***Keywords:*** ITS, ICT.

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**CE001/004**

## Experimental Investigation of Dual Acoustics Material Property

Sahithyan G[1], Mohanakrishnan P[2], Vinoth M[3] , Arif B[4], Mr.B. Magesh [5]
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***Abstract:*** Acoustics is a concept of sound travel design over a span of a building having a occupant space. The project is about developing a dual performance which is sound dissipation and sound amplification over the usage of a single material. This has a design consideration of a auditorium size building with benefits of changing its sound travel where it supports a symphony and also a audi performance with absolute comfort on audibility

***Keywords:*** Acoustic foam; Mechanical trigger.

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**CE001/005**

## High Strengthened Energy Generating Tiles

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***Abstract:*** Innovating the future technology, this research is going to improving the compressive strength of tile with protection of water percolation in tile and transforming the ordinary tile into energy generating tile

***Keywords:*** Energy generating tile, Photovoltaic cell.

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**CE001/006**

## Analytical investigation of cold- formed rectangle hollow section under lateral loading using ABAQUS

M. Hari Sathish Kumar
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***Abstract:*** This paper deals with the behavior of cold formed rectangle hollow section. The finite element software ABAQUS has been used to study the linear behavior and ultimate load-carrying capacity of beams. Trusses have been a common structural system for hundreds of years. The design and analysis of trusses evolved over time to its current state. Most manual truss analyses use the methods of joints and sections under idealized conditions. These ideal conditions, including pinned connections, cause discrepancies between the ideal truss being analyzed and the actual truss being constructed. The discrepancies include joint rigidity, connection eccentricity, and transverse loading. These cause secondary stresses, which induce bending moment into the truss members due to the chord's continuity. Secondary stresses are most severe in continuous compression chord members. In these members, secondary stresses should be addressed to determine if they are severe and should be included in the truss design, or if idealized analysis will suffice. The results were used to determine how these variables affect secondary stresses and how secondary stresses can be predicted. Evaluation criteria were examined to determine the severity of secondary stresses. These criteria examine the radius of gyration, moment of inertia, depth, and section module of the chord members, and the moment of inertia of the truss for determination of secondary stress severity. The results of the studies show that secondary stresses increase with increasing member Stiffness, decreasing member efficiency, and decreasing truss depth. The necessity for secondary stress consideration can be determined most accurately using the radius of gyration criterion (L/rx < 50) for the compression chord.

***Keywords:*** Steel beams; cold formed rectangle hollow section; Ultimate load behavior; nonlinear analysis; Finite element method.

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**CE001/007**

## Studies on Ultra High Performance Fiber Reinforced Concrete Using Waste Materials

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***Abstract:*** The properties of UHPFRC mainly depend on the selection of ingredients with special curing and pre-compression techniques. In this project report, various proportions of materials, curing regimes and materials adopted by many researchers are discussed with special emphasis to the selection of materials as this form the basis for proportioning of UHPFRC mixtures. The significance of this concrete is that the compressive and flexural strength is 5-10 times greater than the conventional concrete which is an indication of the improved performance of cement matrix interface achieved by various authors. In India very few works have been reported in this field and mass application of these special concretes to practice can be brought about only after rigorous R and D works. Studies were already been done by Advanced Materials Laboratory, to develop various UHPFRC mixture proportions by using indigenously available materials and study the properties of these concretes for their application in practice. Currently Concrete with grade 200MPa has already been developed. In this research work the focus has been given to replace the sand with copper slag in the UHPFRC mix. Other ingredients include cement, silica fume, quartz powder, and micro steel fibers.

***Keywords:*** silica fume, silica fume, UHPFRC.

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**CE001/008**

## Multi Temporal Change Detection of Agriculture Crops in Theni District Using Remote Sensing and GIS

G. Karthika
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***Abstract:*** Information on land use/landcover and agriculture in the form of maps and statistical data is very vital for spatial planning, management and utilization of land. In the study, Remote Sensing and geographic information system (GIS) were used in order to study Agriculture land changes. Agriculture change may influence many natural phenomena and ecological processes, including runoff, soil erosion and sedimentation and soil conditions. The Agri areas are changing due to various human activities, natural conditions and development activities. According to the user requirements, updating of land use mapping is required to various departments. The aims of this study are to detect Agriculture land use changes between 2004 to 2013 using satellite images of IRS LISSIII (2004), IRS LISSIII (2008) and IRS LISSIII (2013) and digital topographic maps have been used. The objectives of the study is to see the Agriculture land changes in Urban areas and identifying hotspots of Agri land changes using

multi temporal satellite data and also studying relationship between human pressure on Agriculture land and its impacts in the vital Urban habitats. Agriculture land changes have been detected by image processing method in ENVI imagine. Finally, to predict the changes in Urban habitants and Agriculture land changes occurred. Monitoring of Agriculture changes which would help to plan development activities such as major schemes and for used requirements. Change detection has shown that the Agri area decreased between 2004 and 2013 by 50.33% (20376 ha) to 33.23% (13454 ha). Also, the area with buildup land farms have been increased from 102 ha (0.25%) to 1104 ha(2.72%) and the fallow land increased to 9.19%.

***Keywords:*** Land use/land cover, Change detection.

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**CE001/009**

## Treatment of leachate water using photocatalytic process

N. Thangam
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***Abstract:*** Leach ate production is one of the major problems in both surface and groundwater pollution from the disposal of a municipal solid waste landfill in the open dumpsite. Leachate is generated as water percolates through a landfill and comes into contact with the waste and also contains both a suspended and dissolved matter. The quantity of leachate generated is a function of the moisture content of the waste, as well as the amount of precipitation. It is a mixture of organic and inorganic products, liquid waste, and rainwater. This may lead to human health effect, including Abdominal pain, diarrhea, vomiting, confusion, skin irritation problems, and blood -related disorders, etc. the lots of technique to overcome the problems of leach ate pollution in surface and groundwater including coagulant-flocculation process, membranes, activated sludge process, bio remediation, photo catalytic oxidation, and adsorption/separation processing. In this study, was conducted for the removal of parameters like Colour, COD, BOD, alkalinity, turbidity, TDS, conductivity, hardness in leachate using photocatalyst. Main purpose was to determine the optimum dosage of TiO2, effect of pH and contact time. To determine the removal efficiency of the pollutant. Treatment of wastewater in a TiO2 suspended reactor has been widely used due to its simplicity and enhanced photo degradation efficiency.

***Keywords:*** BOD, TDS & COD

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**CE001/010**

## Experimental Study on Flexural Behavior of Hybrid GFRP Reinforced Concrete Beam with Steel Fibres

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***Abstract:*** Glass fibre reinforced polymer (GFRP) bars are being increasingly used to reinforce concrete members as an alternative to steel, particularly in harsh environments, owing to their main advantages that include high strength and high corrosion resistance, less weight. But GFRP bars have low elasticity modulus and exhibit linear elastic behaviour until failure. This paper presents experimental investigations about the flexural behaviour of Hybrid Glass Fibre Reinforced Polymer Concrete beams with steel fibres. Ductility of GFRP is lower than the steel bars, in order to improve its flexural ductility and, at the same time retain the high strength feature of GFRP bars by use of steel fibres in concrete mix and longitudinal steel reinforcement should be added to form a hybrid Glass Fibre Rinforced Polymer Concrete beam. In this project six beams of RC, SFRC, USRC, GFRPC, HGFRPC and SHGFRPC beams are casted and tested under cyclic loading. 0.5% of crimped steel fibre is added in Steel Fibre Reinforced Concrete beam and Hybrid Glass Fibre Reinforced Polymer Concrete beams with steel fibres (SHGRFPC) beams. The ultimate load carrying capacity, ductility factor, energy absorption, stiffness of the beam calculated by using the load-deflection curve. By adding of steel fibre in the Hybrid Glass Fibre Reinforced Polymer Concrete beams to increase the load carrying capacity, stiffness, energy absorption capacity and also improve the ductility. The cumulative ductility factor of Hybrid Glass Fibre Reinforced Polymer Concrete beam with steel fibre (SHGFRPC) is 1.43 times greater than conventional RC beam and 1.86 times greater than Glass Fibre Reinforced Polymer Concrete beam (GFRPC).The cumulative energy absorption capacity of Hybrid Glass Fibre Reinforced Polymer Concrete beam with steel fibre (SHGFRPC) is 1.34 times greater than conventional RC beam and 1.59 times greater than Glass Fibre Reinforced Polymer Concrete beam (GFRPC).

***Keywords:*** GFRP, Crimped steel fibre, HGFRPC.

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**CE001/011**

## Experimental Investigation on Geo-Polymer Concrete Beam

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***Abstract:*** Cement manufacturing is one of the biggest endowment to global warming by process of 5-7% of the total reaching throughout the world emissions and 17% of the total discharge of

harmful gas related to constructing and building field. Ordinary Portland cement (OPC) is used in the field of construction of infrastructure and it become progressively worse due to sulphate attack, emission of carbon-di-oxide and it is largely observed and recorded in various places. Investigation have bring out in the open that the disintegrating of opc concrete takes place because of reaction in between cement hydration products and sulphate relevance solutions. To overcome builders have to consume geo-polymer concrete with fly ash and GGBS.

Inclusion of GGBS with class F fly ash can have a significant effect on the setting and strength development of geopolymer binders when cured in ambient temperatures. This project evaluates the effect of proportions of GGBS. In this experiment GGBS will be add as 0%, 20%, 40%, 60%. Significant increase in strength and some decrease in workability observes in geopolymer concrete with higher GGBS and lower sodium silicate to sodium hydroxide ratio in the mixtures. The compressive strength, flexural strength, split tensile test were conducted for geopolymer concrete specimen to find the optimum value. The optimum value is taken for casting of beam and its flexural behavior will be compare with conventional concrete beam.

***Keywords:*** GGBS, Ambient curing, Geopolymer concrete, Fly ash, Geopolymer concrete and beam.

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**CE001/012**

## Study on Flexural Behaviour of High Performance Hybrid Fiber Reinforced Concrete

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***Abstract:*** The role of fibers in the construction as a reinforcing material is gaining popularity due to its high tensile strength and light weight. Due to the property of the fibers, it enhances the reinforcement throughout the member and strengthening material for the reinforced concrete structures. Fibers are usually used in concrete to control cracking and thus reduce bleeding of water. In hybrid fiber reinforced concrete (HFRC), two or more different types of fibers are rationally combined to produce a cementitious composite that derives benefits from each of the individual fibers and exhibits a synergistic response. In addition of micro silica and quartz powder to obtain high performance. The scope of the present study is to investigate the influence of the fibers in high performance hybrid fiber reinforced concrete. Investigation is made on replacing micro silica and adding quartz powder in the place of cement. Experimental study on high performance hybrid fiber reinforced concrete, fibers like crimped steel fiber, AR glass fiber, nylon fiber from the waste of badminton and tennis racquet. This study gives the flexural behavior of beams by introducing optimum of various mix by adding micro silica, quartz

powder and fibers. By conducting experimental investigation on various design mixes (M60) (mix1 to Mix 10) micro silica and quartz powder are optimized. Three specimen of cube, cylinder, and prism for each mix is cast. Mechanical properties of each concrete composite were studied by introducing fibers. The cyclic flexural behavior of beam is studied using ultimate load, energy absorption, stiffness, ductility parameters. The impact load is carried out on hybrid fiber reinforced concrete slab to find the impact load

***Keywords:*** Crimped steel fiber, AR glass fiber, Nylon fiber, Silica fume, Quartz powder, Flexural strength, Impact Load.

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**CE001/013**

## STATE OF ART ON FOAMED CONCRETE

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**ABSTRACT**

Lightweight foamed concrete can be defined as a type of concrete which includes an expanding agent in that it increases the volume of the mixture while giving additional qualities such as lessened dead weight and eco-friendly. It is lighter than the conventional concrete. Foam concrete can be defined as a cementitious material that consists of minimum 20 percent of foaming agent that is mechanically entrained into the plastic mortar. The dry density of foamed concrete may vary from 300 to 1600 kg/m3.

**KEYWORDS**: Lightweight Foamed Concrete, Foaming Agent.

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**CE001/014**

## STATE OF ART ON RETROFITTING OF REINFORCED CONCRETE BEAMS

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**ABSTRACT**

Retrofitting is the modification of existing structures to make them more resistant to seismic activity, ground motion etc. Many of the existing reinforced concrete structures throughout the world are in urgent need of rehabilitation, repair or reconstruction because of deterioration due to various factors like corrosion, lack of detailing, failure of bonding between beam-column joints etc. Carbon Fibre Reinforced Polymer (CFRP) composite has been accepted in the

construction industry as a promising substitute for repairing and in incrementing the strength of RCC structures. Retrofit specifically aims to enhance the structural capacities (strength, stiffness, ductility, stability and integrity) of a building that is found to deficient or vulnerable. In the specific context of enhancing the resistance of vulnerable building to earthquake.

**KEYWORDS:** Carbon Fiber Reinforced Polymer Plates (CFRP), retrofitting, bonding, strength.

# DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

**CS001/001**

## PREDICTION OF RAINFALL INDUCED LANDSLIDE MOVEMENTS AND ITS STABILITY USING NEURAL NETWORKS

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**ABSTRACT:** Avalanche is one of the rehashed geographical dangers during the blustery season, which causes fatalities, harm to property and what's more, monetary misfortunes. Avalanches are in charge of in any event 17% of all fatalities from normal perils around the world, and almost 25% of yearly losses brought about by regular dangers. Because of worldwide environmental change, the recurrence of an avalanche event has been expanded and in this way, the misfortunes and harms related to avalanches likewise have been expanded. Consequently, the exact forecast of avalanche events, and observing and early cautioning for ground. Developments are significant errands to diminish the harms and misfortunes brought about via landslides. Landslide is turning into an issue all through the world. The recurrence and greatness of avalanche undermining an enormous populace in the condition are expanding all over the world. The remote detecting framework is playing an imperative job in the Landslide forecast. In explicit, satellite remote detecting is powerful in covering a huge territory for catching pictures, which thusly is utilized as a contribution for preparing the framework for foreseeing avalanches before about fourteen days utilizing the neural systems.

*Keywords: Relocation expectations; Relocation expectations; Gated recurrent unit; Avalanche observing; Early cautioning; Deep Learning.*

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**CS001/002**

## DATA MINING TECHNIQUES FOR FERTILIZER RECOMMENDATION

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**ABSTRACT:** Agriculture plays a vital role in India. More than 60% people are in agriculture field. India is the second largest worldwide in farm outputs. A good deal of agriculture productivity is based on infrastructure, soil quality, micro-climates and local resources. Soil is a main resource to successful agriculture. The original source of the nutrients in the soil to grow

crops. Many farmers are facing the problem to choose approximate amount of fertilizer depends on the soil and climate condition. This paper provides recommendation to increase the productivity by applying data mining techniques in agriculture. Fertilizer Recommendation is based on minerals of soil parameter like Nitrogen, Phosphorus and Potassium by using K-mean clustering, The Nearest neighbour and decision tree and neural network algorithm.

*Keywords: Agriculture, Soil Fertility, Fertilizer Recommendation, Data Mining, Clustering, Classification, Neural Network*

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**CS001/003**

## KEYLOGGERS SOFTWARE IMPLEMENTATION AND DETECTION

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**ABSTRACT:**It is likely that about one out of many large companies systematically monitors the computer, internet, or email use of its users' employees. There are over hundred's different products available today that will let organizations see what their users do at work on their "personal" computers, in their email, and on the internet. But what do such numbers really mean? What does company monitor of user/employee? email, internet, and computer usage actually look like? What sorts of things can an organization/company? see users do at their computers, and what sorts of computer activities are currently invisible to workplace monitoring? This admittedly document attempts to propose, as concretely as possible what "Informational Flow" on internet and computer usage looks like: its extent, the key concepts involved, and the forces driving its adoption. The keylogging program logs all keystrokes (aka Keystroke Logging) along with the name of the application in which the keystrokes were entered. Using keylogger we prevent the miscellaneous use of system. Using this we capture all information in text and image form.

*Keywords: Email monitoring, Internet monitoring, Computer monitoring, Chats/IM is monitoring,Network monitoring, Document monitoring, Web site monitoring, Productivity monitoring, keylogging.*

**CS001/004**

## STREAMLINED REPRESENTATIVE PRIVATESET INTERSECTION ON EXTERNALISINGSEPARATE DATA SERIES

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**ABSTRACT:** Many data-driven personalized services require that private data of users isscored against a trained machine learning model. In this paper we propose a novelprotocol for privacy-preserving classification of decision trees, a popular machinelearning model in these scenarios. Our solutions is composed out of building blocks,namely a secure comparison protocol, a protocol for obliviously selecting inputs, and aprotocol for multiplication. By combining some of the building blocks for our decisiontree classification protocol, we also improve previously proposed solutions forclassification of support vector machines and logistic regression models. Our protocolsare information theoretically secure and, unlike previously proposed solutions, do notrequire modular exponentiations. We show that our protocols for privacy-preservingclassification lead to more efficient results from the point of view of computational andcommunication complexities. We present accuracy and runtime results for sevenclassification benchmark datasets from the UCI repository

*Keywords: Private classification, decision trees, support vector machines, logisticregression, secure multiparty computation, secret sharing, privacy-preservingcomputation*

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**CS001/005**

## FINGER RECOGNITION AND GESTURE BASED VIRTUAL KEYBOARD

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**ABSTRACT:**Hand gesture recognition is very significant for human computer interaction. In this work, we present a novel real-time method for hand gesture recognition. In our framework, the hand region is extracted from the background with the background subtraction method. Then, the palm and fingers are segmented so as to detect and recognize the fingers. Finally, a rule classifier is applied to predict the labels of hand gestures. The experiments on the data set of 1300 images show that our method performs well and is highly efficient. Moreover, our method

shows better performance than a state-of-art method on another data set of hand gestures. In this study, by using image processing (IP) and CV techniques, with interpreting the hand movements of the user that enter the vision field of the camera, it can be used more functionally and the user can manage the computer without any physical contact and as being away from the monitor.

*Keywords: Image Processing (IP), Computer Vision (CV), Machine Learning*

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**CS001/006**

## PREDICTION OF HEART DISEASE DIAGNOSIS USING MACHINE LEARNING

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**ABSTRACT:**A popular saying goes that we are living in an "information age". Terabytes of data are produced every day. Machine learning is the process which turns a collection of data into knowledge. The health care industry generates a huge amount of data daily. However, most of it is not effectively used. Efficient tools to extract knowledge from these databases for clinical detection of diseases or other purposes are not much prevalent. The aim of this paper is to summarize some of the current research on predicting heart diseases using machine learning techniques analyze the various combinations of mining algorithms used and conclude which techniques are effective and efficient. Also, some future directions on prediction systems have been addressed. We apply SVM, Random Forest& ANN algorithms.

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**CS001/007**

## DETECTION OF FACIAL EXPRESSION IN REAL TIME USING MACHINE LEARNING

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Human emotions are natural expressions that people tend to make naturally, instead of any conscious effort that is accompanied by the reflexing of facial muscles. Some of the common emotions are happy, sad, surprised, anger and stable (normal) which a human face can make according to the different situations one may find itself in. We present the software which

detects and recognizes faces as well as tells a lot more about that person which could be used to get feedback from customers or to know if a person needs motivation. The objective of the project is to be an affordable and efficient product. Artificial Intelligence & Digital image processing technology used to make the system in python. These expressions can be derived from the live feed via system's camera or any pre-existing image available in the memory. Emotions possessed by humans can be recognized and has a vast scope of study in the computer vision industry upon which several researches have already been done. The work has been implemented using Python (2.7), Open Source Computer Vision Library (OpenCV) and NumPy. The scanned image (testing dataset) is being compared to training dataset and thus emotion is predicted. The objective of this paper is to develop a system which can analyze the image and predict the expression of the person. The study proves that this procedure is workable and produces valid results.

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**CS001/008**

## DEDUPLICATION ON ENCRYPTED BIG DATA CLOUD

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**ABSTRACT:** Data deduplication is one of important data compression techniques for eliminating duplicate copies of repeating data, and has been widely used in cloud storage to reduce the amount of storage space and save bandwidth. To protect the confidentiality of sensitive data while supporting deduplication, the convergent encryption technique has been proposed to encrypt the data before outsourcing. To better protect data security, makes the first attempt to formally address the problem of authorized data deduplication. Different from traditional deduplication systems, the differential privileges of users are further considered induplicate check besides the data itself. We also present several new deduplication constructions supporting authorized duplicate check in hybrid cloud architecture. Security analysis demonstrates that our scheme is secure in terms of the definitions specified in the proposed security model. As a proof of concept, we implement a prototype of our proposed authorized duplicate check scheme and conduct test bed experiments using our prototype. We show that our proposed authorized duplicate check scheme incurs minimal overhead compared to normal operations.

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**CS001/009**

## WEB BASED ANDROID ONLINE AUCTION APPLICATION

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**ABSTRACT:**Recently there has been a rapid growth of online auction in e-commerce platform. This paper presents experience with designing and implementing the auction system design. An Auction is a method of buying and selling products by presenting them for a bid, accepting the bid, and then selling the items to the highest bidder. This project is based on the android online auction application, DealDaddy. It presents a online service based platform for buying and selling products. This application works on the basis of product auction (Bidding). Every product will be assigned a base price for bidding. The user with the highest bid price will buy the product and E-mail notifications will be sent. The buyer and seller details are concealed with each other. The English Auction being the most popular auction, this application deals with it. In this application, the buyer and seller are encrypted with each other. Here the buyer and seller both can set the geographical limit according to their convenience for buying and selling their products. The overview of DealDaddy is presented in this paper.

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**CS001/010**

## CONSTITUTION OF CURB THROUGH SCRAMBLING OF DATA

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**ABSTRACT:**Decentralized data are received and those data are shufflingData shuffling of training data among different computing nodes (workers) has been identified as a core element to improve the statistical performance of modern large-scale machine learning algorithms. Data shuffling is often considered as one of the most significant bottlenecks in such systems due to the heavy communication load. Under a master-worker architecture (where a master has access to the entire dataset and only communication between the master and the workers is allowed) coding has been recently proved to considerably reduce the communication load. This work considers a different communication paradigm referred to as decentralized data shuffling, where workers are allowed to communicate with one another via a shared link. The decentralized data

shuffling problem has two phases: workers communicate with each other during the data shuffling phase, and then workers update their stored content during the storage phase. The main challenge is to derive novel converse bounds and achievable schemes for decentralized data shuffling by considering the asymmetry of the workers' storages (i.e., workers are constrained to store different files in their storages based on the problem setting), in order to characterize the fundamental limits of this problem. For the case of uncoded storage (i.e., each worker directly stores a subset of bits of the dataset), this paper proposes converse and achievable bounds (based on distributed interference alignment and distributed clique covering strategies) that are within a factor of 3/2 of one another. The proposed schemes are also exactly optimal under the constraint of uncoded storage for either large storage size or at most four workers in the system.

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**CS001/011**

## AUTOMATION SYSTEM FOR IRRIGATION USING ELECTRONIC DEVICES AND SENSORS

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**ABSTRACT :**Watering systems ease the burden of getting water to plants when they need it. To make the gardener works easily, the irrigation watering system is created. India is an agricultural country, wherein about 70% of the population depends on agriculture. Farmers have wide range of diversity to select suitable fruits and vegetables crops. However, the cultivation of these crops for optimum yield and quality produce is highly technical. Watering the plant is the most important cultural practice and one of the labor intensive tasks in daily greenhouse operation. Automating the watering systems based on moisture content of the soil and the available water stored ease the burden of getting water to plants when and how much they need. To make the gardener works easily, the irrigation watering system is created.

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**CS001/012**

## FAKENEWS DETECTION USING NATURAL LANGUAGE PROCESSING

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**ABSTRACT:** Fake news one of the biggest new-age problems has the potential to mould opinions and influence decisions. The proliferation off ake news on social media and Internet is

deceiving people to an extent which needs to be stopped. This Project comes up with the applications of NLP (Natural Language Processing ) techniques for detecting the 'fakenews', that is, misleading news stories that comes from the non-reputable sources.

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**CS001/013**

## ASCERTAINABLE PRIVACY- PERPETUATE PROFOUND RESEARCH BASED ON FEDERAL

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**ABSTRACT:** This project proposes the knowledge of sharing the data of their own, which is stored in a secured manner. Even though the data are stored in decentralized which record is a grouping transaction. A ledger is a database of recreating, shared and concur digital data that is geographically spread across several sites in a network. Rather than having a central administrator like a traditional database, the ledgers have a system of synchronized databases that provide an auditable history of information and are visible to anyone within the network. The reality is that they will need data for themselves, which means they need to share the details with others which can be handled by the distributed ledger. So, we proposed this method with the threshold paillier theorem to share the information and stored in the database. It will manage or decide all the information which is going to be shared with a person. Keywords - sharing the data, secured manner, digital data.

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**CS001/014**

## AADHAR BASED SECURE BIOMETRIC VOTING MACHINE

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**ABSTRACT:** Voting Machine plays an important role during elections. The election commission of India uses electronic voting machines which need more man-power, time consuming and also they are less trusted. The voting system is managed in a easier way all the

users should login by Aadhar card number and password and click on his/her favorable candidates to cast their vote. In this paper we will review on Aadhar based biometric voting machine survey, the research conducted by various researchers related to the discipline of biometric voting machine are taken into consideration and discussed in chronological order.

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**CS001/015**

## WOMEN SAFETY SYSTEM USING BEACONS SIGNAL IN INFRASTRUCTURE-LESS AREA

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**ABSTRACT:** The Project Provides a Complete Safety to Women in the area where there is No Infrastructure , This Project Combines two different concept . The First Concept deals with Infrastructure area If abnormal Condition is Detected using Two Sensor ( Namely Galvanic Skin response sensor and Heartbeat Sensor ) then by using GSM Infrastructurealert signal sent to home and Police Station , If there is no infrastructure there Comes beaconConcept (Beacon - Bluetooth which pairs nearby Smart devices up to 200 - 300m) By Using Beacon - alert Signals Sent to home and Police station in even Infrastructure less areas , If there is no causes of emergency, the alert signal can be paused / Stopped using constipatedswitch.

*Keywords: Beacon, Infrastructure less areas, Galvanic skin response sensor, Heartbeat* Sensor, LED

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**CS001/016**

## REAL-TIME FIRE DETECTION AND VIDEO ALERTING SYSTEM USING OPEN-CV TECHNIQUES

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**ABSTRACT:** Fire detectors play a very important role. It helps in detecting fire at an early stage. Commercial fire detecting systems usually have an alarm signaling, with the help of a buzzer. In this paper, computer vision-based fire detection is used. In the proposed model a webcam is used as an alternative of surveillance camera for monitoring the interiors of building.

The video is processed using open CV techniques using fire detection (Hue, Saturation, Value (HSV)) algorithms and if a fire is detected, a short duration of the live video is sent to the security or the higher officials followed by an alert message. Thus the number of people stuck in the fire blazing area can be rescued. In existing system, MATLAB tool is used for processing. While in the proposed system, Open CV Techniques is used for processing. Open CV has more functions for computer vision, and its processing time is less. Using this project, fire can be detected at early stage without any false alarming strategies, and peoples can be rescued thereby.

*Keywords: Fire detection, Open CV Techniques, HSV (Hue, Saturation, Value) Algorithm, Alert message, Short duration Video alert, Rescue Strategy.*

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**CS001/017**

## ENHANCING AND EVALUATING THE PRIVACY OF THE USER IN BITCOIN TRANSACTION

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**ABSTRACT:** Bitcoin and Blockchain plays a vital role that shares the amount in a cryptocurrency manner. It protects the transaction from the third party. Bitcoin has been criticized for its use in illegal transactions. To overcome the illegal transaction blockchain concept is used to protect the transaction from illegal purpose. Blockchain technology allows for verification without having to be dependent on third-parties. The transactions stored in the blocks are contained in millions of computers participating in the chain. Hence it is decentralized. There is no possibility that the data if lost cannot be recovered. Transactions that take place are transparent. The individuals who are provided authority can view the transaction.

***Keywords:*** bitcoin, blockchain, transaction, stored, decentralized, authority.

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**CS001/018**

## PREDICTION OF BREAST CANCER STAGES USING MACHINE LEARNING ALGORITHM

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**ABSTRACT:** Breast cancer (BC) is one of the most common cancers among women worldwide, representing the majority of new cancer cases and cancer-related deaths according to global statistics, making it a significant public health problem in today's society. In recent years, machine learning has been widely used in detection and achieved favorable performance. Our analysis provides a comprehensive guide to sensitivity analysis of model parameters with regard to performance in detection of breast cancer stages by predicting result in the form of dataset attributes. BC is the mostly common cancer among women and the second leading cause of cancer death. Early diagnosis of cancer is critical. The sample obtained by an invasive technique can be easily digitized and used for computationally based diagnostic. Using machine learning methods for diagnostic can significantly increase processing speed and on a big scale can make the diagnostic significantly cheaper. The analysis of dataset by supervised machine learning algorithm to capture several information's like, variable identification, uni-variate analysis, bi-variate and multi-variate analysis, missing value treatments etc. The main objective is to predictive analytics model to diagnose breast cancer stages of patients. Additionally, discuss the performance from the given hospital dataset with evaluation classification report and identify the confusion matrix. The data validation, data cleaning/preparing and data visualization will be done on the entire given dataset. So, aim of categorizing data from priority and the result shows that the effectiveness of the proposed machine learning algorithm technique can be compared with best accuracy, precision, Recall and F1 Score.

*Keywords: Dataset, python, Prediction of Accuracy result.*

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**CS001/019**

## DETECTION OF LEAF DISEASES AND MEDICATION

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**Abstract –** The field of agriculture is in a great threat which includes the diseases that attack the plant leaf. Our system helps in finding out the areas that has been affected and also the disease that attacked the leaf. This is done by using Image Processing, there are many existing systems that detect the diseases in the leaf. Our system uses K-means clustering and Random Forest algorithms to accurately detect the disease in the plant leaf. And finally provide the respective Medication.

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**CS001/020**

## AN ADVANCED INFORMATION SECURITY SYSTEM TEXT-BASED GRAPHICAL PASSWORD SCHEME USING CLOUD COMPUTING

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**ABSTRACT:** Support Vector Machine and distributed SVM are among the major threats to cyber-security, and client puzzle, which demands a client to perform computationally expensive operations before being granted services from a server, is a well-known countermeasure to them. However, an attacker can inflate its capability of dos attacks with fast puzzle-solving software and/or built-in graphics processing unit (GPU) hardware to significantly weaken the effectiveness of client puzzles. In this paper, we study how to prevent dos attackers from inflating their puzzle-solving capabilities. To this end, we introduce a new client puzzle referred to as software puzzle. Unlike the existing client puzzle schemes, which publish their puzzle algorithms in advance, a puzzle algorithm in the present software puzzle scheme is randomly generated only after a client request is received at the server side and the algorithm is generated such that: 1) an attacker is unable to prepare an implementation to solve the puzzle in advance and 2) the attacker needs considerable effort in translating a central processing unit puzzle software to its functionally equivalent GPU version such that the translation cannot be done in real time. Moreover, we show how to implement software puzzle in the generic server-browser model.

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**CS001/021**

## LORA INTEGRATED FOREST FIRE DETECTION USING ARDUINO

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**ABSTRACT:** This paper presents a fire detection and alert system alert systembased on IOT. Here a specific environment is monitored 24x7 and the user is alerted in case of any fatal situation. This can be implemented using a nodemcu and a number of sensors for detecting different physical parameters that can go high during a fire related accident. Arduino is an IOT based controller board. Here two parameters are being monitored continuously temperature and presence of smoke. For sensing temperature LM35 temperature sensor is used. For sensing presence of smoke a gas sensor called MQ6 is used, this sensor can detect and measure any

carbon based gas smoke produces CO2 this makes it possible to detect smoke using MQ6. Also a PIR sensor is used for detecting presence of any human. Both gas and temperature sensor is analog so cannot be connected to a digital pin but an analog pin that is input to an ADC (analog to digital converter). Also forest area can be monitored through a camera using this camera fire can be detected using image processing. For this we can run a python program from PC and using opencv library fire can be detected. This can be used as a contingency system if the sensors malfunction. If any fire is detected then a water sprinkler will be turned on to prevent fire also an alert is sent to concerned personal for further action.PIR sensor is used for detecting presence of any human,camera fire can be detected using image processing, python program from PC and using opencv library,fire is detected then a water sprinkler will be turned on to prevent fire also an alert is sent to concerned personal for further action.

*Keywords: Detection and alert system based on IOT, sensors for detecting, physical parameters,LM35 temperature sensor, gas sensor called MQ6,PIR sensor.*

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**CS001/022**

## ENCODED POLYMORPHIC ASPECTS OF CLUSTERING

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**ABSTRACT:** Multi-view Clustering performs effectively on multi-view data by considering the diversity and complementary of different views. We consider clustering problems in which the available attributes can be split into two independent subsets, such that either subset suffices for learning. In a multi-view clustering algorithm, the mixture components have a smaller overlap when the views are concatenated.A principled binary multi-view clustering method, dubbed BMVC, was proposed for solving the challenging problem of multi-view clustering on large-scale image data, which can greatly reduce the computational complexity as well as the memory requirement.

*Keywords: Binary conversion, Clustering, Collaboration discrete representation learning, binary clustering learning, Optimization, Memory management*

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**CS001/023**

# COMBINED APPROACH OF IOT, SDN, AND EDGE/CLOUD COMPUTING FOR EFFICIENT NETWORK RESOURCE USE AND IOT ANALYTICS

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***Abstract*—** Massive amount of data collection, process, store and analysis form traditional numerous IoT devices to centralized cloud computing is infeasible because of serious bottlenecks problem of internet bandwidth limitations and network latency. In order to overcome this problem, combined approach of edge/fog computing and Software Defined Network (SDN) with IoT, provide scalable and efficient solutions , Edge computing provide decentralize distribute computing at the network edge (near the end user). Thus a number of computation node distributed across the network can offload the computational stress away from centralized cloud and can significantly reduce latency in data/message transport. Software Defined Network(SDN) provide intelligent routing decisions and deployment. This paper presents IoT – aware multi-layer SDN and edge/cloud orchestration architecture that deliver an IoT- traffic control and congestion avoidance mechanism for dynamic distribution of IoT processing to the edge of network based on the actual network resource state.

*Index Terms*— Internet of things(IoT), Software Defined network(SDN),edge Computing,Cloud computing, Cloud orchestration.

# DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

**EE001/001**

## MODIFIED H-BRIDGE MULTILEVEL INVERTER TOPOLOGY FOR SOLAR PHOTOVOLTAIC SYSTEM

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***Abstract:*** In this project, a new configuration of Multilevel Inverter (MLI) topology based on modified H-bridge seven level inverter is proposed, which can produce more voltage level with reduced number of switches when compared with cascaded H-bridge topology. In proposed MLI topology, only eight switches are required to generate seven level output, whereas twelve switches are required for conventional cascade H-bridge topology. Moreover, to resolve problems related to dc source fluctuations with Solar Photovoltaic, the Sinusoidal Pulse Width Modulation (SPWM) technique is developed. The switching losses, voltage stress on power devices and cost are reduced due to less number of switches. Further, Total Harmonic Distortion (THD) of load current less than 2% is achieved with small size low pass filter. Simulation results has been done in MATLAB and to validate the feasibility and performance of seven level Multilevel Inverter hardware setup has been developed. The PIC Microcontroller is used to produce gate signals based on SPWM technique for the gates of the MOSFET switches. The results are verified experimentally with seven level Multilevel Inverter circuit for 10 W Solar Panel with resistive load.

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**EE001/002**

## BL-CSC CONVERTER FED BLDC MOTOR DRIVE

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**ABSTRACT*:*** The proposed BL-CSC converter operating in a discontinuous inductor current mode is used to achieve a unity power factor at the ac mains using a single voltage sensor. The speed of the BLDC motor is controlled by varying the dc bus voltage of the voltage source inverter (VSI) feeding the BLDC motor via a PFC converter. Therefore, the BLDC motor is electronically commutated such that the VSI operates in fundamental frequency switching for reduced switching losses. Moreover, the bridgeless configuration of the CSC converter offers

low conduction losses due to partial elimination of diode bridge rectifier at the front end. The proposed configuration shows a considerable increase in efficiency as compared with the conventional scheme.

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**EE001/003**

## ELECTRIC PROPULSION SYSTEM

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***Abstract:*** The Electric propulsion system – Hall Thrusters works on the principle of Hall Effect, it can be applied in orbital maneuvering of satellites and interplanetary missions, on the replacement of thermal engines. This system uses electricity and xenon gas propellants, thus produces thrust similar to mass energy conversion as in chemical propulsion system. Hall Thrusters were able to deliver greater payload due to their higher overall specific power. For the power limited orbit topping mission, the choice of thrusters is dependent on the user's need. Ion engines can deliver the greatest payload due to their higher specific impulse. Study of reusable electric orbit transfer vehicle systems indicates that they can offer payload mass gains over chemical systems.

Keywords: Electric propulsion system, Hall Thrusters, Hall Effect, Xenon gas propellants, Thermal Engines, Replacement of chemical propulsion system.

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**EE001/004**

## SINGLE PHASE TRANSFORMERLESS INVERTER FOR PV SYSTEM APPLICATIONS

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***Abstract:*** This paper proposes the transformer less photovoltaic (PV) inverter topology to reduce leakage current Multilevel inverters are a source of high power, often used in industrial applications and can use either sine or modified sine waves. The topology has the advantages of simple structure, low weight and provides higher efficiency. "However, the topology makes a path for leakage current to flow through parasitic capacitance formed between the photovoltaic (PV) module and the ground. A modulation technique has significant impact to reduce the leakage current without adding any extra component. This project proposes a hybrid multicarrier pulse width modulation (H-MCPWM) technique to reduce leakage current in a transformer less

cascaded multilevel inverter for photovoltaic (PV) systems. The proposed hybrid multicarrier pulse width modulation technique ensures low leakage current in the transformer less photovoltaic seven level inverter systems with simplicity in implementation of the modulation technique using lesser number of carriers".

Keywords: Electric propulsion system, Hall Thrusters, Hall Effect, Xenon gas propellants, Thermal Engines, Replacement of chemical propulsion system.

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**EE001/005**

## GENERATING POWER USING SOLAR PANEL AND RUNING UNDER VARIABLE MOTOR SPEED PUMP

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***Abstract:*** Solar power is absolutely perfect for use with irrigation systems for garden, allotments, greenhouses, polytonal. A variable speed drive(VSD) is designed to regulate the speed and rotational force of an electric motor. In this project AC induction motor are used. Because AC induction motor are widely available and a cheaper product.180 degree voltage source inverter is used increasing the performance of the system. AC Motor are coupled to the solar panels through inverter. In solar powered PV pumps as input solar energy is freely available so it is desired that total water to be pumped out over the day is to be maximized. Objective of the proposed project is to maximize the smooth speed control of pump in order to maximize the water to be pumped out.and reduce the cost, size, number of switches to be used. This can be achieved through hardware using MOSFET switch inverter.

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**EE001/006**

## DESIGN AND PERFORMANCE ANALYSIS OF THREE-PHASE SOLAR PV INTEGRATED UPQC

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*Abstract***:** Today it is very important to provide clean, reliable and continue power to the consumer from supply authority. due to the increasing customers and use of modern power electronic devices, there is no. of disturbances in quality of power such as voltage sag. swell, harmonics .hence In order to maintain quality of power, different power electronic devices has been used. In this project, we used unified power flow conditioner with solar PV array to

maintain good power quality. UPQC is the combination of series and shunt compensator which performs multi task to improve the quality of power. Series converter compensate the grid side power quality problems such as voltage sag and swell as well as maintain load voltage preferably consant.it also regulate the PCC voltage. Shunt compensator compensate the problem of current harmonics due to nonlinear load. It takes power from PV array. Reference signal is generated by usingsynchronous reference frame control based on moving average filter. The model of upqc is developed and simulated in MATLAB software by using matlab simulink result with and without UPQC is compare

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**EE001/007**

## MULTISOURCE INVERTER USING ELECTRIC VEHICLE

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***Abstract:*** Energy saving plays an important role in reducing the amount of pollution. Electric vehicle consists of an energy storage system. Full car efficiency relies on energy storage system capacities. Driving cycle with high specific energy requirements that are met by the source of the battery. The battery will supply specific peak power demands with great current stress. Great present stresses directly affect battery life as a battery with less power density. It was discovered from the literature that super capacitor has elevated power density and can be used as specific power supply energy during the driving cycle's peak energy requirements. The super capacitor can be used during car break to store dynamic power storage source. All power/energy requirements of the driving cycle have simultaneously regulated the operation of both sources. A new multi-source inverter can be used to improve the vehicle's driving cycle. During an unstable case triggered by the power scheme, it can also use as a vibrant energy restore. Paper is a multi-source inverter operation with hardware outcome debate.

***Keywords:*** Electric Vehicle, Efficiency, Battery, Supercapacitor, Multi-source Inverter.

# DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

**EC001/001**

## THIRD EYE FOR BLIND

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***Abstract:***

**Abstract :** Third eye for people who are blind is an innovation which helps the blind people to navigate with speed and confidence by detecting the nearby obstacles using the help of ultrasonic waves and notify them with buzzer sound or vibration. They only need to wear this device as a band or cloth. According to WHO 39 million peoples are estimated as blind worldwide .They are suffering a lot of hardship in their daily life. Now a days there are so many instruments and smart devices for visually impaired peoples for navigation but most of them have certain problems for carrying and the major drawbacks is those need a lot of training to use.

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**EC001/002**

## MULTI-SCRIPT-ORIENTED TEXT DETECTION AND RECOGNITION IN VIDEO/SCENE/BORN DIGITAL IMAGES

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***Abstract:*** Scene text is one of the most common objects in the nature, which frequently appears on many practical scenes and contains important information for many applications such as navigation, scene understanding, autonomous driving, etc. Using advanced neural network technology, we detect those texts from the captured image for easier image processing.In this proposed system we use to detect text by directly predicting word bounding boxes with a neural network that is end-to-end trainable. If the input images are color images means we need to convert gray scale from that color images. The binary conversion is applied to the grayscale image it means that grayscale image it turns into black and white. Filter is applied in order to remove the noise from the image. The Region of Interest (ROI) is applied to the filter image. It means that it will crop the word by word automatically and chooses the maximum MSB plane. To the output of ROI module deep

neural network is applied. It will check the crop image with database image and finally the accuracy is shown in the output.

**EC001/003**

## WOMEN SAFETY SYSTEM USING RASPBERRY PI BY PORTABLE DEVICE

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**ABSTRACT**

The streets, public transport, public places in particular have become the dominion of the hunters. This comprises of Raspberry Pi Zero, Raspberry Pi camera, buzzer, GSM, GPS and button to activate the services. This device is extremely portable and can be activated by the victim on being assaulted just by the click of a button that will fetch her current location and also capture the image of the attacker via Raspberry Pi camera. The location and the link of the image captured will be sent to predefined emergency contact numbers or police via sms and also we can track live location with help of GPS.

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**EC001/004**

## AUTOMATION OF LEVEL CROSSING SYSTEM USING ARDUINO UNO

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***Abstract:*** This paper investigates based on automation of railway gates at level crossings using a microcontroller system. There are so many railway accidents happening due to the carelessness in manual operations. So, this paper describes automatic control of railway gate system for saving human lives and preventing major disasters in railway tracks.Automation oflevel crossing system is an advanced circuit which automatically controls the operation of railway gates detecting the arrival and departure of train at the crossings on dual track path. The microcontroller used for this operation is Arduino UNO embedded with Ultrasonic sensors, LED's, Buzzer, Speaker, stepper motors. The ultrasonic sensors are placed on certain calculated distance on the track form level crossings. The stepper motors are used to control the opening and closing of railway gates. Buzzer and LED are used to indicate the opening and closing of railway gates. Speaker is used to alert the people by voice instructions before the train arrives at that level crossings.The Arduino UNO used for automation of level crossings is programmed using the Arduino IDE.

**EC001/005**

## MAGNETIC INDUCTION BASED WIRELESS UNDERGROUND SENSOR NETWORK (WUSN) COMMUNICATION

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***Abstract:*** Wireless underground sensor networks are a special kind of WSN that mainly focuses on the use of sensors at the sub surface region of the soil. In this proposed system we transmit the data like text through soil by using the magnetic induction wireless underground sensor networks. In magnetic induction we use induction coils as antennas in the transceivers in order to reduce the vulnerability of signal propagation. We can use this system for the transfer of data when there are hard rocks where underground cables are not feasible for communication.

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**EC001/006**

## AUTONOMOUS VEHICLE USING IOT

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***Abstract:*** Accurate vehicle self-localization is significant for autonomous driving. The localization techniques based on Global Navigation Satellite System (GNSS) cannot achieve the required accuracy in urban canyons. On the other hand, simultaneous localization and mapping (SLAM) methods suffer from the error accumulation problem. State-of-the-art localization approaches adopt 3D Light Detection and Ranging (Lidar) to observe the surrounding environment and match the observation with a priori known 3D point cloud map for estimating the position of the vehicle within the map. However, storing the massive point cloud needs immense storage on the vehicle, or it should be stored on servers, which makes the simultaneous downloading of the map by multiple vehicles another challenge. In this study, rather than employing the point cloud directly as the prior map, we focus on the abstract map of buildings, which is easy to extract, and at the same time apparently observable by Lidar. More especially, we proposed vehicle localization methods based on two different abstract map formats representing urban areas. The first format is the multilayer 2D vector map of building footprints, which represents the building boundaries using vectors (lines). The second format is the planar surface map of buildings and ground. These map formats share the same idea that the uncertainty (deviation) of each vector or planar surface is calculated and included in the map.

Later in the localization phase, the observed data from Lidar is matched with the abstract map to obtain the precise location of the vehicle. Experiments conducted in a dense urban area of Tokyo show that even though we significantly shrank the map size, we could preserve the mean error of the localization.

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**EC001/007**

## OVERSEES OF AIR TOXINS

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***Abstarct:***The air pollution rates now a days are drastically increasing in all the developed and the developing countries which requires a more portable and cost effective solution. The proposed system includes the design for monitoring air pollution and creating awareness among the public. This paper aims at using IOT along with cloud to make the services real time and faster. The proposed system is installed in a particular locality where there is acute air pollution. The level of each hazardous pollutant is monitored at periodic intervals. The Air Quality Index (AQI) for the observed pollutants is determined and awareness is created among the public through an android app which displays the level of each observed pollutant and also the air quality index in that particular location. Thus the quality of air in that area can be understood by the public by viewing the concentration of the gases in both numerical and graphical format. It also allows the public to register themselves in an app which pushes weekly or monthly air quality report through message which reaches the user as a notification that is more comfortable in access.

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**EC001/008**

## GREEN LEAF DISEASE DETECTION AND AUTOMATIC FERTILIZATION USING ARDUINO CONTROLLER

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***Abstract:*** Diseases on the plant lead to the significant reduction in both the quality and quantity of agricultural process. The studies of plant disease refer to be studies of visually observable

patterns on the plants. Monitoring of health and disease on plant plays an important role in successful cultivation of crops. Image processing and KNN classifier is used to detect the plant leaf disease. In most of the cases disease symptoms are seen on the leaves, stem and fruit. After disease detection fertilizer is feed to the plant automatically. In green house plant along with the automatic fertilization the water spraying is done two times automatically.

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**EC001/009**

## SMART CAR PARKING SYSTEM USING RFID

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***Abstract:*** Car parking big cities is an addressable issue in this paper a system to manage such parking lots with minimum human interference is designed and implemented. This system includes a gateway authentication and availability checking interface for the driver. As per this system only pre-registered members can enter the parking lot. This verification is done using RF id modules and slot availability can be checked using number of IR sensors connected at the slot. In this system a raspberry pi 3 is used for processing information and controlling all the mechanical setup. Also raspberry pi can be used as a local server to store current information about slot information. This will be automatically updated by the help of IR sensor network. In RF id system each car will have a RF tag which registers a particular unique number when swiped at the gate. If this number is in the database car can enter otherwise gate will not open. It is also possible to send these information to a remote server through internet so remote analysis also possible here.

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**EC001/010**

## HUMAN-COMPUTER INTERACTION BASED ON HAND GESTURE RECOGNITION

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Abstract : In today's world, the computers have become an important aspect of life and are used in various field. The systems and methods that we use to interact with computers like mouse, touchpad have various issues.Hence, a new field evolved called Human-Computer interaction.In

our framework , we proposed a computer interaction method based on Hand-Gesture recognition.

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**EC001/011**

## SMART STRETCHER AND INTEGRATED MEDICAL INTELLIGENCE SYSTEMS FOR UNCONSCIOUS PERSON

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***Abstract:*** India is one of the most popular countries of the world. Due to over population, ignorance of health has been remained the major problems in India. For every one minute a death swoops in because of unpredictable and unexpected accidents. The idea here is to provide an intelligent smart health system using some sensors and microcontrollers which are implemented in stretcher. The aim of this system is to save many human by preparing intensive care unit in hospital, as their physical parameters are updated to hospital before their arrival to hospital.

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**EC001/012**

## FIRE ALARMING AND AUTHENTICATION SYSTEM FOR WORKHOUSE USING RASPBERRY PI 3

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***Abstract:*** Ensuring minimum rights and safety of the garment workers has become a burning issue nowadays. The workers of garment factories are facing some labyrinths and broken out of fire is surely one of them. The investors are losing their interest and the prominence of this sector is getting toneless. In this paper, we have propounded a system which is capable to detect fire and can provide the location of the affected region. Raspberry Pi 3 has been used to control multiple Arduino which are integrated with a couple of sensors and camera. A 360ż relay motor is assembled with the camera so that it can snap the image in whatever angle the fire is detected. We have provided a confirmation of the fire suspecting system to avoid any false alarm. The system will immediately send a message along with the image of the affected spot and Arduino's location. An admin can confirm or deny the impeachment and if the admin confirms

the situation as a breaking out of fire, then the system will immediately raise an alarm and an automatic message will be sent to the nearby fire brigade.

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**EC001/013**

## VEHICLE TO VEHICLE COMMUNICATION USING LI-FI TECHNOLOGY

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**Abstract :** This paper presents latest technology called as **LI-FI(**light fidelity). Li-Fi is a new paradigm for short range wireless technology to provide unprecedented connectivity within a localized data-centric environment. Li Fi is a **transmission of data** through **illumination**, sending data through a **led light bulb** that varies in **intensity faster than human eye can follow**. This sort of communication can be called as Visible light communication (VLC). Li-Fi technology works on a **simple digital principle**. These fast switching can be achieved by **PWM technique** to transmit digital data stream containing strings. To acquire this, we are programming the microcontroller to varies the duty cycle of the PWM signal which has the task of regulating the current in the LED. This Paper Proposes Vehicle To Vehicle Communication Using **Li-Fi.** Thus the **installation cost** and **environmental effects** are **very less** in this proposed system. This system can be used in **smart traffic transportation**

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**EC001/014**

## IOT BASED GARBAGE MONITORING USING ARDUINO

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***Abstract:*** We are living in an age where tasks and systems are fusing together with the power of IOT to have a more efficient system of working and to execute jobs quickly! With all the power at our finger tips this is what we have come up with.The Internet of Things (IoT) shall be able to incorporate transparently and seamlessly a large number of different systems, while providing data for millions of people to use and capitalize. Building a general architecture for the IoT is hence a very complex task, mainly because of the extremely large variety of devices, link layer technologies, and services that may be involved in such a system. One of the main concerns with our environment has been solid waste management which impacts the health and environment of

our society. The detection, monitoring and management of wastes is one of the primary problems of the present era. The traditional way of manually monitoring the wastes in waste bins is a cumbersome process and utilizes more human effort, time and cost which can easily be avoided with our present technologies. This is our solution, a method in which waste management is automated. This is our IoT Garbage Monitoring system, an innovative way that will help to keep the cities clean and healthy.

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# DEPARTMENT OF MECHANICAL ENGINEERING

**ME001/001**

## FABRICATION AND CHARACTERIZATION OF LEATHER WASTE AND PLANT FIBERS COMPOSITES

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**ABSTRACT**: Leather buffing dust is a fine powder of collage fibril waste from milling and buffing operations and constitutes an important part of solid wastes generated from chrome tanned leather production processes. It is one of the difficult tanneries wastes to manage and current practice of its disposal includes its incineration and disposal in landfill. Therefore, to prepare composite sheets by incorporating various plant fibers like Musa(Banana fiber),Saccharum Officinarum (Sugarcane), coir in various proportions into the leather waste. Epoxy resin used as binding agents for preparation of the composite sheets. The composite sheets prepared were characterized for their physicochemical properties (tensile strength, elongation at break, stitch tear strength, water absorption, water desorption and flexing strength). Composite sheets prepared using RB having Sugarcane, Musa and Coir fibers showed better mechanical properties than their respective controls. Most of the plant fibers used in this study played a role in increasing the performance of the sheets. However, as seen from the results, the contribution of these plant fibers on performance of the composite sheets prepared is dependent on the ratio used and the nature of binder. The SEM studies have exhibited the composite nature of the sheets and FTIR studies have shown the functional groups of collagen protein, cellulose and binders. The prepared sheets were used as raw materials for preparation of items likeBrake pad, Table,Vehicle interior parts, Clutch plate. By preparing such value-added products, we can reduce solid waste; minimize environmental pollution and thereby securing environmental sustainability.

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**ME001/002**

## ANALYSIS AND CONTROL OF SOLAR POWERED SURVEILLANCE DRONE FOR WOMEN SAFETY

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**ABSTRACT:** The drones are mostly used for carry some subsystems attached to it. Here we use the drone for surveillance purpose (i.e., Surveillance of nook and corner of the city for the safety of women in current scenario).The additional improvement done in our project is the implementation of solar technology to make the drone to fly almost for the whole day and night. This ensures the safety of women in every place of the city. This paper discussed about the design, fabrication of solar powered surveillance drone for women safety.

*Keywords: Drone, Solar power, Safety, Surveillance.*

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**ME001/003**

## DESIGN AND DEVELOPMENT OF SOLAR POWERED MULTI-PURPOSE AGRICULTURAL MACHINE BASED ON IOT TECHNOLOGY

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**ABSTRACT:** Agriculture helps to meet the basic needs of human and their civilization by providing food, clothing, shelters, medicine and recreation. Hence, agriculture is the most important enterprise in the world. It is a productive unit where the free gifts of nature namely land, light, air, temperature and rain water etc., are integrated into single primary unit indispensable for human beings. Secondary productive units namely animals including livestock, birds and insects, feed on these primary units and provide concentrated products such as meat, milk, wool, eggs, honey, silk and lac.The objective of the project was to assist development of a farmer-driven approach to farming.

*Keywords : Agriculture, Solar power, Multi purpose machine.*

**ME001/004**

## SOLAR POWERED SMART IRRIGATION SYSTEM FOR AGRICULTURE PURPOSE

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***Abstract :***
Generally in rural areas farmers face various problems such as frequent power cut off and non-availability of power sources to them from grid power supply. To overcome these problems an only available source of power would be solar energy obviously. By extracting solar power with help of solar panel and supplying it for running motor. Another problem would be stagnation of water which affects the crops so with the help of sensors and mcu the water will be cut off automatically with the help of tripper attached to the motor.

Keywords :Solar Power , Irrigation System, Sensors , Automatic cut-off.

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**ME001/005**

## MODELLING OF EXOSKELETON SUIT

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**ABSTRACT:** The project is about modelling of exoskeleton suit by basic biomechanics, with the use of pneumatically powered actuators. The unit would receive the load acting and transfer throughout the body to feel like lifting a small weight. It has an power assisting system that integrates a human intellect as the control system for feedback and sensory purposes .The exoskeleton is composed of two systems namely inner exoskeleton and outer exoskeleton .The inner exoskeleton is responsible for measuring the movements of the wearer .On the other hand, the outer exoskeleton is designed to support the whole robotic system especially when the wearer starts to walk.

*Keywords: Exo Skeleton, Suit, Bio mechanicss, Pneumatics.*

**ME001/006**

## INVESTIGATION OF MECHANICAL AND TRIBOLOGICAL PROPERTIES OF TANTALUM NITRIDE COATING

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**ABSTRACT:** Tantalum Nitride is chemically inert, oxidation resistant and hard. TaN finds applications as a protective coating due to its excellent wear properties. It has become a very promising diffusion barrier material in Cu interconnect technology in microelectronics. TaN has not been analyzed as much as other transition metal nitrides like the TiN system because TaN exhibits various stable and metastable phases. The emergence of these phases and the different physical, chemical and mechanical properties depend on the growth technique and deposition condition.

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**ME001/007**

## IMPLEMENTATION OF 5S PRACTICES – IN INSTITUTION

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**ABSTRACT:** 5s is the Japanese Technology which is the management approach for workplace organisation. Where it drives the workplace efficiency and Productivity improvement. 5s not only helps to Identify the wastes in the workplace but also creates an environment wherein teams get involved in improvement. In a institution, each and every faculty seems to have several work like data entries of student related details, attendance, paper corrections, question paper preparation and etc. There is more possibilities of forgetting the things to be done on the right manner. So this dissertation is focused on the better management of the college employees and its faculties through the process of 5s house keeping index in improving the productivity and management of the Institution.

**ME001/008**

## DESIGN AND FABRICATION OF WASTE PLASTIC OIL CONVERTER

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Pyrolysis runs without oxygen and in high temperature which is why a reactor was fabricated to provide the required temperature for the reaction. The conversion of oil from plastic has dual benefits. First of all the oil produced can be using as a fuel for domestic purposes and also in vehicles and industries when further refined. Secondly the various types of pollution caused due to waste plastics can be minimized. In this project work an attempt has been made to investigate the conversion of household waste plastic into liquid fuel by using pyrolysis process, a pyrolysis unit is designed, fabricated and evaluated for various kinds of plastic wastes.

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**ME001/009**

## INVESTIGATION AND EXPERIMENTAL ANALYSIS OF TIG WELDING ON STAINLESS STEEL

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**ABSTRACT:** Quality and productivity play important role in today's manufacturing market. Now a day's due to very stiff and cut throat competitive market condition in manufacturing industries. The main objective of industries reveal with producing better quality product at minimum cost and improving strength. TIG welding is most vital and common operation use for joining of two similar or dissimilar part with heating the material or applying the pressure or using the filler material for increasing productivity with less time and cost constraints.

**ME001/010**

## DESIGN AND FABRICATION OF LIMB POWER HARNESS

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**ABSTRACT:** The Limb Power Harness converts the biomechanical power of human limbs into electric power, by stepping up the partial angular motion of the leg into a full fledged rotational motion to a dynamo shaft.The project aim is to provide a reliable electric power source at the time of emergency and at the non urban areas where the electric power is scarce.

The electric power source has become a primary requirement for the humans in our modern world. We rely on electronic devices for our every day activity, and those devices rely on electric power, but the issue is we can't have a reliable power source every point and place in our day to day life, especially during travel. To address this problem we choose a power source that's not with us, but within us. The Limb power is the energy generated by angular motion of our body limbs during walking and cycling. The Limb Power Harness harvests that kinetic power and converts them into electric power. We aim to make electric power accessible to everyone at anytime through our project.

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**ME001/011**

## INVESTIGATION ON MECHANICAL ANALYSIS OF WOVEN JUTE , KEVLAR , HEMP REINFORCED EPOXY COMPOSITE FOR AUTOMOBILE APPLICATION

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**ABSTRACT:** In the structural applications, the composite material employs a significant contribution in various industrial applications. Low-priced composite materials using fibers as an choice of strengthening in polymeric composite materials are increasing all the days. This study was conducted to evaluate tensile, flexural, hardness, impact and compression test in support of the compatibility and appropriateness of fibers like Jute , hemp and Kevlar .

**ME001/012**

## WELD FUME EXTRACTION SYSTEM USING CATALYTIC CONVERTER

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**ABSTRACT:** Weld fume extractor is an apparatus which is used to remove the fumes from the work station during welding. Our project is based on the weld fumes extraction and filtration using catalytic converter. It involves the removal of hazardous gases from the welding workstation. Components such as heating coil and heat exchanger are used to run the catalytic converter. The major objective of this project is to make the welding workstation free from harmful gases such as carbon monoxide(CO), nitrogen oxide(NO), etc. To prevent the workers from respiratory ailments.To keep the outer environment free from harmful and toxic gases. To provide the weld fume extractors at low cost.

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**ME001/013**

## DESIGN AND MODEL OF AUTOMATIC EMERGENCY BRAKING SYSTEM

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**ABSTRACT :** An Automatic Emergency Braking System (AEBS) combines Advanced Driver Assist systems and Electronic Stability Control to slow down the vehicle and potentially mitigate the severity of an impact when a collision is inevitable. The way of designing and implementing automatic emergency braking using the concepts of mechanical and electronics engineering or 'Mechatronics'. The objectives of AEBS is reduced the accidents due to Braking. This system give a forward step to the automated vehicles for Indian road conditions . It regulates the basic road safety rules among the people.AEBS have several modes to handle the different situations of the roads so it's a perfect and a most cost effective solution. AEBS is necessary to be attached to every vehicle. Mainly it is used, when drive the vehicles in night time. Mostly the accident occurred in the night time due to long travel the driver may get tired.