NEW HORIZON
COLLEGE OF ENGINEERING

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International Conference on Innovative Research in Engineering, Management and Sciences

(ICIREMS 2019)

19TH-21ST DECEMEBER 2019

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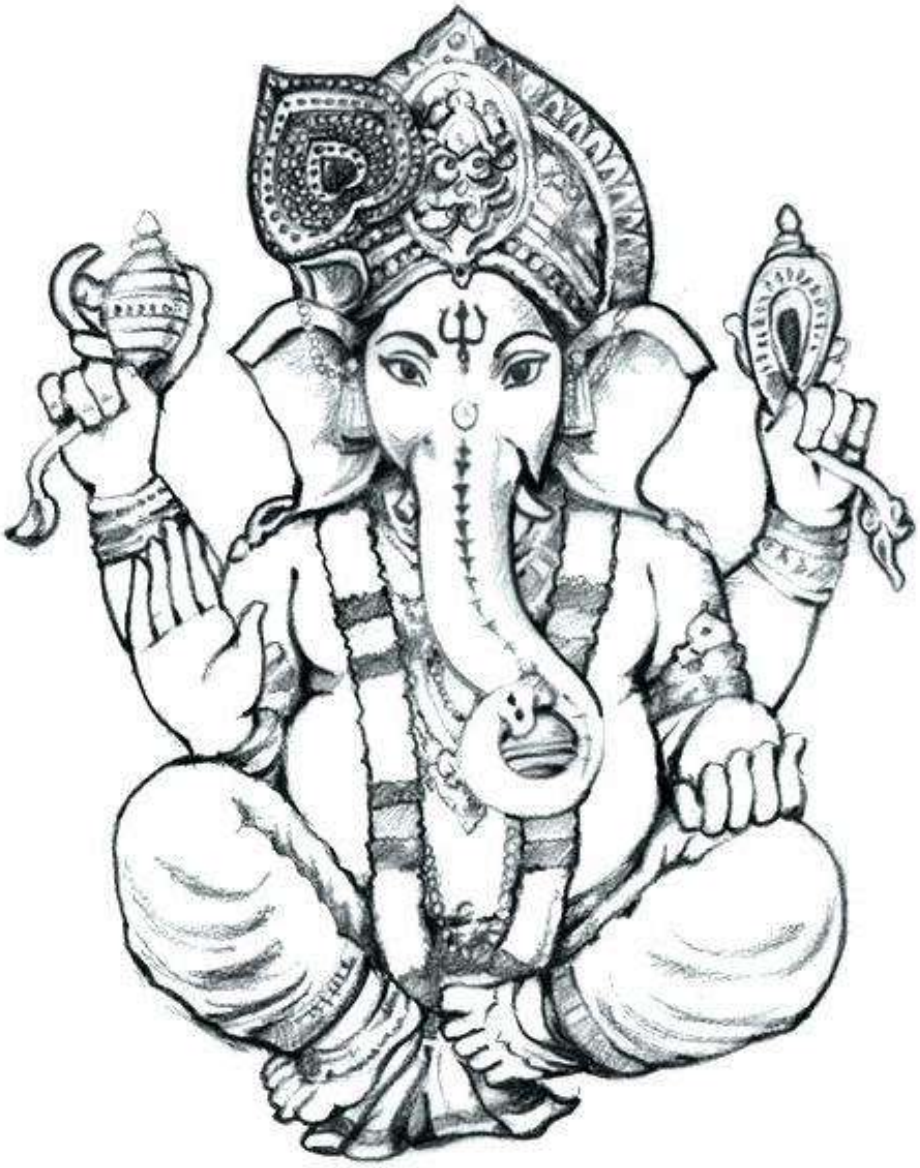

NEW HORIZON COLLEGE OF ENGINEERING

INTERNATIONAL CONFERENCE

ON

"Innovative Research in Engineering, Management and Sciences"

(ICIREMS - 2019)

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Dr. Mohan Manghnani

Chairman

"Technology empowers the less empowered. If there is a strong force that can bring a change in the lives of those on the margins, it is Technology. It serves as a leveller and a springboard"

- Shri. Narendra Modi

The future of education is mainly technology-oriented. The startlingly fast growth of technology has permeated every sector of our lives, including education to a large extent. The substantial impact of technology has lead to great opportunities in globalisation and digitalisation.

As an institute fully committed and eager to embrace the latest offerings of technology, New Horizon College of Engineering has formulated a teaching pedagogy where technology is at the forefront. Research is given utmost importance in order to equip our students with the latest path breaking technology and ideas. Our students are given the opportunity to explore technology and understand significant and innovative research methodologies in some of the most advanced countries in the world with our multiple tie ups with universities abroad.

I would like to congratulate all those involved in the organisation of this enlightening 'International Conference on Innovative Research in Engineering, Management and Sciences'. Such conferences are need of the day and help academicians get exposed to various latest developments in their field. Upgradation and updation of knowledge is very important in the life on an educationist and is wholly encouraged and supported at NHCE.

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Prof. A. S. Deshpande, *B.E(Mech), M.Tech., Ph.D.*
Registrar

MESSAGE

It is indeed a matter of pleasure that ***New Horizon College of Engineering, Bengaluru*** *is bringing out a Conference Proceedings on the occasion of International Conference on "Innovative Research in Engineering, Management and Science (ICIREMS)", being held from 19th -21st December 2019.*

The Conference provides a common forum for deliberations, sharing of recent trends, advancements and research in the areas of Science, Technology, Engineering, Management studies. The multi-disciplinary conference will be a very good platform for academia, researchers, industry practitioners and technologists from all over the world to discuss and present recent advances and research outcomes in their respective fields. ICIREMS aims to provide an environment where the authors and participants can establish research relations and collaborations with various eminent academicians, research fellows, scientists from India and abroad.

My best wishes to the Management, Principal, Faculty, Non-teaching staff, Editorial team and also the students of this college & congratulate for their efforts in bringing out this Conference Proceedings in a very innovative manner.

Prof. A. S. Deshpande
REGISTRAR

Best Wishes

Dr. Manjunatha

Principal

Today, the role of an institute is not only to pursue academic excellence but also to motivate and empower its students to be lifelong learners, critical thinkers, and productive members of an ever-changing global society. Providing ample opportunities in engineering education is one of the most fundamental obligations we owe to our students because in New Horizon College of Engineering we are driven by the belief that every student deserves a high quality education.

The college has been simply unstoppable in its progress as it has been actively involved in various activities that have brought to light the hidden talents of the college students and staff. The highly qualified and dedicated members of staff have always stood shoulder with the management and have carried out their duties with a level of commitment.

The International Conference is focused on the future industrial aspects available for engineering professionals. The Conference provides an open forum for scientists, researchers, and engineers to discuss nascent innovations and research advancements in the areas of next-generation technologies. It will be a wonderful opportunity for delegates to gain quality input useful for their future research in this knowledge based society.

We are grateful to all authors who trusted us with their work; without them, there would be no conference.

Thank you

Best Wishes

Dr. C S R Prashanth

Dean- Academics

Research leads to innovation and innovation leads to further research. Research and innovation are mutually inclusive constructive activities. All the advanced economies in the world today are very strong in research and innovation. The government of India wants to transform India into a five trillion Dollar economy by 2024 from the current 2.7 trillion dollars. In addition to services and manufacturing, it will be innovation and research that would be the deciding factor in reaching the ambitious goal by 2024.

In this backdrop, New Horizon College of Engineering is organizing a three-day multidisciplinary International Conference "International Conference on Innovative Research in Engineering, Management and Sciences (ICIREMS)" on the 19th and 21st of December, 2019. The conference intends to provide an extremely effective forum for presenting cutting-edge research and innovation in the fields of Engineering, Management and Sciences.

Best Wishes to ICIREMS 2019.

Best Wishes

Dr. K Gopalakrishnan

Dean-Research & Development

It gives me immense pleasure to be part of this unique initiative of organizing International Conference at New Horizon College of Engineering.

Nowadays, frequent changes in the technology impact our everyday's life. Our objective is to provide a forum for discussing the development, implementation, use and application of emerging technologies through this International Conference. This conference will provide the participants an opportunity for developing interaction with academia from other Institutes, University of high academic standards, and people from renowned Industries. This eventually will open opportunities to collaborate with other Universities and Institutes, and also to foster synergic partnership between Industry & Engineering Education Institutions.

The NHCE campus is always abuzz with a plethora of activities and has become a dynamic venue where brilliant minds from all over the world converge and share their vast reserves of knowledge and skills. It gives me immense pride to state that as a result of the collective effort of the faculty, students and staff over the past few years NHCE today ranks among the top technical institutions of the country. I am hopeful of its acquiring greater heights in the years to come.

I wish the success of International Conference ICIREMS'19, A Grand Success!

Best Wishes

Dr. M S Ganesha Prasad

Dean-Mechanical Engineering

"We cannot always build the future for our youth, but we can build our youth for the future." *Franklin D. Roosevelt*

Engineers play the most vital and important role in nation building. They create new inventions using best engineered technologies to make human life more comfortable, secure and productive. In modern times, nations which have rich engineering and experienced management domains are flourishing economically and are providing better lives to their people We have excellent potential to grow in diversified areas and excel in Engineering and Management fields. We need enormous number of engineers and managers to write next story of success.

This international conference is an attempt to focus the attention of all concerned professionals to discuss at length concerned with the Emerging trends in engineering& technology, to seek solutions wherever possible and identify areas where further are research are needed. Engineering is getting excited by the day. New materials with fascinating possibilities are being explored.

Information provided in various papers and reproduced in the proceedings is aimed at benefiting the Engineers and professionals. It is expected that the purpose would be served in a satisfactory manner through in-depth discussion and interaction among participants during the conference. I take this opportunity to record my heartfelt appreciation and gratitude to all the authors, delegates, conference chairman and all others participating.

Thank you

Best Wishes

Dr. B Rajalakshmi

Head-Computer Science & Engineering

Welcome to the International Conference on Innovative Research in Engineering, Management and Sciences (ICIREMS – 2019). It has been a real honour and privilege to serve as the organising secretary of the conference.

ICIREMS – 2019 has provided a cross-disciplinary venue for researchers, academia and industry practitioners to present their state-of-art research work on a wide spectrum of domains like Machine Intelligence, Modern Technologies & Automation, Green technologies, Emerging Technologies for smarter and Intelligent World, Biosciences, Innovations in Business Management, Contemporary Innovations in Libraries, Sciences and Humanities, to exchange ideas and explore new avenues of collaborations. Research activities across all these domains pave the way for the industrial world to strive forward and as an educational institution we encourage and support research activities by establishing a suitable platform for the research community.

International keynote speakers from different parts of the globe are invited to share their experience with faculty and students. Around 300 quality papers are targeted to be presented in the conference. The conference is also supplemented with panel discussions by experts from the industry.

We look forward to an exciting 3 days of insightful presentations, discussions and sharing of technical ideas with colleagues from India and around the world.

We thank you for attending the conference and hope you will have an enjoyable and memorable visit to NHCE.

INDEX

Automobile Engineering

Tensile property evaluation on Al-Si alloy

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***Abstract*— The study deals with the tensile property evaluation of LM-6 material under grain refinement technique. The tensile properties are evaluated using Bench tensometer. The tensile property of LM-6 alloy gives the UTS of the alloy which can be used in the application of piston material and also for the piston ring manufacturing. The material is subjected to various stages of loading and the breakeven point is observed. The property is evaluated for 12% of Si which when added with grain refinement and also vibrator improves the bonding of Si with Al hence forth making the material more suitable for piston material**

***Keywords*— Piston materials, grain refinement, mechanical vibrator, tensile property, LM-6 alloy**

Performance characteristics of diesel engine running on canola oil

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***Abstract*— Due to the rapid growth of global economy, fossil fuels are widely used, leading to its depletion and gradual deterioration of the global environment, including global warming, the greenhouse effect, fog, and haze. Henceforth, many researchers have been interested in studying alternative fuels in an attempt to develop an eco-friendly fuel to replace traditional fuel and solve the above environmental problems. Biodiesel is a renewable and eco-friendly fuel that is more promising alternative fuel for diesel engines, and a significant amount of research and development has focused on biodiesel. Canola oil biodiesel (COB) is type of biodiesel, and it has an advantage in oil production per unit area compared with other biodiesels. This paper summarizes and studies related to the use of COB in different diesel engines under a variety of operating conditions/ blends with diesel. On evaluating the performance characteristics of COB based on a large number of papers, in addition, this paper serves as a valuable reference for in-depth studies of COB use in diesel engines, as it covers the topic from the production of COB to its use and as performance testing in diesel engines.**

***Key words* — Canola, Biodiesel, Blends, Performance**

Mechanical behaviour of chicken feather reinforced polymer composites

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***Abstract*— The objective of this study is to utilize and evaluate the mechanical properties of the chicken feather reinforced polyester composites. Prior to production of the composites, the chicken feather fibers (CFF) were cleaned, tested and analyzed in terms of physical properties; linear density and tensile behavior. The unidirectional CFF reinforced composites were produced with polyester resins with different proportions. Experiments were conducted to determine physical properties of the control (0%) and CFF reinforced composites; tensile, flexural and Charpy impact testing. It was found that the impact properties of the CFF reinforced composites are significantly better than the control composites however both the tensile and the flexural properties of the CFF reinforced composites have poorer values compared to the control composites. The CFF reinforced composite have potential applications due to its improved impact behavior. If the poultry waste can be utilized and used any engineering applications, they will be** preferred **due to low-cost and superior characteristics and the most importantly they will not cause ecological and health problems.**

Keywords: **Chicken feather; Composites; Mechanical properties; Polyester;**

Effect of water absorption on the mechanical properties of banana fiber reinforced composite material

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***Abstract*— In this project, the change in mechanical properties like tensile, flexural and impact strength of the composites using stem, pseudo stem and leaf fibers of banana at dry and wet conditions were studied. Three different composites were prepared using the above three fibers with constant weight % of 40 that had been incorporated in unsaturated polyester resin. Then these composites are subjected to water absorption test by immersing these composites in three different water namely sea water, distilled water and bore water. It has been observed that there is decrease in tensile, impact and flexural strength when exposed to moisture environment. It has been found that the Leaf Fiber composite intakes least moisture and have comparatively high strength before and after water absorption test. The experimental result is compared with theoretical values and found to be in good agreement.**

***Keywords*—Mechanical Properties, Banana, Polyester, water absorption**

Mechanical property evaluation of banana fibre reinforced composite

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***Abstract*—Polymeric materials reinforced with synthetic fibres such as glass, carbon and aramid exhibit high stiffness and strength to weight ratio as compared to conventional materials like metals. The potential of using natural fibres as reinforcements in Polymer Matrix Composites (PMC) to replace conventional synthetic fibres in structural applications has been in focus in the recent times. Synthetic fibres are not biodegradable and the manufacturing of synthetic fibres releases harmful emissions to the atmosphere. In the present work PMC with banana fibres as reinforcement in epoxy resin as the matrix and mango fibres as additives has been studied. The specimens are fabricated using the hand lay- up process with different orientation to test the mechanical properties.**

***Keywords*—Fibre reinforced composite, mechanical properties, banana fibre, biodegradable, hand layup**

Vibration study of car floor using fast Fourier transform analyzer

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***Abstract*— This project is apprehensive with the experimental modal analysis of an automotive car floor. To get better ride quality and ease comfort zone for the passengers and to expand fatigue life of car floor component in stable state. The major purpose is to resolve and evaluate the vibration characteristics like frequencies; mode shapes and damping factor of an automotive car floor using Fast Fourier transform analyzer method. The improvement of an automotive car floor structure in the control of vibration actions is investigated by using Fast Fourier transform analyzer method. First, car floor geometry is formed in CATIA. Second, modal analysis is finished experimentally from beginning to end by Fast Fourier transform analyzer to achieve the outcomes of frequencies, mode shapes and damping factor. Third, to control the vibration one of the techniques used to altering frequency of the system by adding stiffener to automotive floor structure, again free-free modal analysis is done in Fast Fourier transform analyzer technique with stiffener condition. And compare the results achieved.**

***Keywords*—car floor, Frequencies, Fast Fourier transform Analyzer, modal analysis.**

Fabrication of a dry cell oxy hydrogen generator

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***Abstract*— This paper discusses fabrication of oxy hydrogen generator using wet cell electrolysis method using SS304 stainless steel plates and neoprene gaskets. Using hydrogen as IC engine fuel is been an interested field of research for a long time, the interest in using hydrogen as IC engine fuel is increased recently due the shortage of fossil fuels and introduction of electric vehicles. The need for an alternative fuel to regular fossil fuels is increased as never before. In this paper a research is carried out on understanding the different methods of generation of oxy hydrogen, selection a best method based on various criteria, namely efficiency, availability of materials and cost. On the same basis mentioned, SS304 stainless was used to make the dry cell hydrogen generator. Amount of oxy hydrogen generated and method to add oxy hydrogen to engine intake and conducting engine performance and emission characteristics have to be done further.**

***Keywords*— oxy hydrogen, wet cell, stainless steel**

Biotechnology Engineering

In vitro Antioxidant and Antihemolytic activity of *Triticum aestivum Linn*

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***Abstract*- Plant based medicines are understood and widely accepted as alternative therapies for many diseases. The present work investigated the in vitro antioxidant and antihemolytic activities of aqueous extracts of *Triticum aestivum* (wheatgrass) have been analyzed and quantified for the phytochemical constituent's such as total phenolics, tannins, and flavonoid contents. High–performance liquid chromatography revealed the presence of many phytoconstituents with medicinal value. Antioxidant Radical Scavenging Activity (RSA) was determined by in vitro assays such as hydrogen peroxide, nitric oxide, 1,1-diphenyl-2-picryl-hydrazyl (DPPH) radical scavenging and total reductive ability. These results proved to be promising and were confirmed by its ability to mitigate free radical induced erythrocyte damage.**

***Keywords*: *Triticum aestivum*, phytochemical, free radical damage, erythrocytes.**

Isolation, Purification and characterization of thermophilic, alkalophilic amylase from strain *Bacillus marinus* MG 12

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***Abstract*- A new bacterial strain MG12 with high amylase activity was isolated and identified as *Bacillus marinus* based on morphological characteristics, 16S rRNA sequence homology and molecular phylogeny. Maximum production of amylase by strain MG12 was observed at pH 7.0 and 30°C after 48 h of incubation. The enzyme was purified with a specific activity of 12.04 U/mg. The molecular mass (57.24 kDa) was confirmed by SDS-PAGE and the purified enzyme showed maximum activity at pH 8.0 and 55°C. The Km and Vmax value for the enzyme activity was found using Line weaver-Burk plot. Enzyme characteristics such as high catalytic activity and stability to temperature, pH and metal ions enhance the potential of amylase produced by strain MG12 for biotechnological applications.**

***Keywords*: Amylase, Bacillus, SDS-PAGE, TLC, Kinetics, Specific activity**

Chemistry

Synthesis and characterization of metal oxide nanocomposites; application in electrochemical detection of neurotransmitter

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Abstract- **ZnO-NiO nanocomposite(NC) has been synthesized by co-precipitation method. This ZnO-NiO composite has been characterized by using, x-ray diffraction (XRD), scanning electron microscope, (SEM). The synthesized composite exhibited a good sensing property and applied for the electrochemical detection of a neurotransmitter, dopamine (DA). ZnO-NiO modified carbon paste electrode (MCPE) showed good catalytic property towards the oxidation of DA. The developed nanocomposite sensor offered high catalytic activity in sensing the dopamine MCPE application in the development of biosensors. The electrochemical responses of 5×10^{-5} M DA and recorded voltagramm at the potential range of -0.2 to 0.6 v vs. SCE in the 0.2 M phosphate buffer of pH 7.2 by Cyclovoltametric technique for both bare carbon paste electrode (BCPE) and MCPE. A good linearity has been observed between scan rate (v) and redox peak current for ZnO-NiO composite MCPE with correlation coefficients of R = 0.97811. These results indicated that electron transfer reaction is adsorption controlled. Therefore, ZnO-NiO nanocomposite could serve as an alternative material as sensor material for the electrochemical detection of dopamine.**

Keywords— Dopamine; Nanocomposites; Modified Carbon Paste Electrode; Cyclic voltammetry.

Equilibrium analysis and LSER modelling for extraction of trans- aconitic acid using tri-butyl phosphate by using xylene and benzene

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Abstract **- Reactive extraction of Trans-aconitic acid from its aqueous solution has been carried out by Tri- butylphosphate as extractant and benzene, xylene as diluents. The study has been performed at room temperature and distribution coefficient (KD), extraction efficiency (E %) and equilibrium complexation constant (K11) has been found out. The maximum value of KD = 9.098454, E%=90.09749 was found out for 0.689219 mol/L trans-aconitic acid, 1.40733mol/L (40%) Tri-butylphosphate and benzene. The paper has presented linear solvation energy Relationship (LSER) model for trans-aconitic acid using tri-butyl phosphate in benzene, xylene. The LSER model with regression coefficient of 0.9845 is obtained. The model value is close to the experimental data.**

Keywords: **Trans-aconitic acid, Tri-butyl phosphate, LSER, benzene, xylene**

Green synthesis and characterization of ZnO nanoparticles using sterculia foetida leaf extract and its photocatalytic activity

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Abstract- **Zinc oxide nanoparticles (ZnO NPs) were prepared using zinc nitrate and Sterculia foetida (S.foetida)leaf extract as fuel by solution combustion method at 400 oC. The obtained material was characterized by UV-Vis, FT-IR,X-ray powder diffraction (PXRD), Energy dispersive X-ray analysis (EDAX) spectroscopy and morphological studies were carried out by Scanning Electron Microscopy(SEM) and Transmission electron microscopy (TEM). The PXRD result shows that the synthesized ZnO particles in spherical shape. The band gap of the ZnO NPs observed at 3.29 eV. The SEM images show the product is agglomerated and almost spherical in shape. The photocatalytic activity of ZnO NPs was examined by degradation of Methylene blue (MB) under UV light irradiation.**

Keywords: **ZnO nanoparticles, Methylene blue, Photocatalytic activity**

Investigation of Ketotifen Fumarate in pharmaceuticals using Iron (III) Chloride and two chelating agents spectrophotometerically

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***Abstract*-Spectrophotometric methods for the drug, ketotifen fumarate (KTF) have been developed and validated both for bulk drug and its tablets by two simple, selective methods. This involves oxidation of KTF with ferric chloride in neutral medium and successive chelation of the resulting iron (II) with 1, 10-phenanthroline (phen) (Method A) or 2, 2´-bipyridyl (bipy) (Method B). The resultant red colored chromogens are measured at 510 for method A and 520 nm for method B. Beer's law is obeyed in the concentration ranges of 0.4-8.0 and 1-25 µg ml^{-1} with molar absorptivity values of 5.35 x 10^4 and 0.789 x 10^4 l mol^{-1} cm^{-1} and Sandell sensitivities 0.008 and 0.055 µg cm^{-2} for method A and method B, respectively. The limits of detection and quantification are also stated. For the present paper, the proposed methods were applied for the determination of KTF. There was a good comparison of the results for proposed procedures and the reference method, no much difference in accuracy and precision.**

***Keywords*—Spectrophotometry, Ketotifen Fumarate, pharmaceuticals**

Exploration of lipid extracted residue of algae biomass as a potential feedstock for biogas generation: sustainable approach towards integrated bio-refinery

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***Abstract*- Algae biomass has been recognized as a potential and promising feedstock for biodiesel production. However, the expenses associated with the overall downstream processing steps question the sustainability of algae biodiesel. With an aim to improve this, a sustainable approach has been explored using lipid extracted algae biomass (LEB) of Spirulina platensisas the feedstock for biogas generation. The alternate use of LEB for biogas generation showed the maximum biogas generation of 400 $cm^{3/g}$ of total solids for the total period of 70 days. The volume of biogas generated under the similar experimental conditions using original algae biomass as feedstock was in the similar range as observed with LEB. The optimistic results obtained from the study suggestedthat LEB can definitely be exploited for such applications to improve the overall cost economics of algae bio-refinery.**

***Keywords:* Algae, adsorbent, biogas, dye, wastewater**

Synergistic Effect of Samarium Doped Magnesium Zirconate Photocatalyst for the Degradation of Methylene Blue Dye via Efficient Charge Separation Pathway and its Photoluminescence Studies

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***Abstract*- In the present work, a well defined Samarium doped Magnesium Zirconate ($MgZrO_3:Sm^{3+}$) nanospheres were synthesized by facile solution combustion method. The prepared material was characterized by FTIR, PL and SEM. FTIR spectra showed broad peaks within 500 cm^{-1} indicating the presence of metal oxygen bonds. From the UV-Vis DRS results the band gap of $MgZrO_3:Sm^{3+}$ nanomaterials were evaluated and it is observed that, band gap decreases with the increase in concentration of Sm^{3+} and it was in the range of 5.89 eV-7.17 eV. From the SEM micrographs of the material with different concentration of Sm^{3+} it was evident that, in all the samples the particles are agglomerated and showed defined spherical morphology. The Photoluminescence studies of the material showed five bands at 360 nm, 397 nm, 442 nm, 487 nm and 535 nm, upon excitation at 290 nm. A detailed investigation on effect of Sm^{+3} on the PL intensity were studied and photocatalytic activity for the degradation of methylene blue was evaluated.**

Keywords: **Synergistic Effect, Photocatalysis, Degradation of Methylene Blue, Charge separation, Photoluminescence.**

Influence of Novel Fiber Surface Treatment Method on Morphology and Mechanical Properties of Polypropylene Composites Incorporation of Sisal Fibers

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***Abstract*—In this study, sisal fibers successfully surface modified by high intensity ultrasound (HIU) and their effects on morphology and mechanical characteristics were investigated for their polypropylene (PP) composites. The SEM analysis shows that after HIU modification, sisal fibers filled PP composites have good compatibility between fibers and PP polymer due to improve the surface roughness. The mechanical properties were significantly enhanced with HIU treated sisal fibers PP composites. The highly cost-effective PP bio-composites reinforced sisal fibers with improved mechanical properties find the potential applications in automotive and other structural engineering industries.**

Keywords: **Sisal fiber, polypropylene, ultrasound, water absorption, morphology**

Oxidation of Etomidate by Potassium Permanganate in Aqueous Alkaline Medium: A Kinetic Study

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Abstract: **Kinetics of oxidation of Etomidate by potassium permanganate in an aqueous alkaline medium was studied Spectrophotometerically at constant ionic strength 0.01moldm-3.The reaction exhibited stoichiometry 1:1. With respect to oxidant and reductant the reaction is pseudo first order and fractional order with respect to alkaline medium. The activation parameters with respect to rate determining steps like Ea (kJ/mol),ΔH#(kJ/mol),ΔS#(J/K/mol) and ΔG# (kJ/mol) were calculated and thermodynamic quantities are also calculated. Effect of ionic strength and dielectric constant of medium have been investigated. Rate constant of rate determining step was calculated and a suitable mechanism has been computed and discussed.**

Keywords: **Kinetics, Oxidation, Etomidate, Permanganate ion.**

Adsorption of Ni (II) from Aqueous System by Lime Loaded Rice Husk Carbon

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Abstract: **Adsorption of Ni(II) is carried out by lime loaded rice husk carbon (LRHC). The extent of adsorption depends on initial concentration of Ni(II) in solution, pH of the solution, carbon dosage, temperature etc. As the concentration of Ni(II) is increased, the adsorption capacity of Ni(II) is also increased. When the adsorbent dosage is increased from 0.025 g to 0.200 g, the adsorption capacity of Ni(II) from the salt solution is decreased. As the pH increased from 1 to 2, 4 to 5 and 6 to 10, the adsorption capacity is decreased. With increase in the pH from 2 to 4 and 5 to 6, the adsorption capacity is increased. Adsorption isotherm models indicate the occurrence of adsorption. Thermodynamic parameters show the biosorption is exothermic and spontaneous. The adsorption is more when the agitation time is 120 min. Kinetics shows the adsorption is pseudo second order reaction.**

Keywords: **Ni(II), Kinetics, Rice husk, Adsorption isotherm and Thermodynamics.**

Civil Engineering

Fly Ash - Lime & Gypsum Lean Concrete

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Abstract- **FaL-G is the product name given to a cementitious mixture composed of Fly ash (Fa), Lime (L) and Gypsum (G). It is low-cost and environmental-friendly material very useful even in rural housing industry. FaL-G in certain proportions, as a building material is an outcome of innovation to promote large-scale utilization of fly ash. This paper addresses the technology of making FaL-G concrete with low-calcium (Class F) dry fly ash as the base material. The FaL-G concrete were prepared without the use of conventional cement. Natural course aggregates, Quarry dust and sand were used as fine aggregates as sustainable materials. The properties and compressive strength of FaL-G concrete were tested with different parameters. The experimental results reveal that the FaL-G concrete are suitable to be used for the construction as a building material.**

Keywords: **Fly ash, lime, gypsum, quarry dust, sand, mortar, compressive strength.**

Experimental studies on utilization of brick waste as coarse aggregate in concrete mixes

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Abstract- **Crushed bricks as aggregates are of particular interest because their use can considerably reduce the problem of waste storage and simultaneously helps the preservation of natural aggregate resources. With this perspective, an experimental study is carried out to assess the possibility of using brick masonry waste as partial replacement for natural coarse aggregate (NCA) in concrete mixes. Brick bats or brick masonry waste are crushed using hammer to recover coarse recycled brick aggregate (CRBA). M20 grade concrete mix is designed as per IS 10262:2009, by considering the properties of natural aggregates.NCA is partially replaced by CRBA at 10%, 20%, 30% and 40% in concrete mixes. Totally five concrete mixes (including control mix made of NCA and NFA) are considered in the study. The workability of the concrete mixes decreases with an increase in CRBA content. A marginal reduction in 28 days compressive strength is observed up to 20% replacement of NCA by CRBA. At 30% and 40% replacement level, the reduction in compressive strength is about 15% and 30% respectively. The tensile strength decreases with increase in CRBA content in concrete mix.**

Keywords: **Coarse recycled brick aggregate (CRBA), Control Mix, Natural coarse aggregate (NCA), Natural fine aggregates (NFA).**

Characteristics of cement stabilized masonry blocks prepared from brick masonry and concrete Waste – Experimental study

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Abstract- **This experimental study deals with utilization of brick masonry and concrete waste in preparation of cement stabilized masonry block (CSMB). Brick masonry waste and concrete waste are crushed into granular form and designated as brick powder (BP) and fine recycled concrete aggregate (FRCA) respectively. BP and FRCA are used in 70:30 proportions and cement content is varied as 6%, 8%, and 10%. The static compaction method is used to fix the optimum water content as 16% for all the three mixes. The size of the CSMB units is 190×90×90 mm and it is tested for dry density, wet compressive strength, water absorption and rate of moisture absorption. Correction factors reported in the literature are used to arrive at uniaxial compressive strength. The compressive strength of CSMB units of size 190x90x90 are found to be in excess of 3.5MPa, except for 6% cement content, with correction factor = 0.58. A simple equation is proposed to compute the representative 28 days wet compressive strength of CSMB units without correction factors as f = 0.8 C, with C as % of cement in the mix. The water absorption of CSMB units are within permissible limit of 18%. The rate of moisture absorption of the units is found to follow an exponential trend. Nearly 50% of absorption is found to take place in the first 30 mins of soaking. To study the influence of size, a CSMB units of size 290x190x90 mm with 8% cement are cast and wet compressive strength is determined on the cubes 70 mm and 90 mm cut from the CSMB units 290x190 x90 mm, as well as, on the units also. The 70 mm and 90 mm cube samples cut from CSMB units show a decrease of 32% and 35% in wet compressive strength when compared with 70.6 mm cube samples cast from the same mix. The 28 days wet compressive strength of CSMB units 290 x190 x90 mm with aspect ratio as 0.47 is about 70% more than the strength attained with units 190 x90x90 mm with aspect ratio as 1.0.**

Keywords: **Concrete and brick masonry waste; Cement Stabilized Masonry Blocks (CSMB); Fine recycled concrete aggregate (FRCA); Brick powder (BP)**

Enhancement of filtration process for the treatment of wastewater using geotextile material

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***Abstract*- Sewage disposal is a major problem in developing countries as many people in these areas don't have access to sanitary conditions and clean water. Untreated sewage water in such areas can contaminate the environment and cause diseases such as diarrhoea. Filtration method using sand and gravel has been tried here for the removal of impurities in waste water and getting good removal of pollution parameters like chlorides, hardness, BOD and COD. Geotextile material are permeable materials which is widely used in all areas of civil, geotechnical, coastal, environmental and hydraulic engineering. In this study geotextile material is incorporated into filtration columns to study the enhancement of filtration. The removal percentage of pollution parameters were increased indicating the role of geotextile material in the filtration process**

***Keywords:* BOD, COD, Disposal, Filtration, Geotextile.**

Article on Soil Permeability Test and Its Impact on Dam Construction

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***Abstract*- Soils are porous materials as a result of the presence of interconnected voids that permit the progression of liquids when a distinction in vitality head exists. A decent learning of soil permeability is required for assessing the amount of drainage under dams and dewatering to encourage underground construction. Soil permeability, additionally named pressure driven conductivity, is estimated utilizing a few techniques that incorporate constant and falling head lab tests on flawless or reconstituted examples. Then again, permeability might be estimated in the field utilizing inside borehole permeability testing and field siphoning tests. A less alluring technique is to experimentally derive the coefficient of Permeability from the after effects of straightforward research centre tests, for example, the grain size example. In this paper, the coefficient of permeability was estimated utilizing field falling head at various profundities. Besides, the field coefficient of permeability was estimated utilizing siphoning tests at a similar site. The deliberate permeability esteems are contrasted with the qualities exactly concluded from the cone penetration test for a similar location. Moreover, the coefficients of permeability are exactly acquired utilizing correlations dependent on the list soil properties of the tested sand for comparison with the deliberate qualities**

***Keywords: S*oil permeability, Dam, Cone penetration.**

Effect of Land use/Land covers on Runoff in Vrishabhavathi Basin- a Case Study

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Abstract **- The SCS-CN method is an event-based model developed by the United States Department of Agriculture (USDA) Soil Conservation Service (SCS). The Curve Number (CN) is a land-cover index for a given land and soil type to determine the amount of rainfall that infiltrates into the ground and the amount that becomes runoff for a specific storm event (USDA, 1986). The hydrological response of watershed is usually altered due to revolution in the watershed development. Thus it is necessary to quantify the likely changes in the surface runoff in a watershed as an impact of the planned or unplanned changes made in the land use. The Vrishabhavathi sub-watershed in the upstream side of Gali Anjaneya Temple, Bengaluru, India has been chosen to investigate the effects of land-use change on surface runoff. Satellite imageries pertaining to two different decades, i.e. year 2002 & 2014 , have been utilized to for preparation of land use/cover maps, analysis of their spatial distribution and changes between the two decades. Over 20 (2002-2014) years monthly rainfall data was acquired from Karnataka State Natural Disaster Monitoring Centre (KSNDMC) was used to estimate the runoff from the watershed. Rainfall measured for 20 years indicated annual rainfall of 882 mm in the tank catchment. Textural characteristics of the soil indicate sandy loam and loamy sand, silty loam, clay loam, sandy clay and clay soils which corresponds to hydrological soil group "B and C". Weighted curve number is arrived based on the antecedent moisture conditions, and runoff is estimated for the existing land-use. The weighted averages Curve Numbers (CN) for two decades are calculated on the basis of land use/cover type and hydrologic soil class in the catchment area. The direct surface runoff volume is computed by the SCS Curve Number method. It was shown from the results that LULC changes were significant during the period 2002 to 2014. There is a significant expansion of built-up area noticed. On the other hand there is decrease in agricultural water spread and open space areas.**

Keywords: **Watershed, Rainfall, Runoff, SCS-CN method, ArcGIS 10.1 ungauged watershed, Remote Sensing.**

Performance evaluation of short circular concrete filled steel tube columns under axial compression

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Abstract- **This paper aims to develop a suitable constitutive model addressing the behaviour of short concrete Filled Steel Tubular column (CFST) on the compressive response under axial loads. The nonlinear finite element program is used to study the force transfer between steel tube and concrete core. Parametric study is conducted using nine circular CFST columns to investigate the load carrying capacities and confinement of CFST columns. The parameters like the yield stress of steel, diameter of the column and thickness of the steel tube are studied. 120-137% of load carrying increment is observed for concrete filled steel tubes by addition of concrete in the hollow steel tube. 95% of load increment by changing the diameter of the column and keeping other parameters constant. 8-16% of load increment is recorded by changing the steel yield strength and keeping remaining parameters as constant. 5.27% increase of load carrying capacity is observed by changing L/D from 3 to 5 and a decrease in the load carrying capacity is observed with an increase of L/D ratios from 5 to 7.**

Keywords: **Short Column-Axial compression- L/D Ratio.**

Experimental Study on lime stone powder as a binding material in concrete mix

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Abstract-**The reduction of using cement content in concrete is one of the resolute global sustainability concerns of the 21st century. of all the ingredients in concrete (the primary ones being cement, supplementary cementitious materials, water, and coarse and fine aggregates), cement has the largest footprints when it comes to both carbon dioxide release and energy consumption. The material that has been used in concrete in some parts of the world for many years, but is receiving renewed interest globally, is limestone powder, typically available in the form of the calcite polymorph of calcium carbonate and with varying percentages of magnesium (carbonate). The source for cement production is calcium which is a product of lime stone , as well as being one of the most commonly employed aggregates, its presence is ubiquitous within the concrete industry. In this study we approached to know the behaviour of concrete by adding lime stone powder as a replacement of cement from 0 to 15% and conducted tests on concrete in fresh and hardened state.**

Key Words: Lime Stone Powder, Slump, Compressive Strength.

Studies on the Effect of Fibres in Reclaimed Asphalt Pavement Based Stone Matrix Asphalt Mixes

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Abstract: **In this paper materials such as coir fiber and polypropylene fibers are used as a binder drain down retarders in Stone Matrix Asphalt mix. And also the Reclaimed asphalt pavement is also used as a replacement to a conventional aggregate with 10,30 and 50% of replacement to conventional as an alternate material in order to understand the behaviour of the different mixes by the tests such as Marshall *stability*, *Tensile strength Ratio*, *binder drain down* and moisture susceptibility tests. From the tests it was identified as SMA with *polypropylene* fibers shown 0.19% of drain down and the *coir* fiber shown 0.173% of lesser drain down, but as the percentage of RAP increased in the mix the drain down retarded. Lowest drain down percentage was seen in *SMA* with RAP 50%. Marshall Stability values were all satisfactory for all mixes in which SMA with 30% RAP and polypropylene shown highest stability of 14.89kN stability and of Coir blend shown 14.56kN at 60°C. Hence from the following investigations, the use of RAP and fibers in SMA was promising in the research field.**

Partially replacement of cement by waste glass powder in concrete

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Abstract: **Storage and safe disposal of waste glass is a huge problem for municipalities everywhere. Reuse of waste glass eliminates/reduces this problem. In this experimental work, the effect of partially replacing cement in concrete by glass powder is studied. The cement in concrete is replaced by waste glass powder in steps of 5% from 0%, 5%,10%,15%,20% by volume and its effects on compressive strength and flexural strength are determined. It is found that the compressive strength of concrete increase initially as the replacement percentage of cement by glass powder increases, become maximum at about 15% and later decrease.**

***Keywords*—Concrete, Glass powder, Compressive strength, Flexural strength**

Nonlinear explicit analyses of RC columns under blast loading using Finite Element Method

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Abstract- **The columns are utmost important and most vulnerable part of the structures, the ideology of strong column and week beam is to prevent total collapse of the building while resisting the lateral loads and therefore columns should be built with high safety parameters. Thus column with greater stiffness than beam is provided. The present work deals with three-dimensional nonlinear finite element (FE) analyses of a reinforced concrete column subjected to blast loading. The finite element package ABAQUS/Explicit was used to model a reinforced concrete column and the concrete damage plasticity approach was used to define the non-linearity of concrete. The stress-strain response of concrete and reinforcement has been simulated using concrete damaged plasticity model and elastic-perfectly plastic model, respectively. TNT explosive has been simulated using Air blast interaction under CONWEP definition. Parametric sensitivity studies have been performed by varying the spacing between stirrups as 125, 175, 225 and 275 mm and also diameter of main reinforcement bars are varied as 16, 20, 25, 28 and 32 mm to determine the displacement and stress variations. Efforts are also made to determine the effects of incident blast wave falling on the different face of the column. It is observed from the results that modeled column structure undergo significant deformation with variations. It is also observed that blast resistance increases as the spacing between stirrups decreases. Also, deformation of the column decreases as the diameter of the reinforcement bars increases.**

Keywords: **Nonlinear explicit analysis, TNT, Blast loading, column, concrete damage plasticity, CONWAP.**

Equilibrium equations for thermal buckling analysis of annular plates

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Abstract: **In the following paper equations for thermal buckling analysis of functionally graded annular plates are derived. Equilibrium and stability equations are derived using first order shear deformation theory under the thermal loads. Assuming that the material properties vary as a power form of the thickness coordinate variable z, the system of fundamental partial differential equations are established by using minimum potential energy. These equations can be solved by using number of methods like energy methods, analytical methods, finite difference method, and finite element method.**

Keywords: **Functionally graded materials, FSDT, Buckling.**

Usage of Plastic in Manufacturing of Solid Bricks along with M- sand and Bitumen

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Abstract- **Plastic, one of the greatest materials invented by mankind. Since the development of plastic earlier this century, it has become a popular material used in different ways. They are cheap, durable and easy to make. In today's world, plastic is used to make or wrap many items, we buy or use. But the main problem arises when we no longer want those items and we have to discard them. As the production cost of plastic is very less, it is readily available in the market. The cheapness means plastic gets discarded easily, its long life means it doesn't decompose easily and requires high ultraviolet ray to break down. In the 21st century, one of the major environmental issues is arising due to the plastic waste. Plastic is non-biodegradable hence the discarded plastics are affecting our environment gravely. Due to the huge popularity of plastic as a production material, decrease in plastic usage policies isn't encouraged by manufacturing companies, rather it is estimated that the plastic usage rate going to be double for the next 10 years. As we are still looking for viable solutions to this plastic waste management problem, this study is solely focused on the recycling of discarded plastic bottles in building materials. The main purpose of this particular study is to introduce plastic waste in brick production and explore the performance of plastic bricks, made out of polyethylene terephthalate (PET) bottles and M-Sand. The bricks were casted with plastic to M-sand in different proportion and bitumen was used as a binder material. The experimental outcomes were compared with locally available clay bricks.**

Keywords: **Plastic Bricks, PET bottles, Bitumen, M-Sand, Compressive Strength, Water absorption.**

Enhancement of sub grade soil strength using Lime and copper slag

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Abstract- Subgrade is an important component in the pavement structure. It takes all the load and transfer it in to the ground over a larger area. The performance and durability of pavement also depends on type of subgrade soil and its engineering properties. During construction we come across different types of soil among that Black cotton soil also known as expansive soil is one of the problematic soils. In these unavoidable situation improvement of geo mechanical properties is very much essential. Stabilization is one of the methods of ground improvement techniques. It this present study stabilization of black cotton soil has been carries out using lime and copper slag. The test results have been shown that there is an improvement in strength properties of soil and also decrease in plasticity index. substantial increase in unconfined compressive strength and CBR value has been observed.

Keywords: **Black cotton soil, subgrade, copper slag, UCS, CBR**

Pushover Analysis of Irregular Steel Structure with Varying Irregularity Ratios

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Abstract: **In this paper the seismic performance of irregular steel structure with varying irregularity ratio have been investigated. For the study purpose, two different models with vertical geometric irregularity and plan irregularity according to IS 1893 (part 1) -2002 have been considered. The irregularity ratio (A/L) where A is offset and L is base width has been varied from 0.2 to 0.8. Irregular structures have been modeled using ETABS, finite element software and plastic hinges are assigned to incorporate the inelastic seismic behaviour of structures. Performance of eleven irregular structures has been compared with regular frame structure in terms of base shear carrying capacity, roof displacement and performance point, using pushover analysis. The results indicate that as irregularity ratio increases, base shear carrying capacity and performance point of irregular structure decreases. Regular structural model showed higher seismic performance in both X and Y direction compared to all irregular structural models considered. The vertical geometrical irregularity models of type (i) has higher seismic performance compared to all the irregular configurations considered in the study. Also vertical geometrical irregularity of type (ii) has least seismic performance compared to all the irregular configurations considered in the study.**

Keywords: **Irregularity ratio; plan irregularity; pushover analysis; seismic behaviour; vertical geometric irregularity**

A Study on Polymeric Fibre Reinforced Stabilized Mud Blocks

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Abstract- **It is a known fact that mud blocks casted out of black cotton soil have poor damage resistance due to clayey, brittle and weak nature of the black cotton soil. In order to improve the strength of the cotton soil based mud blocks, additives such as polypropylene filament, polypropylene flakes and poly styrene fibres have been used in addition to a natural binder namely Terminalia chebula. By varying the percentage of the additives and as also soil, sand and lime various fibre reinforced blocks are made. The as-prepared reinforced mud blocks on analysis were found to possess a maximum strength of 13.75MPa when polypropylene was added as a additive. The study revealed that the addition of polymeric additives with the use of Terminalia chebula resulted in reinforcement of the stabilised mud blocks with enhanced strength and durability**.

Keywords— **Artificial Fibres, Lime Stabilization, Terminalia chebula, Fibre Reinforcement, Compressed Stabilized Earth blocks, Stabilized Mud Blocks.**

Use of granite waste as powder in self compacting concrete

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Abstract **- The production of SCC can be achieved by varying the mix proportion of concrete with super plasticizer in order to make concrete flow while keeping the coarse aggregate in suspension.SCC has gained importance worldwide. Many major structures were built in short interval of time. Research on SCC has been carried out using Fly ash & Ground granulated blast furnace slag as the main filler material and very few studies have been carried out using granite powder as filler material. The present study is one such attempt in which granite powder has been used as the filler material. In this study, a number of mixes have been tried out initially to develop a mix which could satisfy the fresh properties of Self Compacting Concrete. Once the suitable mixes have been developed, the water & cement is fixed at 160kg/m^3 & 375kg/m^3 and different volume of paste namely, 0.36, 0.38, 0.40 & 0.42 has been kept as variable to ascertain the properties of SCC. For each variation in volume of paste only the granite powder content is increased. For each volume of paste 5 different mixes have been developed by keeping variation in coarse aggregate: fine aggregate ratio namely 60:40, 55:45, 50:50, 45:55, and 40:60. One best CA:FA ratio based on slump flow value and compressive strength is opted from each volume of paste for further strength test . Final 4 optimal mixes are tested for 28 days compressive strength, flexure strength, split tensile strength and density test. The results show that, SCC can be successfully developed using granite powder as the filler material. Initial and final compressive strengths are good and also flexure strength value is more than 4.5MPa for all mixes.**

Keywords: **SCC – Self compacting concrete, GGBS - Ground granulated blast furnace slag, CA – Coarse aggregate, FA – Fine aggregates.**

Effect of Replacement of Cement by Fly Ash and Metakaolin on Strength Properties of Concrete

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Abstract **–An experimental study was carried out to understand the effects of partial replacement of cement by fly ash and metakaolin of M50 grade concrete mix. A control specimen was prepared by using OPC 43 grade cement. Improvement in compressive strength and split tensile strength was observed with the replacement of cement by 15% fly ash and metakaolin at 5%, 10%, 15% and 20%.*Upto* 36%, and split tensile strength up to 51.5%.**

Keywords**: Cement concrete, Metakaolin, Fly ash, , Compressive Strength, Split tensile strength.**

Application of Embedded System in Designing Optimal Signal Cycle for Minimizing Automobile Emission at Signalized Junctions for Better Environment Management

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Abstract **- This research paper deals with the improvisation of philosophy of traffic signal cycle time design based on IRC:93-1993 guidelines, which is based on two fundamental parameters i.e. peak one-hour traffic flow and recommended saturation flow values obtained from field observations. Webster method is used in the signal design process assuming homogenous traffic as prevailing in developed countries. Volume and saturation flow is converted to PCU values. In India the traffic is heterogeneous and this would result lot of unused green time and due to idling of vehicles leading to fuel wastage causing air pollution. Hence, it is proposed to introduce totally a new concept of signal design based on variable traffic volume and variable saturation flow values for each road separately obtained from field studies. These values are installed in the Embedded System of the signal system. The actual signal cycle time, green time and Red time for prevailing traffic volume and saturation flow values at any given time of the day is calculated based on Program installed in the chip. This signal design concept is innovative in nature and avoids excess unused green time for each signal cycle for the entire signal operation period in a day thus resulting in less emission followed by reduction in air pollution.**

Keywords: **Delay, traffic volume, saturation flow, optimum signal cycle time, air pollution, Embedded System**

Optimization of Palm Oil Fuel Ash (POFA), Granite - Gravel Blended Concrete

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***Abstract*- Utilizing Palm Oil Fuel Ash (POFA) in concrete mix is a way of turning waste to wealth. Gravel as an aggregate is cheaper than granite. Thus, obtaining an optimum combination of these materials in achieving a maximum compressive strength in concrete will go a long way in helping the construction industry. This research was conducted to find an optimal replacement percentage for POFA, granite-gravel blended concrete. Uniform water/cement (w/c) ratio of 0.5 and mix ratio of 1:2:4 for a target strength of 20 N/mm^2 was utilized. Thirteen runs of experiments and a controlled experiment were designed using the Central Composite Response Surface method. The result shows that increase in the quantity of granite led to a rise in compressive strength. However, increase in the quantity of POFA resulted in a decline in compressive strength at 7, 28, 56 and 90 days of curing. The optimal combination to maximize the compressive strength, quantities of POFA and gravel in the blended concrete was found to be 35% POFA, 58% gravel and 42% granite. This gave a compressive strength of 21.8 N/mm^2 and a slump height of 94.06 mm. This combination is suitable for reinforced concrete works.**

***Keywords*: Concrete, Compressive strength, Granite, Gravel, Palm Oil Fuel Ash**

Bengaluru City Water Quality Testing

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***Abstract:* physical assessment of drinking water quality was carried out for the samples taken in Bangalore, India. Being one of the fastest growing cities in India, inevitably Bangalore is facing the pressure of supplying safe and healthy drinking water to such a huge population. Therefore, it is of high importance quality in such place. In this present study water samples were collected from all over Bangalore peripheral regions as well as proportions from the central region as well. Test for pH and TDS were carried 20 samples. The whole city was divided in four regions for well parameter was found to fairly exceed the standard values in certain places. All the unfitness of the water may has occurred due to the poor storage and maintenance system. All the limit came high in some sector depending upon external sources. It is evident that more than 50 percent of water samples are non-portable as per Indian standard**

***Keywords:* pH, total dissolved solids, water analysis and Quality assessment**

Experimental investigation on leachate-contaminated lateratic Soil

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***Abstract*—Contamination of soil due to the Leachate from Municipal Solid waste is a major environmental problem. Landfill leachate is generated from liquids existing in the waste as it enters a landfill or from rainwater that passes through the waste within the facility. Large quantities of leachate-contaminated lateritic soil results from dump yards in the southwest coast of India. With urban development and expansion, these areas are reclaimed for construction and other purposes. The engineering behaviour of structures constructed of/with municipal solid waste fills are unpredictable.**

A laboratory testing program was carried out to determine the index properties, shear strength characteristics, compaction characteristics and hydraulic conductivity of clean and contaminated lateritic soil. Contaminated samples are prepared by mixing the lateritic soil with varying amount of leachate content like 20%, 40%, 60%, 80% and 100% by weight to vary the degree of contamination. The effects of leachate on the Atterberg's limit clearly indicated by the decrease in liquid and plastic limit values with the increase in the leachate content. Reduction in maximum dry density and increase in hydraulic conductivity were observed.
***Keywords*— Leachate, residual soil, Atterberg limit, shear strength.**

Reuse and Recycling of Construction and Demolition Waste

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***Abstract*—Due to rapid urbanization in India, environmental impacts from construction and demolition (C&D) waste are increasingly becoming a major issue in urban waste management. Construction and demolition waste is generated whenever any construction/demolition activity takes place. It consists mostly of inert and non-biodegradable material such as concrete, plaster, metal, wood, plastics etc. A major part of this waste comes to the municipal stream. This study aims to focus on the possibilities of reuse, recycling and renovation in reducing C&D waste. Various practices of reuse and recycling like renovation, concrete recycling, and deconstruction were studied. Along with reduction in C&D waste these practices can reduce the exploitation of virgin natural resources. Renovation of existing residential building for new requirements was done to reduce the demolition waste produced. It helped in the onsite reuse of functional parts of existing building for the new building. In this particular study we were able to save the entire foundation, roofing frame, flat slab and 73.84% of wall for superstructure.**

***Keywords*: Construction & demolition waste, deconstruction, renovation, recycling, reuse, material recovery**

Analytical Study on Retaining walls- Static and Dynamic

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***Abstract*— The dynamic interaction of retaining walls with the retained soil (wall-soil-interaction] and of structures with the soil underlying their foundation [soil-structure interaction], have been examined by a number of researches in the past. Of much interest is the dynamic 'version' of this phenomenon [which incorporates the 'static' version] where all the three components [wall, soil, structure] respond dynamically and affect the response and distress of each other. Soil-Structure Interaction till the present date is not been sufficiently investigated or is either ignored.**

In the present study, using numerical 2-D simulation, the influence of the different types of soil on the different heights of the wall is addressed. A cantilever retaining wall is considered and is been modeled for the soil-structure interaction using finite element package SAP2000 Version 14.0.0. The response of a cantilever retaining wall are studied considering six degrees of freedom system. For the validation purpose of the retaining wall, support conditions are considered to be fixed. For the analysis, the inputs are density of concrete, modulus of elasticity of concrete, density and SBC of soil, modulus of elasticity of soil, angle of internal friction and loading (active and passive earth pressure). The targeted outputs are found as seismic base shear, fundamental natural period and maximum lateral displacement. Finally the response spectrum inputs are given to the retaining wall for all the three types of soils (soft, medium, soft rock and hard rock) and three types of seismic zones (III, IV and V). Based on the present studies going on globally on SSI it can be concluded that neglecting the same would sometimes result in unsafe seismic design and can lead to dangerous situations.

After the analysis, it was observed that the percentage variation in the deflection is 900% (avg) towards the fixed end and converges to 1% towards the free end when compared with classical method. As the stiffness of the soil increases that is in soil 4 there is a reduction in deflection and as the height of the retaining wall increases there is an increase in the deflection at their free ends. The deflection increases with the increase in seismic zone value. As the height of the retaining wall increases there is an increase in the fundamental natural time period.

Keywords—Retaining wall, soil structure interaction, SAP2000 Version 14.0.0.

Behaviour of Geo-polymer Concrete at Elevated Curing Temperature

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***Abstract* —Production of Portland cement is resulting in two major environmental issues that are needed to be considered before it's too late to find out the solution. Firstly, manufacturing of PC is emitting 5% of the global CO2 into the atmosphere causing global warming. Secondly, manufacture of PC requires limestone and clay that are depleting day by day. To produce 1 ton of PC, 1.6 tons of raw materials are needed to be extracted from the earth. To overcome the above problem a new concrete is used called Geopolymer. Geopolymer is a type of amorphous alumino-silicate product that exhibits the ideal properties of rock-forming elements. In the present study the strength development of geo polymer concrete is determined by varying temperature. To prepare geopolymer concrete the material used is Ground Granulated Blast Furnace Slag, sodium hydroxide activator and hydrated sodium silicate binder. The sodium hydroxide is varied in two molarities, 8 and 10 respectively. The sodium silicate had 30% water content in it. The curing was done in the oven with varying temperatures of 60, 80 and 100 degrees. The compressive, split tensile and flexural strength showed higher strength at 8 molars and curing temperature being 100 degrees.**

***Keywords* — Geopolymer concrete, NaOH, Hydrated sodium silicate.**

An experimental study of flexural behavior of bubble deck slab

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***Abstract:* Reinforced concrete slabs are one of the most common components in modern building construction. Reinforced concrete slabs with plastic voids are a new and innovative type of structural concrete slab system developed to allow for lighter self-weight of the structure while maintaining similar load carrying capacity of a solid slab. Plastic voided slabs are capable of reducing the amount of concrete necessary to construct a building by 30 percent or more. This reduction can be beneficial in terms of financial savings as well as building performance. This report examines a flexural capacity of two-way reinforced concrete slab with spherical voids in comparison to conventional reinforced concrete slab. The conventional reinforced concrete slab is designed as per the Code provision of IS: 456-2000. For the same depth of slab, 35mm and 40mm diameter spherical voids are created at different spacing at the center of the slab to create voided slab. The slabs are analyzed for different loading and boundary conditions. The geometry of all the slabs was constant 1000x1000x70 mm. The slabs are subjected to nine-point bending load/UDL.**

***Keywords*—Bubble Deck Slab(BDS), RC Conventional Slab.**

Geochronological studies of Archaean metapelites from Eastern Dharwar Craton, Southern India

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***Abstract*— Isotopic age data is an important tool being utilized by the earth scientists to address timing and duration of accretionary processes, reworking, metamorphism and rate of continental growth. The main objective of this paper is to present new isotopic age data on metapelites from different localities viz., Pavagada, Bidaloti, Bandihalli and Duntur areas in the Eastern Dharwar Craton (EDC) in order to deduce the timing of metamorphism, crustal history and age of the provenance. From this study we can conclude there is a record of older age population of 3.16Ga in the monazite of Pavagada metapelites may correspond to either ~ 3.1Ga thermal event or detrital monazite from TTG in the EDC. The negative εNd values at 3.0 Ga with T_{DM} Nd model ages ranging from 3.4 to 3.6 Ga obtained for the studied metapelites indicates that the EDC has extended crustal history prior to 3.0Ga and also implies that their sources were derived from exotic sources localized outside the Dharwar craton.**

***Keywords*—Metapelites, Eastern Dharwar Craton, Isotopic age, Metamorphism, Provenance, Crustal history.**

Computer Science & Engineering

MoC++ interpreter for the C++ language

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***Abstract*-- MoC++ Interpreter is a novel project that directly executes source program/instructions written in C++ language without translating it into a machine code or object code. MoC++ maps input to output statement by statement, where each instruction is thoroughly checked for syntax and semantic errors. MoC++ is an efficient interpreter which has a well-developed error diagnostics system. MoC++ interpreter solves complicated real – world problems by Abstract-ing constructing the problem mathematically. MoC++ interprets a source code that adheres to a particular language specification that is C++, and can interpret possibly thousand lines of code. MoC++ doesn't alter the meaning of the original instruction being interpreted.**

Detection of Lesions for Diabetic Retinopathy: A Review

Mohamed Jebran P and Shweta Gupta

***Abstract*-- In this paper existing writing for computer added diagnosis (CAD) based identification of lesions that might be connected in the early finding of Diabetic Retinopathy DR) is talked about. The recognition of sores, for example, Microaneurysms (MA), Hemorrhages (HEM) and Exudates (EX) are incorporated in this paper. Based on conventional morphology based location framework to deep learning techniques have been talked about. The different strategies like hand crafted feature extraction to automated CNN based component extraction, single lesion identification to multi sore recognition have been explored. The different stages in each methods beginning from the image preprocessing to classification stage are investigated. The exhibition of the proposed strategies are outlined by various performance measurement parameters and there used data sets are tabulated. Toward the end we examined the future headings.**

Clustering based approach for isolating the drug elements causing side effects

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***Abstract*- The truthful identification of drug side effects represents a major concern for public health. Medication symptoms or Adverse Drug responses (ADRs) are a vital and complex challenge. In the pharmaceutical business, ADRs are one of the main causes of failure during the time spent in the development of drugs and of drug withdrawal once a medication has achieved the market. Medication used in prescription depends on a balance between expected advantages and conceivable dangers. Adverse Drug Reactions (ADRs) are impacts that happen when a medication is not administered or controlled at the best possible measurements. It is basic to build up an investigation pipeline to computationally foresee drug side effect symptoms from various assorted sources.**

BLIND LEAP

Real-Time Object Recognition with results converted to Audio for Blind People

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***Abstract*- This project tries to change the visual world into the audio world. It has the likelihood to inform blind people about the objects as well as their spatial locations. The objects that are detected at the scene are represented by their names and are then transformed to speech. Their spatial locations are encoded into the 2-channel audio with the help of 3D binaural sound simulation. The system is collected of various modules. The video is captured by a portable camera device (Raspberry Pi with Noir Camera) on the client side. It is then streamed to the server for real-time Object recognition with existing object detection models (YOLO). The 3D location of the objects is determined by the location and the size of the bounding boxes using the detection algorithm. A 3D sound generation application, built on Unity game engine then renders the binaural sound keeping the locations encoded. The transmission of the sound to the user happens with Bluetooth/3.5 jack earphones. The sound is played at an interval of a few seconds or when the recognized object differs from the last one - depends which one is the earliest.**

Development of DMA controller for real time data processing in FPGA based embedded application

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Abstract- **In present day technology there is an immense need of developing suitable data communication interfaces for real time embedded systems. Field Programmable Gate Array (FPGA) offers various resources, which can be programmed for building up an efficient embedded system. In recent years the SOC (System on Chip) design eg, in media processing is becoming more and more important in real time embedded applications as SOCs require low power, low area but are still capable of implementing various complex functionalities. In order to achieve SOC architecture, which can run a real time application, we need to develop high-speed data interfaces of the system with the external world through its various I/O ports. The DMA controller, which sends the data from I/O to memory and vice-versa without intervention of the processor, thus plays a vital role in these systems in order to achieve faster I/O data transfer. This paper proposes a technique to implement a DMA controller core on Spartan 3A FPGA hardware, which serves as an essential component for developing a real time data acquisition and processing system.**

Mental Health Analysis using Natural Language Processing

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Abstract- **Our increasingly digital life provides a wealth of data about our behavior, beliefs, mood, and well-being. This data provides some insight into the lives of patients outside the healthcare setting, and in aggregate can be insightful for the person's mental health and emotional crisis. Here, we introduce this community to some of the recent advancement in using natural language processing and machine learning to provide insight into mental health of both individuals and populations. We advocate using these linguistic signals as a supplement to those that are collected in the health care system, filling in some of the so-called "whitespace" between visits. Whitespace information provides a lens through which we can analyze psychological phenomena like emotional crisis, suicide attempts, and drug relapse.**

Fashion sales prediction using Data Mining

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Abstract- **Online shopping has widened the sales of attires. Wide range of fashion outfits are made available to the customers at much cheaper rate. Merchandiser has reduction in cost because, it is not essential for him to have a showroom or sale staffs. Even a naïve fashion designer can sell their products through shopping websites. Online shopping sites also provide a platform to understand the fashion market. Data mining can be used to understand the fashion market by predicting the customer mindset. This paper attempts to create a learned model which would predict if the dress designed would be sold or not.**

Timestamp and IP Address based Fraud Detection in Credit Card using Hidden Markov Model

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Abstract- **Online activities mainly involve purchasing products, electronic devices and other similar things in a regular basis. There are many online transaction methods particularly made for such activities, which ensures the security by authorizing the transfer of funds. The online transactions are achieved by different bank cards that, makes the process simple. Although they are having notable advantages, they confront some of their drawbacks regarding the security. The credit card frauds can happen for many reasons, mainly to get access to non-accredited funds from the account. It is a responsibility for the bank to screen and protect the card details of the user while doing online transactions. Our approach is based on the Hidden Markov Model. HMM detects the fraud in the transactions and blocks it. It also stores the details about the timestamp and IP address of the fraudster' s machine. Whenever a new transaction is made, the system will make a note of it by recording the transaction. The spending profile of the card holder is created based on his previous transaction history using HMM. Now if any intruder tries to make transactions with any registered credit card, the system notices the difference in the spending pattern of the card holder and thus the intruder gets easily trapped.**

WeVote – Secure voting using Blockchain

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Abstract- **The blockchain technology has been showing promising application opportunities since its beginnings. Blockchain was introduced to many areas from the original cryptocurrency to the present smart contract. By examining famous blockchain schemes, we perform a systematic study of the safety threats to blockchain and how this blockchain concept can be applied to the current voting system in India. We also review this blockchain voting system's safety and stability against fraud. We also propose some future directions for stimulating study attempts in this field.**

Intelligent Character Recognition- Character detection using Neural Networks

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Abstract- **This paper highlights how EMNIST database can be put to use, to create clean and synthetic images of texts in different handwriting styles. This paper presents a detailed review of Intelligent Character Recognition, the methods using which we can classify character by detecting and extracting the position of a character from synthetic images. With the help of the image processing, the raw image is cleaned, before it is sent for classification, so as to give a higher probability of successful recognition of characters.**

Overview of Use of Raspberry Pi in Implementation of Machine Learning and Image Processing

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Abstract- **Raspberry Pi is a low cost credit sized computer that anyone can purchase and use. It is necessary to understand the usage of it and how to implement it with current technologies. This paper will focus on how one can implement Machine Learning techniques and Image processing effectively in a Raspberry Pi.**

Big Data in Telecommunication

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Abstract- **Big data offers telecom business a genuine chance to pick up a substantially more complete image of their tasks and their clients, and to advance their development efforts. Big Data requests of each industry an altogether different and flighty way to deal with business improvement. Telecommunications associations that can consolidate these new methodologies of learning buyer need into their hierarchical procedures will pick up a more upper hand than their partners who adhere to the conventional strategies for learning the market prerequisites.**

A REVIEW ON EMOTIONAL INTELLIGENCE

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Abstract- **This paper reports the review on the emotional intelligence ,its components , techniques and applications. EQ can be defined as one's ability to diagnose, regulate, assess, analyze and express emotions. An individual with high EQ can be a smart leader, great team player, incredible motivator and an innovative person.EI will lead to better decision-making capabilities, strong personal and social relationship, increased team performance and leadership, and finally, reduce destructive behavior which in turn promotes universal peace.**

On the Review of Dehazing Methods for Bad Weather Images

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***Abstract*- This paper reports the collective review on the proposals from the literatures related to image enhancement in outdoor scenes. Images captured in natural environment are subject to bad weather conditions including haze, mist and fog which would spoil the appearance of images. Edge, contrast and brightness are the features usually affected in an image because the fog pixels blur total scene and spoil the edges. Since the quality of images is ruined, they turn to be useless for any type of evaluation. This problem is very serious in online applications not limited to driving assistance, satellite imageries and defense applications. Therefore, a thorough conceptual study on all the existing methods to mitigate the haze in the images had been presented in this paper. Results from earlier works were compared based on the Peak Signal to Noise ratio, Structural Similarity index metric,Percentage of saturated pixels, Visible Edges ratio, and Perceptual haze density metrics. Ultimately, few suggestions to improve the dehazing performance have been presented.**

Image Organization Using Unsupervised Deep Learning - Case Study

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***Abstract*- Now a day's, the intelligent machines were created that works like a human is an artificial intelligence. Intelligent machines were trained with qualities such as, knowledge, reasoning, problem solving, learning, planning etc. These training of machines with various models is machine learning. Sub domain of a machine learning is deep learning method, in which computer models are trained to perform classification tasks directly from pictures, text or voice. Deep learning models can attain high accuracy, may be beyond human performance. Models are trained with large data sets & neural network architecture with several hidden levels. In a supervised deep learning, we tell machine what to do and what not to do using an algorithm. Since we are instructing machine what not to do, the machine is having limitations to solve the problem. To solve this issue, an unsupervised deep learning algorithms are used, which derive insights directly from data and that can be used to make decisions on data.**

Questionnaire survey on autonomic cloud computing

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Abstract- **As Clouds are unpredictable, enormous scale, and heterogeneous passed on frameworks, the leading group of their revise boggling sets is a trying task. They require motorized and facilitated wise philosophies for provisioning of advantages for offer organizations that are secure, trustworthy, and savvy. Consequently, convincing organization of organizations winds up key in programming stages that involve the surface of figuring Clouds. In this Paper we have endeavored to recognize the difficulties in autonomic distributed computing with the assistance of a poll overview, an organized survey toward this path was set up with 44 things and 200 respondents broke down the outcomes utilizing IBM SPSS Tool.**

Road Traffic Fatal Accidents Analysis using Data Mining

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Abstract- **Road Traffic Fatal Accidents Analysis using Data Mining" is a project based on Data Mining. Nowadays, we can see the traffic is increasing exponentially at a greater rate at an alarming rate. Due to this exponential increase in traffic the accident rate is also increasing. We all are concerned about the safety of our loved ones and we all are afraid to lose them. To ensure the safety of our loved ones and to verify that the safety of the people of the road is not compromised this project will be helpful.**

Analyzing GraphQL and implementing the framework on Android devices

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Abstract- **This paper is a highlights how mobile devices can query data and information efficiently by using GraphQL.This paper reviews the the Graph QL framework and discusses its role in making intelligent requests possible. Toimprove data efficiency and reduce device overhead, we will be using GraphQL in relaying queries to APIs.**

Significance of natural language processing in language based automated systems and intelligent agents

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Abstract- **Ability of computer program to understand human language as it is spoken is Natural Language Processing. This paper describes briefly about Processing, Generation and Understanding of Natural Language, the general working phases and also applications of NLP in the areas of Machine Translation, Natural Speech Understanding, Automatic Summarization, Text Analytics / Mining, Question Answering Systems and Chatbots. This paper also emphasizes on various aspects of automated systems and the significance of natural language processing for such applications. Also, the role of Natural Language Processing for intelligent agents with various features of those agents are presented.**

An Overview on Cashier-free Checkout System

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Abstract- **Advancement in the technology has lead to major improvements in the field of Image processing. Computers can capture high resolution images and videos; manipulate it like adding special effects and many more. Object Recognition in Images is a type of Image processing where the computation part is to recognize the object present in the image. This Image processing has many applications in the field of robotics, automation, security. As the computers are able to extract the information from the image that is captures and this gives computer another dimension of intelligence. With this intelligence the computer can be programmed to perform certain tasks based on the content of the image.**

Safe-Ride: Automatic Recognition of Potholes and Humps on Roads using Ultrasonic Sensor and Notifying the Same to the Drivers

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Abstract- **Humps and pit holes on a road have been present from the day road was made into existence. It has been one of the major problems in the maintenance of roads. Due to this many accidents and vehicle damages have been occurring especially in a metropolitan city where vehicles are more. A solution to this problem is to develop a system which captures the geographical location coordinates of the potholes and humps using a global positioning system receiver. Ultrasonic sensors are used to identify the pit holes and humps and also to measure their depth and height, respectively.**

Credit Card Reader with Face Recognition Using Webcam

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Abstract- **Facial recognition software is a biometric computer application that is capable of identifying an individual by analysing or comparing his/her facial features [2]. This paper proposes to use facial recognition in ATM systems to enhance security. Face recognition begins with an image, attempting to find a person in it. This can be accomplished using several strategies including movement, skin tones, or blurred human shapes. An ATM model that uses facial recognition would protect customers and financial organisations alike from intruders and identity thieves [1].**

Natural language processing- interaction between humans and machines.

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Abstract- **Natural Language Processing is the technology which used to aid computers to understand the human being's natural language, which is not an easy task to complete because humans can easily master a language, the ambiguity and imprecise characteristics of the natural languages are what make NLP difficult for machines to implement.**

Game Playing Agent Using Artificial Neural Network

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Abstract- **The project focuses to train a game playing agent to learn the game. AI comprises of the neural systems ANN where the neural system produces the controls for playing the game. Based on the Reinforcement Learning technique selections are done subjecting on the information which is collected from the environment. Here, Q-Learning is used where the agent decides the actions based on conditions. Here, the interface Unity SDK is used to build the game.**

A novel approach to share the online shopping cart items in the e-commerce apps with anyone

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Abstract- **The practice of buying items or services over the Internet is termed as online shopping. Online shopping has expanded in size and popularity over the years, certainly because people find it convenient and easy to negotiate shop from the ease of their home or office. One of the most exciting feature about online shopping, is it relieves the need to wait in long lines or search from store to store for a particular item particularly during a holiday season. Online shopping has revolutionized the business world by making everything anyone could want available by the simple click of a mouse button. Local retailers are attempting to expand their footprints by offering goods for sale via online shopping so as to better compete with the likes of Amazon.**

As updated on May 2019 Ecommerce is anticipated to be the largest retail channel in the world in just three years. People aren't just spending more time shopping online, Ecommerce statistics say they're spending more money each time they shop online. Statista forecasts that consumers worldwide will spend up to $4.8 trillion online in 2021. In this paper I propose a novel concept to share a cart from your device to anyone else's due to the situations detailed in this paper. It serves a great use to the user's and makes using online shopping more sensible, economical, fast and more digital.

Efficient Buildings– A key element to build smart cities

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Abstract- **The use of AI and ML plays a pivotal role in optimizing work flow and productivity and also being cost effective for companies. Artificial intelligence and machine learning can be used to do work that consumes an employee's time that could be used to work productively and focus on higher value work. AI can be used to extract new data and analyze the market for improved business outcomes. It has been statistically proven that using this technology has provided a competitive edge on the business forefront. Security can be heightened and be made safer with the use of fraud detection methods which results in a safer working environment, further providing comfort to the company's employees. Companies will be able to smartly power machinery, vehicles, structures and enhance customer intimacy therefore increasing customer demand. Understanding customer behavior, wants and needs plays a crucial role in what a company's next move should be and this can be improved using artificial intelligence services**

Automatic reportage of accident zone to the emergency vehicles using smart route framework

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Abstract- **With this mechanical and open impact, the utilization of vehicles has immediately expanded and in the meantime the frequencies of accidents have similarly widened. It's not possible for anyone to dismiss the accidents, yet can save their life by pushing the ambulances to the specialist's facilities in time. In this paper accidents revelation and course of emergency vehicle using IoT is arranged. The objective of this set up is to confine the deferral caused for development of crisis vehicles. This way to deal with boot intends to offer the accident spot to crisis vehicle using GPS that is open in salvage vehicle**

Data Models used in Bitcoin and Ethereum Blockchain Platforms

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***Abstract*- Data analytics has captured attention of both researchers as well as business organizations, since a long time now, as the knowledge or information getting analyzed and evolved is priceless in upbringing the business. Blockchain is the latest technology which is getting adopted at a faster rate due to its unique properties. This paper focuses mainly on data models, and some tools used for data analytics being used in blockchain environment. Public blockchain is an open ledger platform which allows to perform data analytics.**

Feature selection for smartphone-based recognition of human activities and postural transitions

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***Abstract*- Most of the data in real world used for prediction have many features which are relevant and irrelevant. While performing prediction with large number of features, it will depreciate the performance in terms of accuracy, space and time. To address this, features which influence the target prediction has to considered. Features which are irrelevant and redundant has to be eliminated. For the purpose, there are many algorithms. For high dimensional data like Smartphone-Based Recognition of Human Activities and Postural Transitions, requires feature selection. Many feature selection methods are applied and compared to get the best performance in terms of accuracy. It is found that Recursive feature elimination outperform others.**

Recognition of labels for hand drawn images

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Abstract- **Freehand sketch drawings are highly Abstract- and sparse in structures. Due to the diversity, highly iconic and intra-class deformations of these sketches, automatic recognition is more a challenging task. This paper, sheds light on developing an efficient recognition scheme of freehand sketch, based on Convolutional Neural Networks (CNNs). Furthermore, this paper seek to classify Google's 'Quick, Draw!' dataset sketches which contains more than 50 million drawings across 345 categories by creating a Keras model. It aim to integrate a custom model to an Android app using Tensor flow Lite. Such a system will outperform for variety of applications, such as human-computer interaction, sketch-based search, game design, and education.**

Efficient Approximate Pattern Matching Algorithm for Biological Sequences

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Abstract- **Approximate string matching is one of the most challenging and fundamental problems of computer science which has a wide range of applications, from text processing to DNA sequence analysis. Hence the need for a fast and efficient approximate pattern matching method. Boyer-Moore algorithm searches for the occurrence of an exact pattern in a given text string. The paper proposes an extension to this method so that the search can identify occurrences of approximate matches of the pattern. The aim here is to identify all approximate occurrences of a pattern of length *m* in a text string of length *n*, where the maximum number of mismatching characters permitted per match is k, commonly referred to as the *k* mismatch problem. The proposed modification of Boyer-Moore algorithm improves its execution time by reducing the number of comparisons made and also makes it suitable for approximate pattern matching.**

Missing Data Imputation Methods in Autistic Spectrum Disorder Prediction

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Abstract- **Missing data imputation is essential task where it is critical to use all data available and records with missing data cannot be discarded. This paper estimates the performance of numerous statistical and machine learning methods for imputation that were used to predict patients with autistic spectrum disorder. Statistical imputation methods like mean, Imputation with zero or constant and machine learning imputation methods like K-nearest neighbour, chained Equation, deep learning were applied to the data and results were compares to obtain list wise deletion imputation method. The predictions of patients with autistic spectrum disorder were measured using support vector machine, using data sets with imputed values. The imputation methods of machine learning method using Deep learning outperformed statistical imputation methods. The same is validated using significant difference in p values revealed using Friedman's test.**

Productive Scheduling of Scientific Workflows utilizing Multiple Site Awareness Big Data Management in Cloud

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Abstract- **The general relationship of cloud server farms is empowering expansive scale rational work methodology to brace execution and pass on fast reactions. This outstanding geographical task of the calculation is extended by accomplice improvement inside the size of the data managed by such applications, development of title new issues known with the ground-breaking information association transversely over objectives. High aggregate, low potential outcomes or cost related exchange offs an area unit solely two or three burdens planned for along cloud suppliers and purchasers regarding managing data crosswise over server farms. Existing approaches are impacted to cloud-gave limit, that offers low execution in lightweight of fixed costs plans. Hence, work methodology engines need to take care of business substitutes, accomplishing execution at the expense of opposing framework courses of action, keep costs, diminished solid quality and reusability. We tend to gift Overflow, accomplice never-ending data association framework for genuine work techniques running transversely over topographically spread objectives, needing to get cash related prizes from these geo-differentiating qualities. Our answer is condition careful, in light of the way that it screens and depictions the general cloud framework, responsibility unprecedented and expected information managing execution for exchange worth and whole, inside and transversely over goals.**

An Application of Autocraft Workshop

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***Abstract*- Autocraft Workshop is a software application developed in C++ language, implementing Object Oriented Programming and file handling to make the process of service of Automotive service centers more easy and efficient. This paper provides a customer centric interface in order to provide the best possible service and satisfaction to the customers. In addition it makes the overall service process much faster and helps to keep track and record the entire service data. It is beneficial for the customer as well as the store to keep track of the progress of the service and thus helps the company to improve their response to customer requests. Time is a very valuable asset for the customers and the company as well, and hence this application focusses on reducing the waiting and processing time involved in the service delivery. It provides the company to store their entire data in the database. The store also enables the customers to purchase the parts in-house and hence reduces the effort of procuring them. This software application eliminates the hardships and ineffectiveness of the manual service management system and provides a computerized solution to several problems existing in the service sector.**

Disclosure and Sniff out of Moving Entity in Real World

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***Abstract*- Entity disclosure & sniff out is being studied from years together and is one of the area where research is constantly carried out. In today's world it is a great challenge to generate an approach which is robust, accurate & high performing. How an entity is disclosed & sniffed out is defined as one of difficult task. One of the visual features, say a particular color is used as representation of an entity then the method discloses as a entity all the pixels with same color. On another side it is very hard to disclose accurately the face of particular person with full details (different actions & lightning changes) and to recognize, track. The biggest challenge is tracking entity in a video, since the entities are in motion. If a camera is fixed at appropriate point, as the entity moves in the area covered by it there is dramatic change in the entity image. This change occurs from three sources: if there is any change in the target posture, lightning changes and Due to change in camera setup property it is not possible either partially or fully to see what we wished to see. The videos that are captured under various environment needs to be understood in order to know the activities of entity, the task is very challenging and is used by many applications for companies, scientific research, educational institutions. What motivated in studying this problem is to create a system where moving entity surveillance in real time can be disclosed and sniffed out.**

Blockchain and Digital Marketing: The Future of Innovation

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Abstract- **The Blockchain is a digital, decentralized technology that is growing and making a mark in different industries such as digital marketing. Blockchain keeps a record of the transactions that take place on the peer-to-peer networks. The list of records continuously grows. These records are stored securely in numerous decentralized systems that are interconnected. As the blockchain doesn't have a centralized point, it doesn't have a single point of vulnerability, and hence is less vulnerable. Now it is also growing in the digital marketing industry, adding a new revolution to the relationship between consumers and businesses. Blockchain aims to increase transparency in all sectors of a business as the information is stored digitally. This information can't be tampered or deleted. This enables the companies to see the exact use of the funds and if the audience receives them or not. To get more idea about blockchain, one can always refer to several online blockchain tutorials to get a good grip in this area.**

Information Security with Cryptography

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Abstract- **Cryptography and Information Security help to protect data and network. Information security is the concept of transferring information over the wireless network insecure way. Nowadays transferring information from one place to another place can be easier but providing security for our information is quite difficult. Information security helps to protect our information form unauthorized users and attackers.**Cryptography **is a tool which satisfies information security over the computer network. Cryptography achieves information security by using encryption and decryption methods. Encryption is a process of converting original data into unreadable format and decryption is a process of converting unreadable format into readable format. In this paper we discuss about how cryptography provides secure data transmission over the Internet.**

Design of UGV for searching and saving lives of lost persons in natural disasters and military using GSM Zig-bee

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***Abstract*-An unmanned ground vehicle (UGV) is a vehicle that operates while in contact with the ground and without an onboard human presence. UGVs can be used for many applications where it may be inconvenient, dangerous, or impossible to have a human operator present. Thinking on the general SAR context, when a small plane crashes in a remote area, or a fishing boat is lost at sea, or a hurricane devastates a region, or simply a person gets lost while he/she was hiking, SAR teams must scan vast areas in search for victims evidence or wreckage, a hybrid multi-sensor navigation system has been developed, benefitting from the GPS system performance and exploring the use of RIMU sand barometer to assess the potential of lower-cost, highly-redundant.**

Face emotion recognition techniques

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***Abstract*- Emotion recognition is categorizes as one of the challenging and important task in image processing fields. The image processing junctures comprises of three steps: pre-processing, feature extraction and classification. Image Processing is a rapidly developing area with growing applications in Science and Engineering field. Image Processing holds the possibility of developing the eventual machine that could perform the visual functions of all living beings. Facial emotions are contemplate to be the important source of information which is a common requirement for human to express their emotions.**

Electronics & Communication Engineering

Design and Implementation of 16-bit Carry Select Adder and Carry Save Adder using Cadence Tool

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Abstract- **Adders are one of the most important digital components in integrated circuit design. In almost all computations, addition is used as the most basic operation. Therefore, the design and implementation of binary adders is important in terms of their area, power and efficiency. A ripple carry adder has compact area but speed is compromised. A carry look ahead adder is more efficient in terms of computation time but its area is more. Carry select adder is a perfect balance between the two. In this work, a carry select adder has been implemented which uses two adders in order to do the calculation twice, one with the assumption of carry being one and other with carry being zero. It provides a good compromise over cost and time and thereby showing a proper trade-off between time and area complexities. Also, a carry save adder has been implemented and the results have been compared.**

Keywords— Carry Select Adder, Carry Save Adder

Design and optimization of a dual band textile antenna

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Abstract: **This paper proposed a dual band textile antenna to achieve high gain with partial ground. In this antenna jeans fabric has been used as a substrate whose permittivity is 1.7 and patch has been made by copper adhesive tape. The benefits of jeans are long wearing, cost effective, flexible and needs less care. This anticipated antenna provides gain of 4.260dBi at 4.8265GHz and 5.103 at 7.2997GHz. Simulated and measured reflection coefficient, directivity and radiation characteristics have been studied. The antenna has been structured and simulated using CST Microwave studio software.**

Keywords: Jeans, Microstrip antenna, Gain, Radiation pattern, CST

Design and Analysis of Log-Periodic Dipole antenna as a proximity fuse antenna

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***Abstract*--- This paper deals with design and analysis of a proximity fuse antenna.The main requirement of an proximity fuse is that it should send a signal when the device is close to the target. a log-periodic antenna is tested for various parameters like gain,directivity,vswr and the radiation pattern is found which is most suitable for the operation. Simulation software CADFEKO is used to get the optimization design of LPDA.The software is used as it takes much less time and is cheaper compared to traditional antenna design methods**

Keywords---Bandwidth;Gain;LPDA;Proximity fuse;radiation pattern

Leakage Current Reduction Techniques in Submicron CMOS Gates

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***Abstract*— Reducing the leakage power has become one of the major concerns in low-voltage, low-power and high performance applications in VLSI involving CMOS circuits. The first part of this paper describes the need for low power and drawbacks in technology scaling and power components. The second part describes the various sources of leakage power and various techniques involved in reducing the same without affecting the performance. Various power reduction techniques can be employed at process and circuit level which includes Transistor stacking, Multiple threshold (MTCMOS), Dynamic threshold, Dual threshold, Variable threshold (VTCMOS), Pin-reordering, Supply voltage scaling & stacking techniques**.

Keywords— Dual Threshold (DVT), Dynamic & Static power, Dynamic Threshold (DTMOS), Leakage current, Low power, Multiple-Threshold (MTCMOS), Pin reordering and Transistor Stacking.

Analytical Modeling and Simulation of FinFET for Semiconductor memories

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***Abstract*—This paper presents a study of the structure and the characteristics of the emerging SOI-FinFET device. Close form models are developed to estimate the values of the surface potential using superposition principle. Using this surface potential model, an expression for Electric field of the SOI-FinFET is derived. These models have been used to investigate the behavior of SOI-FinFET in the sub threshold region like the I-V characteristics, transconductance, output conductance, sub threshold swing and threshold voltage. In addition to analyzing the impact of various geometric parameters on the behavior of the device, the developed models and the presented analysis would be of great importance for numerical TCAD tool development. It is observed that by optimizing these dimensional factors, a sub threshold swing (SS) value very close to 60 mV/decade and a threshold voltage of 0.35 V can be achieved for SOI-FinFET.**

Keywords- FinFET, Surface Potential, drain current, TCAD.

Comprehensive Review of Routing Protocols for Internet of Things

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***Abstract*— With the advent of Internet of Things (IoT), device embedded in things can be connected anytime, anyplace, with anything and anyone ideally using any path/network and any service. IoT networks areself organizing and decentralized in nature which results in dynamic changes in node's position. Hence routing in IoT becomes crucial for successful delivery of the data. Further limited energy and processing capabilities of the connected things makes routing more challenging in IoT networks. This research work focuses on the study of some of the major routing algorithms designed for IoT network and their extensions. The study has also been extended to compare the performance metricsof these protocols.**

***Keywords*—Internet of Things, Low power and Lossy networks, RPL,LOADng, CTP LOADng-CTP,**

A Systematic Survey on Compressed Sensing: Signal Acquisition and Reconstruction Schemes and Applications

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***Abstract*—Compressed sensing (CS) is an emerging sensing technique which compresses the acquired signal at the time of sensing. The compressed signals can be represented in time domain or transform domain. This technique basically implements efficient acquisition and reconstruction of a signal from fewer no. of measurements .CS exploits sparsity where many coefficients of the signal of interest expressed in some domain are equal to zero. With the help of basis, frames and dictionaries a sparse representation of signal can be obtained. CS enables sampling at a rate much lower than Nyquist sampling rate and recovery of the signal from reduced compressed measurements. This paper deals with the detailed review of existing literatures in effective acquisition, reconstruction of the signal, techniques to solve inverse scattering problem and various applications of CS in several fields such as biomedical applications, communication systems, video processing and so on.**

Index Terms—Compressed Sensing, Sparsity ,CS acquisition techniques, Recovery algorithms ,Inverse Scattering problem,CS applications

Recognition and Extraction of Rain Drops in a Rainy Image for Visual Quality Enhancement

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***Abstract*— as it is clear that raindrops destroy the visibility of a scene, there is a need for recognition and extraction of rain drops to enhance the image quality. The objective of this paper is to identify the location of damage sample as precisely as possible and to remove the detected rain pixels from the image in order to get a clearer and brighter image.Here we proposed a hybrid method to identify and extract raindrops from the rainy image in order to restore the image with its original back ground. The proposed method is used in order to recognize the rain droplets using clustering and shape modeling of raindrops. Proposed framework is based on K-means clustering, Hough Transform and Gaussian filter for the efficient retrieval of rain droplets from the rainy image. The k-means clustering results in highest correct clustering rate and Hough transform is used to identify and Gaussian filter is used to eradicate the raindrops from an image.**

Keywords— Rain drop Extraction, Hough Transform, Image clustering, Image segmentation, Image Enhancement k-Means algorithm, Gaussian filter

A Probabilistic Technique to Data Transmission setback using Ant Colony Optimization

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***Abstract*—Due to the drastic improvement in the data transfer(switching) technology, users face major problems in sending and receiving data in a decisive manner. This is because of the enormous amount of data being sent by numerous source to the server. To overcome this difficulty, a probabilistic technique known as Ant Colony Optimization (ACO) algorithm to find the optimal path by graphically representing the flow of packets. The packet flow can be represented as the path of the network. This pheromone based communication of artificial ants is often used as a dominant method. Using ACO topology it is easier to analyze the blocking probability as well as the traffic load in the network. This paper presents an intelligent and effective way of designing a simulated mathematical model to view the probability analysis of network trafficking in a communication system.**

Keywords— Blocking probability, Ant colony optimization, traffic load, pheromones

Design and Analysis of QoS-aware Scheduling Schemes for IoT Applications

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***Abstract*— Internet of Things (IoT) designed using different technologies with numerous applications is becoming complex. In certain applications, the Quality of Service (QoS) needs to be a stringent requirement. To assure the necessities of these applications, it is crucial to define QoS models which can classify IoT applications and provide necessary QoS factors. Furthermore, providing QoS becomes more critical if resources available are inadequate. Addressing these issues, the paper proposes novel QoS-responsive models for providing priorities to delay and loss sensitive applications. These models allow efficient management of resources to provide superior treatment to real time applications without causing significant degradation to the performance of other network traffic. Traffic from Radio Frequency Identification (RFID), nodes equipped with IEEE 802.15.4 transceivers in sensors networks, security surveillance cameras in an intelligent home network and e-Health services etc. is collected for simulation. Furthermore, these models depict their feasibility through a range of IoT applications. The QoS-models are compared for allocated weights, packet lost ratio and waiting time in queue and validated with extensive simulation studies.**

Keywords— Average Queue Length; Buffer Management; Delay Sensitive Applications; Service Differentiation; Quality of service; Internet of Things

Signal Integrity Analysis and Design Of Signal Traces for High Speed PCBs

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***Abstract*-The rapid increase in the demand for high speed electronics devices, designers need to optimize the layer count and hence Printed Circuit Board (PCBs) trace width must be reduced to ensure good Signal Integrity (SI). This physical constrain limits the data rate of high speed PCBs signals, making it more difficult to meet the next generation product's design expectations. While designing high speed systems, high data rate is achieved by increasing the clock frequency to GHz which intern leads to doubting the quality of signal handled. Signal integrity is a major issue that requires great consideration from researchers and engineers alike to achieve good quality. In this paper, the importance of signal integrity in high speed system designing has been discussed by pointing out the major key factors affecting signal integrity in traces. Some of the major issues of concern for signal integrity are Crosstalk, Discontinuity, Overshoot, Propagation delay and so on. The main objective of this paper is to estimate and analyse the signal integrity issues in term of crosstalk estimation in high speed PCBs by designing and simulating different shield traces to be used between the signal traces using Advanced Design System (ADS) Version 2011.05. The simulated results are validated by fabrication and testing process. A novel shield traces Multi conductor Transmission lines (MTL) are proposed to meet the requirements of the modern high speed RF sectors.**

Keywords: Crosstalk, discontinuity, overshoot, propagation delay, high speed PCBs, signal integrity, multi conductor transmission lines, shielded traces

Impact of Automation on the Test Insertion

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***Abstract*-In the present scenario, the transistor size (channel length) is diminishing which has led to number of irregularities and manufacturing defects. Thus the testing of the manufacturing defects in an IC is very important. In this paper, we are presenting the impact of the flow automation on the test insertion. We have performed the test insertion through an automated flow for 28nm and 16FF test cases.**

Keywords- Built in Self-Test, Design For Testability, Scan, Test Automation.

Direction of Arrival Estimation using modified MUSIC Algorithm in FMCW Radar Application

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***Abstract*— In the field of signal processing, array signal processing is an important branch. It has grown dramatically in recent years. It can be used in areas like radio and range detection, communication, sonar, earthquake, exploration, astronomy and biomedicine. The array signal processing field may be classified as a self-adaptation signal processing array and a spatial spectrum, where the theory and technology of spatial spectrum estimation are yet in an uplifting state and become a key aspect of the array signal processing. The spectrum estimate of the spatial is focused on researching the multiple sensor arrays system, in order to estimate the spatial parameters of the signal and the signal source. The space range reflects signal allocation from all angles to the recipient throughout the room. Therefore, the direction of arrival (DOA) can be achieved if the signal can be received with spatial spectrum. Like that, the DOA estimate is also called spatial spectrum estimate. In array signal processing, which is an interdisciplinary technology that is quickly evolving over the past few years, DOA technology study is essential, particularly the direction of entry with various sources of data; the evaluation of consistent source signals and DOA measurement of broadband signals. In the area of radar, sonar, communication, seismology measurements and biomedicine, DOA estimates are broad applications. In recent years, the most classical algorithm, MUSIC, which includes multiple-signore classification, all sorts of algorithms that can be used in the DOA assessment have achieved excellent success.This paper gives a general summary of the MUSIC algorithm-based DOA estimate and its parameter. An improved MUSIC algorithm is proposed to give more accurate frequency estimation.**

Keywords—DOA estimation, spatial spectrum, MUSIC algorithm.

Microcontroller Based Talking Energy Meter

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***Abstract*—In current years, the electricity demand has augmented in households with the usage of different appliances. This increases a worry to many developed and developing nations with the demand in instant rise of electricity. Consumers are unconscious of energy used up by various appliances. The total amount of energy used up by various appliances is calculated by an electricity meter device. The major disadvantage of earlier old-style electricity meters are they do not give information to the consumers about how much energy is consumed. To overcome this a novel electricity meter called talking energy meter is accomplished. As consumption of the power is raising day by day there should be more attention on understanding consumption patterns. Outmoded electromechanical energy meters are now replaced by electronic meters in domestic as well as commercial applications. In this paper, aims to design a circuit which helps the consumer in taking care of the electrical energy consumption. This system helps the users by notifying them about the billing status and unit consumption.**

Keywords— energy meter, microcontroller, electricity, Arduino, embedded C, GSM.

Carcinoma Detection using Convolution Neural Networks

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***Abstract*—In this paper, we have proposed an optimized model which can predict the symptoms of breast cancer with an accuracy of 86%. The machine learned to predict test images at a more accurate rate than it could without optimization. Using Random forest, we got an accuracy of 83%. We have used Convolutional Neural Network to develop a model for breast cancer detection through a mammograph dataset. With the rapid development in deep learning, in the future, machine learning will surely bring much improvement in development of models for prediction, detection of several health issues even at an early stage and easier procedure. We have used Python language for the implementation of entire system.**

Keywords—Convolution Neural Networks, Flattening, ReLU

Improved Three Frame Difference Algorithm for Fast Moving Object Detection in Surveillance

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***Abstract*- Robust algorithm which works for detecting both slow and fast moving objects acts as a major challenging problem in video surveillance systems. However considering two cases, Firstly, if the target foreground and background has same intensity or frame to be subtracted from background has greater intensity, as well as in very crowded situations, the background could hardly be seen; it will last much longer to form the right background model and in detecting fast moving objects like vehicles. Many Background Subtraction (BS) algorithms results in loss of target information required for efficient foreground detection. This paper proposes an improved algorithm of three frame difference for efficient foreground detection. The algorithm follows two key steps. First background is modelled using Gaussian Mixture Model(GMM). Next, the three frame difference method is improved by modifying with logical operations and the result is added along with morphological processing. The proposed modification improved the robustness for fast moving object detection as well as people detection in crowd. Experimental results proves that the proposed method has less calculation amount, higher real-time performance and higher accuracy for moving target detection, with greater F1-Score well suited for handling both slow and fast moving efficient foreground detection in outdoor applications.**

Keywords — GMM, Improved GMM, AKGMM, Static Frame Difference, Improved Three Frame Difference method, Morphology, Fast Moving.

UWA Channel for Data Communication of UWASN using OFDM

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***Abstract*— In this paper, the Underwater Acoustic Channel modeling and its estimation for successful data communication between the underwater nodes is presented, since the underwater wireless communication is a rapidly growing area of research and engineering. For designing the underwater sensor network, underwater channel is required for efficient communication. The acoustic channel used for propagating the underwater data from transmitter to receiver, in place of RF signal because RF signal attenuates under the water and Optical signal can be used for long distance communication. Therefore; the acoustic signals are used for data transmission. This channel is having formidable challenges like slow transmission of data, prescribed bandwidth, varying transmission delay and many more, which gives multipath fading and Doppler Effect. In this paper, we present the estimation and modeling of efficient underwater acoustic channel for data communication. The channel is modeled based on designed algorithm for noise interference, transmission losses, multipath fading effect, Doppler Effect, transmission delay and bandwidth limitation. Acoustic signal scattered and propagates very slow under the water, due to which data may get scattered and lost. These issues are solved using OFDM approach. As the signal gets scattered in to the water, therefore orthogonal frequency division multiplexing technique is implemented, which divide the carriers into equivalent sub-carriers. Here 16 to 64 sub-carriers at the frequency of 3.6 MHz and each sub-carrier are made to process 256 bits per sub-channel; therefore, maximum 4096 bps to 16384 bps can be actually transmitted with the help of each sub-carrier. Based on this concept, the system is simulated for 25 numbers of nodes. Here, we design the acoustic channel is particularly modeled based on Gaussian distribution, where the delay varies with time rapidly. The Orthogonal Frequency Division Multiplexing technique, which is used to overcome the problem of scattering by using the method called maximum entropy modeling method. In this method, the delay between transmitting signal and received signal has been calculated referred as Doppler Spread. It also calculates the bit transmitted rate and bit error rate by diving the channel in to sub-channels using OFDM. Because acoustic signal when travel under the water it get scattered in almost all direction due to which fading problem increases also it increases the issues of Doppler spread, Doppler shift, Doppler delay, etc. In this work, the system design and its simulation results are shown, the underwater acoustic communication channel is model using Maximum Entropy modeling technique for Acoustic channel simulation with its root mean square. Doppler spread is calculated as 0.5 to 2 Hz. The Acoustic communication channel satisfy smart antenna approach by using IEEE standard 802.15.4 which gives the data transmission rate up to 250 Kbps at 2.4 GHz carrier frequency for at least 2m vertical communication link and approximately 2m horizontal link by keeping the**

depth of water up to 1m, since shallow water acoustic communication is consider. For this, the bandwidth was kept up to 2.4 GHz. The system can generate the maximum signal-to-noise ratio (SNR) is up to 1.477 dB and its Signal-Error-Rate (SER) is calculated as -14.9513 dB. The system is tested for all atmospheric condition under different environment. The proposed system is designed and tested for shallow water using two tested nodes. The low cost sensor nodes are designed which can continuously read the data like temperature, pressure and salinity below the water and it can then be transmitted to the receiver which is also kept under the water. The receiver receives the data and displays it on Laptop continuously. This process demonstrates the vertical and horizontal communication.

***Keywords*—** Underwater Sensor Network, Wireless Communication, Orthogonal Frequency Division Multiplexing, Acoustic Channel, Channel Estimation.

A Survey on Cat Swarm Optimization

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***Abstract*—In this paper biologically inspired metaheuristic Cat Swarm Optimization is reviewed. CSO evolved from the behavior of Cats, is a promising algorithm for providing solutions to real-time applications. The study presents the CSO algorithm, variants of CSO, applications and future scope of CSO algorithm.**

Keywords—Optimization, meta-heuristics, Cat Swarm Optimization

Zero Energy Fed Piezo Film based Renewable Energy System using MPPT and Current Control Technique

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Abstract—This paper deals with the selection of a suitablePiezo film that can generate ac voltage oscillations close to 1KHz by external stimulus. This generated signal is then conditioned using high precision circuits to obtain a sine wave of 50Hz with required voltage to feed the load. Necessary steps are taken to maintain current driving capacity of the IC's and DC Offsets. The designed circuit also uses necessary harmonic suppression networks to generate pure sine wave. The designed circuit is simulated using Cadence OrCAD Capture and the output at various stages is shown graphically. The entire circuit is powered by a non-conventional energy source PV array which charges the battery to feed the designed system. Efficient capture of solar energy done using MPPT technique.

Keywords—Energy harvesting, Piezo electric film, level shifter, Harnessing, Anisotropic, PV array, Maximum Power Point Tracking(MPPT)

Design of High Speed Algorithm For Image Denoising And Feature Extraction Using DWT

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***Abstract*— Image denoising is a common procedure in digital image processing aiming at the removal of noise, which may corrupt an image during its acquisition or transmission, while retaining its quality. This procedure is traditionally performed in the spatial or frequency domain by filtering. Recently, a lot of methods have been reported that perform denoising on the Discrete Wavelet Transform (DWT) domain. The transform coefficients within the subbands of a DWT can be locally modeled as i.i.d (independent identically distributed) random variables with Generalized Gaussian distribution. Some of the denoising algorithms perform thresholding of the wavelet coefficients, which have been affected by additive white Gaussian noise, by retaining only large coefficients and setting the rest to zero. However, their performance is not sufficiently effective as they are not spatially adaptive. Some other methods evaluate the denoised coefficients by an MMSE (Minimum Mean Square Error) estimator, in terms of the noised coefficients and the variances of signal and noise. The signal variance is locally estimated by a ML (Maximum Likelihood) or a MAP (Maximum A Posteriori) estimator in small regions for every subband where variance is assumed practically constant. These methods present effective results but their spatial adaptivity is not well suited near object edges where the variance field is not smoothly varied. The optimality of the selected regions where the estimators apply has been examined in some research works. This paper evaluates some of the wavelet domain algorithms as far as their subjective or objective quality performance is concerned and examines some improvements.**

Keywords*— *Discrete Wavelet Transform, denoising, quad-tree decomposition.

Comparison study of CMOS and GDI Logic Architectures using 2-bit ALU

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***Abstract*—Nowadays technology plays an important role, where sizing of the device is a challenge. Various techniques are adopted to design the chip which consumes lesser area and lesser power. Fast processors are replacing the old, as a result of various new methodologies being adopted. In this paper, we use a technique called Gate Diffusion Input (GDI) which helps in reducing the number of transistors required to build a design. Here, we compare the designs of 2-bit ALU using standard CMOS and GDI logic. By using Tanner EDA, we were able to conclude that GDI has an upper hand over CMOS in terms of power consumption, delay and area.**

Keywords—ALU, CMOS, GDI, Tanner EDA

Design of single-ended and differential Ring oscillators in submicron dimensions

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***Abstract*—In this article, the design and simulation results of single ended as well as differential ring oscillators are presented. The empirical equations are made use of, for the purpose of design and comparison. For the single ended ring oscillator, initially a 5-stage circuit is utilized, with different Beta ratios. Later on, the circuit simulation is performed from 5-stage till 23-stage, and the output is obtained as 3.0817 GHz and 0.6705 GHz respectively. Similarly, for the differential ring oscillator, initially a 7-stage circuit is utilized, with different Beta ratios. Later on, the circuit is simulated from 3-stage till 21-stage, and the output is obtained as 2.6925 GHz and 0.3756 GHz respectively. The difference in between the computed and the simulated output with single ended and differential ring oscillators is found to be 3.64% and 1.98% respectively.**

Keywords—Single ended ring oscillator, Differential ring oscillator, Delay cell, Stage delay, Beta ratio.

Design and Implementation of a Multiply Accumulate (MAC) Unit

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***Abstract*—Thispaper studies the data-path and VLSI implementation of multiply accumulate (MAC) unit. MAC unit performs multiplication and accumulation process and is an important operation in many of the digital signal processing (DSP) applications. The multiplier is designed using Wallace multiplier and the adder is designed as a carrylook ahead adder. The performance analysis of MAC unit is done in terms of area and delay. The design of the MAC model is done in Verilog HDL. The MAC unit is then simulated and synthesized in Xilinx ISE 14.7 for Artix7 family and the performance analysis is done in terms of area and delay.**

Keywords- accumulate; high performance; carry look ahead adder; Wallace

Development of Smart Robot Car for Security and Defence Using IoT (The Deterrence)

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***Abstract*—The proposed work presents a smart robot car using wireless camera detecting humans and sensors detecting fire, harmful gases, and metals, obstacles at remote areas and send information to main location via a mobile application. The robot system is equipped with sensors that can alert the user when some unknown appears within the range while robot is working. This whole robot system works in both automatic and manual modes. By default, robot works in automatic mode, in this mode the movement of robot is controlled with the help of obstacle avoiding sensor (Ultra Sonic Sensor). In manual mode, user sends the signal wirelessly using ESP8266 and can give directions to change the path accordingly. In both modes, user can watch the surroundings through wireless camera (Eachine TX-03) built in the car and if any value exceeds the normal, user is alerted through a notification in the mobile app. The output from the sensors is sent to Firebase and then the data is retrieved to user side using ESP32 into a mobile app created with MIT app inventor.**

Keywords-ESP32, ESP8266, Human Detector, Gas Detector, Fire Detector, Metal Detector, Obstacle Detector, Ultrasonic Detector, vibration Sensor, Sound Senor, Wi-Fi Car, Eachine TX-03 (Wireless Camera).

Performance Evaluation of Modulation Schemes in FSO Systems under Different Channel Setting

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***Abstract*—Today's communication scenario poses growing demand for high speed and high rate applications built on technologies that can withstand impairments encountered at different points in the communication setup. This requires large bandwidth as the number of users in mobile communication has increased considerably with time. The bandwidth limited technologies available such as RF/microwave, optical fiber, copper and coaxial cables will fail to achieve these requirements. This makes Free Space Optical (FSO) communication an inevitable technology that needs to be adopted for addressing the communication bottleneck. FSO with its inherent advantages of offering license free spectrum with unlimited data rate, low cost development and ease of installation acts as a complementary scheme to the existing technologies. However atmospheric conditions is a major concern in FSO propagation as intensity of propagating optical signal reduces significantly in worse weather conditions. This necessitates pumping of more optical power or concentrating and focusing of more power into smaller areas which is best taken care by a suitable modulation scheme. This paper compares the performance of various modulation techniques in FSO systems in terms of the average received optical power needed to achieve a desired bit error rate at a given data rate. It is desirable for a modulation scheme to be power efficient but at the same time the design complexity of its transmitter and receiver and the bandwidth requirement are equally important in the selection of a modulation technique.**

Keywords: FSO, Atmospheric turbulence (AT), BER, Gamma-Gamma, Log-normal

Quantum Computing: A Brief introduction to the emerging technology and its engineering paradigm

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***Abstract*— Quantum computing is considered as good mixture of quantum physics, computer science and information theories. This paper introduces fundamentals needed to understand different layers associated with quantum computing some of them are superposition, entanglement, quantum gates and circuit models like Grover's algorithm, Shor's algorithm. Thereafter, it will elaborate hurdles encounter in constructing a quantum computer like Constructing, verification, architecture, quantum error correction, compiler and programming issues. Finally some of the applications like quantum cryptography is discussed.**

A Hybrid Segmentation Approach to Diagnose Suspicious Pixel regions in Liver CT Images

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***Abstract*—This paper introduces computer aided liver analysis to diagnosis the suspicious pixel region (lesion) from abdominal CT images of liver and assists the radiologists in categorizing liver into normal or abnormal liver . Segmenting the liver and extracting the region of interest is a challenging task in the field of cancer imaging due to the small observable changes between healthy tissues and unhealthy tissue. In this paper, segmentation of liver from abdominal CT image based on hybrid method is proposed.The method uses neutromatic logic with FCM thresholding, encouraged by pre processing using bilateral filter and post processing using morphological tasks for automatic segmentation of liver and finally dynamic thresholding and contour detection to extract the lesion (tumor). The effectiveness of proposed method is quantitatively evaluated by comparing automatic segmentation results with ground truth obtained from radiologists.**

Keywords—Bilateral filter, Neutromatic logic, Fuzzy C means, Thresholding, morphological operation.

Performance Analysis of Various Adder Circuits on Technology130nm

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***Abstract*— A full adder is widely used in application Specific Integrated circuits (ASIC) and also as sub components in chip designs. Different kind of full adder circuitry can be used in various applications to reduce the power dissipation. A low power full adder circuit (20T adder circuits) is designed and its performance is compared is that of a conventional 28T adder. All the circuits are designed using 130nm CMOS technologies & are tested on MENTOR GRAPHICS EDA Tool. Different adders are simulated on basis of speed, power consumption, area and an analysis of delay, power dissipation is carried out with various values of VDD. It is always advantageous to have a low full adder circuit to reduce the overall power dissipation of a design.**

***Keywords*— adder, performance, delay, power dissipation, speed & area.**

Sarcomata Disease Detection and Stratification Based on Contrast Limited Versatile Histogram Balance

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***Abstract*—Liver Cancer (sarcomata disease) is a standout amongst the most troublesome malignancy to cure and the quantity of passing's that it causes by and large expanding. The indications of the liver disease are not known, till the growth is in its propelled arrange. Early recognition is the key for liver tumor control, and it can build the accomplishment of treatment, spare lives and decrease costs. The CT, MRI, PET based liver tumor identification is particularly costly and not more secure when contrasted and the Ultrasound pictures. Ultrasound imaging is a standout amongst the most as often as possible utilized analysis instruments to identify and arrange anomalies of the liver. Keeping in mind the end goal to decrease the quantity of qualities in the computational procedure and enhance the demonstrative exactness, Optimum various leveled include combination is an important and valuable means for liver tumor recognition and characterization. For the most part, Optimum various leveled include combination comprises of four phases: preprocessing, highlight extraction, ideal component esteem stipulation, and order. In this paper, the methodologies utilized as a part of these stages are condensed and 98.92% recognition and arrangement precision is acquired. Trial comes about demonstrate that the proposed technique has high precision contrasted and different strategies.**

Keywords—Liver Cancer, Ultrasound, Optimum formatting, accuracy.

Dynamics of skin detection

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***Abstract*—Detection of skin in images is a very important clue in many image processing applications such as biometric system, medical imaging, face recognition and many more. An eye's perception of human skin depends on sensing the color, texture, feel and many more factors. This paper concentrates on a survey of some popular approaches that are used to identify human skin is endowed. To distinguish skin from the given image based on colors, various methods are discussed that are based on different color models. Skin classification can be performed based on parametric and non-parametric methods. Most of these methods are also discussed in this paper. Based on the survey, a comparison of various methods is performed.**

***Keywords*—Human skin, parametric, non-parametric, color models, face recognition**

Design of High Frequency Filters for RF Applications

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Abstract- **Filters are the significant Radio Frequency (RF) and Microwave component. It plays a vital role in RF/microwave applications especially in receiver system design. They are used to separate or combine different frequencies. Commonly lumped and distributed element filters are classified into Low pass filter (LPF), High pass filter (HPF), Band pass filter (BPF) and Band stop filter (BSF). The design and implementation of the lumped and distributed elements filter are proposed in this paper for RF applications. Low pass filter is a circuit which allows only the frequency below the cut off frequency. At the outset Low pass filter are designed using the lumped elements such as inductor and capacitor with the frequency range of 1-5GHz.The inductors and capacitors used are selected as 65.9nH, 58.5nH, 5nH and 42.7pF respectively. These specified lumped elements are not physically available. Distributed filters are the practical solution of RF filter design. Physical length and width of the inductors are 150mil and 100mil respectively. Similarly, physical length and width of the capacitors are 150mil and 50mil respectively. Numerical Analysis results with the estimation of Insertion loss as 0dB at 4GHz. High pass filter is a filter which passes only the frequency above the cut off frequency and attenuates the frequency below the cut off frequency. Here it was designed using the lumped elements with the frequency range of 1-5GHz. The value of the inductors and capacitors used are 65.9nH, 58.5nH, 5nH and 42.7pF, 60pF respectively. Corresponding physical dimension L:W of the inductors are 150mm and 100mm respectively. Similarly, physical length and width of the capacitors are 150mm and 50mm respectively. The insertion loss obtained for the High pass filter is 0dB at 2GHz. Band pass filter is a filter which passes only the desired band of frequency. As LPF and HPF, Band pass filter also designed using the lumped elements with the frequency range of 2.3-2.7 GHz. The inductors and capacitors value mentioned here is 102.618nH, 0.088nH and 0.0395pF, 45.892pF respectively. The insertion loss obtained for the band pass filter is 0dB at a bandwidth of 100 MHz finally, band stop filter are designed to eliminate the undesired band of frequencies. Here the band stop filter was designed using the same lumped elements such as inductor and capacitor with the frequency range of 1-10GHz. The value of the inductors and capacitors used are 12.214nH, 0.0769nH and 0.0819pF respectively. The insertion loss obtained for the band stop filter is 0dB at 300 MHz bandwidth. Novel Filter designs are identified and implemented for ideal RF and Microwave Applications.**

Keywords: **Filters, LPF, HPF, BPF and BSF**

Electrical & Electronics Engineering

A Survey on Applications of Attribute Based Encryption in Various Networks

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***Abstract*— We collect various information by using several sources and use different types of networks to share the gathered information, the cloud networks is used to share the information to the larger audience over an internet, the delay tolerant networks is used to share the information over the Adhoc networks, the fog computing network is used to share the information to the devices residing at the edge of network. The security and privacy issues of those networks are the great concerns among the researchers. The Attribute Based Encryption has been the most promising cryptographical approach for the decades to secure the data in transit and storage in the above mentioned networks. In this paper we survey the applications of attribute based encryption and their security requirements and performance measurement evaluation methods in the above mentioned networks.**

***Keywords* -Encryption Algorithms, ABE implementation Cloud Networks**

Power Quality Analysis of Three Phase Voltage Source Inverter using various SVPWM Switching Schemes

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***Abstract*— Voltage Source Inverters (VSI) are employed for variable voltage/ variable frequency adjustable speed drives. The Space Vector Pulse Width Modulation (SVPWM) scheme when applied to VSIs, it improves the effective dc bus utilization and lowers the Total Harmonic Distortion (THD). It also takes care of Electro Magnetic Interference (EMI) reduction, switching loss minimization and better spreading of harmonic spectrum. There are six different SVPWM schemes applied to VSIs are discussed in this paper and its THD spectrum for each scheme using Matlab/Simulink environment is depicted. The simulation results are validated with a prototype using Spartan 3E Field Programmable Gate Array (FPGA) board.**

***Keywords*—Voltage Source Inverters (VSI), Space Vector Pulse Width Modulation (SVPWM), Total Harmonic Distortion (THD), Field Programmable Gate Array (FPGA)**

Implementation of Double Loop Controller Tuned Super Lift Luo Converter and Unipolar Inverter for Solar Fed Grid Application

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***Abstract*— The objective of this paper study gives the detail about the solar power conditioning system in order to make the PV power generation with high power quality before connecting it in to grid. The PV side DC-DC conversion is done by Positive Output Elementary Super Lift Luo converter (POESLLC) with high conversion ratio for better performance. The grid side AC conversion is done by simple double loop controller is introduced in this system to keep less variation and to maintain the grid voltage constant for line and load variations. DC power received from solar panel is stabilized in the POESLLC converter with double loop controller which consists of outer loop PI controller and inner loop hysteresis current controller. Open loop Pulse Width Modulation (PWM) based unipolar full bridge inverter is used to maintain the grid parameters to meet the power quality issues. This system avoids closed loop controller for inverter and also omits the maximum power point tracking algorithm in DC to DC conversion. It has some advantages such as fewer components, less weight and avoids complexity in controllers which inject steady current to the utility line. The effectiveness of the converters is verified through MATLAB Simulink.**

***Keywords*—Double loop controller, Hysteresis current controller, Single Phase Unipolar Inverter (SPUPI), Positive Output Elementary Super Lift Luo Converter (POESLLC)**

Survey on Automatic Speed Breaker System for Ambulance

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***Abstract*—The most commonly used path for transportation is roadways. There are several vehicles passing each day and night on roads. Since many of them use the same way of transport, the probability for accidents occurring is high. So, to safeguard the human's life there is need for an ambulance which reaches hospital in time. But speed breakers are the major obstacles, the ambulance is in need to deal with, because it doesn't provide a brake free path. The survey is based on how to provide a brake free path for an ambulance. In this paper, various methodologies related with speed breaker indication system and the need for automatic speed breaker flattening system is studied.**

***Keywords*— Transportation, Speed breaker, Ambulance**

Advanced Honey BEE Algorithm for Optimization of Voltage Stability in 14 Bus System using FACTS Devices

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***Abstract*— Optimization techniques play vital role in many problems. Many optimization algorithms have been proposed in past decades. In this paper optimization techniques like Advanced Honey Bee Algorithm are tested in an IEEE-14 Bus power system. By using these optimization techniques, the power losses like active power and reactive power are reduced drastically. By reducing the losses, the voltage profile improvement and voltage stability enhancement can be maintained. Also, this paper shows the better optimization technique which suits the power system to maintain stability by reducing power losses. Amongst a variation of FACTS controllers, Unified Power Flow Controller (UPFC) is the most powerful and versatile device. The UPFC is a device which can controller the flow of real and reactive power by injection of a voltage in series with the transmission line. Both the magnitude and the phase angle of the voltage can be varied independently. To improve the bus voltage and to reduce the active and reactive power losses in the transmission lines including steady state model of UPFC in Newton-Raphson (NR) power flow algorithm. To determine the steady state performance of the UPFC in the load Flow studies anIEEE-14 bus system has taken. Also, this paper shows the better optimization technique which suits the power system to maintain stability by reducing power losses. The results are tabulated to show how much losses have been reduced from the determined actual losses in the power system**

***Keywords*—Unified Power Flow Controller (UPFC), IEEE-14,FACTS, Newton-Raphson (NR)**

Augmented Reality Based SMART GLASSES

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***Abstract*- Smart Glasses are the wearable computing device which can be attached to the spectacles or sunglasses of the user and can be paired with Smart Phones, via Bluetooth or Wi-Fi. In this paper, the authors are using the concept of Augmented reality to put a projection of user's smartphones notifications such as Date, time, incoming calls, text messages to the user's spectacles which acts as a virtual transparent screen to show those notifications while at the same time viewer can be interactive to surroundings without hindering his/her usual tasks in real-time.**

***Keyword*— Smart- Glasses, Augmented reality, the wearable computing device**

Smart Water Distribution and Management System

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***Abstract*— Water is one of the most important resources for all living beings in the earth. In a country like India with huge population, distribution and management of water is found to be uneven. The ever-increasing demand for water emphasizes activities related to water management, ensuring the rational development and utilization of water resources. It also requires the development of necessary devices and networks to optimize the usage of water and ensure safe drinking water. An attempt is made in this research work to rationalize water supply to consumers; understanding losses, taking corrective decisions and also to build a clear, accountable and efficient water supply system.A simple set-up is established with four users, one main distribution tank and arudino controller for demonstration of the management system.**

***Keywords*—Leakage, Level, Raindrop, Smart, Solenoid**

Detection of Black Hole and Gray Hole attacks using Fuzzy based Intrusion Detection Systems in MANET

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***Abstract*— In the most recent years, Wireless network communication playing a keen role in internet society and becoming more popular, especially Mobile Ad hoc Network (MANET), due to its infrastructure-less wireless network, self-organized, and easy deployment in mobile devices. This network is an innovative model of wireless communications that is functioning in a highly energetic and impulsive environment. Due to the flexibility of MANET, every node communicated to each other without centralized infrastructure and became a more inspiring environment for many applications. MANET is disposed to a different kind and category of attacks that influenced in gray hole attack, warm hole attack, and black hole attack. Gray hole and black hole attacks considered as one of the most affected types of assaults on MANET. Therefore, to prevent these attacks, the deployment of the intrusion detection system (IDS) has a crucial concern in the MANET. In this paper, a novel based approach proposed in the fuzzy-based intrusion detection system. Usage of an Adaptive Neuro-Fuzzy Inference System (ANFIS), which automates the process and detect the malicious activities of a wireless node, provides a better security level and optimize IDS with the estimated and energy-constrained system.**

***Keywords*— Mobile Ad Hoc Networks, Intrusion Detection System, Gray Hole Attack, Black Hole Attack; ANFIS.**

BLDC Motor Drive System: AWPI - Modeling, Simulation and Implementation using Lab View based FPGA

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***Abstract*— Most of the Brushless DC (BLDC) motors drives take up proportional integral (PI) controller and pulse width modulation (PWM) scheme for speed control. BLDC motor drive has strong saturation characteristics and saturation results in a typical windup phenomenon. This paper presents an Anti-windup drive for BLDC motor. An Anti-windup controller (AWC) has been employed and which has been modeled in MATLAB/Simulink and comparison has been done between conventional PI controller and AWC at different starting loads. In this paper, dynamic characteristics of the BLDC motor drive have been examined and results are validated with FPGA (Field Programmable Gate Array) based experimental set up.**

***Keywords*— BLDC motor, Pulse width modulation, Anti-windup, MATLAB/Simulink, FPGA, PI controller**

Optimal Design of Power System Stabilizer Based on Flower Pollination Algorithm

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***Abstract*— The Power System Stabilizer (PSS) is a controller, which is used to mitigate the instability of Low Frequency Oscillations (LFOs) in power systems. The condition of oscillatory instability can also cause the loss of generator synchronism. It is observed that the damping provided by PSS depends on the proper selection of its parameters. This paper presents the systematic method for the selection of PSS parameters using evolutionary nature inspired optimization technique called Flower Pollination Algorithm (FPA). FPA is employed for selecting the optimal parameters of PSS so as to mitigate the low frequency oscillations of generator rotor and thereby oscillatory instability. The system consists of Single Machine with PSS which is connected to Infinite Bus (SMIB) through a transmission line. The transient simulation validates the performance of the system with optimized PSS. The results show that PSS with FPA optimized parameters provides fast and stable response.**

***Keywords*— Power System Stabilizer (PSS), Low Frequency Oscillations (LFOs), Flower Pollination Algorithm (FPA).**

An Improved Performance Characterization VSI fed induction motor drives using Random PWM

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***Abstract*—The pulse width modulation (PWM) inverter is obvious for any industrial and power sector application. Particularly industrial drives are very keen on the industrial standards. Many PWM techniques are approached to meet out the voltage source inverter (VSI) drives objects such DC-link utilizations, harmonics suppression in lower and higher order spectrum, and noise reduction etc. The random PWM (RPWM) is one of the better methods for reducing the noises on the VSI based drives. There are few RPWM methods has been developed and investigated for the PWM inverter fed drive noise reductions, still the shortcomings are existence on these methods, due to their less randomness and complex digital circuitry. Even though these reported RPWM techniques are superior to deal the spreading and mitigating the harmonics and acoustic noise, these techniques are not managing the desired DC -link utilizations. Therefore, in this paper mainly deals with to combined multicarrier RPWM principle in space vector PWM (SVPWM) to generate multicarrier random space vector PWM (MCRSVPWM). The SVPWM agreements with multicarrier (different fixed frequencies as carrier waves) which are chosen with the aid of a random binary bit generator. The proposed method is generated pulses with a randomized triangular carrier (1 kHz, 1.25 kHz, 2.5 kHz and 5 kHz), while the conventional RPWM method contains of the random pulse position with a fixed frequency triangular carrier. The simulation study is performed through MATLAB/Simulink for asynchronous induction motor drive. The experimental validation of proposed MCRSVPWM is tested with 2kW six switch VSI fed induction motor drive.**

***Keywords*—Multicarrier RPWM, Space Vector PWM, Harmonics Spreading and Mitigation Acoustic Noise Reduction**

Analysis of CUK Converter for Waste Heat Recovery from Engines using Thermoelectric Generator

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***Abstract*— With the ever-growing concern on energy conservation and reduction of carbon footprint globally, the development of energy-efficient technologies for automobiles has taken on an accelerated pace. One of the major contributors to this scenario is the emission of CO_2 and the heat from automobiles. Even in a state of art internal combustion engine, the majority of energy contained in the fuel is converted into waste heat. It is estimated that about two-thirds of fuel consumed by an automobile is discharged into the surroundings as waste heat. The effect is the increase in surrounding air temperature which in turn contributes significantly to global warming due to the sheer abundance of the number of automobiles. This paper proposes a design and implementation of a waste heat recovery system for internal combustion engines. The key aim of this paper is to reduce the amount of waste heat released into the environment. A thermoelectric generator (TEG) module is used to directly convert heat energy from the automobile into electrical energy. This electrical energy is regulated using a boost converter to charge the battery. A maximum power point tracking algorithm is used in the converter for impedance matching and maximum power transfer from TEG to the converter. The charging status of the battery is tracked using a charge controller. The proposed system can work well under different temperature conditions and is a promising method for the future, which can be extended even to hybrid electric vehicles.**

***Keywords*— Thermoelectric Generator, Waste Heat Recovery, Maximum power point tracking, CUK converter**

Information Science & Engineering

Design and Implementation of Crop Yield Prediction Model in Agriculture

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***Abstract*— Agriculture is the best utility region especially inside the developing worldwide areas like India. Usage of records age in agriculture can substitute the circumstance of decision making and Farmers can yield in higher manner. About portion of the number of inhabitants in India relies upon on farming for its occupation however its commitment towards the GDP of India is just 14 percent. One suitable explanation behind this is the deficiency of adequate decision making by farmers on yield prediction. There isn't any framework in location to suggest farmer what plants to grow. The proposed machine learning approach aims at predicting the best yielded crop for a particular region by analyzing various atmospheric factors like rainfall, temperature, humidity etc., and land factors like soil pH, soil type including past records of crops grown. Finally our system is expected to predict the best yield based on dataset we have collected.**

Association Rule Based Recommendation System Using Mapreduce

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***Abstract* - Recommender systems are integral part of any ecommerce store in order to withstand and compete with other growing businesses. There are various recommendation techniques which are used to appropriately recommend a product to the active user. The recommendation system has to analyze large amount of data to provide better recommendation and such important issue can be addressed using Hadoop ecosystem. In this paper, a recommendation system for product based on Hadoop framework is proposed. The proposed system recommend products to the user depending on the products present in the user cart. First, it uses framework to import the product transactions. Furthermore, the Apriori for finding frequent itemsets and Association rules are implemented in Hadoop and processing the data using MapReduce.**

Dynamic Reusability Prediction Model for SMEs Based on Real time Constraints

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***Abstract*— With the increasing cutting-edge competition in the IT industry, it has become essential to offer maximum quality in the dispatched software along with cost-effective productivity. Although high-end IT sectors can adopt different quality management schemes to offer more enhancement in productivity, they cannot be deployed so quickly among Small Medium Enterprises (SME). The prime reason for such impediment is mainly the different forms of constraints associated with SMEs. At present, SME uses software reusability which is different from design reusability owing to the absence of any benchmarked or proven model in this regards. The claim in existing studies is that if the software metrics can be amended, then it can compute efficient software reusability. However, there is no connection of calculating and ensuring software reusability in such way. The issue is entirely a computational problem which is solved in the form of mathematical modeling in the proposed system. The proposed study mathematically formulates near real-time constraints and different objective function along with a mathematical expression for computing design reusability. Hence, the contribution of the proposed study is not only to calculate design reusability but also to ensure proper implementation of design reusability. A machine learning approach was used which is responsible for obtaining all the best cases of deployment of design reusability in compliance with all the constraints. The outcome of the proposed model proves that it not only offers a cost-effective solution to compute design reusability but significantly assists the stakeholders of software projects to make some critical decision for the successful dispatch of software projects to clients**

Multi-Objective Optimization Approach to Generate String Test Data

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***Abstract*: Frameworks were required to recognize deformities and security issues in string test cases. Discovery string analysis strategies for the generation of results are explored in this paper. To generate persuasive test cases, two objective functions are established. The primary objective is to optimize the test cases, where it can very well be estimated by means of string space functions. The second goal is to control the distribution of the string width into a Benford distribution which suggests shorter strings have, all in all, a higher shot of discontent location. At the point when the two objectives are connected by means of a many way objective advancement program, predominant string test suites are delivered.**

License plate recognition and detection using Machine Learning

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Abstract - Building an effective tactic to extract characters from images with minimum error rate is the big task. Aim of this paper is to develop an algorithm to generate an error free recognition of text from the given input image. It also helps digitizing and prevention to the hand written text recognition. Optical Character Recognition is the most important research topic for more than four decades. It is the time consuming and laborious work of keying the data through keyboard. Hence this paper elaborates mechanical or electronic conversion of scanned images, images captured by camera, text which contain graphics, scanned images and the recognition of images where characters may be broken or smeared. The optical character recognition is the desktop based application developed in Java IDE with mysql as a database. The algorithm proposed is gained with 93.42% accuracy when applied on different data sets. During pre-processing and post processing neural network techniques are applied to remove noise from the images and classification technique are used to recognized the characters. Back propagation algorithm are used for the training of neural network, feature extraction has performed by template matching and hamming distance.

Automotive Industry Redefined By Information Technology: Review

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***Abstract*—At the dawn of second automobile century, the competitiveness among various automotive companies is decided by the very fact that how competent are they in adapting to changing advancement in information and technology. In today's day and age, technology is at work when we drive a car, when we buy one, when we interact with the dealer and is an integral part in research and development. Information and technology has become an important part of automobile firms starting from its design to performing various analysis virtually which has brought down lead time to a fraction of what they were and enabling engineers to innovate and improve with greater ease. With issues such as global warming, depleting natural resources, the responsibilities of firms have increased exponentially in the last decade and the contribution of Information science towards it by the means of data provided is second to none.**

Enhancement of Signature Schemes for Heightening Security in Blockchain

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***Abstract* - Blockchain has become one of the most pioneering technologies,With the rise of Bitcoin, blockchain which is the core technology of Bitcoin has received increasing attention. There are multiple signature scheme based on digital signature schemes that supports making signatures on many different messages generated by many different users., the size of the signature could be shortened by compressing multiple signatures into a single signature. Based on the blockchain architecture and existing Merkle tree based signature schemes, In this paper, an analysis of how to enhance the signature schemes to secure the transactions on blockchain based on extensible post-quantum (PQ) resistant digital signature scheme best suited to blockchain and distributed ledger technologies is proposed.**

Business Practices using Machine Learning

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***Abstract*—Busy life schedule leading to the growth of E-commerce companies. Many Challenge in development of business through web pages, apps and retail stores. Proper utilization of invested funds by analyzing costumer preferences and purchases from the previous marketing data. Business practices are very arduous to transmute especially in astronomically immense and mature companies. Introducing incipient ways of working is astronomically arduous, but making people work differently is virtually infeasible. There is immensely colossal cultural inertia in these companies and business industry in general. Utilization of Machine Learning is one of those transmutations that will make people work differently and will make business environments different in future.**

Abadent Object Detection & IOT Based Multi-sensor Smart Robot for Surveillance Security System

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***Abstract*-- This paper presents an up-to-date method for surveillance in distant and boundary areas using (MR). It is based on the present 4G technology used in defense force and army applications. This automated vehicle has capacity to substitute the solider at outskirt territories to give reconnaissance. The automated vehicle works both as independent and physically controlled vehicle utilizing web as correspondence medium. This MR used to recognize human, bombs, unsafe gases and fire at remote and war field zones. Routinely, remote security robot obsoletes because of constrained recurrence range and restricted manual control. These points of confinement are overwhelmed by utilizing 4G innovation which has unfathomable range. In this robotic vehicle is designed for exploration as well as surveillance under certain circumstances. Interruption form the strangers is automatically sensed by this system and give the photos to the admin that considered which kind of object is to be taken in the image sensor with the help of SVM algorithm the abundant object has been discovered. The MR is capable for sensing motion using Passive and also Infrared Sensor, deadly gas using Gas sensor, fire or explosion using Flame Sensor, high temperature using Temperature sensor, Camera for capturing the object in the boundary, ultrasonic sensor for detecting any obstacles and GPS is used for tracking the locality. Any trespasses, bombs, harmful gases, fire and other dangerous conditions are sensed and transfer to the server. This system senses the dangerous situations near the border and protects the life suddenly without any loss of human life.**

An Efficient Power Utilization Protocol for Achieving Maximum Throughput in Wireless Communication

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Abstract **- The nodes which are outside the transmission range in wireless network are energy constraint and they consume more power for packet transmission. In this paper, we propose to develop a Power Utilization Protocol to provide higher throughput and consume less power in the Mobile Ad hoc Networks. An optimal transmission power is calculated at the receiver based upon the data payload length and the interference amount. This power is given to the transmitter which increments or decrements the power with respect to the number of neighboring nodes. From our simulation results, we show that this algorithm provides higher throughput and lower energy consumption in wireless communication.**

Crop health monitoring system using machine learning

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Abstract – **In this changing environment, appropriate and timely disease identification including early prevention has never been more important. There are several ways to detect plant pathologies. Some diseases do not have any visible symptoms, or the effect becomes noticeable too late to act, and in those situations, a sophisticated analysis is obligatory. However, most diseases generate some kind of manifestation in the visible spectrum, so the naked eye examination of a trained professional is the prime technique adopted in practice for plant disease detection. In order to achieve accurate plant disease diagnostics a plant pathologist should possess good observation skills so that one can identify characteristic symptoms. To find out whether the leaf is diseased or healthy, certain steps must be followed. i.e., Preprocessing, Feature extraction, Training of classifier and Classification. Preprocessing of image, is bringing all the images size to a reduced uniform size. Then comes extracting features of a preprocessed image which is done with the help of HOG .HoG is a feature descriptor used for object detection. In this feature descriptor the appearance of the object and the outline of the image is described by its intensity gradients. One of the advantage of HoG feature extraction is that it operates on the cells created. Any transformations doesn't affect this.**

Detection and Classification of Human Stress using EEG Signals

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Abstract **- In day to day life stress plays significant role in the quality of human life. Emotion plays a major role in motivation, perception, cognition, creativity, attention, learning and decision-making. In recent years, stress analysis by using electro-encephalography (EEG) signals has emerged as an important area of research. EEG signals are one of the most important means of indirectly measuring the state of the brain. EEG (Electro encephalogram) signal is a neuro-signal which is produced due to the different electrical exercises in the mind. These signals can be captured and processed to get the necessary data which can be used to detect some psychological changes in early stage. In this proposed system, EEG signal dataset is pre-processed and components with ocular effect are extracted from the EEG signal. Classification of stress level is accomplished by applying SVM (Support-Vector Machine) algorithm which gives the better accuracy.**

Customer Segmentation in Large Chain Store using k-Means and Hierarchical Clustering Algorithms

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Abstract**— In today's world large amount of data is available at Chain Stores, Super Markets, Shopping Malls etc. Such type of large data has the requirement of machine learning algorithms to play vital role in providing analysis on data, forecasting data inventory needs, predictive capabilities, analyzing customer behavior, determining product prices, loss prevention and much more. This paper focuses on the perspective of Chain Store as it is important to have some intuition and idea about Spending Score of the Customers visiting the Chain Store using k-Means Clustering and Hierarchical Clustering. k-Means clustering provides insight about the different segments of the customers in the Chain Store and Hierarchical Clustering depicts Spending Score of Customers.**

Efficient Algorithms for Plant Classification using Iris Dataset

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***Abstract*— In the field of agriculture, plants are basically identified by their leafs, there are variety of plants the increase the economy of the country in various areas such as cash crop, medicines etc. Plant identification is one core area in agriculture that needs an efficient machine learning algorithm to classify the plants for providing predictive capabilities such as classifying the plant, determining characteristics of the plant, plant segmentation. This paper basically uses Classification Algorithms such as k-NN, Naïve Bayes, Random Forest and SVM as it is important to have some instinct and idea about Plant Identification and Plant Classification. Combination of k-NN, Naïve Bayes, Random Forest and SVM depicts efficient way to identify and classify plants.**

A review on data science approach towards decision-making

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***Abstract* - Data Science is a modern intellectual trans-discipline that intensified over long duration of exploration about assisting managerial decisions in companies. It is an essential and notable hypothesis. It is a newly boosting track that integrates diverse workouts, for example data mining and information investigation, machine learning. It handles different techniques extending from programming, processing, information building, data transformation, and design recognition. Examining the demand for data scientist uplifts instructors and executives to investigate concerns of decision-makers reasoning needs of data analysis, analytical tools, skill requirements and educational development. This review examines data science and data experts who make use of latest information streams and analytics to assist decision-making. It also gives a well-defined approach pertaining to data science technologies, applications, and preparing data scientists to be better decision-makers.**

Robust Classifier Design with Ensemble Neural Network using Differential Evolution

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Abstract-In this paper, ensemble neural network has been designed for the *classification* purpose using the Differential Evolution (DEENN). The ensemble structure has been designed into two different stages of the classifier. In the first stage, four multilayer perceptron classifiers have been applied with the same sized training data with overlapping, which embeds some new information in the process of learning. All four classifiers have been trained through the gradient descent algorithm. In the second stage, there is decision neural network, which considers the output of all the four first-stage classifiers as inputs and develops the final decision with the help of differential evolution (DE). Two other possibilities of integrating the classifier outputs, majority voting method and mean decision value method have also been considered to compare the performances. The proposed method has shown not only high efficiency but also resistivity with a trial variation.

DCUIS: An Exhaustive Algorithm for Pre-Processing of Web Log File

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***Abstract*— The recent growth of Internet and World Wide Web lead to exponential development of Internet usage for various purposes such as online shopping, social media, education etc. Every hit to the web site is recorded in log file which includes user request, IP address, date and time of page demanded etc. This information can be utilized to derive favorable perceptions. Web Usage Mining is one such approach, which is applied to log file to automatically discover user navigational pattern. This research work, presented a novel algorithm termed DCUIS: Data Cleaning, User Identification and Sessionization. It is an exhaustive algorithm which considers all stages of preprocessing phase. The proposed algorithm has taken raw log file as input, and performed cleaning operation to obtain data of superior quality. This data is used in the next step of algorithm to uniquely identify users and which in succession assists to find user sessions.**

Social networks and network security

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***Abstract*— In today's socio-economic atmosphere one of the firmest developing areas of technical infrastructure development is the Internet. The aggregate cyber-attacks over the past decade are posing a thoughtful threat to the digital world. The paper focuses on the issues of cyber security for Social Networking Sites (SNS) since social media adoption among individuals and businesses is skyrocketing. Social Networking Sites have many areas of applications like digital marketing, social e-commerce and branding. The fact that the maximum number of users are not aware of risks and their lack of knowledge leads to further increase in cyber-crimes is a major challenge. All these issues would form a part of the paper. The security concerns and challenges on SNS like identity misuse, malware, phishing attacks and third party application threats have also been discussed separately. While highlighting the government initiatives to curb this serious issue, the paper also suggests some appropriate solutions which can be adopted by the individual users as well as the government in the collaboration with private sector for a cyber-safe digital world.**

Improved REBA (Rapid Entire Body Assessment) Tool using OpenCV and Angle calculation

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***Abstract*- Musculoskeletal Disorders (MSDs) rank among the commonest health problems both in the frequency of concurrency and in the money spent on these disorders, which mainly stem from poor working posture it also negatively affects employees in terms of job productivity, life quality, and both physical and social activities. Analyzing and improving working postures with scientific methods provides significant contributions in the field of controlling job performance and decreasing MSDs. Improved REBA tool analyzes working postures and can be applied to very diverse areas successfully. In this study, a prototype of integrated software, which is based on the OpenCV image processing module, was developed. Improved REBA tool begins with processing the uploaded image and generating the stick figure which is used to identify the working posture, and level of MSD risk is calculated. The manual analyzing process is so laborious and time consuming. Improved REBA tool provides computer support for the manual coding stage and eliminates the need for an expert analyst; hence, the method can be widely used in industry.**

Stock market prediction using data mining techniques with R

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***Abstract*: The Stock exchange market is where portions of freely recorded organizations are traded. The offers are purchased and sold depending up available lists. The cost of stocks and resources are a significant piece of the economy. There are numerous components that influence offer costs. Anyway there is no particular reason at the costs to rise or fall. This makes venture subject to different dangers. Th e costs of things to come stocks are influenced by the previous and current market lists. Thus financial exchange expectation strategies like ARIMA and ARMA are utilized for transient anticipating. This paper proposes a securities exchange expectation model dependent on the investigation of past information and ARIMA model. This model will help financial specialists to purchase or sell stocks at the opportune time. The conjecture results are imagined utilizing R programming language.**

Collaborative Filtering Based Recommendation System Using Sentiment Analysis

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***Abstract*— Online market is growing rapidly and the number of products available online is increasing daily by whopping percentage. It is impossible for anyone to know about all the products available online and search them manually. This is where recommender systems come into the picture. Recommender systems predict the importance a user will give to a product and suggests similar items whenever we search products online. For building recommender systems mainly two algorithms are used, content based filtering and collaborative filtering. Problem with traditional algorithms is that they use the votes but ignore the reviews. However, review of products play an important role in influencing our preferences and opinions. So, we propose a collaborative filtering-based recommender system using sentiment analysis to generate accurate recommendation. The main goal of this project is to include user reviews in recommender systems by combining it with sentiment analysis.**

Computer Aided Diagnostic Techniques in Automated Detection of Eye Related Diseases - A Comparative Study

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Abstract **- World Health Organization (WHO) in a new study has recognized eye related defects to be one of the primary health challenges faced by the existing society. Common retinal abnormalities include Glaucoma, Diabetic retinopathy and Macular degeneration. Retinal eye defects have significantly increased in the last decade across developing and developed countries. These defects if not diagnosed and treated at the appropriate time, would result in complete loss of vision. Diabetic retinopathy is predominantly common among diabetic patients. In Macular Degeneration, the central part of the retina is widely affected. In this case, the retinal cells deteriorate and images are not established correctly. The CAD system for eye diseases falls under the Supervised Learning techniques. This technique refers to methods that enable creation of a correlation with different features and labelled outcomes. Few of these include KNN, Naïve Bayes, Adaboost Classifiers, tree-based Classifier, ELM classifier, SVM and LIBSVM classifier etc. The main objective of this paper is to summarize the various CAD techniques adopted for early detection of eye diseases.**

Feature Selection: An empirical Study

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The Feature Selection is inevitable in today's decision making system due to enormous amount of heterogeneous, highly volatile data. It is important to choose to the correct feature set to avoid Curse of Dimensionality and for learning algorithms to behave effectively. If very few elements are chosen, satisfactory results may not be inferred or if the number of features selected are very high, then performance is an issue. The accuracy can be improved by adding more relevant features. However, this is justifiable only up to a certain number of features. In this a paper we discuss the various types of feature selection techniques and carried out an empirical study.

Library Sciences

Use of Electronic Information Resources by Faculty Members and P.G. Students of Selected Medical College Libraries in Hyderabad-Karnataka, India: A Study

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***Abstract*- The paper focuses on the use of electronic information resources by the faculty members and P.G. Students of selected medical college libraries in Hyderabad-Karnataka region. The investigator has distributed questionnaires to the faculty members (90) and P.G. Students (90) total 180, out of which faculty members (75), P.G students (75) total 150 (83.33%) questionnaires were received back. The findings of the study shows that majority (85%) of the respondents purpose of accessing internet for data communication (sending and receiving E-Mail, Chat, Net Phone) followed by 51% of them access internet for purpose retrieve medical case history. The result also indicates that majority (88%) of the respondents use electronic information resources for supporting teaching activities and 61% for journal club purpose. Some of the considerable numbers of respondents (85%) are aware of electronic information resources by personal communication with friends, subject experts and resource persons.**

Keywords: **Internet Electronic Information Resources, Medical College libraries, HELINET**

Citation Analysis of Grey literature reflected in Ph.D Thesis submitted to Visvesvaraya Technology University Belagavi

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Abstract: **This Study made an attempt to analyse, the citations reflected in Ph. D Thesis submitted to Visvesvaraya Technological University, Belagavi, analysed for citing Grey Literature and Grey Literature form and subject wise distribution of articles cited from periodicals, Frequency and percentage distributions and measures of central tendency used to analyse data, and authorship pattern. Findings replicate that, Grey Literature is the most utilized reference material in the Thesis, such as, Engineering and Technology, library science, in general, had the highest number of thesis Submitted in the year 2014, with 136 and lowest number of theses submitted in the year 2009, with 23. The findings from this study could serve as a user study with implications for collection, development and user services designing in libraries.**

Keywords: **Citation Analysis, Grey Literature, Library and Information Science**

Green Library

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Abstract: **A Green Library also knows as a sustainable library, is a library build with environmental concerns in mind, Green libraries are a part of the larger green building movement. Green libraries are being build all over the world 'Go Green' has become a buzz word in the 21st century. Recently libraries too have imbibed this phenomenon enormously. Green Library Movement, which comprises of librarians, Libraries, cities, towns, college and university campuses committed to greening libraries and reducing their environmental impact. Constructing a green library building using performance standards like Leadership in Energy and Environment Design (LEED) and Indian Green Building Council (IGBC) is a way some libraries both abroad and in India are choosing to become green and sustainable. Environmental challenges like energy depletion and climate change will influence the type of information resources and programs libraries will provide to their communities. The present paper focus on the concept of 'Go Green Library' in general and 'Green Libraries' in particular. The attempt is also made to give information on different standards being followed, existing green libraries, practices and initiatives globally and locally.**

Keywords: **Go-Green, Green Libraries, LEED, IGBC, GRIHA Libraries, Library users, Surveys, Public libraries.**

Media libraries information use: A study

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Abstract **- While the use of media information resources in television media libraries in Bengaluru City, Karnataka, is well known under the report, the use of media information resources needs to be increased. The frequency of use might have been higher if other factors were desirable, accessibility of resources from other places. Further, the handling of all resources can be stepped up by user motivation and encouraging users to avail of such services with the help of the media library. Further, assistance with searching and retrieving information should also be offered. This research provided insight into television media professionals ' information needs and use behaviour in Bengaluru, Karnataka. This was evident in the high user ratio, the high usage rate, and the high value provided to information services.**

Keywords: **Media Libraries, Media professionals, Information seeking behaviour, Television media**

Use and Impact of Library Services on Users: A Case Study Of R R Institute Of Technology, Bangalore

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Abstract: **The purpose of this paper is examined to use and influence of library services on users. The students of RR Institute of Technology were the target group for the study whose views were taken into consideration with the help of questionnaires. 150 questionnaires were distributed to the students belonging to various undergraduate engineering departments to know their problems and suggestions about the library resources and services. It is found that 80 percent of the students are satisfied with circulation service. About 26.66 per cent of the students spend more than 7 hours in the library. 38 per cent of students expressed that their class work affect the usage of library whereas majority of them felt that not the class work do not influence the usage of library services as they have enough free time. This study reveals that 36.66 percent students utilise the library services daily. 45.33 percent of students are not satisfied with the organization of services and 20 percent of them expressed that the staff cooperation is poor.**

Keywords: **User orientation, Reprographic service, Electronic services, Impact of Library Services**

Creating QR Codes for Doctoral Theses: An Experimental Approach for Accessing Bioscience Theses in Shodhganga by using QR Codes at Kuvempu University

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Abstract: **QR (Quick Response) codes are used to promote library services and help users to access information quickly. The present study aims to explore the areas of QR code application in library services by experimenting at Kuvempu University. In this article, an attempt has been made to create QR codes for Bioscience theses of Kuvempu University available at Shodhganga ETD repository to provide quick access to URLs of theses. With the help of smart phones users can find theses quickly and independently. This article will explain how QR codes can be used for linking resources and describe issues surrounding their use.**

Keywords: **QR Codes, Library Services, Shodhganga, Bioscience Theses, Kuvempu University.**

Research Trends in total quality management (TQM): a Comparative Assessment of Publication output of India and Japan using Scientometrcs.

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Abstract: **The study examines Indian and Japan Total Quality Management analysis output on several parameters at the side of growth, analysis communication in core journals, and geographical distribution of publications. The study focuses on the articles disclosed by Indian and Japan and indexed in Science Citation Index – web of Science for the period from 2012 to 2016. India has published 811 papers within the TQM field and received 12768 citations and Japan has published 1095 papers and received 9044 citations in the field during the period 2012 to 2016. The study suggests the need to increase the pace of Indian and Japan scientific discipline analysis and improve their quality. It suggests boosting the building ability and mental object to help bridge the scientific discipline gap with leading countries. It conjointly counsels to make competency and knowledge domain to assist bridge the gap between leading countries.**

Keywords: **Doubling time, Growth of rate for scientific publication, Total quality management, Relative growth rate, Scientometrics.**

Best Practices in Media Libraries

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Abstract: **The Author has presented her observations by means of exploring various best practices carried out in a Media Libraries. Author has explained in details about the Newspaper and importance of Libraries in Newspaper Libraries.**

Keywords: **Media Libraries, Digital Libraries, Newspapers**

Centre for Life Skills and Lifelong Learning

Building Vision Skill – A Single 'Upskilling' attribute that enables numerous Employability and Leadership Skills in the Community of First-Year Engineering Students in India

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***Abstract*— An ability to define a vision and execute the relevant strategies is identified as the core requirement for the first year Engineering Students. This ability will aid in understanding the ever-changing Job market, building employability skills and preparing them corporate ready.**

The SLN Vision Execution Program (SVEP) is a strategic process that instigates a Vision Skill in 1st year Engineering Students. SVEP model covers three core areas such as 'SMART Goal Setting & Execution,' 'Emotional Intelligence and Management,' and 'Leadership Capability Building based on Personality.' The primary emphasis in the SVEP model is given to build ability in 1st Engineering students to define the vision, develop strategies to execute the vision and continuously monitor and measure the results for corrective actions. SVEP also aims at making the 1st year engineering students more responsible and accountable as capable learners with heightened self-confidence and self-awareness. Moreover, the SVEP model constructs the solid foundation and empowers the students 'corporate-ready' when they complete the curriculum. The model is designed considering the rapidly changing business environment, the technological interventions, future trends and market trajectory. Ethnographic Research and Qualitative Observation methods aided in defining and analyzing the research questions and designing the program. The notes from the interactions with the students, faculties and placement teams, most importantly, with the fresher corporate employees and the feedback from HR and hiring managers helped in designing the model.

This paper addresses the importance of building vision skill using SVEP and how it can be used as an 'upskilling' tool to build numerous life, employability and leadership capabilities. The paper also includes the structure of the SVEP model, key areas being addressed during the program and the impact. The discussion covers the practical deliberations and, how the program complements the existing curriculum and the fields required for further advancement and evaluation.

***Keywords:* Vision, SMART Goal Setting, EQ, Leadership, Employability Skill**

Designing learner-centred MOOCs for Soft skills programs

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Abstract: Designing and delivering soft skills need to be dynamic. The millennial learner is spoilt for choice for screen resources and the proliferation of media such as videos on various net media makes the learner hooked on to the screens. Massive open online courses (MOOCs) are paradigm shift into bringing learners to the centre stage to deliver educational programs. However, in spite of the access and scale, life skills or soft skills program delivery is yet to catch up. Overcoming issues of paucity of learner engagement, less interaction ability of MOOCS and learners being remote, all of which makes learners lose interest and distracted or wanting for a guide to share and explore. These learner problems can be overcome by creative means of delivery based on the learner-centred techniques and proactive learning in online platforms. In this paper, we delve into the creation, delivery and assessment of a learner-centred MOOC for trainers and the integration of ICT in classrooms. The present investigation focuses on the evaluation of trainers' beliefs of utility of the learner-centred method. Quantitative and qualitative data analyses were performed for two designs of career exploration modules. The positive approach of the trainers towards the modules was related to their understanding of basics of learner aspects, Learner Cantered Module structure and activities and their desire to engage these in the classroom.

Keywords: **Soft skills, Life skills, Learner-cantered approach, MOOCs , millennial learners, creative life skills modules, new modes of lifeskills modules, lifeskills delivery, soft skills delivery, soft skills ICT integration, learning platforms, online soft skills learning.**

Mind maps for effective learning

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Abstract: **This research paper shows how Mind mapping can be used as a graphical demonstration of information and a resourceful tool that can support students with many aspects of their learning. It can help them map new ideas, reconnoitre concepts in more detail and expedite better understanding of relationships and enhance creative learning. It shows how Mind mapping is one of the superlative ways to capture thoughts and bring them to life in visual form. Mind maps can help students become more imaginative, recollect better and crack problems more efficiently as compared to mere notes making. Mind mapping has been around since the mid-1970s, having been developed in its current form by Tony Buzan.**

Keywords: **Mind mapping, graphical demonstration, resourceful tool.**

Role of Technical Students in owning up their academics

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Abstract: **This research paper aims at examining the possibilities of fostering 'Proactive Ownership' among students of technology in terms of acquiring knowledge and skill to apply and enhance creativity and not just focus on scoring. This is an attempt to enable students to participate in active learning and to share the onus of the teacher in creating an environment of application mind set. This is based on the observation of 3rd and 4th semester engineering students of New Horizon College of Engineering, Bengaluru for four consecutive semesters.**

Keywords: **Ownership, Engaged Learning, Contribution**

How does music help to improve Effective communication?

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Abstract: This research paper which is aimed at learning communicative skills should spark all your senses, your creative side and help one to try and think of new techniques that can be used in learning. At the engineering colleges, students are expected to enhance their skills in reading, writing, speaking and listening. Not only studying new English vocabulary but also practicing new English knowledge in a group with friends and classmates. However, there are several additional ways to enhance one's learning process. Music in English will definitely enhance one's language comprehension, improve one's listening skills, increase vocabulary, and help in pronunciation. Listening to English music is an activity that you can do all day, every day. Music is a fundamental channel of communication: it provides a means by which people can share emotions, intentions, and meanings.

Keywords: **Music in English learning, English speaking skills through music, Effective communication and music.**

Group Discussion: A Cognitive Tool for Life Skills Evaluation

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Abstract: **Group Discussion is widely used by leading corporate houses as one of the main rounds of the recruitment process. At New Horizon College of Engineering, Bengaluru, the Centre for Life Skills and Lifelong Learning implemented this method as a tool for assessing industry-readiness. This research paper aims at studying the establishment of the process, the customization and streamlining over a period of 4 batches and offers a view of the degree of success it has achieved, vis-a-vis the initial expectations. It explores salient findings from the process involved: how Group Discussion can be used as a 360 degree tool for evaluating life skills as a whole.**

Keywords: Group Discussion, recruitment process, industry-readiness, life skills, 360 degree tool

Engineers: Ensuring Excellence Beyond Campus

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Abstract: **Every Engineering College in India invariably has the phrase "ensure academic excellence" in its vision statement. Survey reports in the last 10-15 years by various organisations in India, including NASSCOM, tend to cast a shadow on these claims of Engineering colleges being institutions of excellence. These surveys indicate a growing gap between the number of Engineering graduates passing out every year from the campus and those entering the corporate world. This paper looks at the reasons for the decline in academically qualified engineering graduates not being considered "qualified" for entry into the corporate world. It further explores the role of the stake holders and the means to mould raw students into qualitative engineers who can excel in their personal and professional fronts.**

Keywords: **Engineering graduates, Academic excellence, Employability,**

Mathematics

Analysis of ring mathematics and sublanguages of science

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Abstract: **Among Zellig Harris' different obligations to phonetics his hypothesis of the sublanguages of science likely ranks among the most puzzled. Actually, not simply has this hypothesis prompted some aggregate and monster applications in the examination of the sentence structure of immunology language and its upgrades after some time, yet it in like course watches out for the probability of numerical relations between pieces or subsets of a phonetic structure and the language if all else fails. This breeze up being most clear when dealing with the Dating among metalanguage and language, specially as even as considering government. We study the relationship among numerous choice checks and nth-root works in rings. For example, we show off that the Axiom of Choice is proportionate to the purpose that every ring has a square-root painting. Besides, we gift a desire precept which actuates that every key vicinity has a nth-root art work (for wonderful entire numbers n), and present each other preference well-known that is proportionate to the Prime Ideal Theorem obliged to express sentiments.**

Smart Farming Using Artificial Immune System Algorithm and Image Processing

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***Abstract*-For any Developing country like India Agriculture plays an important role and Contribute major part of income to the country, so there is a need to grow and increase the yield effectively. In order to achieve above objectives one has to monitor on the diseases stating from plantation to harvesting. In this paper we made an attempt to use Artificial Immune System(AIS) and image processing as a tool to (i) identify the diseases on fruits like Grapes and Apple (ii) Grading of fruits. Disease identification aims different features like color, texture and shapes. Which are considered as feature vectors in this work. To extract color feature HSV histogram value concept is used, for texture wavelet transform method and for shape morphology methods are used. After extracting the above said features we used AIS algorithm as a classifier to classify the diseases and it is observed that the color and morphology shows better results than texture. Grading of fruit aims fruit segmentation which calculates healthy and infected portion of fruit. At the end we practically implemented AIS algorithm and results are obtained from MATLAB.**

Keywords: **Smart farming, Artificial Immune System, Image processing and fruit grading.**

DNA Computing Towards the Solution of Minimum Vertex Cover Problem

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Abstract- **DNA computing is an unconventional method for parallel computation. It is a method proposed for solving intractable computational problems in which the computing time can increase exponentially with problem size. This research work develops a new DNA computing model to solve a minimum vertex cover problem and this DNA computing model solve the Minimum Vertex Cover Problem (MVCP) in polynomial time algorithm.**

Keywords: **Adleman-Lipton Model, Parallel Computing, Minimum Vertex Cover Problem, Watson-Crick complementarity, DNA computing, NP-Complete Problem.**

Radiative Heat and Mass transfer in MHD flow over a stretching sheet under the effect of Joule heating and viscous dissipation with variable wall temperature parameter

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Abstract- **In the present problem Heat and Mass transfer of a MHD flow in the effect of radiation, viscous dissipation and Joule heating is considered. The temperature at the wall is taken as power law with variable exponent. The problem is solved analytically using concept of confluent hyper geometric function. The effects of various parameters entering into the problem are discussed and presented in graphical form. Variable power of temperature parameter provides unique and very useful results for the effects over temperature.**
AMS Classification: 80A20, 80A32, 76DXX

Keywords: **Heat and Mass Transfer, MHD, Radiation, Chemical reaction, Stretching Sheet, Viscous dissipation, Joule heating.**

Statistical Analysis of suicides in India

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***Abstract*— According to the World Health Organization's report in 2016, India had the highest suicide rate in the South-East Asian region. In 2016 the age standardized suicide rate in India was 16.4 per 100,000 for women, 6th highest in the world and 25.8 for men ranking 22nd. Suicide was the most common cause of death in both the age groups of 15–29 years and 25–39 years. The purpose of this paper is to investigate correlation of suicide cases with numerous variables, like occupation, demographic parameters - gender (male- female) and age. we collected data from various sources to study statistically significant relationship between suicide with respect to age, gender and occupation, Chi-square ($\chi 2$) test was used (the significance level of test was 0.05). In our study, the statistical test was significantlly indicating that there is some significant relationship between age, gender and occupation.**

Keywords: **Level of significance, sex ratio, Degree of freedom, critical value, null hypothesis, non-parametric tests component.**

Totally Umbilical Slant Submanifolds of S-manifolds

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***Abstract*— The objective of the present paper is to study slant submanifolds of S-manifolds which are totally umbilical. We prove that every totally umbilical proper slant submanifold M of a S-manifold N is either totally geodesic or if M is not totally geodesic then we derive a formula for slant angle.**

***Keywords*- Slant submanifold, totally umbilical, S-manifold.**

Fuzzy Sets and Graphs

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***Abstract*— Fuzzy sets in mathematics correspond to uncertainty. We have defined fuzzy graph and its adjacency matrix and discussed about the bounds and energy of Fuzzy graphs. We have also extended the concept to social network to study strength of relationship.**

***Keywords*— Adjacency matrix, Bounds, connected graph, Energy, vertex, edges, walk, path, strength, Fuzzy sets, Fuzzy graph.**

L(R) Cyclic Semigroups Satisfying the Identity: abc = ca

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Abstract: Semigroups being one of the algebraic structures are sets with associative binary operation defined on them. The theory of semigroups satisfy additional properties like commutative, Left(Right) cyclic i.e., L(R) cyclic , Left(Right) identity, Left(Right) cancellative and many others.

In this paper we determine different structures of semigroups like normal, seminormal, quasinormal, semiregular and others by using the identity abc=ca with the concept of L(R) cyclic properties of semigroups.

Keywords: **Semigroup, normal, seminormal, regular, semiregular, quasinormal.**

Algebraic Interpolating Polynomials of Theobromine using Numerical Techniques

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***Abstract*— Here applying the known numerical techniques, algebraic interpolating polynomials are derived for Theobromine which is oxidized by potassium permanganate in alkaline medium. The kinetics was measured using uv-visible spectrophotometer. The ionic strength was maintained at 0.05 mol/dm^3. For the study, it was observed to be a first order reaction with respect to concentration of substrate and oxidant. A complex formed in the intermediate step decomposes slowly to form free radicals. The free radicals which are generated reacts further to form final product which is identified by spot test and spectral studies.**

***Keywords*—Theobromine, Spectroscopy, Oxidation, Interpolation, Polynomials**

A novel delay dependent stability analysis of neural networks using lmi approach

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Abstract- In this paper we designed and evaluated the asymptotic stability of Neural network with time Delays is investigated. Based on a novel "Lyapunov kravoski's functional method (LKF)" and "Linear matrix inequality (LMI)" a new delay dependent stability condition is derived. These stability conditions are formulated as linear matrix inequalities (LMIs) which can be easily write in the form of by various convex optimization algorithms and it can be effectively solved by the use of "MATLAB programming".

Keywords: **Stability, Delay-dependent stability, Asymptotic stability, Linear Matrix Inequality, Lyapunov- Krasovskii functional, Time-varying delay.**

Characteristic Study of Combined effects of Dufour and Coriolis Force on Free Convection in a Rectangular Cavity with Isotropic and Anisotropic Porous Media

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Abstract— This study investigates the effects of dufour and coriolis force on classic Rayleigh -Bènard problem for an laminar, viscous, unsteady incompressible fluid flow heated from below is extended to 3-Dimesional convection in a finite geometry with isotropic and anisotropic porous media rotating with constant angular velocity. For the given physical set-up, g partial differential equations of the physical configuration are transformed to a set of non-dimensional ordinary differential equations using similarity transformation. This demands to apply Fourier series method to study the characteristic of velocity, temperature and concentration for the effect of Taylors number, Rayleigh number, Hartmann's number and Prandtl number for both anisotropic and isotropic porous media. The results of steam function and isotherms on various parameters have been discussed and found to be good agreement for the physical system.)

***Keywords*— Isotropic and anisotropic porous media, Free convection, Coriolis force, MHD.**

An unsteady MHD mixed convection flow past a vertical porous plate with Soret effect and viscous dissipation in the presence of thermal radiation and chemical reaction

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Abstract: **In this article an investigation is done on hydromagnatic effects on electrically conducting fluid past an exponentially accelerated infinite vertical plate with exponentially varying temperature and concentration. The influence of thermal diffusion and radiation absorption is considered in this analysis. The problem is governed by coupled non-linear partial differential equations which are solved by finite difference method. The plate temperature is increasing linearly with time and the concentration level near the plate is increased. Among the effects of various physical parameters on the velocity, temperature, concentration, skin friction, Nusselt number and Sherwood number are broadly discussed with the help of graphs and table.**

Keywords: **Accelerated vertical plate, Soret effect, finite difference method, radiation absorption and electrically conducting fluid.**

Bounds on Rayleigh-Benard-Marangoni Convection in a Composite Layer with Conducting Plates

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Abstract: **Boundary effects on Rayleigh-Benard-Marangoni stability in a layer of composite scheme in which a liquid layer overlies a saturates porous material bounded by slabs of finite thermal conductivity and finite thickness has been investigated by means of linear stability analysis . The eigen value problem resulting from the stability analysis is solved by regular perturbation technique. It has been found the stability characteristics in terms of the critical Rayleigh number R_c critical Marangoni number M_c is profoundly influenced by the conductivity and slab thickness. Dependency of thermal conductivity ratio, and depth ratio is graphically discussed. The current findings may provide useful data in the solidification phase of alloys to understand the convective movement of the melt.**

Keywords: **Thermal conductivity: Rayleigh-Benard-Marangoni convection: Boundary Slab.**

Master of Business Administration

Social media-Its impact on Employee Engagement

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Abstract: **In Contemporary Business world of increased expectations, growing influence of social media and networking, companies find new ways to engage the workforce. Organizations finally became serious to integrate social technologies into recruitment, development and engagement practices. At present social integration is the status quo of all organizations. Employee engagement is a workplace approach designed to ensure that employees are committed to their organization's goals and values, motivated to contribute to organizational success, and are able at the same time to enhance their own sense of well-being. Using social media business creates an environment of collaboration.**

Employee engagement is important for the success of any organization when transforming into the digital age. It is important to consider the level of engagement as competitive advantage and value proposition for organization. Internal social media applications provide employees with an easy way to communicate and share personal and professional information with other co-workers.

Keywords: **Social Media, Employee Engagement**

Talent Retention of Millennials – An Overview

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Abstract: **"To win in the market place you must first win in the workplace"**

- Doug Conant, CEO of Campbell's Soup

In today's changing business environment, attracting the best of the millennial workers is critical to the future of the business. Securing top-quality talent is essential and it is a nightmare for every manager to recruit and retain the millennial. In this case, companies need to know what motivating factors the Millennials truly appreciate the way that they want to work. Hence, organizations are striving to work to understand those changes that they can make to attract and retain employees, particularly millennials. This paper highlights on diverse sources of literature from organizational and generational studies to illustrate on the practices and policies followed by the company retention of the talented millennials.

Keywords: **Millennials, Talent Management, Retention, Retention Strategies.**

Workaholism: A Review

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Abstract: **The term workaholism was coined in 1971 by minister and psychologist Wayne Oates, who described workaholism as "The compulsion or the uncontrollable need to work incessantly" (Oates, 1971). From that time onwards, research on workaholism has been implemented by disagreements surrounding how to define and measure the concept. However there still lies a little confusion between workaholics and hard workers. The paper focuses on the understanding the fine line between workaholics and Hard workers. The researcher by referring various reviews has tried to explain the personality of both of the above. The paper also talks about the pros and cons associated with workaholism. Intense work of various researchers has been referred while the formation of this paper.**
Interestingly, while work hours and workaholism often go hand in hand, it has been seen that not all people who work long hours can be called as workaholics, and not all workaholics will work for long hours.However work will be there in the mind of a workaholic wherever he /she is irrespective of with whom he / she is
Keywords: **Workaholism, productivity, Hard Worker, Human resource management**

Corporate social responsibility in times of economic slowdown: contribution and trends by corporate India

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Abstract: **Ever since the mandate that companies must adhere to some basic norms of corporate social responsibility (CSR), organizations have become conscious to the idea of giving back to society wealth both tangible and intangible. With the passage of Companies Act, 2013 there has been a force of legislation and law for every company to contribute. This should actually help increase the spending of company on development initiatives. We try to look at the secondary data to analyze how much corporate has been spending to provide impetus to the act in letter and spirit. The purpose of this paper is to analyse the spending patterns of companies within the public and private domains and also decipher the spending across sectors especially during the economic slowdown.**

Keywords: **Corporate Social Responsibility, Companies Act, 2013, Social Responsibility**

Brand equity elements and its influence on customer satisfaction in an E-banking context

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Abstract: **In an overcrowded market, retaining customer is a major factor in gaining market share as well as building a competitive advantage. Every organization is bound to focus on Brand equity which enhances customer satisfaction. Banking industry is no exception as it has high interaction with the customers, so managers must understand the factors which influence and enhance the brand equity. This research tries to find the brand equity factors and their associations especially in E-banking context. Study is conducted using a structured questionnaire; the analysis is done using structured equation modeling.**

Keywords: **Brand equity, banking sector, determinants, Structured equation Modeling**

Role of after sale service on customer satisfaction in service sector companies

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Abstract: **This study is about to find the role of after sale service on customer satisfaction in service sector companies. This study considered banking and telecommunication companies towards its after sale services. It assists to understand the factor that involved in after sale services and its impact on customer satisfaction. It is highly important to establish profitable business relationship between the firms and customers. After sale service is part of customer relationship management which helps to increase brand loyalty among the customers. In this way this study has been commenced with 100 customers are availing both banking and telecommunication services. The main objective is to know their demographic background and role of after sale service on customer satisfaction. This study used simple percentage analysis, factor analysis, and regression coefficient to analyse the data. It can be concluded that there is a relationship found between antecedents of after sale service such as service delivery, relationship, customer care, and service channel with customer satisfaction.**

Keywords**: After Sale Service, Customer Satisfaction, Service Delivery, Relationship, Customer Care, Service Channel.**

Exploring the feasibility of Peer to Peer Lending platforms as credible alternatives to the Conventional Banking System from a Customer perspective

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Abstract: **The pervasiveness of digital technology has changed the lending landscape in many ways. One of the key developments is the surge of Peer to Peer lending platforms. While there is a lot of focus on the technology based intervention to connect those with surplus of funds to those who need it, the ventures based on such platforms have not been able to take off in the real sense. However, they have been able to create a strategic inflection point in the competitive landscape.**

The study seeks to establish a background by studying the Business models followed by Peer to Peer lending platforms and the way they compete with Banks. It moves on to study the gaps in the conventional lending market that such platforms intend to close. The paper goes on to study the 'Go to Market' strategy and distribution channels deployed by these platforms. Finally, the paper will focus on comparing the Customer attitudes towards the Peer to Peer lending platforms, thereby bringing out the intricate details of issues faced from a Customer standpoint.

The paper would go on to suggest remedial action for such issues based on the lessons drawn from the conventional banking system.

Total Quality Management – An approach to Improve Higher Educational institutions

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Abstract: Higher Educational Institutions plays a pivotal role in socio economic development of any country. Paradigm shift in knowledge dispersion, dissemination leads to the need of assured quality in higher educational institutions. The paper strives to identify the approaches of TQM that can be implemented through strategic planning towards continuous improvement of higher educational institution. TQM is customer focus management approach for detecting and eliminating error emphasising upon process and product involving each element of an organisation. The paper is based on an extensive research conducted on previous work done in the aligning areas of quality improvement in educational institutions. The prime outcome of the paper is to provide guidelines related to implementation of quality improvement approaches towards higher educational institutions.

Key Words: TQM, Higher Education Institution, Quality Management

Digital India-The evolution of Digital Wallet world

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Abstract: **The Indian economy has traditionally been dominated by cash. However, the increased adoption of smart phones together with a favorable regulatory environment are pushing the economy to a less cash-dependent state and promoting the usage of digital payments. Demonetization of Rs.500 and Rs.1000 currency notes, which accounted for over 80% of the bills in circulation, and the subsequent policy measures taken by the Government of India (GOI) and the Reserve Bank of India (RBI) have provided further impetus to digital payments. Some key actions including expansion of the digital payments infrastructure at merchant establishments, expansion into rural areas, relaxation in the Prepaid Payment instruments (PPIs) norms, incentivization of digital payments at fuel pumps, toll plazas, insurance portals etc.Further launch of Bharat QR codes, among others, have helped the adoption of the technology.According to the Reserve Bank of India's data; the digital payments in the market is dominated by card transactions (debit and credit) both in terms of value and volume and thus the number of debit cards in circulation increased from 533 million to 867 million in April 2017 and the number of credit cards also increased from 21 million to 31 million in that same time period. The debit card base as of January 2019 is about 930 million, which has grown from 845 million in January 2018 and 780 million in January 2017.**

Hence, the mobile wallet industry has been on a rapid growth as India moves to cash less economy state. The value and volume of mobile wallet transactions more than doubled last year alone and as such the industry is leading the charge to making India a cashless economy. Increased adoption of smart phones and mobile data packages has been one of the largest contributions to this growth as penetration of the technology increases and mobile data costs come down; the industry is primed for further growth. This research aims to understanding of the digital wallet world and its dynamics to highlight the competitive nature of the market and shed some light on its predicted future trajectory and the challenges that the industry must overcome in order to continue its growth momentum.

Keywords: **Digital wallet, Cashless economy, Mobile wallets**

Journey of Union Budget in India

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Abstract: **Every year, country governments world over envisage on preparing and presenting to their people a proposal called budget. Through this mechanism the government shares its plan of future course of action, particularly in terms of its revenues and expenditure for a period of one year called the fiscal year. In India also, this exercise is in practice since a long time. Our finance minister has the privilege of presenting the union budget to the parliament every year in the month of February. Balanced economic growth with a focus on equality and social justice has been the cornerstone of union budget in India. Among others, the Economic growth, Reducing poverty, Creating employment opportunities, Reducing inequalities in society thereby giving way for redistribution of Income, allocation of resources, curtailing inflation, ensuring economic stability and management of public enterprises are the broad guiding principles within which the union budget is preparedAnalysis of budgets revenues and expenditure over a period of time reveals that major heads of governmental revenues comes from Corporate tax, Income tax, Customs, Union excise duties, Service tax & other taxes, Non-tax revenues, Non-debt capital receipts Borrowings & other liabilities. Similarly, major heads of governmental expenditure is on States share of taxes and duties, Finance commission and other transfers, Subsidies, Defence, Interest payments, Central sector schemes, Centrally sponsored schemes Other expenditure and Pensions.A secondary analysis of revenues and expenditure in Indian budgets does not show much change as a proportion in the governmental revenues and expenditure between 2017 and 2019.**

Keywords: **Budget, Revenues, Expenditure, Finance Minister, Taxes, Duties.**

Right to Education Act-Challenges & Recommendation

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Abstract: **The right to education is one of the human rights, The right to education is written in Article 26 of the 1948 Universal Declaration of Human Rights .Education encourages us to supports monetary development, advance harmony in the general public, bring great administration, expel defilement, annihilate neediness, evacuate sexual orientation separation and imbalance ,causes us in making self ward . Right to education is perhaps the best Act; our legislature has ever brought and changed youngsters into understudies. It gave a chance to the kids who can't stand to contemplate. Elementary education got fundamental under this Act. This paper attempts to investigate the status of mindfulness and the difficulties engaged with the usage of RTE, there isn't a lot of weaknesses yet some alteration will guarantee better eventual fate of the whole country and furthermore prescribe the legislature to mediate to reinforce the RTE demonstration.**

Keywords: **Education, Right to Education Act, no detention policy, student growth**

Contribution of Diverse website attributes, product categories and brand preferences towards satisfaction level on online shoppers

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Abstract: **Cybernetics changed the course of life across the world opening a magic box full of surprises. It pervaded all fields and changed the life style besides the psycho graphic profiles. The advent of computers and up-gradation from lap and palm technologies gave a fillip to the information explosion. As said before, its tentacles spread wide across and invaded the human activities that earlier involved sheer labour. The electronic possibilities included marketing which till then was a physical exercise. The consumers thronged the malls, shop etc. to purchase. The choices were limited to them. Though many a time they could not find or choose exactly what they wanted, they had to contend with what they got. The New Media Technology for it opened new vistas like online shopping and numerous shopping sites emerged. This development took the shoppers by surprise as purchase could be done by the click of the mouse or a button. Consumers though initially were a little suspicious about the authenticity of these online shopping sites; gradually they developed faith in them. The online sites also worked on trust and confidence building. The consumers were quick to understand the virtues of online marketing. The choices, competitive pricing, safe and quick delivery, provision to return the product in the event of a damage/not up to the level etc have supported for the growth of the industry. Online shopping grew in big leaps engulfing a higher proportion of population. Alongside, it also became a hotbed for Research. Hundreds of Researchers across the world evinced interest in this area and rolled out study after study. All these studies have propounded that basic trust and convenience factored more in making this movement popular. Perhaps, the emergence and wide diffusion of smart phones catalyzed this initiative as it was not confined by place and time. Despite a spate of studies done, yet there are many human angles that need exploration. The contention being all netizens are not doing online shopping though they can avail the same benefits. Where does the gap exist in not being able to draw them to this practice? Veritably, there are many questions that deserve to be answered. Even among those who are online shoppers, their attitudes, level of satisfaction and their motivation to make non-online shoppers to go for online shopping need a detailed study. Of the various sites that profess online shopping which ones command more patronage will be an exciting investigation. The website attributes selected for the study is price, product guarantee, return policy, security, product image or technical description. These website attributes play cascading effect on online shopper's satisfaction. Ultimately this study shown that there is certain amount of dissatisfaction, disbelief and hesitation while shopping online, this can be addressed by improving the website attributes on their market space.**

Keywords: **Website attributes, Satisfaction level, online shopping, Brand Preferences, Consumer Loyalty.**

Role of Information Technology (IT) @ System Management in District Central Co-operative Banks (DCCBs) in Tamil Nadu

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Abstract: **Information Technology (IT) and system is a basic resource in today's society. Without system or ITs people cannot live in the society. Today most of the people are sending and receiving the messages through electronic way. At present day world is passing through the era of computer or ITs and small enterprises and petty shops also apply system or IT. IT is used in DCCBs and its branches to increasing productivity, profitability, banks process time, quick services to the customers etc. The co-operative movement in India has a long history of more than one century with more than 5.49 lakhs total co-operatives, but throughout India have 372 DCCBs. In that we have 23 total numbers of DCCBs in Tamilnadu we have 749 branches of DCCBs throughout Tamilnadu. DCCBs are located at the district headquarters or some well-known town of the district.**

This study was mainly focused on new technology services related to DCCBs and its branches such as NEFT, SEFT, RTGS, Debit Card, Credit Card, touch facilities, Telebanking, Mobile Banking, personal computer banking, Automated Teller Machine, Internet Banking and Core Banking etc,. The study was empirical research based on survey method. The main purpose of the study is the measurement of the abstract variable "use of IT @ system management" and the benefits and satisfaction level with of use of IT in DCCBs and its branches through statistical treatment. We have selected DCCBs and its branches in Salem District and simple random technique was applied selecting employees for the study. Total branches of DCCBs in Salem District 72 branches including head office. We have selected 70 branches for performance of DCCBs and its branches. 5 employees from each branch and head office have been collected at random using lots from the list of employees provided by the DCCB. The DCCBs must be provides computer or IT literacy awareness, IT training programme to the employees. The study highlights the benefits and satisfaction level with use of IT and system derived by the DCCBs and its branches of employees. The study will help to improve the performance of their DCCBs and its branches through IT.

Keywords: New Banking Services, IT @ System Management in DCCBs and Problems faced by the Employees, Benefits with use of IT and System used in DCCBs and its Branches.

***Keywords:*: GSCM, Manufacturing Firms, CSR, Environmental sustainability, India**

Selected Factors Governing International Financial Integration – Special reference to Indian Economy with BRICS

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Abstract: BRICS have been growing tremendously among all other countries. 2008 financial crisis has created an impact on cross border investment with respect to focusing towards exchange rate fluctuations and investment decision making. The impact of exchange rate determination on both the interest rate and inflation rate together leading to major factor of International Financial Integration has been professionally reviewed and empirically proved as a basic factor by various authors in different areas of study. Apart from interest rate and inflation rates, crude oil prices have also equally influenced the country's economy. International Financial Integration is one of the major factors influencing the country's economic development and financial status. A selected factor such as, Purchasing power parity, Interest rate parity, crude oil prices has been considered to analyze the financial integration with a special reference to Indian Economy with BRICS. This paper argues about selected crucial factors governing International financial integration of Indian economy along with BRICS for a period of 10 years (2008 – 2017). The study is carried out by ex post – Facto type research design. The objective of the study is to identify the Inflation rate, Interest rate and crude oil price fluctuation of India along with BRICS. The study uses Trend analysis as a statistical tool and Hypothesis testing to prove the financial integration on Indian Economy with respect to selected countries. The findings will act as a catalyst towards promoting the International Financial Integration effectively.

Keywords: **BRICS, Investment Decisions, Exchange Rate Fluctuations, Purchasing power parity, Interest rate parity, Inflation rate, Crude oil.**

Glitches Outlook of Green Supply Chain Management (GSCM) and Environmental Sustainability in Indian Manufacturing Firms

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Abstract: **Greening commercial practices and initiatives have received increasing research attention. This study explores the drivers of and barriers to the implementation of GSCM in the Indian manufacturing firms. A qualitative study was conducted in the form of structured questionnaires with business level managers in different organisations in the manufacturing firms. The study identified our drivers and barriers within the Indian framework. The most significant drivers are corporate social obligation, interior hierarchical strategies, and board and top administration support. Expenses and Government assemblies was recognized as the hindrances with the best effect.**

Keywords: **GSCM, Manufacturing Firms, CSR, Environmental sustainability, India**

Master of Computer Applications

Prototype model for defect inspection of vials

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***Abstract*- This paper presents a prototype model for defect inspection of medicine vials. The proposed model for inspection of medicine vials assures that the quality of vials was met with the required standards. Because product quality is the essence of enterprises, especially pharmaceutical products which are closely concerned with people's health; hence product quality testing is a significant part of the production process. It is inevitable that various defects emerge during the pharmaceutical manufacturing process in the medicine vials which may greatly affect the product quality and reduce the productive efficiency. Even a minor defect on the surface of the vial may cause a chemical reaction and contaminate the chemical composition of filled medicine. When the defect is significant, the chemical reaction may drastically happen due to environment exposure of the fluid and may remain unchecked in many cases. This in turn becomes a life threatening to already suffering patient to whom the medicine is to be injected. Pharmaceutical drug vials need to be inspected in order to ensure that the vial meets predetermined specifications and does not harm the patient.**

***Keywords*- Vials, automatic inspection, image processing, defect, calibration.**

Food culture analysis in Bengaluru

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***Abstract*— Bangalore is a city well known for its culture and food. There are nearly ten thousand restaurants across the entire city of Bangalore. These restaurants sometimes charge exorbitantly despite poor reviews. As per the data captured from Zomato, a food ordering app, we studied the factors like location, ratings, menu diversity, etc, majorly affecting a restaurant. The price to be charged was then predicted to realize overpricing or underpricing by comparing with the actual price. The prediction problem is very important to assess the prices and preferences among people.**

***Keywords*— Restaurant, prediction, restaurants, XGBoost.**

FHIR based system for managing physiological parameters of brain dead patients

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***Abstract*—Considering scarcity of human organ for transplantation, it is important to make sure that, every available organ is transplanted without wasting it. It gives better life for someone who is waiting for it. Organ from brain-dead patient is a major source of organs. So, it is important to monitor and maintain the health of the organ of a brain-dead patient while his heart is still beating. A centralized system to monitor and alert about the health of the organ is best suited solution to make sure organ is well kept till it is transplanted. This paper gives an approach based on Health Level 7,Fast Healthcare Interoperability Resources (HL7 FHIR) for such a system which is centralized and uses new age technologies to make sure physiological parameters of organ from brain dead patient are monitored automatically and alerts are provided to the care givers in case there is any deviation of the monitored parameters.**

***Key words* — FHIR, HL7, IOT, AI**

Feature Selection for Gene Expression Data Analysis – A Review

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***Abstract*—Gene selection in microarray data analysis is defined as the process of identifying a small number of informative and relevant genes that can find any sample from the dataset into the correct class. The feature selection process is categorized into three types: wrapper, embedded and filter techniques. Filter methods use statistical ranking for feature selection by ordering the features individually. They select the relevant features independent of any supervised learning algorithm. The wrapper techniques use a number of search methods to evaluate the possible subset of important features. From that it selects the subset of features that gives the best classification accuracy. In embedded methods, feature selection methods are incorporated in the training process. This paper reviews several feature selection methods used to find significant features from gene expression data for use in classification.**

***Keywords*—Feature Selection Methods, Micro array gene expression data, gene selection, Classification.**

A meta-analysis on the security control measures in cloud migration

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***Abstract*— The data need to be shared on cloud platform with high security and maintained in the cloud in a secured manner for any customer storing the information. There are various cloud providers who provides separate datacenter and are present in different location. This enables to act as a backup for the customer and it should be secured. This paper discusses about the cloud computing security measures.**

***Keywords*— Security; public cloud; Insurance; network; users, encryption; decryption.**

A roadmap to application integration using IoT Cloud platform

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***Abstract*— Internet of Things (IoT) provides an opportunity to connect all dumb and net-aware physical devices. The cloud helps to store, compute and to do analytics services on need basis. Providing storage facility for managing IoT data is more complex. The Cloud IoT platform solves this kind of scalability issues to great extent. The IoT is all about the sensors, the inter-process-correlation of sensors makes a specific application and it also depends on the divisional components and its pattern of interaction. The cloud IoT platform provides the range of solution to help the easy storage and efficient process of the IoT data. The competent platforms available are Microsoft Azure, Amazon Web Services (AWS), Google Cloud Platform, and IBM Watson. In this paper, we like to annotate the fundamental components in all these architectures and creating procedural checklist to ease the understanding under one review through broad literature analysis. Secondarily to substantiate these components its detailed features are analyzed for its impact. This paper also suggests the guideline mechanism for deriving solutions across different market verticals application integration using IoT Cloud Platforms.**

***Keywords:* IoT Cloud Platform, Google Cloud, Azure, IBM Watson, AWS, Oracle Cloud, BigTable, BigData, NoSQL, Ontology, OLAP, Zookeeper, Procedure checklist etc.**

A novel machine learning technique towards predicting the sale of washing machines in a small organization

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***Abstract*— Machine learning has today become an important technical paradigm which is been used across all engineering disciplines to predict or convey some important information to the stakeholders involved in it. Several datasets gathered from several applications can be analyzed to arrive at conclusions. Earlier, machine learning was used only for large datasets due to the sample size but nowadays, machine learning algorithms are used even for small datasets. In this research work, we have taken a small dataset to analyze the sale of washing machines in a small organization using machine learning techniques.**

***Keywords*—Machine learning, Prediction, ARIMA**

Security Threats and Mitigation Approaches in IoT based Applications

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***Abstract*—** IoT **as a budding technology has modernized the worldwide network which connects human being, smart devices as well as objects, data and information. There is a huge opportunity for IoT to make the world more available, integral, accessible, confidential, interoperable and scalable. IoT can be exercised. In domains such as, transportation, power grids, entertainment, smart buildings and health-care. IoT likely provides a path for technology innovations in the future perspective. Its uses are considered as enormous. In daily routine, the devices which are used by human can be connected via internet. This has been made possible by IoT. There remain security concerns due to the internet based connection of numerous devices via internet and also massive data related to it. The need of the hour is to focus on the significant factors of the paradigm which are identified as defense mechanism and integration of heterogeneous devices and information communication technologies The security threats that the users face in the environment of IoT and Counter measures to mitigate them, are discussed in this paper.**

***Keywords*—Internet of Things, Protocols, Architecture, Security threats, Health care, Home appliances, Smart phones.**

Computing waste management using cloud platform and sensors

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***Abstract*— A happy and hazard free development of our city promotes growth in the field of information and Communication Technology. The issue of waste and hazardous garbage in our city has caused acute problem of managing it .We see that we have number of garbage trucks roaming around in our city, collecting waste which has turned out to be inefficient as we see that part of them may have turned away from their given responsibilities and tasks, due to which we face difficulty in the procedure of conventional waste collection approach. The purpose of this paper is to introduce an efficient and technological waste management system that will enable us to handle the process dynamically and provide the best way in utilizing manpower efficiently. In our model approach, the weighted and volume waste which are thrown in the waste bins are collected by economical sensors and then sent to cloud server using a micro-controller and GPRS. This data is used to find the waste collected and report to the system about the area and location. This phenomenon could help the team to collect the lump sum waste by locating the nearest vehicles and scheduling a task to clear up the waste bins and by sharing the driver the shortest route possible .This paper proposes a model to keep our city free from garbage therefore ensuring good health for all.**

***Keywords*—conventional waste collection approach, micro-controller, economical sensors, cloud platform, Internet of Things**

Tuning SQL queries for better performance

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***Abstract*—Structured Query Language(SQL) Statements are used to retrieve data from the database. We can get same results by writing SQL queries in a different way. But use of the most effective question is very important once performance is taken into account. So we tend to need SQL queries standardization supported the business and user needs. This paper is focusing on, simple query tuning tips & tricks which can be applied to gain better performance.**

***Keywords*-Structured Query Language, tuning, performance.**

Review on Architecture of Computer Networks

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***Abstract*—The Open Systems Interconnection model (OSI model) is a product of International Organization for Standardization. A OSI reference model is a conceptual blueprint of how communication should take place. It is a way of sub-dividing a communications system into smaller parts called layers. A layer is a collection of conceptually similar functions that provide services to the layer above it and receives services from the layer below it. When a communication system is designed in this manner, it is known as layered architecture. It's a set of guidelines that application developers used to create and implement application that run on a network. It also provides a framework for creating and implementing networking standards, devices, and internetworking schemes. This paper explains the OSI Reference Model, which comprises of seven different layers. Each layer is having its own responsibilities.**

***Keywords* —OSI model, seven layers, services, functionality, protocols**

Machine Learning approaches for Crop yield prediction-review

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***Abstract*—This paper is all about the research progress in the last 15 years and so on techniques based on machine learning for prediction of accurate crop yield. In order to estimate crop yield accurately, decision support tools can be built using remote sensing systems there by reducing operating costs also. It also aims to reducing environmental impact. In such systems it is feasible to use machine learning (ML) methods as it requires processing of large amount of data gathered by various sources and platforms by sensing it remotely as well as handling non-linear tasks.**

In order to obtain cost-effective and modular solutions for better yield estimation of crops, it is desirable to use remote sensing technologies along with machine learning techniques as the field has a lot of advanced tools in it.

***Keywords*- Machine learning Techniques, Vegetation indices, precision agriculture, Decision making, etc..**

Applications of Machine learning in JavaScript

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***Abstract*—JavaScript is a programming language that is used in the browser for the dynamic contents and interactions. There are many libraries and frameworks being developed in JavaScript which helps us to do many things which a general programming language like java and C++ are capable of. Platforms like Amazon, Microsoft, Google, are using JavaScript for the machine learning applications like predicting the advertisements, bought together items in amazon, etc. This paper gives the introduction about the JavaScript and Machine Learning. Also it discusses few machine learning applications with examples in JavaScript.**

***Keywords*—JavaScript, Tensor Flow, Machine Learning, Image Processing, Client Side, Server Side, Node JS.**

Mechanical Engineering

Failure analysis of connecting rods and Engine blocks of small generators

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Abstract- Three small generators were selected for conducting the failure analyses. The generators tagged FG1(2.7kVA, SG2700), FG2(2.7kVA, TG2700, TIGER) and FG3(2.5kVA ELEPAQ,EC2500CXS) were first dismantled and the components inspected for physical examination. In all the three generators the Connecting Rods were found to have broken into pieces. Two of the engine blocks were pierced by the broken connecting rods. Chemical analysis tests were made on the Connecting Rods and Engine Blocks using XRFNiton analyzer. The tests revealed that all the components were made from Aluminum alloys. The Copper contents for the Connecting Rods were found to be from 1.77% to 2.37% which were below 4.0% minimum requirement for Connecting Rods and other components of high performance engines based on Aluminum Association (AA) and British Standard (BS) specifications. The Connecting Rods also contained up to 2.01% Iron but none of the Connecting Rods had Magnesium which is an impor tant element for increasing strength of Aluminum alloys. The high content of iron coupled with lack of Magnesium resulted in low strength and increased hardness, making the Connecting Rods brittle and highly susceptible to fatigue failure. Hardness tests conducted on the Connecting Rods using Rockwell Hardness Testing machine gave 160,151 and 175 BHN which were much higher than maximum of 105 BHN for AA and BS specifications. Similarly, the hardness values of the Engine Blocks were found to be 128,160 and 140BHN respectively. The corresponding tensile strengths of the Engine Blocks were 167,149 and 152MPa which were lower than the minimum AA and BS specification of 170MPa.The results concluded that the Connecting Rods of the three generators failed due to excessive brittleness.

Keywords: Generator, Chemical analysis, Copper, Magnesium, Manganese, Hardness,Connecting rod, Engine block.

Mold Fill Analysis of Injection Molding Tool

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Abstract-Injection mold Pro-E part advisor which is 3D solids based plastics flow simulation tool used to predict and eliminate potential manufacturing problems during the design stage itself. Mold flow addresses the broadest range of manufacturing issues and design geometry types associated with injection molding process.

Keywords: Confidence of Fill, Pressure Drop, Fill Time, Fill Time Injection Pressure, Flow Front Temperature, Weld Line, Air Traps

Influence of Two Stage Stir Casting and 6 wt.% Boron Carbide Particulates Addition on Mechanical Characterization and Wear Behavior of Al2618 Alloy Composites

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Abstract- In the current research the production of composites, characterization, mechanical and wear behavior of 6 wt. % of micro composites have been investigated by reinforcing the 63 micron B4C ceramic particulates into Al2618 alloy. The composites were prepared by using two stage stir casting technique containing Al2618 alloy as matrix phase and B4C particulates as reinforcement. After the composite preparation, the prepared composite material was examined by using various techniques like SEM, EDS and XRD for characterizing the chemical elements and microstructures of reinforced and unreinforced material. Later, the mechanical properties and wear behavior of as cast Al2618 alloy and Al2024 -6 wt. % 63 μm B4C composites were studied. Different mechanical properties like hardness, percentage elongation, ultimate and yield strength were evaluated as per the ASTM standards. The dry sliding wear tests were conducted by using pin on disc equipment. The experiments were conducted for the sliding distance of 3000 m by varying the sliding speed and load. From the investigation, it was found that due to addition of nano B4C ceramic particles in the Al2618 alloy matrix the hardness, ultimate tensile strength and yield strength of prepared composites by stir casting were increased and the percentage elongation was decreased of the same prepared composite. Further, there was an improvement in the wear resistance with respect to the speed, load, and sliding distance for the prepared composite materials. However, with the addition of B4C ceramic particulates in the base Al2618 matrix the wear loss was decreased. The scanning electron microscope was used to study and analyze the fractography and different wear mechanisms for various test conditions of different compositions, tensile fractured surfaces and the worned surfaces.

Keywords: Al2618 Alloy, 63 μm B4C, Stir casting, Mechanical Behavior, Fractography, Wear, Worn Morphology

Numerical analysis of a semi-elliptical crack in a Compressor blade of dovetail joint

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Abstract- Induced fatigue has led to a large number of deviations of service failures in a wide range of applications, where the deterioration of properties occurs due to the slipping between surfaces at a small displacement. In this article, a numerical simulation of a semi-elliptical crack in the dovetail joint of the compressor was performed to understand the destruction of the blade due to the stress contour in the contact area. A three-dimensional crack is modelled using the ANSYS Finite Element Analysis program, and the blade profile is modelled by CATIA V5R20 software. The study considers a model of an open semi-elliptical crack, and the parameters of the movement of the crack tip are estimated using three-dimensional singular elements of the crack tip in ANSYS. Initially, a three-dimensional finite element model of a compressor blade with a dovetail contact area was simulated in CATIA V5 and analysed in the ANSYS working environment to determine the maximum principal stresses in the crack-free region. After the crack front is precisely defined and confirmed, fracture modeling is performed and the influence of the crack size with one edge, as well as the rotation speed on the fracture parameters (stress intensity factors) is evaluated.

Keywords: Dovetail joint, , Elliptical crack, Stress Intensity factor.

Study on the design of Automatic Solar radiation tracking panel using Digital clock and Arduino Board

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Abstract- The generation of power from the reduction of fossil fuels is the biggest challenge for the next half century. The idea of converting solar energy into electrical energy using photovoltaic panels holds its place in the front row compared to other renewable sources. But the continuous change in the relative angle of the sun with reference to the earth reduces the watts delivered by solar panel. In this context solar tracking system is the best alternative to increase the efficiency of the photovoltaic panel. Solar trackers move the payload towards the sun throughout the day. In this paper we have taken a very basic idea that how the panel can convert maximum solar energy to electric energy, the idea is taken from the direct connection the Sun and time, which is "watch". The digital reading of the watch with be compared with the inclination of the sun which will be coded in the arduino board and based on the coding the panel will face the sun.

Keywords*:* Solar panel, Ball Bearing, Arduino Board, Electric Motor, Digital Watch, Spur gears.

Preparation and characterization of Heat Treated Nickel Silver for marine applications

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Abstract- Copper is one of the first metal ever extracted and used by humans. As a result, copper was important to early humans and continues to be a material of choice for a variety of domestic, industrial, and high technology applications even today. Copper–nickel-Zinc (Nickel silver) is one of the alloys of copper. Nickel silvers are widely used materials for utility in marine and chemical environments for ship and boat hulls, desalination plants, Heat exchangers, seawater and hydraulic pipelines, oil rigs and platforms, fish farming cages, seawater consumption displays etc. because of their superior corrosion resistance, higher electric conductivity, heat conductivity and mechanical properties. A variety of nickel silvers of different compositions have found in commercial use, with most ranging from 20% to 30% of copper and 5% to 10% of zinc by weight, the remaining mass being copper. However, the varying percentages of Copper, Nickel, Zinc and other alloying elements may lead to a large difference in microstructure and performance of Nickel silver. Heat treatment of these alloys is always a challenge to make the material to suit for a particular application. Moreover, there is always a scope for study of processes which enhances the properties of material. In the present investigation specimens of nickel silver were prepared with 30%Ni & 5% Zn and 25Ni & 5% Zn. The prepared specimens were subjected to solutionizing followed by aging heat treatment at 350°C & 450°C for 1 hr. and hardening followed by tempering heat treatment at 500°C & 600°C for 1hr. respectively for first and second compositions. Different experiments were conducted and concluded with the findings of study and provided with suitable recommendations for future studies.

Keywords: Nickel silver, Corrosion, Heat Treatment, Microstructure

Multi Linear Regression Model Building for Predicting Roughness of Prototype built using Rapid Prototyping

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Abstract- Linear Regression is one the most common algorithm for prediction of continuous response variables. But the accuracy with the prediction is less because of the multi collinearity effects involved in the model. In the case study presented a dataset on predicting the roughness of a rapid prototype is done using multi linear regression model building. The accuracy of the prediction is increased by removing the effects of multi collinearity from the model.

Keywords: Multi Linear Regression, Multi- Collinearity

Study of hardness and wear properties of graphene based polyester resin composites

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Abstract- Graphene is a material comprising a single layer of carbon atoms and having remarkable set of properties that offer potential benefits when added to polymer materials. The overall aim of the investigation to study the behavior of graphene reinforcement which can be used in various composite applications, to improve the properties of neat polyester based matrix materials. The key challenges with the good dispersion of graphene material, and the development of new fabrication processes to synthesis polymer nanocomposites. Graphene based polymer nanocomposites are promising advanced material used for very high performance materials that offer improved mechanical properties, electrical properties and other properties. Herein, an approach is presented to improve the mechanical properties of neat polyester resin by using graphene filler material. Polymer nanocomposites are constructed by uniformly dispersing a nanomaterial into the polymer matrix. Mechanical properties such as hardness and wear properties of graphene reinforced polyester composite were studied. The results showed that the nanofiller reinforced polyester composite tend to exhibit enhancement in mechanical properties as compared to the neat polyester.

Keywords: Nanofiller, Graphene, Polyester, Composites.

Analysis on typical T- structural frame subjected to varied loading angle using MATLAB

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Abstract- A structure refers to a body or system of connected parts used to support a load. Important examples related to Civil Engineering include buildings, bridges, and towers; and in other branches of engineering, ship and aircraft frames, tanks, pressure vessels, mechanical systems, and electrical supporting structures are important. To design a structure, an engineer must account for its safety, aesthetics, and serviceability, while considering economic and environmental constraints. Once the dimensional requirement for a structure have been defined, it becomes necessary to determine the loads the structure must support. Structural design therefore begins with specifying loads that act on the structure. This current paper work is the analysis on typical T- structural frame subjected to a load of 5kN at one end and other two ends are fixed. The load applied is at any angle between -90° to +90°. Analysis is been carried out using MATLAB and the obtained results shows the variation of force with respect to applied load angle, which helps the designer to design the frame to support the maximum force transmitted to them.

Keywords: Structure, Structural frame, MATLAB

Fabrication and study of the effect of flyash on aluminium 2024 composite

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Abstract- Al-alloys are widely used application due to their low density, good mechanical properties, better corrosion resistance, wear resistance as compared to conventional metals and alloys. Fly ash is chosen because of it is least expensive and low density reinforcement available in large quantities as solid waste by-product during manufacturing of bricks. Due to low weight it can be utilized in automobile application and thus improving its life. The present work has been done on Al alloy 2024 Fly ash composite. These were fabricated using Al-2024 alloy as metal matrix and fly ash as reinforcing material. Various weight based composites like (Al 100% - FA 0%), (Al 95% - FA 5%), (Al 90% - FA 10%), (Al 85% - FA 15%) were fabricated by Stir casting technique. The obtained composites were sized into small specimens and tests like hardness test, wear test, tensile test, microstructure test were carried out.

Keywords: Composite, Fly ash, Al - 2024, Wear, Hardness, Tensile, Microstructure

Treatment of water soluble cutting fluids using Membrane Filtration

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***Abstract*—** Metal cutting generates heat due to friction and energy lost deforming the material. The surrounding air has low thermal conductivity (conducts heat poorly) meaning it is a poor coolant. Ambient air cooling is sometimes adequate for light cuts and low duty cycles typical of maintenance, repair and operations. Production work requires heavy cutting over long time periods and typically produces more heat than air cooling can remove. Rather than pausing production while the tool cools, using liquid coolant removes significantly more heat more rapidly, and can also speed cutting and reduce friction and tool wear. Hence water soluble cutting fluid is used in this process to reduce friction, heat and to cool tool- work interface. The main problem with water-soluble coolants is that they become contaminated with use and have to be replaced with new ones, thus yielding waste coolant. However, cutting fluids and metal chips result in environmental pollution and are harmful to the human body. So in order control environmental and harmful effect of cutting fluids on the humans, a membrane filtration system integrated with antibacterial layers is preset to the machine to treat the cutting fluids for removal of metal chips, swarf, lubricants and biological contaminants as it passes through the membranes. The cutting fluid is tested to determine parameters such as pH, concentration of fluid, temperature, corrosion and bacterial contamination of water soluble cutting fluid with and without the filtration system to check the effectiveness with respect to cooling and lubricating properties, its degradation effects on tool and work piece thereby reducing the environmental pollution and harmful effects on workers during use and disposal.

Studies and characterization of electroless Ni-Mo-P alloy coating

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Abstract- An endeavor has been made to deposit ternary Ni–Mo–P coatings auto catalytically utilizing nickel sulphate and sodium molybdate as nickel and molybdenum sources, separately, and sodium hypophosphite as a lessening operator. These coatings were deposited utilizing a soluble citrate based shower and were contrasted and plain Ni–P coatings. The two coatings were described for their structure, morphology and hardness. Results obtained from EDX analysis showed that binary Ni–P alloy contains 12.74 wt.% of phosphorus. Incorporation of molybdate had reduced the phosphorus content to about 1.09 wt.% in ternary Ni–Mo–P deposits. Apart from phosphorus and nickel contents, a trace of sulphur were noticed in ternary Ni–Mo–P deposit. Structural examination carried out by XRD studies revealed the presence of a broad peak with a calculated grain size of 2.88 nm for binary Ni-P alloy, where as a sharp peak with a grain size of 27.4 nm is obtained for ternary Ni–Mo–P alloy. Microhardness measurements were made for as-deposited and heat treated coatings. Hardness is increase till 400□ C and then decreases as like ternary Ni-Mo-P coatings.

A study of mechanical properties of friction stir welded dissimilar materials with different preheating conditions

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Abstract- The aim of this work is to optimization of mechanical properties of friction stir welded dissimilar materials with different preheating temperature. A series of joints were made on 04 mm thick Aluminum7xxx and Mild-Steel plates. The temperatures used were 100ºC, 150 ºC and 200 ºC. The welding operation performed with different rotational speeds and traverse speed (1000, 1400 and 2000 rmp and 16, 20 and 25 mm/min) the mechanical properties were measured with respect to tensile strength, impact strength and hardness. The physical properties were examined based on the microstructure using optical microscope. The results show that weld with 150 ºC, 16 mm/min and 1400 rpm parameter exhibits the better joint strength of 130.36 MPa.

Keywords: Preheating Temperature, Friction Stir Welding, Mechanical Properties and Microstructure

Design and Development of Universal Seeding, Weeding and Spraying Equipment

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Abstract- This work is based on weed control which is the most important problem faced by the farmers in developing countries. Considerable efforts have been invested in developing alternatives to traditional smallholder weeding technologies and replace the conventional methods of weeding in order to reduce work load, labor and human effort, save time, improve yield of crop, enhance proper weed control and finally reduce the cost involved in farming. Designed Prototype of Farm equipment which would be an easiest way to perform weeding, spraying chemical and seeding, altogether consisting of three functions in one design and making the design a universal fit has been Analyzed, Fabricated, Tested and Evaluated based on the considered design criteria's. The weeder is driven by petrol engine to move in forward direction and the blade is attached at rear end is placed at the roots of weeds, once the engine get started then the blade start cutting the weeds and using cam system the seeding operation can be done, chemical spraying can be done .It is faster than the traditional method of removing weed, seeding and spraying.

Keywords: weeding, petrol engine, cam system

Influence of process variables and Finite Element Analysis on Friction stir welded dissimilar alloys

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Abstract- Welding Technology is a vital manufacturing process used to join metal alloys. Friction stir welding (FSW) is a solid-state welding technique in which metal is heated to plasticized state due to the friction and stirring action of the non-consumable tool over the surface of the base metals, resulting in sound weld. In the present work, influence of various process parameters on dissimilar welding of AA 6061 T6 and AA7075 T651aluminium alloys is investigated in order to improve the mechanical strength properties. Conical and cylindrical tool pin profiles are chosen to perform butt welding. The process parameters considered for the study to determine the ultimate tensile strength (UTS) and elongation of the six welded joints are tool geometry, rotational spindle speed of about 600,800 and 1000 RPM and feed rate of about 30,45,60 mm/min respectively. Finite Element Analysis, parametric model with base weld plates and the tool is performed using ABAQUS. It is observed that irrespective of the process parameters cylindrical tool rendered the better tensile and elongation property in contrast to the conical tool.

Keywords: AA6061 T6, AA7075 T651, FSW, UTS, Elongation, ABAQUS.

Study & Experimentation about machinability of Al-7075 composite

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Abstract- Metal matrix composites have received considerable attention due to their excellent engineering properties. These materials are difficult to machine because of their hardness and abrasive nature of reinforcement particles. This paper presents experimental work from a series of turning tests in which carbide tool and polycrystalline diamond (PCD) tools were used to machine E-glass and tungsten carbide reinforced Al-7075 hybrid composite. The influence of machine parameters e.g., cutting speed, feed, and depth of cut on the surface roughness, cutting forces, tool wear and tool life were investigated. In the present study, an attempt has been made to investigate the influence of cutting speed, depth of cut, and feed rate on surface roughness during machining of 7075 Al alloy and 4% tungsten carbide and E-glass reinforced particulate metal-matrix composites. The experiments were conducted on a CNC Turning Machine using tungsten carbide and polycrystalline diamond (PCD) inserts.

Keywords: 7075Al alloy composites; Surface roughness; Tungsten carbide inserts and PCD inserts.

Study of Mechanical Properties of Friction Stir Welded Butt Joints of Aluminium and Copper

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Abstract- The aim of the work is to study the influence of mechanical properties of friction stir welded butt joint of 6082 aluminium alloy and pure copper plates of 4mm thickness. With this aim, welds were produced using HcHcr tool, with a cylindrical tapered pin having 5 mm major diameter and 3 mm minor diameter and 22 mm shoulder diameter respectively. The main FSW parameters considered in this study are, tool rotational speed and tool travel speed. Copper plates were kept in advancing side of joint. Vicker's micro hardness test (as per ASTM) were done in transverse direction of weld to check the hardness distribution in weld nugget and transverse tensile test (as per ASTM) were performed to evaluate the tensile strength of weld joints. Experimental investigation reveals that, at the tool rotational speed of 1000 rpm and tool travel speed of 25 mm/min the better Tensile Strength of 161Mpa, Bending stress of 26Mpa and Hardness of 100 HV were obtained at the nugget zone.

Keywords: Friction Stir Welding, Aluminium alloy, Pure Copper, Vicker's Hardness, Tensile test.

Characterization of Aluminum-E-Glass Fibre - Epoxy Reinforced Fibre Metal Laminates Composites

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Abstract- Fiber Metal Laminates (FMLs) are hybrid materials consisting of layers of thin metal sheets and fibres in sandwich pattern. These are best known and extensively used in the Aerospace applications. Aiming this objective, new lightweight FML has been developed by hand layup technique using thin aluminium and E-glass fibres. Tensile tests had been carried out in accordance to ASTM standards to witness the quality of the specimens. From the experimental work, load v/s. displacement and assessing the strength it is observed that the mechanical properties of woven roving mat with aluminum type FML composite proved to be possessing 11.5% higher than the rest of the specimens characterized.

Keywords*:* Chopped Strand Mat (CSM), Fiber Metal Laminates (FML), Glass Fiber reinforced aluminum

Progressive Damage Simulation of a Composite Double Cantilever Beam using Virtual Crack Closure Technique And Cohesive Zone Modeling

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Abstract: Delamination in laminated composite structures usually initiate from discontinuities such as matrix cracks and free edges or from embedded defects due to the manufacturing processes. Therefore, it is important to analyze the progressive growth of delamination in order to predict the performance of a composite structure and to develop reliable and safe designs. Virtual Crack closure Technique (VCCT) is a fracture mechanics approach which is widely used to compute energy release rates. Cohesive Zone Method (CZM) is a progressive event governed by progressive stiffness reduction of the interface between two separating faces which uses bilinear material behavior for interface delamination and these two methods are used to analyze the delamination of multidirectional composite Double Cantilever Beam (DCB) specimen in a Commercial Finite element Package called ABAQUS. The proposed methods are validated with the benchmark results and load-displacement curves are plotted using both the methods. The strain energy release rates are found out using VCCT and a parametric study is performed by varying the crack lengths.

Keywords: Delamination, Virtual Crack closure Technique (VCCT), Cohesive Zone Method (CZM), stiffness, Double Cantilever Beam (DCB)

Work Hardening Characteristics of Non-Heat Treatable Aluminium Alloys

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Abstract- Aluminium is the most widely used material for applications such as cooking utensils, food processing equipment, storage tanks, aircraft components, pressure vessels, ladders, railings, frames, tool boxes, truck bumpers components in truck and automobile industries, whic h requires strength and good formability. In this study, it is aimed to present the experimental results of studies conducted on strain hardenable characteristics of non-heat treatable casted and forged aluminium alloys using tensile test..Pure aluminium, Aluminium alloy 5052 and Aluminium alloy 3003 are the chosen materials for the work. Strain hardening conditions selected are H12 and H14 on specimens as per ASTM standards. This paper involves graphs of true stress v/s strain as per the results obtained from tensile test on different heat treatment conditions.

Keywords: Strength, Formability, Characteristics, Strain Hardening, Aluminium alloy, H12-Half hardened, H14- Quarter hardened.

Design of Injection Moulding Tool for the Component

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Abstract- This work deals with the Design and Manufacture of Injection Moulding Tool for the Component Press Button in HIPS material by the Screw type Injection Moulding process. The design and fabrication of a mould for the given component is most challenging task in plastic processing in injection molding. It determines the quality, performance and the profitability of a plastic component. The 3D model of the component is created using solid works software. The various views of different parts involved in mold are taken using this software. These views are converted to 2D drawings for easy dimensioning. Design Protocol is on conventional method, based on tried and tested norms Choice of the most appropriate option for the selection of parting line, feeding system, cooling system, venting, etc. are based on the manufacturing point of view. The above parameters help in development of various parts in mold that are functional, reliable, manufacturability and aesthetically pleasing. Manufacturing involves design of electrodes, process planning, machining and assembly. Complete process planning for each part of the tool is not carried for the sake of brevity. After fabrication of the tool, samples of the component were produced. These samples were inspected to find defects, if any.

Performance Analysis of Bank Conference Room AC Design: A Case Study

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Abstract- CFD is widely used across the construction industry for analysis and design optimization of a HVAC system. Using Computational fluid dynamics, fluid flows can be simulated and HVAC performance can be analyzed without actually installing the HVAC system or building its prototype. Hence, crucial problems can be identified and solutions can be devised to enhance the HVAC performance within a building. In order to analyze and design an HVAC system, it is important to avail detailed information about the flow within an occupied zone. This information can also be derived via advanced CFD simulations and analysis of the occupied zone. To the best of the author's knowledge these novel approaches for application of performance analysis (using DSS Flow Simulation / Flow EFD) of HVAC in conference room is absent in Thermal or Fluid Mechanics literature due to its assessment complexity.

Keywords: HVAC, Fan, Turbomachine, Rotor Dynamics, CFD

Influence of graphene in natural rubber latex

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Abstract- Rubbers are by and large vital materials, can be custom-made by adding fillers to meet the requests flexible industry applications generally Vehicle (elastic) tires are comprised of carbon black, it will experience more pressure, when its surface interacts with the street for a more drawn out timeframe, it is watched that there will be more wear, so to defeat this issue tires materials are joined or blended with GRAPHENE alongside the CARBON BLACK, this will likewise enhances the wear opposition and furthermore it diminishes the heaviness of the tire by a specific sum, in this manner expanding the fuel effectiveness. Graphene is artificially inactive this keeps it from having connection with elastic when they were combined. Other than that, graphene applications likewise being restricted because of its low solvency. Additionally, since graphene is nano filler, the sum included into the elastic will be less. Keeping in mind the end goal to accomplish the improvement of the properties of elastic, the nano filler should be all around scattered and homogenized with the elastic. In this way, so as to build the interfacial collaborations, subordinates of graphene, graphene oxide (GO) and diminished/ reduced graphene oxide (rGO) were utilized. As both of the GO and rGO bears oxygen- containing practical gatherings, which empower them to scatter well in acetone and furthermore in elastic. Subsequently, the properties of graphene are being held. Presently a days, CB faces a few difficulties since it is gotten from raw petroleum, it produces over the top squanders and the mechanical properties like wear obstruction. Keeping in mind the end goal to enhance the wear opposition, in exhibit work we are utilizing graphene in fortification for regular elastic latex. The utilization of Graphene alongside carbon dark (CB) in Natural elastic latex it indicates changes in mechanical properties like wear opposition.

Keywords: Graphene, Carbon black, Natural rubber latex, Wear test, Automobile tire.

Analysis on safety bumper placed at the end of race-track using MATLAB

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Abstract: A bumper (American English) or shield (British English) is a structure attached to or integrated with the front and rear ends of a motor vehicle, to absorb impact in a minor collision, ideally minimizing repair costs. In racing the bumpers are also used at the end of the race track to stop the out of control vehicles at that instant of time and position with minimum injury. The present work is the analysis on typical safety bumper placed at the end of race-track to stop out of control vehicles. The vehicle of mass 1800kg hits the bumper at a velocity of 90 km/h. Analysis is carried out using MATLAB software. The result shows the curve variation between velocity of car and displacement of bumper. It was found that the velocity of car decreases with increase in displacement of bumper. This analysis helps in preliminary stages of designing the bumpers.

Keywords: bumper, race-track, MATLAB, displacement, velocity

Effect of axial spacing on rotor-stator interface on aero performance in axial flow transonic compressors for military engines

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Abstract: Modern day technology to be more efficient and reliable. One of such technology is gas turbine engines. The gas turbine engines consist of various components like intake, compressor, combustion, turbine and exit nozzle. Each component is designed to meet the design specifications. Apart from various components compressor is main component which will directly influence the efficiency of the gas turbine engine. One of the source of performance deterioration or enhancement in the axial flow compressor stage is axial spacing between the rotor and stator. This axial gap should be optimized so that the losses due to rotor stator interaction can be minimised. Minimum pressure loss will maximise stage pressure ratio and efficiency. A steady state three dimensional viscous analysis has been carried out using ANSYS CFX to understand the influence of axial spacing of the rotor and stator on the aerodynamic performance of transonic single stage wide chord blade axial flow compressor stage. The analysis was carried out for different axial spacing configuration varying from 0% to 10% of rotor tip axial chord. The characteristics plots like pressure ratio versus corrected mass flow rate and efficiency versus corrected mass flow rate were plotted for various axial spacing at design speed.

Keywords*:* Axial flow compressor, axial spacing, pressure ratio, surge margin, efficiency.

Optimization of a Aircraft's fuselage using topology

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Abstract: The main objective of this paper is to provide an optimum preliminary basic design for the central part of the fuselage structure using the topology optimization method and to check whether the design is safe or not. Several loading cases like the aerodynamic loads, structural loads etc were considered for the analysis. The central part of the fuselage was modeled using CATIA and it was analyzed using ANSYS software for different parameters like material properties, loads acting on the fuselage etc.. and even the topological parameters were applied. After the 1st analysis or the 1st iteration the model was imported back to CATIA and the regions of low stresses were removed and again analyzed and after subsequent analysis or iterations a fuselage structure with optimum material, lower stress acting regions, optimized structural volume and few other desirable objectives are obtained. Later the analysis is done to get an optimized shape and size of the fuselage.

Keywords: Topology Optimization, Optimized Material, Subsequent Analysis.

Welding Inspection Robot

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Abstract: A Robot field is developed vastly over the past decade. Motivation of a climbing robot with the ability to maneuver on vertical surfaces is to increase the operation efficiency in dangerous environments or places which are dangerous for human beings where safety measurements are too important. The invention of vertical surface climbing robots are one of the evolving fields in the area of robotics and many of these wall climbing robots are used in applications such as inspection ,welding , etc., With the advancement of technology, many of climbing robots have been propose for various applications like cleaning in hazardous environments such as nuclear reactors or spray painting on roofs, where human safety is into very risk. All these robots are developed by using different types of techniques like: vacuum suction, magnetic or electromagnetic force, or gripping with claws. Every technique has some positive points and restrictions. For instance, magnetic adhesion can be used for a strong base for a high safety purpose, but is used only for ferromagnetic surfaces and for iron surface. Second technique, suction adhesion is based upon a complete vacuum with the surface, walking on porous & non- porous surfaces. The proposed system is to make a robot which can climb easily on wall and preferably on any type of wall.

Keywords: Wall climbing robots using vaccum suction, magnetic track system climbing robot, DC gear motor, Servo tester, Lithiumiron rechargeable battery.

Design and fabrication of solar still

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Abstract: The purpose of this project is to design a water distillation system that can purify water from nearly any source, a system that is relatively cheap, portable, and depends only on renewable solar energy. Distillation is one of many processes that can be used for water purification. This requires an energy input as heat, electricity and solar radiation can be the source of energy. When Solar energy is used for this purpose, it is known as Solar water Distillation. Solar Distillation is an attractive process to produce portable water using free of cost solar energy. This energy is used directly for evaporating water inside a device usually termed a "Solar Still". Solar stills are used in cases where rain, piped, or well water is impractical, such as in remote homes or during power outages. Different versions of a still are used to desalinate seawater, in desert survival kits and for home water Purification

Keywords: Purification, Convection, Distillation, Evaporation, Radiation

Performance, combustion and emission characteristics of diesel engine fueled with jatropha/diesel blend

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Abstract: In this study the role of performance and emission characteristic of single cylinder four stroke compression ignition engine have been investigated with different biodiesel blends at various ratios of jatropha oil and diesel. This experiment were conducted at injection timing 23˚BTDC and the injection pressures are 210 bar respectively with blends D90J10, D80J20, D70J30. In this investigation the various performances such as brake thermal efficiency, specific fuel consumption and exhaust gas emissions of CO, HC, NOX and smoke are analyzed and compared with neat ULSD and jatropha. The investigation were carried out using an experimental set-up consisting of a single-cylinder diesel engine coupled with AVL gas analyzer and the exhaust gas details were observed by smoke meter and the performance, combustion and emission characteristics were analyzed for the test blends. Experimental results indicated that, HC, CO, smoke emissions are reduced and NOX emissions are higher when compared to neat ULSD. BSFC is increased and Brake Thermal Efficiency (BTE) is lesser than ULSD and D80J20 has the best efficiency among the test blends. Comparing emission results, D70J30 has the lowest CO and HC emissions and D90J10 has lower NOX emissions which is still higher than the ULSD and also has the lowest smoke opacity.

Keywords: Diesel engine, Bio-Diesel, Jatropha oil, Performance and Emission

Design and development of chalk dust cleaning equipment

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Abstract

Till today most of the schools and colleges are using traditional methods for teaching with help of chalk. The traditional duster eraser chalk dust is a common problem. Prolong breathing of chalk dust which spread over entire class may cause serious respiratory health problems. In this project a cleaning equipment is designed and developed to suck chalk dust particles from the duster eraser by vacuum technology in an eco-friendly way.
Keywords: Dust, Vacuum, Cleaning equipment

Modification of Milling and Turning Tool Inserts Plant Layout in a Tool Manufacturing Company

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Abstract : This work is pertaining to modification of milling and cutting tool inserts plant layout in Production Unit.. Extensive work has been carried out using value stream mapping (VSM) to identify the problems, bottlenecks, cycle time, down time, work-in-process inventory, material movement constraints, production flow lines etc in the existing system. Modification of present layout in PU5 leading to creation of separate layout for five operations of milling inserts manufacturing activity, addition of machines required, and reducing the job allocation time from 24 hours to 6 hours has resulted in a lot of improvements. Significant improvements are;

- ✓ Lead time of milling inserts manufacturing is reduced from 14.092 days to 5.95 days and that of turning inserts is reduced from 12.392 days to 5.58 days. Percentage reduction in Lead time is 57.77% and 54.97% respectively.
- ✓ Work-in-process Inventory is reduced from 210550 units to 110600 units, reduction of 47.5 percent.
- ✓ Material handling distance is reduced from 315 meters to 265 meters. Value added percent for Turning Inserts is increased from 15.04 % to 45.02% and for milling inserts from 13.012 % to 42.02%.
- ✓ Centralization of coolant supply system resulted better space utilization and flexibility in effecting changes in machines locations.
- ✓ With the new overhead electric connections, the power line can be dropped down and used by the required machines and the need to re-wire and re-do the entire electric connection for layout changes is eliminated.

Based on the study and in consultation with company executives the present Mixed-flow line is converted into Mixed-flow line zone To Parallel dedicated flow lines zone To Mixed-flow line zone in two plants. This resulted in development of separate reconfigured layout.
Keywords: Value Stream Mapping, Lead Time, WIP Inventory, Flow Line

Review Paper on Maintenance and Treatment of Metal Working Fluids (MWF's)

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Abstract : In this paper we have reviewed different paper with reference to our project work. The information in this paper is about metal working fluids, different aspects that contaminates the metal working fluids and the various methods used to treat the contaminated metal working fluids as well as monitoring methods for the maintenance of the coolant fluid in the manufacturing plant are briefly discussed and reviewed.

Keywords: Metal Working Fluids, Water Based MWFs, Contamination of MWFs, Monitoring of MWFs.

Design and fabrication of electric powered roller operated fruit dehydrator for uniform drying

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Abstract: The expanding utilization in the dry natural products requires further consideration on quality parameters. Drying has turned out to be fundamental in light of the fact that most organic products are exceptionally transitory inferable from their high moisture content and the need to make them accessible throughout the entire year and at area where they are not created. Thus proper drying framework is basic. There are several other drivers which exists and not possess uniform drying process so to overcome this limitation we are introducing a new method by electric powered roller mechanism in fruit drying and by implementing constant temperature flux in the process of drying by conduction and forced convection. In short, we conduct a comprehensive review of the new approach to use electrical energy in fruit drying sector.

Keywords: Drying, uniformity, temperature distribution, convection.

Evaluation of Thermal Properties of Rapeseed -Biofuel

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Abstract: Rapeseed which is primarily cultivated for the rich oil content is the third largest producer of vegetable oil in the world. It is rich in protein and therefore also finds its applications as a suitable animal feed. An exhaustive study on Rapeseed derived Biofuel reveals its various properties which are found to be in close proximity to the properties of petroleum based fuels, hence indicating it as a suitable candidate for substituting the petroleum based fuels at different blend ratios. The study also highlights the various advantages of Rapeseed Biofuel over the conventional petroleum based fuels.

Keywords: Rapeseed Biofuels; Properties; Transesterification; Vegetable Oils; Biomass; Feedstock;

Study the Effect of Compression Ratio on Regulated Emission of Single Cylinder Diesel Engine Fuelled With Diesel and Biodiesel (B100)

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Abstract: The performance and emission characteristics of a constant speed single cylinder four stroke diesel engine fuelled with biodiesel (B100) are studied and compared with base diesel. The biodiesel is produced from Karanja oil by transesterification process has been used in this study. Experiments has been conducted at 100% load and at compression ratios of 18:1, 19:1 and 20:1. The impact of compression ratio on performance and exhaust gas emissions has been studied and presented. Best compression ratio which gives better performance and less emission has been identified. The results indicate higher brake thermal efficiency, lower fuel consumption and increasing trend in NOx emission.

Keywords: Diesel Engine, Diesel and Biodiesel (B100)

An experimental investigation in generation of electrical energy from TEG (Bi_2Te_3)

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Abstract: With the increasing in price on petroleum products due to the depletion in source of availability and also increase in the rate of consumption as automobiles are increasing in quantities day by day. When the fuel is burnt, 20% to 25% of the heat generated in the fuel combustion process is converted into useful mechanical work and remaining heat is emitted to the environment through the exhaust gases and the engine cooling systems, resulting in an enormous waste of energy. If we can trap such unused heat energy and try generating electric power using Thermoelectric Generator we can store that electrical energy and can be used as power backup or can run the electrically operated equipments. The increasing amount of electrical and electronic devices on vehicles provides more comfort and convenience for users, while places higher requirements on vehicle power supply.

In this paper an effort is made to prepare a lab scale model setup and has conducted an experimental study of the characteristic behavior of TEG (Bi_2 Te_3) using copper as a base plate of 5mm thick & aluminum base plate of 10mm thick & generates electrical energy under three different variable conditions.

1) Varying the thickness of aluminum supporting block at different mechanical loading condition
2) Varying the thickness of aluminum supporting block at maximum constant mechanical loading without TIM or Thermal Grease.
3) Varying the thickness of aluminum supporting block at maximum constant mechanical loading with TIM or Thermal Grease.

Based on the results of the above experiments, electric power generation found to be maximum at 408.01N. This load was considered as standard load and experiments were conducted for different thickness of aluminum supporting block with and without the application of thermal grease. It was observed that with the application of thermal grease there was an increase of 37% in electric power generation.

Keywords: TEG's, Bismuth Teluride, Seebeck Effect.

Vibration Characteristics and Parametric Analysis of Inflatable Membranes

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Abstract: This study presents the Dynamic Analysis of thin membranes with different parameters. Membranes are used in various fields like aerospace, medicine, etc. It is essential to study their vibration characteristics. Modal analysis of flat pre-stressed membranes is carried out using finite element analysis tool ANSYS and the results are compared with Theoretical Calculations. A Good match between the two solutions was observed. Furthermore, vibration analysis of membranes with varying parameters was carried out, the results are studied and significant conclusions are drawn.

Keywords: Mode shapes, Vibrations, Modal Analysis, Natural Frequency.

Studies on Predictive Maintenance System for Automotive Braking Using Artificial Intelligence Techniques

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Abstract **-** In automobile, brake system is an essential part responsible for control of the vehicle. Any failure in the brake system impacts the vehicle's motion. It will generate frequent catastrophic effects on the vehicle cum passenger's safety. Thus the brake system plays a vital role in an automobile and hence condition monitoring of the brake system is essential. Vibration based condition monitoring using machine learning techniques are gaining momentum.This study is one of attempt to formulate an approach & methodology for identifying predictive maintenance requirements of hydraulic brake system. In this research, the various condition based monitoring algorithm will be studied & compared. A detailed study will be performed on Clonal Selection Classification Algorithm (CSCA) improvement and practical application. A hydraulic brake system test rig will be fabricated. Under good and faulty conditions of a brake system, the various signals will be acquired. The statistical parameters will be extracted from the signal. Base algorithm will be established based on the maximum accuracy for the fault diagnosis of a hydraulic brake system. An attempt will be made to develop self-learning model, in order to fine tune base algorithm based on driving conditions & patterns. The Digital Twin of hydraulic brake system will be developed. The On-Board Diagnostic (OBD) data will be used to test & validate the Digital Twin. Finally a predictive maintenance application will be developed to alert driver on current health of brake system & upcoming maintenance requirements.

Design and analysis of OD chamfering machine wheel assembly for helical springs

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Abstract: The main objective of this paper is to deliver information about an automated & system integrated machine named as 'Spring OD Chamfering Machine' with the help of the data obtained by through research and development techniques. This paper mainly fuscous on the one of the main sub assembly of this machine named chamfering wheel assembly. This subsequent machine contributes to the precise delivery of sophisticated chamfering operation performed on a helical compression spring, which is primarily used in automotive industries. The accuracy and tolerance of this new machine has increased when compared to the old machine, the materials used for the manufacture has changed. The grinding wheel's length has increased and the grinding wheel's material has also changed. This prescriptive paper offers genuine concepts & overview of the research and development done on the respective machine along with the basic introduction about the same. The machine has the huge scope for development as it is being an automated & system integrated machine and the same has been portrayed in the following paper.

Keywords: Automated & system integrated, Helical spring, Chamfering Machine, Chamfering wheel assembly, OD-outer diameter.

Structural Analysis of E-House bracket

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Abstract: This bracket is a welded structure and it is used to place E-House on it and it will be bolted to the grader of overhead crane which will be moving with the velocity of 60m/min, hence it becomes necessary to perform a structural analysis of the bracket to insure safety of the structure in its working conditions. Thus, this paper aims to examine stress concentration, structural deformation, weld strength and bolt strength of E house mount brackets by employing commercial finite element software.

Keywords: E-House bracket, Von Mises Stress, Structural Deformation, Bolt pr-tension, Finite Element.

Physics

Electrochemical properties of cobalt doped $GdAlo_3$

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Abstract: **Nanocrystalline $GdAlO_3$: Co_2+ is synthesized by combustion process. The XRD study shows that the nano powder is single phase with orthorhombic structure and belongs to the space group Pnma. The DRS spectrum analysis reveals that the material is a wide band gap material with band gap of about 4.4 to 4.9 eV. The electrochemical properties of the $GdAlO_3$: Co_2+ was measured using cyclic voltammetry (CV) The CV studies clearly indicate that Co_2+ dopant was successful doping material due to increasing the reversibility by reducing the EO-ER value of the electrode reaction.**

***Keywords*— Combustion method;DRS; cyclic voltammetry; electrochemical impedance spectroscopy**

Ultrasonic study of binary mixtures of diethyl amine with butyl acetate and ethyl acetate

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***Abstrac*t: The studies of ultrasonic velocities, refractive indices are being increasingly used as tools for investigation of the pure components and the nature of inter molecular attraction between the liquid mixture constituents. The refractive indices, densities and ultrasonic velocities of binary mixtures of Butyl acetate and Ethyl Acetate with Diethyl amine have been measured at 302K.From the experimental data the various acoustical parameters such as compressibility (β), Inter molecular free length (Lf), Wada's constant(W), Molar sound fraction(R) and acoustic impedance (Z) have been measured. The molecular interaction existing between the components are also discussed.**

***Keywords*: Ultrasonic velocity, refractive index, binary mixture, molecular interaction, acoustical parameters.**

Effect of flux (NH4Cl)on Y_2SiO_5:Dy3+ (9 mol %) nanophosphors its Characterization and Structural studies

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***Abstract*—Flux (NH4Cl) doped on Y2SiO5:Dy3+ phosphors were synthesized by auto ignition based low temperature Solution Combustion Synthesis (SCS) using ODH as fuel. Powder X-ray diffraction (PXRD) patterns confirm the nano sized particles corresponding to JCPDS card 36-1476. The crystallite size of the samples estimated from Scherrer's formula. SEM micrographs infer addition of flux gives the enhanced grain growth and it attains smooth surface improves the crystallinity and particle morphology of the sample. FTIR data reveals the presence of M-O bonds and Y-O bonds.**

***Keywords*—Flux, combustion, FTIR and SEM**

Study of fluorescence quenching of coumarin dye by dimethyl aniline in binary solvent mixtures- A negative deviation

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***Abstract*— Coumarin derivatives are extensively investigated in terms of their photo physical properties to understand excited state in regard to understand and innovate molecules. In this article we study steady state quenching of fluorescence of a coumarin derivative namely 3-Hydroxy-3-[2-oxo-2-(3-oxo-3H-benzo[f]chromen-2-yl)-ethyl]-1,3-dihydro-indol-2-one (3HBCD) in binary mixture of acetonitrile and 1,4 dioxane. Dimethylaniline is used as quencher. A negative deviation is seen with modest quencher concentration in the Stern-Volmer (S-V) plots. The quenching ability of Dimethylaniline in reference to aniline is more due to its higher ionization energies.**

***Keywords*— Fluorescence Quenching; Negative deviation; Coumarin derivatives; solvent mixtures.**

Microcrystalline Properties of PVA/Co_3O_4 Nanocomposites

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***Abstract*— The whole pattern fitting was used to compute microcrystalline properties of Cobalt Oxide nanoparticles blended PVA/Co_3O_4/NaCl nanocomposite thin films of different weight percentage concentration.**

***Keywords*—Solution Combustion, Cobalt Oxide nanoparticles, XRD**

Photoluminescence properties of $CaTiO_3$:Ho_3+ nanophosphors for light emitting display applications

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***Abstract*— Nanoparticles of Mg_2SiO_4 were prepared using low temperature (350°C) solution combustion technique with metal nitrate as precursor and ODH as fuel. The powder X-ray diffraction (PXRD) patterns of the as-formed products show single orthorhombic phase and no further calcination was required. The crystallite size was obtained using Scherer's formula and was found to be 25-30 nm.**

***Keywords*—combustion, characterisation**

A Review of Security Strategies used in Vehicular Adhoc Networks

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Abstract **- This is a review of various aspects of security strategies used for Vehicular Adhoc Networks. In this paper we will be exploring the different threats to system security seen in a Vehicular Adhoc Network Subsystem and their corresponding solutions. Vehicular adhoc networks comprises methods by which Vehicles can communicate with each other either in an independent or adhoc manner or through a designated third-party intermediate node referred to as "Road Side Unit". Given the domain, the connection between the devices is wireless. The security challenges in Vehicular Adhoc Networks are similar to those associated with Wireless Technologies and Distributed Computing. In this document we shall be looking into cases regarding Certificate based authentication and usage of basic PKI Infrastructure, Sybil attacks, Invalid Certificate Revocation Methods, Black Hole attacks, Gray Hole Attacks, Worm Hole Attacks, Jelly Fish Attack and Spoofing. We shall also be looking into Adhoc Routing Protocols like Adhoc On-Demand Distance Vector Routing protocol (AODV) and methods to prevent Black Hole and related attacks.**

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