

TECHSARANSH

2020-2021



BMS INSTITUTE OF
TECHNOLOGY & MANAGEMENT
(Autonomous Under VTU)

(NAAC WITH 'A' GRADE | 7 UG/PG PROGRAMS | ACCREDITED TO NBA
APPROVED BY AICTE | AFFILIATED TO VTU BELAGAVI)
AVALAHALLI, DODDABALLAPURA MAIN ROAD,
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VISION

To emerge as one of the finest technical institutions of higher learning, to develop engineering professionals who are technically competent, ethical and environment friendly for betterment of the society.

MISSION

Accomplish stimulating learning environment through high quality academic instruction, innovation and industry-institute interface.

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ABOUT BMS INSTITUTE OF TECHNOLOGY & MANAGEMENT

BMS Institute of Technology and Management is one of the prestigious institution established in 2002 and run by BMS Education Trust (BMSET), with the vision of establishing a premier technical institute on par with international standards. BMSIT&M offers eight UG, three PG programmes and Ph.D. / M.Sc. (Engg.) in ten disciplines. Among these six BE and one PG programme are NBA accredited. National Assessment and Accreditation Council has awarded "A" Grade.

The Institute has well qualified and experienced faculty members, technical and supporting staff members. Faculties have successfully implemented Outcome-Based Education (OBE), which is mandatory as per Washington accord. Our students regularly undergo industry internships, open courses, and employability improvement training. This, coupled with the institute's close partnership with industries has ensured a large number of placements to students. The institute's well-equipped laboratories, good infrastructure, teaching - learning aids, etc. provide the right impetus to the growth of the students.

BMSIT&M has Centre for Industry Partnership Research and Consultancy Cell (CIPRAC) striving to bridge the gap between Industry and Institute. Departments have been conducting project based learning, skill development programmes, faculty development and research based activities to bridge the gap between Industry and Institute.

FROM THE EDITORIAL DESK

TechSaransh is a compilation of abstracts of the projects executed by the final year students for the academic year 2020-21 which covers seven under graduate and three post graduate programmes. These projects are chosen by the students based on their domain of study as well as multidisciplinary/interdisciplinary in nature. Completion of these projects in this pandemic period boosted their confidence and moral to take up scaled up and industry relevant project in future. Some of the students gained confidence to become entrepreneurs and cleared entrance examination to get into higher studies. Majority of the projects are done using emerging trends and skills as per industry requirements. We are happy to share that twelve of our projects were funded by KSCST.

BMSIT&M has Student Project Review and Assessment committee (SPRAC). This committee is to mentor students to select & execute best projects based on the current industry needs and to monitor the end-to-end project activities right from prior information collection, project selection to project execution and exhibition on open day at BMSITM.

This compilation of abstracts will serve as a single point of reference for the forthcoming batches to understand the scale and diversity of projects taken up in various domains and thus help them with further development of their projects.

Prof. Manjunath T. N Ph.D.
Prof. M.Sridevi

PRINCIPAL MESSAGE



It gives me immense pleasure to note that TechSaransh 2021, a compendium of abstracts of our final years students' projects, is ready to reach the hands of our distinguished readers.

I have observed our students working on very important and socially relevant projects, and putting in a lot of effort to make them worthwhile. While supervising projects to ensure that they reach a high standard is one challenge, capturing their essence in the form of abstracts and compiling into a compendium is another challenge.

The series of TechSaransh published year after year serves multiple objectives namely, creating a comprehensive repository of information on our projects, aiding subsequent batches of students to avoid duplicating the same work, saving their time with the ground work already completed, enlightening industry associates about the innovations developed, and facilitating cross disciplinary work, among many others.

I sincerely appreciate the noble intent and entrenched practice of capturing project abstracts and publishing every year. I congratulate the Vice principal, Deans, HODs and all the staff members who have put in their best effort in this work. Special appreciations to Dr Mala, CS, Dean (SW), Mrs. Sridevi and Mr Yatheesh for shouldering the end-to-end responsibility of Techsaransh 2021.

Thank you and Warm regards.

Dr. Mohan Babu GN
Principal

CIVIL ENGINEERING

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Project Title: Cold storage using cooling bricks, hydrogel and waste material

Project ID: CIVIL_1



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Project Execution Time: In_House

Project Category/Area: Product_Development

Abstract: With considering the various losses found in vegetables after harvesting for waiting to transport in weekly market in ruler area, Zero energy cooling chamber (ZECC) was designed and developed working on evaporative cooling principle that could be utilized to extend the shelf-life of the fruits and vegetables like tomatoes at their minimal storage temperature. In India 90% of horticultural produce is sold in fresh form. Due to the presence of middle men, the price of horticultural raw material is 60-100% higher in mandis than in growing areas. Modern new materials like AAC blocks , hydrogel , hydro-ceramic plates have been introduced to gain higher efficiency and to be able to store the harvest for more number of days. All the materials used in this construction are eco-friendly, locally available, and self constructable structures. This method is cost effective and highly profitable .The present study was therefore planned to develop and evaluate the performance of an evaporative cooling system that could be utilized to preserve tomatoes

Keywords: Zero energy cooling chamber (ZECC), Autoclaved aerated blocks (AAC blocks), hydrogel, hydro-ceramic

Project Title: Study of Urban Flood Management of Vijayanagar area and Feasible Mitigation Measures		Project ID: CIVIL_10
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Project Execution Time: Industry

Project Category/Area: Environmental_Societal

Abstract: Flood is an overflow of large amount of water beyond its normal limit, which is the most devastating natural hazards in the world. The Urbanization consistently affecting various parameters of environment, affecting human activities. It submerges land that is usually dry. Bengaluru is marked as Silicon city and a major IT hub, which is facing such issues from past decade due to rapid urbanization. Managing urban flood is a challenging task for environmental as well as for urban planners. It is necessary to utilize or to develop flood model for getting better knowledge about existing issue. Flood causes greater damages to the life and the property. GIS is a computer based tool for mapping and analysis which it is the recent advance techniques in flood mapping environmental health risks in the community. GIS operation is to improve the efficiency of flood disaster monitoring and management. The main goal is to mapping of flood risk zones in Vijayanagar area Bangalore. Digital thematic maps namely Base, road network, streams, Aspect, Local body, Hill shade, Geology, Soil and Slope are prepared using satellite imageries on Arc GIS platform. Apart from this, an estimate of the quantity of runoff generated in the study area is also done using the widely used SCS Curve Number Method defined by the US Department of Agriculture. Also, upon gaining the knowledge about the vulnerable flooding points through pour points in Arc GIS, certain flood mitigation measures have also been proposed for the study area keeping in mind the land use and land cover.

Keywords: Flood Model, Urbanization, Urban Flood, GIS, Remote Sensing and Satellite imagery,

Project Title: STABILITY ANALYSIS OF SLOPE USING GEO5 SOFTWARE		Project ID: CIVIL_11
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Project Execution Time: In_House

Project Category/Area: Environmental_Societal

Abstract: This thesis deals with slope stability evolutions carried out by commonly used limit equilibrium (LE) The study utilizes LE based software i.e., GEO 5. The principal difference between LE method and Finite element (FE) method is that the LE methods are based on the static of equilibrium whereas FE methods utilize the stress-strain relationship or constitutive law. With the development of technology and software's it has become easy to solve difficult problems in every field which before used to take a lot of time. The use of software's in the field of civil engineering has grown since the last decade. It has now become easy to analyse or design using different software's such as Staad Pro, Auto Cad, PLAXIS and many more. GEO5 is one such software use to solve many geotechnical problems like analysing and design of slope, design of retaining walls, settlement analysis, foundation design and much more. Landslides are natural occurrences that cause major economic damages in many countries. Even a look at the numbers of landslides is an insight into how much harm is caused and what life and property are threatened. The phase of ecological imbalance has been accelerated by unauthorized structures in unsafe areas, lack of an appropriate drainage system and unplanned settlement expansion. Recognizing the acute nature of landslide problems. Earth pressure issues are an important subject of study in the field of geotechnical engineering to address problems such as retaining walls, earth anchors, and so on. A retaining wall is huge, so the integrity of the retaining wall needs to be analysed.

Keywords: GEO5, FOUNDATION, SLOPE STABILITY

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Project Execution Time: In_House

Project Category/Area: Environmental_Societal

Abstract: The soil properties may disperse within a significant range over a domain. Thus, the factor of safety is used in the deterministic approach which account for the uncertainty associated with the soil properties. Black cotton soils are very problematic soil because of their unique shrink-swell nature with varying moisture content, this is due to presence of Montmorillonite, lattice type of expanding clay mineral imparts the shrink-swell nature to Black cotton soil. Black cotton soil is causing major failures to the structures mainly pavements and embankments. So, it is reasonable to study the probability of failure of the structure. In the present study reliability analysis has been made for soil nailing, anchoring, and the MSE walls using finite element method (FEM). Where we have considered different cases like with surcharge load, without surcharge load, with the water table and without water table and analysis is carried out. The limit state function is developed using response surface methods based on finite element models using commercial software PLAXIS. With the increase of population and the reduction of available land, more and more construction of buildings and other civil engineering structures must be carried out on weak or soft soil.

Keywords: Black cotton soil, Engineering Properties, finite element method

Project Title: OPTIMUM DESIGN AND COST COMPARISON OF HOSPITAL BUILDING USING FLYASH AND CONVENTIONAL CONCRETE BLOCK WALL

Project ID:
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Project Execution Time: In_House

Project Category/Area: Environmental_Societal

Abstract: The most basic materials for construction of buildings are the conventional burnt clay bricks and cement concrete. A significant quantity of energy is utilized in manufacturing these construction materials. Also, a lot of environmental problems are created due to continuous removal of top surface for the production of bricks and also due to the emission of carbon dioxide during the production of concrete blocks. Disposal of the industrial by-products in the Environment is a major issue. Therefore, various effective ways are discovered to utilise these by-products in the construction industry. For example, using fly ash is an effective way to make concrete much more sustainable with less impact on environment by using it in manufacturing fly ash concrete blocks. In the present study, an attempt is made to analyse and design a hospital building using conventional concrete blocks and then by using fly ash concrete blocks. The design is validated using Manual Calculation through Excel and then the cost of construction is compared by using both the materials. The results show that the construction cost is reduced by using Fly Ash Concrete Blocks compared to Conventional Concrete Blocks while also ensuring that the structural parameters are complying with the Standard limits.

Keywords: Conventional concrete block, Fly Ash concrete block, manual design validation, Cost comparison

Project Title: PLANNING, ANALYSIS AND DESIGN OF A MULTI-STOREYED GREEN BUILDING WITH BIOPHILIC APPROACH

Project ID:
CIVIL_14



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Project Execution Time: In_House

Project Category/Area: Environmental_Societal

Abstract: In India, construction is the second largest industry after agriculture which is contributing to the economy of the country. All the resources that are being used are all non-renewable and there is a need of alternative building materials. Building sector utilizes energy throughout the building life cycle and contributes immensely to the rising pollution. Considering the impact that it causes on human health and the environment, a new approach in design, energy optimization and usage of renewable materials are very much needed. The main aim of this study is to plan, analyze and design of a G+3 multistoried Green building with Biophilic approach. Planning is done using AutoCAD considering the orientation aspects and local By-laws which is then modelled using Revit Architecture. Structural analysis is done using STAAD Pro V8i and validation of Beam and Column design is done through manual design where the program is developed using Microsoft Excel. Energy Analysis of the building is carried out by using different insulation materials for the wall construction by keeping all the aspects constant using Revit Insight. It was found out that, walls without insulation has Energy Use Intensity (EUI) of 408kWh/m²/year while walls insulated with Cork, Pineapple leaf Fiber and Denim has EUI of 401kWh/m²/year, 400kWh/m²/year and 404kWh/m²/year. When cost comparison was done on the basis of Energy Use Intensity it was found that a sum of ₹56583 can be saved using Pineapple leaf fiber board and Gypsum board as insulating material.

Keywords: Pollution, Biophilic, Green building, design and analysis

Project Title: Quantification of desiccation cracks in Black Cotton Soil using Image Analysis Technique

Project ID: CIVIL_2



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Project Execution Time: In_House

Project Category/Area: Reaearch_Oriented

Abstract: The black cotton soil is an important soil group in India. It occupies 20% of the total land area of India. They have high shrinkage and swelling properties. Their clay content is high, mainly montmorillonite, and their high cracking properties make them ideal for our project. The project uses image analysis technology to develop a deterministic method to assess cracking and surface shrinkage that occurs in the soil after desiccation under atmospheric conditions. A large number of soil samples with varying levels of initial moisture content are prepared and allowed to desiccate at room temperature. ImageJ programming is used for image handling as well as the calculation of surface breakage and shrinkage in samples. The effect of initial moisture content on surface cracking and shrinkage is expressed in terms of Crack Density Factor (CDF) and Crack Intensity Factor (CIF). The results show that the area of the crack decreases as the initial moisture content increases. As the initial moisture content increases, the CDF and CIF values decrease. The crack area, CDF, and CIF are all inversely proportional to the initial moisture content.

Keywords: Black Cotton soil, Desiccation, Image J, Crack Density Factor, Crack Intensity Factor

Project Title: Cold storage using cooling bricks, hydrogel and waste material

Project ID: CIVIL_3



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Project Execution Time: In_House

Project Category/Area: Environmental_Societal

Abstract: With considering the various losses found in vegetables after harvesting for waiting to transport in weekly market in ruler area, Zero energy cooling chamber (ZECC) was designed and developed working on evaporative cooling principle that could be utilized to extend the shelf-life of the fruits and vegetables like tomatoes at their minimal storage temperature. In India 90% of horticultural produce is sold in fresh form. Due to the presence of middle men, the price of horticultural raw material is 60-100% higher in mandis than in growing areas. Modern new materials like AAC blocks , hydrogel , hydro-ceramic plates have been introduced to gain higher efficiency and to be able to store the harvest for more number of days. All the materials used in this construction are eco-friendly, locally available, and self constructable structures. This method is cost effective and highly profitable .The present study was therefore planned to develop and evaluate the performance of an evaporative cooling system that could be utilized to preserve tomatoes

Keywords: Zero energy cooling chamber (ZECC), Autoclaved aerated blocks (AAC blocks), hydrogel, hydro-ceramic

Project Title: An Experimental Analysis on Usage of Sewage Sludge for Treatment of Expansive Soil

Project ID: CIVIL_4



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Project Execution Time: In_House

Project Category/Area: Environmental_Societal

Abstract: Owing to the stability of problematic soils such as black cotton soil, im-proved strength characteristics are anticipated for better performance of structures. The soil characteristics are obtained by conducting numerous tests such as specific gravity, fineness modulus, particle size distribution, Atter-berg's limits, optimum moisture content and maximum dry density. The strength characteristics are determined using an unconfined compression test. Then a stabilization of soil is sought for black cotton soil. The proposed sta-bilization is accomplished through a mixture of activated sludge in varying percentages. The resulting stabilization is confirmed by obtaining the strength parameters of the stabilized soil. It is assessed that the sewage sludge ash imi-tates the pozzolanic material due to the presence of calcium content. Moreo-ver, it has a significant influence on the liquid and plastic limits owing to its specific surface. It then influences the thixotropy of soil, subsequently in-creasing the shear strength. The California bearing ratio and unconfined compressive strength of the stabilized soil are enhanced due to the proposed stabilization technique.

Keywords: Sewage sludge ash, Stabilization, Black cotton soil


Project Title: SMART MONITORING OF MUNICIPAL WASTEWATER DISPOSAL BY SOLAR EVAPORATION

Project ID: CIVIL_5



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Project Execution Time: In_House

Project Category/Area: Environmental_Societal

Abstract: The disposal of contaminated wastewaters is of increasing concern due to ever tighter environmental regulations. Sources of such wastewaters are municipal landfills, petrochemical industries, paper industries, food industries, agricultural operations, remedial clean-up activities, and general industrial sources. This water is often discharged into a body of water after treatment. But there are many instances when current wastewater treatment methods are not enough to make it safe for the environment. There are many factors that make it difficult to make the water safe. A combination of all these products poses a risk to both humans and wildlife alike. Facing this globally occurring situation, a solar-driven water evaporator is a promising technology for purifying waste water. Disposal of wastewater is very difficult in place where water table is high and water bodies is not available. The compact evaporation apparatus of the present invention is designed to efficiently evaporate primarily treated wastewaters generated from any industrial, commercial or municipal. The present invention utilizes solar evaporation technology. This is a highly-efficient, proven process where the evaporation of the water occurs above the surface of the water being evaporated in PVC Half-Pipes and soil in pots. The water film is released above soil surface gradually by capillary action and into direct contact with the liquid being evaporated.

Keywords: Municipal wastewater disposal; solar evaporation

Project Title: SUSTAINABLE AGRO-SOIL MOISTURE ENHANCEMENT USING ORGANIC FENUGREEK

Project ID: CIVIL_6



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Project Execution Time: In_House

Project Category/Area: Environmental_Societal

Abstract: The present study attempts to offer a sustainable organic solution to overcome the current chemical-laden practices in enhancing soil moisture in the modern agro practices. The costly synthetic Chemical additives often tend to have severe environmental consequences such as ground water pollution, soil degradation and reduced yield over the long run. The research envisages performance evaluation of low-cost easily available Fenugreek as an able replacement that can suffice to reduce the impacts of impended water scarcity as well. Fenugreek seeds contain a high proportion of mucilage, which contains Galactomannan polymer that is hydrophilic in nature; and hence subsequently traps the water molecules when applied over the soil layer thereby enhancing overall moisture content in the soil. The study has assisted in determining the Optimum dosage for varying types of soils.

Keywords: Galactomannan, Polymer, Fenugreek, Organic, Agro.

Project Title: SYSTEM DESIGN AND PROTOTYPE FABRICATION FOR THE DIMINUTION OF SUSPENDED PARTICULATE MATTER TO IMPROVE INDOOR AIR QUALITY

Project ID: CIVIL_7



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Project Execution Time: In_House

Project Category/Area: Product_Development

Abstract: On an average, people spend 90% of their lives indoors. The indoor air has the potential to influence the health and comfort of the building occupants. According to the US Environmental Protection Agency, the level of indoor pollutants is usually two to five times higher than that of outdoor levels. This has been aggravated due to the tighter modern construction. As result of which there is an increase in medical expenses generated from a single household. The primary scope of this study is to improve public health aspects, by system design and prototype fabrication for the diminution of suspended particulate matter to improve indoor air quality. The prefabricated unit is inclusive of innovatively designed air filtering mechanism, that can benefit any form of construction and for about any floor. The integration of sensors enables the real-time monitoring for operation and maintenance of the unit.

Keywords: Air, Indoor, SPM, Prototype, Quality, Health



Project Title: HYDROPHOBIC COMPOSITE ROOF TILE FROM PLASTIC AND C&D WASTE TO ENHANCE RAIN WATER HARVESTING

Project ID: CIVIL_8



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Project Execution Time: In_House

Project Category/Area: Product_Development

Abstract: This study investigates the mixture of ingredients like recycled waste, Construction and demolition waste and other chemicals for developing the Hydrophobic roof tiles that meets the Indian standards and to achieve the desirable engineering properties of lightweight, durable, strength, and hydrophobicity. The purpose of this project is to find a suitable solution for the disposal of non-biodegradable plastic waste and to provide an alternative to the existing roof tiles that lack in several properties such as hydrophobicity, breakage, water losses while harvesting rain water etc and fix them in all these properties to increase surface runoff and encourage rainwater harvesting. This project also helps in enhancing the knowledge of contractors and developers on different construction techniques, sustainable building materials, practices and services using recycled solid waste, and to achieve good product performance

Keywords: Hydrophobic roof tiles, rainwater harvesting

Project Title: STRUCTURAL EVALUATION OF RCC AND MASONRY STRUCTURES OF MID-RISE BUILDING WITH GEOPOLYMER EARTHEN BRICKS

Project ID:
CIVIL_9



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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: In RCC frame structure, the load is transferred from a slab to the beam then to the columns, further to the lower columns, and finally to the foundation which transfers the load to soil, the walls are constructed after the frame is prepared. Load bearing masonry construction technique involves the placing of masonry unit as layer one at a time. The masonry units which are held together by means of mortar that imparts strength and stability to the whole unit. The key feature of a load bearing structure is that every wall act as a load carrying element. Structural analysis and design of RCC frame structure was done using ETABS software and load bearing masonry structure is analyzed and designed manually. Geopolymer Earthen bricks are used for masonry wall. Embodied energy is total energy required for the extraction, processing, manufacturing and delivery of building materials to the building site. The Quantitative survey was done for both the structures to find out the embodied energy. In this study an attempt has been made to model, analyze, design of G+4 residential building considering RCC frame structural system and Load-bearing masonry structural system. In the design of both the structures, the aim was to provide a safe, serviceable, durable, economical and aesthetically pleasing structure. For the structure to be safe, it must be able to resist the worst loading conditions. Furthermore, the structure should be economical with regard to both construction and maintenance cost. Cost and embodied energy of both the structures are calculated and compared.

Keywords: RCC frame structure, Load bearing masonry structure, Geopolymer Earthen Bricks, Sustainable construction technology, ETABS

COMPUTER SCIENCE & ENGINEERING

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Project Title: Face Mask Detection For COVID-19**Project ID:** CSE_10**Name of the Guide:** Mr. Muneshwara M S**Guide Email ID:** muneshwarams@bmsit.in


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Project Execution Time: In_House**Project Category/Area:** Environmental_Societal

Abstract: During pandemic COVID-19, WHO has made wearing masks compulsory to protect against this deadly virus. As the country starts going through various stages of reopening, face masks have become an important element of our daily lives and are here to stay. Wearing face masks (and wearing them correctly) will be required in order to socialize or conduct business. The coronavirus COVID-19 pandemic is inflicting a worldwide health crisis that the effective protection ways are sporting a mask publicly areas per the globe Health Organization (WHO). The COVID-19 pandemic forced governments across the world to impose lockdowns to forestall virus transmissions. Reports indicate that wearing facemasks whereas at work reduces the danger of transmission. associate economical and economic approach of using AI to form a secure surrounding in an exceedingly producing setup. A hybrid model using deep and classical machine learning for face mask detection are going to be presented. A face mask detection dataset consists of with mask and while not mask pictures, we are aiming to use OpenCV to deploy face detection from a live stream via our webcam. we'll use the dataset to make a COVID-19 mask detector with Computer vision by using Python, OpenCV, and Tensor Flow and Keras. Our goal is to identify whether the person on image/video stream is wearing a face mask or not with the assistance of computer vision and deep learning.

Keywords: OpenCV, Deep Learning Neural Networks, Keras, Tensor Flow

Project Title: Skin Cancer Detection**Project ID:** CSE_11**Name of the Guide:** Dr. Satish Kumar T**Guide Email ID:** satisht@bmsit.in

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Project Execution Time: In_House**Project Category/Area:** Environmental_Societal

Abstract: In recent days, skin disease is seen as one of the most dangerous forms of the disease found in Humans. The detection of skin disease in the early stage can be helpful to cure it. Computer vision can play important role in Medical Image Diagnosis and it has been proved by many existing systems. In this work, we present a computer-aided method for the detection of Skin disease using Image Processing tools. The input to the system is the skin lesion image and then by applying novel image processing techniques, it analyses it to conclude about the presence of a type of skin disease. To achieve this goal, feature extraction is considered an essential weapon to analyze an image appropriately. In this work, different digital images have been analyzed based on unsupervised segmentation techniques. Feature extraction techniques are then applied to these segmented images. After this, a comprehensive discussion has been explored based on the obtained results.

Keywords: CNN, Image processing

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Project Execution Time: In_House**Project Category/Area:** Application_Oriented

Abstract: Cloud computing is a technology which enables us to store data over internet and access it from any part of the world. Cloud computing is used almost everywhere and there are many cloud storage organizations which maintains the data and charges the user for this facility. It will be very useful if an organization had its own cloud for the users in the organization. Cloud based security is also very essential. So providing secure accounts to each user and implementing encryption algorithms to the data stored in private cloud are also important as the data stored by the user needs to maintained without any further problems. Also time constraint is to be taken into account while developing a cloud system because the access time is based on the efficiency of the decryption algorithm used to extract the data. In a brief sentence, private cloud system is very useful for an organization and really helps in saving the cost paid to third party vendors.

Keywords: cloud computing security efficiency private cloud

Project Title: Secured file sharing over cloud in modular way using multi-layered encryption standards and steganography

Project ID: CSE_13



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Project Execution Time: Industry

Project Category/Area: Application_Oriented

Abstract: The aim is to develop a system that creates a secured file sharing system on the cloud by using steganography encryption with numerous algorithms with receivers' authentication protocols. The benefits are that it ensures improved data security on the cloud, prevents data loss, data breaches and hijacking of accounts, maintaining long term backups of data on the network. The disadvantages are that it is more time consuming because we're implementing multi-layered encryption and steganography. The tools and resources we've used are way2sms ,dropbox, Gmail, tempfile, shutil, subprocess, sys, zlib, base64, hashlib, math, gspread, oauth2client.service_account , itertools, ast , tqdm , PIL, colorama, termcolor, pyfiglet.

Keywords: Security,Encryption,Stegonography


Project Title: BREAST CANCER DETECTION USING MACHINE LEARNING TECHNIQUES

Project ID: CSE_14



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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: Cancer is the second cause of death in the world. 8.8 million patients died due to cancer in 2015. Breast cancer is the leading cause of death among women. It accounts for 25% of all cancer cases. Several types of research have been done on early detection of breast cancer to start treatment and increase the chance of survival. Most of the studies concentrated on mammogram images. However, mammogram images sometimes have a risk of false detection that may endanger the patient's health. It is vital to find alternative methods which are easier to implement and work with different data sets, cheaper and safer, that can produce a more reliable prediction. This project aims at coming up with machine learning models which can classify the tumors into malignant (cancerous) or benign (non-cancerous), thus aiding to predict breast cancer at early stages. The project also carries above task with highest possible accuracy. It also aims providing the clear analysis of the proposed models.

Keywords: Mammograms, Classification algorithms, Data set, Regression

Project Title: CaptionBot for Assistive Vision		Project ID: CSE_15
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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: In navigating and understanding an outdoor environment, our world often requires the ability to see. People with visual impairments are, therefore, faced with significant challenges in exploring these environments. The use of convolutional neural networks makes our approach relatively independent of specific features. Deep learning has the potential to alleviate part of the frustrations they face. In this thesis, we assess the effectiveness of using deep learning to assist people with visual impairments. Independent navigation and exploration of a city has long been a daunting task for visually impaired individuals. Another challenge faced by visually impaired people is the understanding of the visual content in their immediate surrounding. Recent deep learning models offer methods that provide natural language descriptions of images. Guide dogs and canes have been the primary assistive devices used by the blind community to assist them with outdoor navigation. Though they are indispensable to the population, they cannot help the user with understanding new environments and navigating through them. This challenge is exacerbated when the environment the user is navigating is unknown. For this reason, they tend to remain in known environments, as they learn specific landmarks of those routes, such as intersection characteristics. Various assistive devices have been proposed to help people with visual impairments with the various tasks involved in this challenge.

Keywords: convolutional neural networks, Deep learning, CaptionBot

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Project Execution Time: In_House**Project Category/Area:** Application_Oriented

Abstract: Fake news and hoaxes have been there since before the advent of the Internet. The widely accepted definition of Internet fake news is: fictitious articles deliberately fabricated to deceive readers". Social media and news outlets publish fake news to increase readership or as part of psychological warfare. In general, the goal is profiting through click baits. Click baits lure users and entice curiosity with flashy headlines or designs to click links to increase advertisements revenues. The spreading of fake news on social media has changed the course of elections and thus impacted the future. Automating fake news detection is essential to maintain the integrity of news and journalism. There is a thin line difference between the fact and the fake and drawing that thin line has become very difficult due to immense fake news spread across the internet. Fake news is spreading of intentional disinformation or hoaxes. The spreading of fake news for social, political, organizational or personal gain has become a threat to society. Automating fake news detection is essential to maintain the integrity of news and journalism.

Keywords: Fake News Detection, machine learning

Project Title: AI Thermometer for Fever Screening and Mask Detection

Project ID: CSE_17



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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: AI Thermometer is a project for automatically measuring the temperature of people and detecting whether they are wearing masks or not using thermal and RGB cameras. The software can be freely used for any non-commercial applications and it is useful for the automatic early screening of fever symptoms and whether they are following safety measures by wearing masks. The software first detects people with an off-the-shelf body pose detector and then finds the exact location of the face where the temperature is measured and checks whether the person is wearing a mask or not. The system requires a known reference temperature or a camera with exact radiometric calibration. The position of the reference is provided by the user while the temperature can be known a priori or given by a blackbody calibration System. The system will be trained to detect the mask by making the system learn from the set of images both with mask and without mask.

Keywords: convolutional neural network, Deep Learning, Temperature, blackbody calibration

Project Title: Popularity Dynamics of Online Content**Project ID:** CSE_18**Name of the Guide:** Mrs. Bharathi R**Guide Email ID:** bharavi_kumar@bmsit.in




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Abstract: Modelling the popularity dynamics of an online item is an important open problem in computational social science. This project presents an in-depth study of popularity dynamics under external promotions, especially in predicting popularity jumps of online videos, and determining effective and efficient schedules to promote online content. We make increasingly accurate forecasts of future popularity by including information about the intrinsic properties of the video, promotions it receives, and the non-linear effects of popularity ranking. We illustrate by simulation the interplay between the unfolding of popularity over time, and the time-sensitive value of resources.

Keywords: popularity dynamics, Hawkes self-exciting processes, non-linear, time-sensitive

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Project Execution Time: In_House**Project Category/Area:** Application_Oriented

Abstract: Modelling the popularity dynamics of an online item is an important open problem in computational social science. This project presents an in-depth study of popularity dynamics under external promotions, especially in predicting popularity jumps of online videos, and determining effective and efficient schedules to promote online content. We make increasingly accurate forecasts of future popularity by including information about the intrinsic properties of the video, promotions it receives, and the non-linear effects of popularity ranking. We illustrate by simulation the interplay between the unfolding of popularity over time, and the time-sensitive value of resources.

Keywords: popularity dynamics, Hawkes self-exciting processes, non-linear, time-sensitive


Project Title: NUTRIENT DEFICIENCY DETECTION IN PLANTS FOR FERTILIZER MANAGEMENT

Project ID: CSE_2



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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: Plants need nutrients to properly grow, thrive and survive. Hence it is essential that they receive the right type and quantity of nutrients at the right time. A plant needs almost twelve nutrients for its efficient growth. To achieve their life cycle and physiological functions, plant need chemicals such as Nitrogen, Potassium, Phosphorus, Calcium, Magnesium and Sulphur called the macronutrients and Zinc, Copper, Boron, Chlorine, Manganese, Iron called the micronutrients. These kind of nutrient deficiencies are generally identified in laboratories and through research. This can be a time consuming and costly process for the farmer to perform regularly. The accurate determination of nutritional status can prevent losses and also serve as a basis for the rational use of nutritional supplements. As a result, waste of resources are avoided and environmental impacts are also reduced. Moreover, computational tools for nutrition monitoring can be made available as part of decision support and farm management tools, which can be particularly valuable for farmers that do not have access to expert advice. Here we attempt to use computational tools for nutrition monitoring as a part of decision support & farm management tools, which is of immense use to the farmers who do not have access to expert advice. In order to classify the deficiencies, we need to associate the symptoms of the affected plant with the nutrient that is deficient and causing those effects. We have developed an application that uses the leaf images of crops like rice, wheat and maize to identify nutrient deficiencies like Potassium, Magnesium, Zinc, Iron, Manganese, Copper, Boron, Sulphur and recommends appropriate type and amount of fertilizer. It also considers some additional details like leaf age, other symptoms for diagnosis, which is performed using neural network model. Hence using this application through mobile or web farmers can make informed decision to buy the adequate quantity of the fertilizer to treat their plants appropriately.

Keywords: macronutrients ,neural network model, computational tools

Project Title: Handwritten Text Recognition**Project ID:** CSE_20**Name of the Guide:** Mrs. Bharathi R**Guide Email ID:** bharavi_kumar@bmsit.in

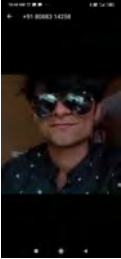


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Project Execution Time: In_House**Project Category/Area:** Application_Oriented

Abstract: Handwritten text recognition has been one of the active and challenging research areas in the field of image processing and pattern recognition. It has numerous applications which include, reading aid for blind, bank cheques and conversion of any handwritten document into structural text form. We here adopt segmentation based handwritten word recognition where neural networks are used to identify individual characters. A number of techniques are available for feature extraction and training of text recognition systems in the literature, each with its own superiorities and weaknesses. We explore these techniques to design an optimal offline handwritten English word recognition system based on character recognition. Post processing technique that uses lexicon is employed to improve the overall recognition accuracy.

Keywords: pattern recognition, feature extraction , Convolutional Neural Network, IAM dataset

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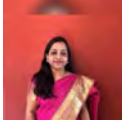
Project Execution Time: In_House**Project Category/Area:** Product_Development

Abstract: Recommendation systems are an important part of suggesting items especially in streaming services, and e-commerce websites. For streaming movie services like Netflix, Hulu, etc. recommendation systems are essential for helping users find new movies to enjoy, but it recommends movies only within their ecosystem. Unlike these systems, our Recommendation Engine will continually analyse each user's movie preferences and recommend custom movie recommendations. The overall goal is to ease the movie discovery process. With this method, we will develop a web application that will allow a user to log in and get a movie suggestion on the fly with an easy to use UI and find movies that they would love to watch. With artificial intelligence models such as Collaborative and Content Filtering and Deep Learning, we can provide higher accuracy recommendations for movies, and with a fully functional website, with every information about the movies in one place, users will not need to look elsewhere to search for their next movie to binge. While there has been extensive research on different models used to improve Recommendation engines our main aim in this project is to build an application that allows users to be able to find the next movie to watch with little effort. We aim to offer a list of movie suggestions based on previous user ratings, it is designed to discover movies through our recommendation process and not search for them. The application will allow users to rate movies according to scale, analyze the data and then return recommendations.

Keywords: Deep learning, CNN, LSTM, Regression Analysis

Project Title: Chest Computed Tomography Analysis for Probabilistic Determination of Coronavirus Infection

Project ID: CSE_22



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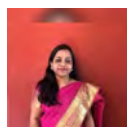
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Project Execution Time: In_House

Project Category/Area: Reaearch_Oriented

Abstract: One of the most morbid infections in recent times is Covid-19, having a potential to cause death in human beings. Covid-19 are a group of RNA viruses that cause disease in mammals and birds. In humans and birds, they cause respiratory tract infections that can go from gentle to deadly. This pandemic disease has already caused thousands of deaths and has infected several millions of people worldwide. The exponential expansion in COVID-19 patients is overpowering medical care frameworks over the world. The death rate is increasing drastically as a result. An effective testing method is to conduct swab tests in order to determine if the person is infected with Covid-19. This becomes very handy in the medical field as diagnosis is rather quick and simple. However, medical image processing provides further information, and is an emergent field in recent times. We have proposed the use of modern Image Processing techniques to detect COVID-19 patients using the data set of CT (Computed Tomography) scan images in an automated manner. This data set is used to perform a comparison between different CT scan images for COVID-19 positive cases along with Normal and Viral Pneumonia images. The efficiency of the algorithms is measured by determining the accuracy of the data, along with the time consumed in performing operations on this data-set. The main objective is to use a fairly accurate and fast technique to analyse the large data set.

Keywords: Computed Tomography, Covid 19


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Project Execution Time: In_House**Project Category/Area:** Environmental_Societal

Abstract: One of the critical issues affecting today's life is Air Pollution. Due to the increase in industrialization and concentration of poisonous gases in the environment, air around us has become highly toxic. These gases cause a plenty of respiratory and other diseases. A wide variety of sensors can be utilized to reduce and control the air pollution. The sensors that we use must be able to operate for long periods and withstand harsh conditions. The main aim of our project is to provide detection and analysis of various pollutants and gases in air using various IoT components such as sensors, microcontroller and Wi-Fi-network module and then suggesting solutions to prevent air pollution.

Keywords: IoT,Sensors

Project Title: Tree Age Predictor Using Augmented Reality and Image Processing Techniques		Project ID: CSE_24
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Project Execution Time: In_House

Project Category/Area: Environmental_Societal

Abstract: Tree age predictor is an idea that arose due to the usefulness in knowing the age of the trees and the disadvantages in the current methods in determining the age of the tree. Determining the age factor of a tree has many advantages and is a compulsory factor for getting the right use of the tree. Cutting of trees leads to deforestation which indeed is very bad to the environment and is one of the root causes of the problems arising with regards to climate change, but the resources generated and the uses of a tree are very much required to mankind and hence this has to be done. Hence we can reduce this deforestation up to some extent at least by reducing the wastage and cutting out the unnecessary cutting of trees. Trees to generate the right amount of usefulness or good quality resources should be at the right age and predicting this also resulted in the increased deforestation. Hence the idea is to avoid such unnecessary deforestation and human effort; we use the current evolved technology to develop a system to predict the age of a tree. The idea is to build an application that takes a picture of the tree, measures the diameter of the tree using the augmented reality(AR) toolkit created by Google, then we decipher the species of the tree using recognition machine learning(ML) models, with this acquired data and some internal calculations we predict the age of the tree. Traditionally people cut trees in half to predict the age by counting the internal rings or they use an instrument called an increment borer to extract the core for the tree which involves serious physical work. Hence, due to these certain difficulties, the idea to build an application serves to be a better idea to avoid unnecessary deforestation and also physical work serving an efficient and eco-friendly manner to predict the age of a tree.

Keywords: Tree age Predictor, deforestation, Augmented Reality(AR), Machine Learning(ML), Internal Calculation, Internal rings, increment Borer, eco-friendly

Project Title: Portal for farmers to sell their products directly to consumers		Project ID: CSE_25
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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: Our project aims to create a simple, user-friendly portal connecting farmers to consumers around the country enabling them to sell their produce at a competitive price, thereby increasing profits for the farmer and ensuring better produce for the consumers. We aim to eliminate the middleman who gets the lion's share of the total exchange and causes the cost to consumer to skyrocket.

Keywords: Web Portal, Farmers, Agriculture


Project Title: VIRTUAL PLACEMENT PORTAL**Project ID:** CSE_26**Name of the Guide:** Mrs. Chethana C**Guide Email ID:** chethana_cse@bmsit.in

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Project Execution Time: In_House**Project Category/Area:** Application_Oriented

Abstract: Placement drives are a huge and complicated process for institutions. All institutions have the irksome task of coordinating the information of new companies and opportunities that arrive at the college for placements. This process requires additional help from teacher coordinators from each department and student coordinators from each class. The proposed system aims to act as a platform for the organization and students to connect. The main purpose of the portal is to provide information about companies and also act as a medium for training. The Covid-19 pandemic has resulted in digitalization of classes, work and a lot more things. Our focus is to digitalize the placement process as well. Digitalizing anything makes it easier to keep track of it, having better control over it and many more as a result automating the process.

Keywords: Cloud , Authentication

Project Title: : Automated Image Captioning using Deep Learning		Project ID: CSE_27
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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: In the past few years, the problem of generating descriptive sentences automatically for images has garnered a rising interest in natural language processing and computer vision research. The generation of captions from images has various practical benefits, ranging from aiding the visually impaired, to enabling the automatic and cost-saving labelling of the millions of images uploaded to the Internet every day. Image captioning is a fundamental task which requires semantic understanding of images and the ability of generating description sentences with proper and correct structure. At present images are annotated with human intervention and it becomes a nearly impossible task for huge commercial databases. To achieve the task using deep learning, we use a convolutional neural network for feature extraction that makes use of transfer learning, and a recurrent neural network for building the descriptions. We have also presented a comparison of different image feature extractors on a predefined vanilla model. For evaluating the performance of the model, the Bleu metric algorithm will be used. The BLEU metric is an algorithm for evaluating the performance of a machine translation system by grading the quality of text translated from one natural language to another.

Keywords: ML, Deep Learning, Image

Project Title: GRAPHICAL PASSWORD TO AVOID SHOULDER SURFING

Project ID: CSE_28



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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: Usable security has unique usability challenges because the need for security often means that standard human-computer-interaction approaches cannot be directly applied. An important usability goal for authentication systems is to support users in selecting better passwords, thus increasing security by expanding the effective password space. In click-based graphical passwords, poorly chosen passwords lead to the emergence of hotspots – portions of the image where users are more likely to select click-points, allowing attackers to mount more successful dictionary attacks.

Keywords: Authentication, Graphical Passwords

Project Title: Attendance System using Facial Recognition**Project ID:** CSE_29**Name of the Guide:** Mrs. Chethana C**Guide Email ID:** chethana_cse@bmsit.in

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Project Execution Time: In_House**Project Category/Area:** Application_Oriented

Abstract: The Management of the Attendance can be a great burden on the teachers if it is done by hand. To resolve this problem, smart and auto attendance management system is being utilized. By utilizing this framework, the problem of proxies and students being marked present even though they are not physically present can easily be solved. The Open CV based face recognition approach has been proposed. This model integrates a camera that captures an input image, an algorithm for detecting face from an input image, encoding and identifying the face, marking the attendance in a spreadsheet. The Training dataset is created by training the system with the faces of the authorized students. The cropped images are then stored in a Folder. The features are extracted using HOG (Histogram of Gradient) algorithm. This model will be a successful technique to manage the attendance of students. This system saves time of marking attendance. Attendance using facial recognition deals with the maintenance of the student's attendance details. It generates the attendance of the student on basis of presence in class. It is maintaining daily basis of attendance; the staff will be subject to responsible to make the attendance for all students. Only if the student present in particular date, the attendance will be calculated. The student attendance report based on monthly and controlled will be generated. Provide a separate username and password to make student attendance. The staff handling the student's attendance.

Keywords: Open cv Gradient, HOG

Project Title: Resume Screening and Ranking with spaCy**Project ID:** CSE_3**Name of the Guide:** Mr. Jagadish P**Guide Email ID:** jaga1982@bmsit.in

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Project Execution Time: In_House**Project Category/Area:** Application_Oriented

Abstract: The main aim of this project is to build an Application Tracking System (ATS). ATS is a software that provides the necessary tools for hiring companies to enable an efficient recruitment process. All recruiting companies have the irksome task of going through hundreds of resumes only to determine if the candidate is suitable for their needs. This process, done manually, is time consuming and tedious. To increase the efficiency of this system we have created an Application Tracking System. ATS assigns a score to each candidate based on their experience in the work field, the relevance of their experience to the recruiters and their education background. Each of these categories are used collectively to assign a certain score to every candidate. The score is then sorted according to the needs of recruiters for them to determine the eligible candidates. Recruiters can customize their hiring needs by changing the required work field and years of experience. ATS takes these inputs as the primary factors in determining the eligibility. The ATS goes beyond basic spell checking and uses leading Artificial Intelligence technology to grade your application based on numerous checks that recruiters and hiring managers pay attention to. Specifically, the platform analyses your application's impact by evaluating the strength of your word choice and also checks your application's style and brevity. Similarly, it also scores each of the bullet points on your application and checks for key elements such as inconsistencies, length, word choice, filler words, keywords and buzzwords.

Keywords: Application Tracking System,efficiency,etc

Project Title: BLOCKCHAIN CERTIFICATE MANAGEMENT SYSTEM WITH IMAGE STEGANOGRAPHY

Project ID: CSE_30



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Project Execution Time: In_House

Project Category/Area: Reaearch_Oriented

Abstract: Digital Certificate issuance and authentication is a vast domain that involves various challenging and tedious processes of issuing certificates and provision for authentication. Moreover, various types of documents for instance banking documents, government documents, transaction documents, and educational certificates, etc. might involve customized verification and authentication practices. The content for each type of certificate varies significantly, hence requires to be dealt with distinctly. For students, educational certificates are the most important documents issued by their universities. However, as the issuing process is not that transparent and verifiable, fake certificates can be easily created. A skillfully generated fake certificate is always hard to detect and can be treated as the original. With the increase of forged documents, the credibility of both the document holder and the issuing authority is jeopardized. Blockchain technology has recently emerged as a potential means for authenticating the document verification process and a significant tool to combat document fraud and misuse. This project is aimed to enhance the document verification process using blockchain technology. In this project, we have developed an end-to-end system by implementing new security themes required for document verification in the blockchain. This research also identifies the gaps and loopholes in the current blockchain-based educational certificate verification solutions. In the end, a blockchain-based framework for verifying educational certificates focuses on themes including authentication, authorization, confidentiality, the proposition of ownership, and privacy.

Keywords: Blockchain, Image Steganography, Digital certificate.

Project Title: Driver Distraction Monitoring System using GAN**Project ID:** CSE_31**Name of the Guide:** Dr Usha B A**Guide Email ID:** ushaba@bmsit.in

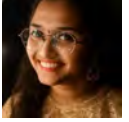

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Project Execution Time: In_House**Project Category/Area:** Environmental_Societal

Abstract: This project aims to deliver a distraction monitoring system for the logistic company to keep track of the driver's performance and give rating on a regular basis accordingly. Every year, many car accidents due to driver fatigue and distraction occur around the world and cause many casualties and injuries. Driver face monitoring systems is one of the main approaches for driver fatigue or distraction detection and accident prevention. Driver face monitoring systems capture the images from driver face and extract the symptoms of fatigue and distraction from eyes, mouth and head. These symptoms are usually percentage of eyelid closure over time (PERCLOS), eyelid distance, eye blink rate, blink speed, gaze direction, eyesaccadic movement, yawning, head nodding and head orientation. The system estimates driver alertness based on extracted symptoms and alarms if needed. In this paper, after an introduction to driver face monitoring systems, the general structure of these systems is discussed. Then a comprehensive review on driver face monitoring systems for fatigue

Keywords: Driver Distraction, Face monitoring, Generative Adversial Network, Image Processing

Project Title: Computer Vision based feedback system**Project ID:** CSE_32**Name of the Guide:** Dr Usha B A**Guide Email ID:** ushaba@bmsit.in

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Project Execution Time: In_House**Project Category/Area:** Application_Oriented

Abstract: Nowadays, Customer satisfaction is important for businesses and organizations. Manual methods exist, namely surveys and distributing questionnaires to customers. However, marketers and businesses are looking for quick ways to get effective and efficient feedback results for their potential customers. Here we propose a new method for facial emotion detection to recognize customer's satisfaction using machine-learning techniques. We extract geometric features from customer's emotional faces using distances from landmarks points. Indeed, we used distances between the neutral side and the negative or positive feedback. After that, we classified these distances by using Support Vector Machine (SVM).

Keywords: Convolutional Neural Network, Deep Neural Network, Facial Expression, Frame Extraction.

Project Title: Stock Market Prediction**Project ID:** CSE_33**Name of the Guide:** Dr. Mahesh G**Guide Email ID:** maheshg@bmsit.in

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Project Execution Time: In_House**Project Category/Area:** Application_Oriented

Abstract: Stock market is a public market for trading company stock. Stock market allows us to buy and sell units of stocks (ownership) of a company. If the company's profits go up, then we own some of the profits and if they go down, then we lose profits with them. If more sellers than buyers, stock prices tend to fall. Conversely, when more buyers than sellers, stock prices tend to rise. The stock of a corporation constitutes the equity stake of its owners. It represents the residual assets of the company that would be due to stockholders after discharge of all senior claims such as secured and unsecured debt. Stock market prediction is the act of trying to determine the future value of a company stock or other financial instrument traded on an exchange. The successful prediction of a stock's future price could yield significant profit. Stock market is very vast and difficult to understand. It is considered too uncertain to be predictable due to huge fluctuation of the market. Financial investors of today are facing this problem of trading as they do not properly understand as to which stocks to buy or which stocks to sell in order to get optimum result. So, the proposed project will reduce the problem with suitable accuracy faced in such real time scenario.

Keywords: LONG SHORT TERM MEMORY, K-NEAREST NEIGHBOUR, RANDOM FOREST, SUPPORT VECTOR MACHINE

Project Title: DETECTION OF SOCIAL NETWORK MENTAL DISORDERS USING MACHINE LEARNING

Project ID: CSE_34



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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: Social media have a huge impact on our lives being a part of it. The more usage of social media has an adverse effect on our individual life. In any of the case, our dependence via web-based networking media can differ mentally affect our physical and mental wellbeing. The usage of social media has led to depression, anxiety, sadness and much more resulting in Social Network Mental Disorders (SNMD) many mental disorders. The abstraction of data from patient helps to give the medication at the early stage. In order to observe or detect the disorders at an early stage, Machine Learning framework is used. In the present world, there is an increase in dangerous development of risky utilization of social media. There are various mental disorders that have led to mental clusters. Identification of these disorders usually falls on the shoulders of individuals, family, teachers and sometimes society. Using social media platforms allows the person to communicate with unknown persons, sometimes leading to huge problems. These effects sometimes come under observations lately, and then not getting proper medications and advice leads to huge mental ill effects. Considering all the above situations, our project gives the chance to effectively distinguish SNMD's at the beginning period. This project examines the associations of suicidal attempt with Internet addiction and Internet activities in a large representative. In Machine Learning we are going to use the Naive Bayes algorithm for our project. The Naive Bayes based model is easy to build, understandable and useful in case of large data sets.

Keywords: SNMD- Social Network Mental Disorders OSN-Online Social Networks SNMDD-Social Network Mental Disorder Detection STL - Single Task Learning LIWC -Linguistic Inquiry and Word Count CBMF-Content-Based Messages Filtering

Project Title: Stock Price Prediction using LSTM**Project ID:** CSE_35**Name of the Guide:** Dr. Arunakumari B N**Guide Email ID:** arunakumaribn@bmsit.in

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Project Execution Time: In_House**Project Category/Area:** Application_Oriented

Abstract: Stock price prediction is one among the complex machine learning problems. It depends on a large number of factors which contribute to changes in the supply and demand. This paper presents the technical analysis of the various strategies proposed in the past, for predicting the price of a stock, and evaluation of a novel approach for the same. Stock prices are represented as time series data and neural networks are trained to learn the patterns from trends. Along with the numerical analysis of the stock trend, this research also considers the textual analysis of it by analyzing the public sentiment from online news sources and blogs. Utilizing both this information, a merged hybrid model is built which can predict the stock trend more accurately.

Keywords: Long short-term memory (LSTM), ARIMA models, Nifty 50, Rolling validation, Time series data.

Project Title: Signature Recognition using Structure Similarity Index Measure

Project ID: CSE_36



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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: Nowadays, recognition of the person is one of the important processes of any system like banking, insurance. Instead of traditional method like password, PIN, smart card etc. biometric traits like signature, voice, iris, fingerprint etc. are preferred because biometric characteristics of a person cannot be easily change. Biometric characteristics are unique and cannot be stolen. Within all these different biometric methods, signature recognitions is an important process because of wider acceptance of handwritten signature for identification. The aim of the signature system is to recognize the signature image as original or forgery. There are two types of signature recognition system, online signature recognition and off-line signature recognition. In online signature recognition, the features are extracted from the signature when the signature is created. For online signature recognition we require tablet, touch screen or pen with pressure sensor. In online signature recognition feature extracted are as velocity of pen, pressure on pen etc. In offline signature recognition, we require only a scanner to scan the signature image.

Keywords: Signature recognition, Neural Networks, Features Extraction,

Project Title: FACE RECOGNITION AND CONVEYING FACIAL EXPRESSION TO VISUALLY IMPAIRED

Project ID: CSE_37



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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: The rise in the field of image processing and the development of algorithms such as the face detection algorithm, face recognition algorithm, and face expression algorithm. we represent the design and implementation of facial recognition and facial expression recognition system for the visually impaired by using image processing. Deep learning techniques know a big success in various fields including computer vision. Indeed, a convolutional neural networks (CNN) model can be trained to analyze images and identify face emotion. Here a System is created that recognizes faces, emotions from their faces. Our system consists of three phases: face detection using Haar Cascades, normalization, Face recognition, and emotion recognition using CNN. The purpose of this system is to implement emotion recognition for the visually impaired by realizing an automatic system that analyze facial expressions based on Convolutional Neural Network (CNN), which is a deep learning algorithm that are widely used in images classification. It consists of multistage image processing to extract feature representations. Our system includes emotion recognition that should be one of these seven emotions: neutral, anger, fear, sadness, happiness, surprise and disgust and also include Real-Time Face Recognition converting both of them to speech.

Keywords: Face Recognition, Convolutional Neural Network (CNN), face detection algorithm, Visually impaired



Project Title: Sentiment Analysis and Data Visualisation of Social Media Feeds

Project ID: CSE_38



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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: Sentiment analysis is also termed opinion mining. Sentiment analysis of the data is very useful to express the opinion of the mass or group or any individual. Using sentiment analysis, we can find the state of mind of the reviewer while providing the review and understand if the person was “happy”, “sad”, “angry” and so on. Classifying the movie reviews as positive and negative using supervised machine learning algorithms. Machine learning algorithms such as Linear SVM, Random Forrest, Logistic Regression, and Decision tree are used for classifying movie reviews into positive and negative.

Keywords: Sentiment Analysis,Opinion Mining,Movie Reviews,Feature Extraction,Classification,SVM

Project Title: A STUDY ON COVID VACCINE RESPONSES USING SENTIMENTAL ANALYSIS

Project ID: CSE_39



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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: Twitter is an online micro-blogging and social-networking platform which allows users to write short status updates of maximum length 280 characters. This project brings out the ongoing discussion on covid vaccines. This project addresses the problems of individuals who are apprehensive about taking the vaccines and furthermore to analyze human's sentiments on numerous covid19 vaccines. In view of the outcomes, awareness can be made among people about their worries and to likewise get the most exceedingly awful side effects of every vaccine through individuals' experience. We do this by taking the sentiment of tweets and classify each tweets' sentiment into positive, negative or neutral and do a contrast comparison of vaccines graphically. Also, there is a country-wise contrast comparison on vaccination and a comparison graph of various vaccines with respect to time (from January 2021 to May 2021). Using natural language processing (NLP) techniques, we can engage in an extremely complex and wide-ranging discussion using text analysis, sentiment analysis, and visualization.

Keywords: Corona, Covid Vaccine

Project Title: INFORMATION GATHERING BLACKBOX SYSTEM

Project ID: CSE_40



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Project Execution Time: In_House

Project Category/Area: Environmental_Societal

Abstract: The rapid growth of technology and infrastructure has made our lives easier. The advent of technology has also increased the traffic hazards and the road accidents take place frequently which causes huge loss of life and property because of the poor emergency facilities. The main purpose of this project is to develop a prototype of the Vehicle Black Box System VBBS that can be installed into any vehicle all over the world. The project deals with the accident avoidance and security providence for the both vehicle driver and vehicle. In order to react to this situation, the black box system draws the first step to solve problem. Like flight data records in aircraft, Black Box technology can now play a key role in car crash investigations. A significant number of vehicles currently on the roads contain electronics system that record in the event of a crash. That is why it is to important to have recorders that objective track what goes on in vehicle before, during and after a crash as a complement to the was used. Here in the proposed system, we built a wireless black box, which has different sensors. We predict the accident based on the sensor components, Accelerometer, Alcohol sensor. When the car is met with an accident there might be chances that the passengers or the driver might lose the life due to the delay in medical help. So, to overcome such situation we have designed a system where in which the car itself switches into surveillance mode and all the predicated will be stored.

Keywords: Blackbox, accident, sensor, information gathering

Project Title: Smart Campus with Android**Project ID:** CSE_41**Name of the Guide:** Mrs. Yoga Durgadevi Goli**Guide Email ID:** durgadevigy@bmsit.in

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Project Execution Time: In_House**Project Category/Area:** Application_Oriented

Abstract: Smart Campus with Android is an attempt to ease the process of taking attendance in classrooms using mobile applications synchronized over cloud. All the good features of student related apps will be put at once place to improve ease of use. Student attendance system is the system of tracking the attendance of the student on basis of presence in class. Successful industries, schools, universities begin by engaging students and making sure that they will come regularly so the attendance rate become very important. In this project, a smart student attendance system is designed and implemented based on android operating system. In comparison with other traditional attendance systems, the proposed system provides faster, cheaper and reachable system for online student attendance and generate the attendance report automatically. The system communicates with database residing on a remote server. It calculates automatically, the attendance percentage of students without any manual paper-based work. The system facilitates the end users with interactive design and automated processing of attendance management.

Keywords: Smart Campus , attendance system, android application

Project Title: FUNCTION POINT ANALYSIS ON SOFTWARE EFFORT ESTIMATION USING ARTIFICIAL INTELLIGENCE

Project ID: CSE_42



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Project Execution Time: In_House

Project Category/Area: Industry_Project

Abstract: Understanding the size and effort taken for a programming project in the beginning phases is pivotal yet difficult. Over the years several researchers and experts worked for this cause and developed various methods. As said above, several methods exist for the purpose of estimating effort but the accuracy is still unsatisfying. After abundant research, in this paper, we propose a method which is simpler and accurate i.e., Function Point Analysis (FPA). The Function point investigation technique was created by A. J. Albrecht (1979) to help measure the size of an automated business data framework. These sizes are utilized as a part for the estimation of profitability in framework improvement and support exercises, and as a segment for assessing the exertion required for such exercises. Close assessment of the technique shows certain shortcomings, and the creator proposes a halfway other option. A depiction is given of the standards of this Mark II methodology. The outcomes are introduced of certain estimations of real frameworks to adjust the Mark II methodology, and ends are drawn on the legitimacy and relevance of capacity point investigation by and large.

Keywords: Function point, Effort estimation, COCOMO, Artificial neural network, Loc.

Project Title: Human Resource Allocation and Scheduling for Software Project Management”

Project ID: CSE_43



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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: Human Resource allocation practices at several levels to make an organisation to utilize human resource effectively. In project management, HRM is concerned for the products quality and project success with minimum time delivered, and also for the cost estimation to the software to be beneficial and developed to decide whether to make the project or not. Many approaches have been proposed to minimize project duration and cost or maximizing profit. These approaches may not be comprehensive in real-world environments without pointing out some key factors like transferring cost, communication, and negative efficiency, which usually have crucial impacts on assignment applicability. Demonstrate the factors could bring out different sources to help companies in making evaluations for allocating staff in a software development project.

Keywords: —Project Management, human resource allocation, team formation, software project

Project Title: CNN FRAME WORK FOR TEXT LINE RECOGNITION IN CAMERA CAPTURED IMAGES

Project ID: CSE_44



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Project Execution Time: In_House

Project Category/Area: Reaearch_Oriented

Abstract: Handwritten digit recognition play's major role in the applications of pattern recognition field. Various applications of handwritten digit recognition are sorting postal mails, processing bank cheque, data entry form etc , which represents the information in digit can be processed . We proposed a widely usage of modern handwritten digit recognition, i.e Kannada - MNIST(Modified National institute of Standards and Technology) database holds various handwritten digits from 0 to 9, also the MNIST dataset is divided into training and testing as suitable parameter. Initially two basic functions are used, namely feature extraction and feature classification for HDR (Handwritten Digit Recognition) is achieved by Convolutional Neural Network (CNN).This works with some specific algorithms based on the requirements. Deep Learning Python framework is used to implement CNN on the plain MNIST dataset gives 99.6%.For the output of the CNN we are adding few more classifiers to check which algorithm works efficiently with the CNN Model for this digits. We are using classifiers like Support Vector Machine (SVM), Random Forest (RF) , K-Nearest Neighbour (KNN) and XG Boost(XGB).Each of these classifiers are being added with the output of the CNN individually. These classifiers are used to make the feature extracted output of CNN model to predict better accuracy. Automatic Feature extractor is one the main function of the CNN with other classification techniques as prior classifier. The main aim of this research is to make the implementation by integrating both CNN with other classifiers for higher accuracy. This CNN algorithm is incharge to gain the score upto 99.6% and the higher accuracy is gained with the combination of both CNN and other classifiers. Finally the evaluation of this experiment shows that this method is very much competent with the classification of the numerals than various modern techniques

Keywords: Convolutional Neural Network (CNN), Vector Machine (SVM), Random Forest (RF) , K-Nearest Neighbour (KNN), XG Boost(XGB)

Project Title: Heart disease Prediction**Project ID:** CSE_45**Name of the Guide:** Dr Lakshmi**Guide Email ID:** lakshmibn@bmsit.in

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Project Execution Time: In_House**Project Category/Area:** Application_Oriented

Abstract: The heart is the most essential or crucial portion of our body. It is used for blood maintenance and circulation. Heart diseases are one of the major causes of death globally, taking an estimated 17.9 million lives each year. Heart diseases are a gaggle of disorders of the guts and blood vessels. Individuals at risk of heart disease may demonstrate raised blood pressure, glucose, and overweight, and obesity. Various symptoms like chest pain, fasting of heartbeat, and so on are also experienced. The health care industries have found and stored a large amount of data. In this project, we will use the data to predict heart disease using machine learning algorithms. Here, we will use few machine learning algorithms based on features and predicting heart disease. We train and test these algorithms with a dataset with diverse attributes and note the accuracy results. Finally, we use the results to find the most accurate algorithm.

Keywords: Machine Learning Algorithms, prediction, heart disease, accuracy, Naive Bayes, Voted Perceptron, K Star, LogitBoost, Simple Logistic, Hoeffding Tree, Normalize, Numeric to Nominal.


Project Title: DETECTION OF PHISHING WEBSITES**Project ID:** CSE_47**Name of the Guide:** Dr Lakshmi**Guide Email ID:** lakshmibn@bmsit.in

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Project Execution Time: In_House**Project Category/Area:** Application_Oriented

Abstract: Phishing is one of the major threats in this internet era. Phishing is a smart process where a legitimate website is cloned and victims are lured to the fake website to provide their personal as well as confidential information, sometimes it proves to be costly. Detection of Phishing website is an intelligent and effective model that is based on using classification or association Data Mining algorithms. However, detecting phishing websites is a challenging task, as most of these techniques are not able to make an accurate decision dynamically as to whether the new website is phishing or legitimate. These Algorithms were used to identify and characterize all rules and factors in order to classify the phishing website and relationship that correlate them with each other so we detect them by their performance, accuracy, number of rules generated and speed. We identify phishing websites using a combined approach by constructing Resource Description Framework models and using ensemble learning algorithms for the classification of websites. Our approach uses supervised learning techniques to train our system. This approach has a promising true positive rate. We have used random forest classifiers that can handle missing values in dataset, we were able to reduce the false positive rate of the system to an extent of 1.5%. As our system explores the strength of Random Forest Algorithm and ensemble learning methods both achieve highly promising accuracy rate.

Keywords: web Phishing, Resource Description Framework models, classification, Data Mining algorithms

Project Title: An Android Application on Social Safety using Sentiment Analysis and Firebase Geoquery		Project ID: CSE_49
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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: In the current world, people using smart phones have increased rapidly and hence, a smart phone can be used efficiently for personal security or various other protection purposes. The heinous incident that outraged the entire nation have waken us to go for the safety issues and so a host of new apps have been developed to provide security systems to people via their phones. As there are so many problems in the real-world regarding safety, therefore we have taken security as our topic of interest and considered two situations. Firstly, when the person is in danger and immediate action is required. Secondly, when the person feels insecure of the place. Emergency actually has two sides one who's seeks help and another who provides help. Our vision was to find the right people at the right time. A single click on this app identifies the location of place through GPS and sends a message comprising this location URL to the registered contacts and also call on the first registered contact to help the one in dangerous situations. The unique feature of this application is to send the message to the registered contacts continuously for every five minutes until the “stop” button in the application is clicked.

Keywords: safety, android, firebase, geo-query, xml, java, sentimental analysis

Project Title: REAL TIME DETECTION, TRACKING AND ANALYSIS OF VEHICLE SYSTEM		Project ID: CSE_5
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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: Abstract: The main aim of the project is to process the video feeds that are been recorded by existing CCTV Cameras. The current scenario is that the recorded CCTV footage are simply being stored in cloud and not being processed this leads to huge storage and required multiple permissions to access them, it is also tedious work for download or upload of the footage after all these difficulties, it requires manual review of the footage hence consumes manpower, time, resources, etc., By using our software we have found a fusible solution for all these problems.

Keywords: Keywords: Real Time, Number Plate Detection, Vehicle Tracking, Vehicle Surveillance, Security Systems.

Project Title: Algorithmic Stock Trading Bot		Project ID: CSE_51
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Project Execution Time: In_House

Project Category/Area: Product_Development

Abstract: Algorithmic trading is a method of executing orders using automated pre-programmed trading instructions accounting for variables such as time, price, and volume. This type of trading was developed to make use of the speed and data processing advantages that computers have over human traders. This project is aimed at creating an algorithmic trading bot that can take bets in the stock market(equity) automatically based on trading signals and is viable in all market conditions. Things like hedging, risk management, performance tracking etc. are all taken care of by the automated trading system itself.

Keywords: Kalman Filter, Pair Trading

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Project Execution Time: In_House**Project Category/Area:** Application_Oriented

Abstract: Due to object detection's close relationship with video analysis and image understanding, it has attracted much research attention in recent years. Object detection is widely used for face detection, vehicle detection, pedestrian counting, web images, security systems and self-driving cars etc. The human visual system is fast and can perform complex tasks like identifying multiple objects and detect obstacles with little conscious thought. With the availability of large amounts of data, faster GPUs, and better algorithms, we can now easily train computers to detect and classify multiple objects within an image with high accuracy. Our project is focused on building a single-access platform for various object detection tasks. A user-interface where the user is asked for the relevant inputs and an output based on this is generated automatically by the system. Also, accuracy and precision measures are also displayed so that the user is wary of the reliability extent on the generated results.

Keywords: CNN, Covid-19 detection, Drowsiness detection, face and eye detection, viola jones, kaggle

Project Title: sentimental analysis of twitter data**Project ID:** CSE_53**Name of the Guide:** Mr. Anand R**Guide Email ID:** anandor@bmsit.in

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Project Execution Time: In_House**Project Category/Area:** Application_Oriented

Abstract: A research aims to solve a challenge of text classification in Tweet, which entails categorising articles into good, harmful, or objective categories based on the argument presented in it. Tweet is a tweeting and personal media website that enables consumers to stream brief facebook posts of up to 140 characters in size. It is just a fast growing site from over 220 billion unique visitors 1 billion of them became subscribers who login it onto Tweet on a regular bases and approximately 2 billion posts each daily We want to obtain a representation of mass opinion by evaluating the feelings conveyed in the messages as a result of the vast quantity of users. Multiple uses require analysing social mood including companies attempting to determine the industry respond to their wares, forecasting governmental races and guessing financial events such as stock market. The goal for my effort is to create a functioning filter that can accurately yet automatically classify a new tweets server's sentiments. Blogs services like Social media have seen a tremendous increase in popularity in recent years. Industries and press are mostly looking for methods to scan Tweets for info of what humans behave like their things and damage as a result of this development. Twit (twitrratr.com), Tweet Sense , and Society Consider seem to be just a lot of small firms that provide Visual attitude research. This has proven a good variety of study over why feelings are conveyed in domains like travel blogs and media stories yet as being considerably no work on why thoughts have been articulated in tweets because of the irregular syntax and reply limitations. Can tools like automated element tagging and opinion corpus, which have proven beneficial for comment study in other realms, also come handy for trend analytics in Tweets? This is where we start looking.

Keywords: Tweet, social media,sentimental,positive ,negative,neutral, Social networking,machine learning

Project Title: Anti-Theft Protection of Vehicle by GSM and GPS and Accident Detection

Project ID: CSE_54



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Project Execution Time: In_House

Project Category/Area: Environmental_Societal

Abstract: Recently vehicle tracking system is getting vast popularity because of the rising number of the stolen vehicles. This project explores how to avoid this kind of stealing and provides more security to the vehicles. The implemented system contains a single board embedded system, which is equipped with Global System for Mobile Communication (GSM) and Global Positioning System (GPS) along with a microcontroller installed in the vehicle. If the vehicle is met with an accident, an immediate message is sent to the ambulance with the current location of the vehicle. In response to which emergency action can be taken by them immediately. Vehicle tracking systems have brought this technology to the day-to-day life of the common person.

Keywords: Vehicle tracking, Global system, Mobile communication, microcontroller

Project Title: MUSIC RECOMMENDATION USING FACIAL EXPRESSIONS		Project ID: CSE_55
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Project Execution Time: In_House

Project Category/Area: Reaearch_Oriented

Abstract: Recent studies confirm that humans respond and react to music and that music has a high impact on a person's brain activity. People tend to listen to music based on their mood and interests. This project focuses on creating an application to suggest songs for users based on their mood by capturing facial expressions. A facial expression is a form of nonverbal communication. In this system, computer vision components are used to determine the user's emotion through facial expressions. Once the emotion is recognized, the system suggests a play-list for that emotion, saving a lot of time for a user over selecting and playing songs manually. Every time the user wishes to generate a mood-based playlist, the user takes a picture of themselves at that instant. This image is subjected to facial detection and emotion recognition techniques, recognizing the emotion of the user. The music that best matches this emotion is then recommended to the user as a playlist

Keywords: Emotion,FISHER FACE

Project Title: Automated Online Proctoring using Artificial Intelligence

Project ID: CSE_56



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Project Execution Time: In_House

Project Category/Area: Reaearch_Oriented

Abstract: Remote proctoring is the need for the hour in the current era of social distancing. Education institutes and universities need to explore technology to continue their critical academic process of exams. AI-powered remote proctoring is the one thing that can ensure the end to end security for Online Exams and prevent the process from cheating and malpractices. Due to the COVID-19 pandemic, the whole globe is following some serious downfall in terms of economy, even the day-to-day activities are being restricted due to enforcements like lockdown!

Keywords: Remote proctoring, COVID-19

Project Title: Multi-Security Mechanism for Cloud Data**Project ID:** CSE_57**Name of the Guide:** Ashwini N**Guide Email ID:** ashwinilaxman@bmsit.in

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Project Execution Time: In_House**Project Category/Area:** Reaearch_Oriented

Abstract: In this project, we propose a two-factor data security protection mechanism with factor revocability for the cloud storage system. Our system allows a sender to send an encrypted message to a receiver through a cloud storage server the sender only needs to know the identity of the receiver but no other information. The receiver needs to process two things in order to decrypt the ciphertext. The first thing secret key stored in the computer. The second thing is a unique personal security device that connects to the computer it is important to decrypting the ciphertext without either piece. More importantly, once the security device is stolen, this device can be revoked. It can be used to decrypt any ciphertext. This can be done by the cloud server which will immediately, execute some algorithms to change the existing ciphertext to be undecryptable by this device.

Keywords: Ciphertext, decrypting, cloud storage

Project Title: ANALYTICAL PROFILING AND PATTERN ANALYSIS OF SOCIAL MEDIA USING BERT APPROACH

Project ID: CSE_58



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Project Execution Time: In_House

Project Category/Area: Reaearch_Oriented

Abstract: Twitter being one of the most sophisticated social networking platforms whose users base is growing exponentially, terabytes of data is being generated every day. Technology Giants invest billions of dollars in drawing insights from these tweets. The huge amount of data is still going underutilized. The main of this paper is to solve two tasks. Firstly, to build a sentiment analysis model using BERT (Bidirectional Encoder Representations from Transformers) which analyses the tweets and predicts the sentiments of the users. Secondly to build a personality prediction model using various machine learning classifiers under the umbrella of Myers-Briggs Personality Type Indicator. MBTI is one of the most widely used psychological instruments in the world. Using this we intend to predict the traits and qualities of people based on their posts and interactions in Twitter. The model succeeds to predict the personality traits and qualities on twitter users. We intend to use the analyzed results in various applications like market research, recruitment, psychological tests, consulting, etc, in future.

Keywords: MBTI, BERT, market research, psychological tests, personality indicator

Project Title: SOCIAL NETWORKING WEBSITE**Project ID:** CSE_59**Name of the Guide:** Dr. Anjan Krishnamurthy**Guide Email ID:** anjank-cse@bmsit.in

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Project Execution Time: In_House**Project Category/Area:** Application_Oriented

Abstract: Social media today plays an expanding significant role in society, the information technology industry and the field of computer science. The use of social media is a hot-topic for many organizations, with the aim to identify approaches in which companies can use applications to increase profits and grow product awareness. On a day-to-day basis, users from across the globe are becoming increasingly frustrated, wasting valuable time, scrolling through irrelevant content while companies are wasting money advertising to users outside their market. In order to achieve the optimal benefits from social media, for both users and businesses, the development of these technologies require approaches that focus on specific human interests and values. This project aims to deliver a solution by developing a platform with the goal of delivering a social experience that targets a specific user base. As the authors are in the field of computer science the focus of the content will be to appeal to the tech savvy user. The proposed solution will be a web application that will offer a unique online community to users and businesses interested in technology.

Keywords: Social Media, Web application, Social Network, media and its applications

Project Title: Automatic Traffic Violation Reporting and Recording System

Project ID: CSE_6



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Project Execution Time: In_House

Project Category/Area: Environmental_Societal

Abstract: India accounts for about 5 lakh road accidents annually, one of the highest in the world, in which about 1.5 lakh people die and another 3-lakh become crippled. In addition, this causes many economic, social and psychological problems that have negative impact on the development of the country. The main cause of the majority of these accidents is the violation of the traffic rules: driving with high speed, crossing a red-light signal, not keeping sufficient distance with the front vehicle in the highways, driving in the wrong direction, etc. As the number of roads and streets are very large and the total length of these roads is very long, there is no way to fully monitor all of them all the time by Traffic Patrol. We propose a system to monitor these violations and report it in a timely manner to help prevent these accidents. Our system proposes a method for vehicle license plate recognition of vehicles causing the violation on the basis of KNN (K Nearest Neighbor) algorithm. It can be used for accurate identification of vehicle owners through the computer system.

Keywords: KNN Traffic Violation License plate detection Image detection

Project Title: Automated Traffic Signaling System**Project ID:** CSE_60**Name of the Guide:** Mrs. Mari Krithima A**Guide Email ID:** kirthi81@gmail.com

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Project Execution Time: In_House**Project Category/Area:** Environmental_Societal

Abstract: At present, traffic congestion is the most critical problem that most cities are dealing with. This study provides an urban traffic control system that is created based on real-time traffic flow statistics in order to improve urban traffic orders and alleviate traffic pressures. The suggested concept incorporates traffic control theory, the use of a single chip computer and ultrasonic technology, as well as the creation and study of a traffic control system. When compared with conventional control systems, the system has the following features: the duration time of traffic signals can be intelligently regulated based on the number of road vehicles; lane priority may be assigned based on actual demand when a vehicle is rarely used at night, and so on. As a result, the traffic signal's duration time can be intelligently changed in response to real-time road traffic flow data.

Keywords: Traffic flow statistics, Conventional control systems, ultrasonic technology, Real-time road traffic flow

Project Title: Agile Coach**Project ID:** CSE_61**Name of the Guide:** Dr. Anil G N**Guide Email ID:** anilgn@bmsit.in

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Project Execution Time: Industry**Project Category/Area:** Industry_Project

Abstract: Agile project management is an iterative approach to deliver a project. Agile life cycle is composed of several iterations or incremental steps towards the completion of a project. Iterative approaches are frequently used in software development projects to provide flexibility, since incremental iterations gives the option to adjust as you go, rather than following a pre-determined path. Today, teams are using the popular Agile tools available in the market. However, most teams end up using multiple products to support different processes such as Project Management, Engineering and Agile Learning. We surveyed existing literature to determine the popular tools supporting Agile execution for software projects. We looked at what is working well and what could be better? There are plenty of project management tools that are available in the market. Some of the most popular ones are Jira, Asana, Trello, Zoho projects and many more. Some of the features are create user stories and issues, plan sprints, distribute tasks across your software team, to prioritize and discuss your team's work, centralize your team communication, see real-time reporting on your team's work. During our analysis, we understood that there are many limitations present in the existing tools. The limitations are the cost to ROI ratio. Some programs can be very costly with very little ROI. Another ways of this being costly is the need to custom design solutions for each problem or solve it by purchasing multiple software programs. The project will be developed using Agile and its Methodologies. The engineering part of the project will be determined after complete research and from the system requirements. As of now we cannot establish the system requirements as it is too early to determine all the technologies that will be used to develop this project. Based on the development process, the requirements will be identified. A survey is done to understand the difficulties faced by the people who are using the current system. Based on the survey report an analysis is made and the system is designed. Our goal is to develop a product, that provides holistic tools to execute Agile projects. The product includes tools for project management, engineering and Agile related e-learning.

Keywords: Agile - Project management - Android Studio - Scrum

Project Title: Healthcare Portal Using Machine Learning**Project ID:** CSE_62**Name of the Guide:** Dr. Anil G N**Guide Email ID:** anilgn@bmsit.in

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Project Execution Time: Industry**Project Category/Area:** Application_Oriented

Abstract: It is usually a painstaking and a time-consuming process for a doctor to predict the disease of the patients without prior knowledge of the patient's medical history. It is safe to say that there are too many manual processes in medicine, which makes it a tedious job for the doctors. There are lots of ways that how Machine learning in health care can be beneficial. One of the primary advantages of machine learning in healthcare is the identification and diagnosis of disease and ailments, which are otherwise considered to be as hard to diagnose. The aim of this project is to develop a system to maintain the medical history of the patients, predict the disease, and connect the patients with the doctor. With a website portal that unites patient records management and doctor diagnosis, the burden on doctors for documentation work is tremendously reduced. If the portal also consists machine learning models, things become even easier. Doctors can be assisted in reaching the right diagnosis for a patient. In some cases, even the patient can get diagnosis without any doctor's help by simply entering his details. Machine learning not only can diagnose but can also predict the risk of contracting a disease based on patient characteristics. Digitalization of hospital management also brings its own huge array of benefits. The internet massively improves the outreach of the hospital while also reducing the infrastructure needs of the hospital for non-critical cases. Storing of records can be made fully automated and secure. Now doctors can easily and quickly access any patient's past medical history without depending heavily on patients to reproduce. Additionally, patients can fetch details for a doctor of his medical needs quickly by simply accessing the doctor information thus also further bridging the gap between patients and doctors.

Keywords: Healthcare, Website, Machine Learning, Python, Flask

Project Title: PLANT DISEASE DETECTION

Project ID: CSE_63



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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: Identification of diseases in plants is of great significance in the agriculture sector to acquire an efficient crop yield. Conventionally, experts used to monitor the crop yield visually and these observations were used for the identification of plant diseases. This method is a highly inefficient and cumbersome process. It is very difficult for humans to perceive and classify these plant diseases. In large farms, disease present in a single plant can easily spread across the whole farm. Therefore early identification and diagnosis of the disease are very crucial. To deal with this complication, an automatized computer-based solution is to be developed to ease the process of identifying and categorizing plant diseases based on the external symptoms revealed by the plants. With the aid of various previous research papers, we have proposed a model for automatic plant disease detection using Convolutional neural networks which can detect diseases in plants based upon the leaf images supplied as input to the model.

Keywords: Deep Learning, Leaf Disease Detection, Convolutional Neural Networks(CNNs), Leaf Disease Classification

Project Title: An Intelligent Based Voice Meeting System Using NLP

Project ID: CSE_64



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Project Execution Time: In_House

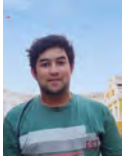
Project Category/Area: Application_Oriented

Abstract: Speech is the most powerful way of communication with which human beings express their thoughts and feelings through different languages. The features of speech differ with each language. However, even while communicating in the same language, the pace and the dialect varies with each person. This creates difficulty in understanding the conveyed message for some people. Sometimes lengthy speeches are also quite difficult to follow due to reasons such as different pronunciations, paces, and so on. Speech recognition which is an interdisciplinary field of computational linguistics aids in developing technologies that empower the recognition and translation of speech into text. Text summarization extracts the utmost important information from a source which is a text and provides an adequate summary of the same. The research work presented in this paper describes an easy and effective method for speech recognition. The speech is converted to the corresponding text and produces summarized text. This has various applications like lecture notes creation, summarizing catalogs for lengthy documents, and so on. Extensive experimentation is performed to validate the efficiency of the proposed method.

Keywords: Automatic Speech Recognition System(ASR)

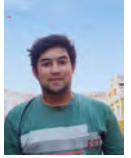
Project Title: Chest Computed Tomography Analysis for Probabilistic Determination of Coronavirus Infection

Project ID: CSE_7



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Project Execution Time: In_House

Project Category/Area: Reaearch_Oriented

Abstract: One of the most morbid infections in recent times is Covid-19, having a potential to cause death in human beings. Covid-19 are a group of RNA viruses that cause disease in mammals and birds. In humans and birds, they cause respiratory tract infections that can go from gentle to deadly. This pandemic disease has already caused thousands of deaths and has infected several millions of people worldwide. The exponential expansion in COVID-19 patients is overpowering medical care frameworks over the world. The death rate is increasing drastically as a result. An effective testing method is to conduct swab tests in order to determine if the person is infected with Covid-19. This becomes very handy in the medical field as diagnosis is rather quick and simple. However, medical image processing provides further information, and is an emergent field in recent times. We have proposed the use of modern Image Processing techniques to detect COVID-19 patients using the data set of CT (Computed Tomography) scan images in an automated manner. This data set is used to perform a comparison between different CT scan images for COVID-19 positive cases along with Normal and Viral Pneumonia images. The efficiency of the algorithms is measured by determining the accuracy of the data, along with the time consumed in performing operations on this data-set. The main objective is to use a fairly accurate and fast technique to analyse the large data set.

Keywords: Covid 19, Computed Tomography

Project Title: Therapy bot for Potential Users With Depression During COVID-19 Using Sentiment

Project ID: CSE_8



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Project Execution Time: In_House

Project Category/Area: Industry_Project

Abstract: In these past few years, there has been a huge growth in the use of microblogging and social media updating. Spurred by that growth, companies are seeking ways to mine information about what people are feeling. Our project is to build an effective system to mine the sentiments/ mental health of people during Covid-19 pandemic. It is to effectively analyze, extract, train a vast amount of data. The results will classify the customers perspective into negative and positive sentiments. To help us classify the texts in an easier way, hashtags will be an added advantage. By also developing a chat-bot powered by NLP, it will help us identify a customer's sentiment and provide privacy, confidentiality. Main objective is to help a user understand his/ her mental state as much as possible and to self-regulate. To provide end-to-end encryption of user bot interaction since it is sensitive information.

Keywords: Sentiment Analysis, BERT, Chat-bot.

Project Title: Peer to Peer Social Media Network Using Blockchain

Project ID: CSE_9



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Project Execution Time: In_House

Project Category/Area: Product_Development

Abstract: The Rise of Social Media has become quite influential in our lives. But with this rise and the huge influx of user data available from all these Social media websites, mining of data by these corporations that own these platforms have become rampant. This issue of data privacy & security will remain as long as these platforms remain monopolizing this space of Social media. We aim to eliminate this issue with the help of a peer to peer block chain network. A block-chain, originally block chain, is a growing list of records, called blocks that are linked using cryptography. Each block contains a cryptographic hash of the previous block, a timestamp, and transaction data. By design, a block chain is resistant to modification of the data. Social media is also being used to spread false information and rumours. Large-scale spreading of false information could pose severe social and economic damages. We also aim to limit the propagation of false information in the network. By decentralizing the entire social media network with the help of block chain we aim to make the network truly owned and monetized by the user. A network by the user for the user.

Keywords: Block chain, Decentralized, Social media, False information, Cryptography, Data privacy, Data Monetization

ELECTRICAL & ELECTRONICS ENGINEERING

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Project Title: OPTIMISATION OF SOLAR ENERGY**Project ID:** EEE_1**Name of the Guide:** DR MADHU PALATI**Guide Email ID:** madhupalati@bmsit.in

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Project Execution Time: In_House**Project Category/Area:** Application_Oriented

Abstract: In recent years, the rapid boost of variable energy generations particularly from wind and solar energy resources in the power grid has led to these generations becoming a noteworthy source of uncertainty with load behavior still being the main source of variability. Due to the challenge of climate and energy crisis, renewable energy generation including solar generation has experienced significant growth. Increasingly high penetration level of photovoltaic (SOLAR) generation arises in smart grid. Solar power is intermittent and variable, as the solar source at the ground level is highly dependent on cloud cover variability, atmospheric aerosol levels, and other atmosphere parameters. The inherent variability of large-scale solar generation introduces significant challenges to smart grid energy management. Accurate forecasting of solar power/irradiance is critical to secure economic operation of the smart grid. This paper provides a comprehensive review of the theoretical forecasting methodologies for both solar resource. Applications of solar forecasting in energy management of smart grid are also investigated in detail. Generation and load balance is required in the economic scheduling of the generating units and in electricity market trades. Energy forecasting can be used to mitigate some of the challenges that arise from the uncertainty in the resource. Solar power forecasting is witnessing a growing attention from the research community. The paper presents an artificial neural network model to produce solar power forecasts.

Keywords: Solar Power forecasting, irradiance, Artificial Neural network, Machine Learning,

Project Title: Deep Learning Based Classification of COVID-19 Images

Project ID: EEE_10



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Project Execution Time: In_House

Project Category/Area: Reaearch_Oriented

Abstract: The disease caused by corona virus is come under the category of sudden/acute infectious disease which is caused by SARS-CoV-2. At time WHO stated that disease of COVID-19 is a worldwide contagious illness. According to WHO, this contagious disease is a 3rd acute contagious disease which is caused by infection due to corona virus in the current century after anticipated SARS. Till now the exact mechanism of COVID-19, how it produces its ill effects to the host body is still not clear. In this study, a new model for automatic COVID-19 detection using raw chest X-ray images is presented. The proposed model is developed to provide accurate diagnostics for binary classification (COVID vs. No-Findings) and multi-class classification (COVID vs. No-Findings vs. Pneumonia). The Darknet model was used in our study as a classifier for the you only look once (YOLO) real time object detection system. We implemented 50 convolutional layers and introduced different filtering on each layer. Our model can be employed to assist radiologists in validating their initial screening, and can also be employed via cloud to immediately screen patients.

Keywords: Chest X Rays, Classification, Deep Learning


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Project Execution Time: In_House**Project Category/Area:** Reaearch_Oriented

Abstract: Graphene is considered as a superior material because its physical and chemical properties are excellent, for example high carrier mobility, large surface area, good mechanical scalability and super thermal conductivity. The most important application of graphene is used as a supercapacitors. Graphene-based supercapacitor has been extensively studied due to excellent properties such as high specific surface area, good electrical properties and stability of chemical as well as thermal. In addition, by thermochemical exfoliation method from graphite, a graphene source is going to obtain with low cost from graphene oxide intermediate product (GO). To be used as an electrode material, graphene (rGO) is reduced from GO by following thermal, chemical, or flash reduction. However, for the application such as supercapacitors, the material must have high performance. Meanwhile, the properties of the electrode material and the electrode/electrolyte interface are going to determine the supercapacitor's performance. Reduced graphene oxide (rGO) was synthesized from graphite flakes utilizing improved Hummers method via graphene oxide (GO) precursor. The oxidation of graphite and subsequent reduction of GO were confirmed by using FTIR, XRD, Raman spectroscopy and TEM techniques

Keywords: Graphene, Reduced graphene oxide (rGO), Super capacitor, FTIR, XRD

Project Title: INDUSTRY POWER CONSUMPTION ENALTY MINIMISATION USING APFC UNIT		Project ID: EEE_12
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Project Execution Time: In_House

Project Category/Area: Industry_Project

Abstract: Efficient generation of power at present is crucial as wastage of power is a global concern. Power factor measures a system's power efficiency and is an important aspect in improving the quality of supply. In most power systems, a poor power factor resulting from an increasing use of inductive loads is often overlooked. A power factor correction unit would allow the system to restore its power factor close to unity for economical operation. The advantages of correcting power factor include reduced power system losses, increased load carrying capabilities, improved voltages and much more. The aim of this project is to build an Automatic Power Factor Correction (APFC) Unit, which is able to monitor the energy consumption of a system and automatically improve its power factor.

Keywords: Automatic Power Factor Correction (APFC), Power factor, power Quality, Power Consumption.

Project Title: AUTONOMOUS SYSTEM FOR TABLE-BASED REARRANGEMENT OF OBJECTS

Project ID: EEE_13



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Project Execution Time: In_House

Project Category/Area: Product_Development

Abstract: The ever-increasing ubiquity of robotics in the 21st century presages a new global paradigm – one where every major industry and sector attempts to automate its systems in some way. This inexorable transition from manual, human labour to precise and accurate robot-enabled automation offers innumerable advantages, from ensuring better working conditions to increasing long-term profit margins. Several ground-breaking discoveries and breakthroughs have facilitated in the proliferation of robotics and intelligent AI in public and private sectors. This project presents a unique autonomous robotic system to manipulate objects on a given platform. It is a lightweight yet highly robust system which can accurately perceive the shape and orientation of any given object and subsequently grasp it in order to move the object in accordance with a desired configuration. This process is repeated for all the objects present on the platform. The robot is also capable of performing more complex manoeuvres such as object stacking and sorting through a dense clutter. The system utilises a failure-proof pipeline model that can successfully solve common errors such as missed grasps and inaccurate positioning. Object detection was calibrated and honed purely through synthetic data, validating the flexibility and scalability of the system. Objects can be sorted into target configurations into three levels of difficulty, with minimal tolerances and fairly good accuracy

Keywords: AUTONOMOUS, TABLE-BASED REARRANGEMENT, robotics, intelligent AI, object stacking and sorting, grasps and inaccurate positioning

Project Title: Smart Grid Inspection Robot

Project ID: EEE_14



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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: As day to day energy consumption has increased over the last decade, it is essential to get rid of illegal electricity usage which causes an undue additional burden on the power distribution system. The electrical power distribution systems are inefficient causing wastage of about 30% during transmission and distribution from power plants to the utilization point also considering the theft of electricity these days. This paper is to share innovative robot application for transmission grid maintenance, operation & inspection. A movable device was designed to travel along the transmission lines to constantly examine varying parameters. The white collar app blynk was used for displaying the results of the monitored parameters. The Inspection robot intimates the operator in charge through IoT in case of any failure or anomaly. To make device more efficient parameters like voltage, current, GPS, temperature and distance are measured.

Keywords: Iot, Internet of things, Transmission Lines, Fault detection, Node MCU, ESP8266, GPS, Ultrasonic Sensor, Sensors, LM-35, Blynk, Remote Sensing.

Project Title: Electrically Powered Three-wheeler		Project ID: EEE_2
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Project Execution Time: In_House

Project Category/Area: Product_Development

Abstract: The project revolves around the developing trend of the use of electric vehicles in the modern 21st century. There are more than one type of electric-powered vehicles available in the market today. Namely, Hybrid Electric Vehicles (HEVs), Plug-in Hybrid Electric Vehicles (PHEVs), and Battery Electric Vehicles (BEVs). Although they possess various modes of operation and have different functions, all these systems possess the fundamentals. A motor, a driver/controller, a battery management system, and a battery pack. This project deals with designing and developing a complete BEV. The entire system is designed as understood by us, referring to several journals, research papers, and professionals in the field. The controller, motor, and battery management system have been virtually designed at this point in our project.

Keywords: Electric Vehicle, Battery Management, BLDC Motor, Motor Controller,

Project Title: AUTONOMOUS VEHICLE		Project ID: EEE_3
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Project Execution Time: In_House

Project Category/Area: Product_Development

Abstract: In this project, we tackle the development of a robotic-car with hardware control, lane detection, mapping, localization and path planning capabilities. We aim for a completely independent, reliable and robust system that can traverse a single lane track bordered by white lines on an optimal path to detect the track boundaries. We can implement by two different approaches. A RANSAC approach, which approximates the lines by random sampling of splines, and a polyline approach, which applies primitive image processing in combination with a road model. To map the environment, odometry and vision-based information is fused by a particle filter based Simultaneous Localization and Mapping system. The map is afterwards used in conjunction with Adaptive Localization. For path planning, a one-step continuous curvature approach based on sensor or maps data is used. To offer more detailed information about the environment, we introduce a generic map analysis system. It is employed to evaluate the efficiency of certain paths on the track. In the second approach we can use PI Camera sensor to make a geographical imaging model with the help of matplotlib library and then optimize and images and identify potential objects to avoid and signs to look out for while driving.

Keywords: CNN, CAR, RANSAC approach


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Project Execution Time: In_House**Project Category/Area:** Application_Oriented

Abstract: This project is based embedded system used for monitoring the voltage, current, and temperature and oil level of a transformer. Furthermore it is capable of recognizing the break downs caused due to overload, high temperature, over voltage and oil level intimation of transformer. The design generally consists of units, one in the substation unit, called as display unit, display units in the substation is where the voltage, current and temperature are monitored continuously by AVR microcontroller and is displayed through the display unit. The ultimate objective is to monitor the electrical parameters continuously and hence to guard the burning of transformer or power transformer due to the constraints such as overload, over temperature, input high voltage and double protection of CB operation by using the Internet of Things (IoT).

Keywords: Transformer, transient voltages, circuit breaker, IoT

Project Title: Electrically Powered Three-wheeler		Project ID: EEE_5
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Project Execution Time: In_House

Project Category/Area: Product_Development

Abstract: The project revolves around the developing trend of the use of electric vehicles in the modern 21st century. There are more than one type of electric-powered vehicles available in the market today. Namely, Hybrid Electric Vehicles (HEVs), Plug-in Hybrid Electric Vehicles (PHEVs), and Battery Electric Vehicles (BEVs). Although they possess various modes of operation and have different functions, all these systems possess the fundamentals. A motor, a driver/controller, a battery management system, and a battery pack. This project deals with designing and developing a complete BEV. The entire system is designed as understood by us, referring to several journals, research papers, and professionals in the field. The controller, motor, and battery management system have been virtually designed at this point in our project.

Keywords: Electric Vehicle, Battery Management, BLDC Motor, Motor Controller,


Project Title: EZ-DATA MANAGEMENT SYSTEM**Project ID:** EEE_6**Name of the Guide:** MR. OZWIN DOMINIC D'SOUZA**Guide Email ID:** ozwindsouza@bmsit.in




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Project Execution Time: In_House**Project Category/Area:** Product_Development

Abstract: Student Data Management System deals with the maintenance of the student's attendance details and IA marks. It generates the attendance of the student on the basis of presence in class and maintains it on a daily basis. The staff will be provided with a separate username and password to maintain student data. A consolidated student data report will be generated on a monthly basis. Students and Parents will be provided with a separate username and password to view a particular data. Also, analytics of the entire class will be shown.

Keywords: Application Programming Interface, Hypertext pre-processor, Structured query language, Operating System, Software Development Life Cycle, Rapid Application Development

Project Title: Solar Operated Smart Elevator		Project ID: EEE_7
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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: In day-to-day life, elevator has become an important part. It acts as a transport device that we use every day. Elevator is used to move persons and goods in high raise buildings. In this paper the microcontroller AT89S52 is used to control the elevator. This paper documents the results of a microcontroller-based elevator control system. This system is controlled on the voice of any individual in order to assist disabled folks in travelling from one location to another without the assistance of others. Microcontroller is the main part of this system. This system can be used in all automation control applications like remote controllers, automatic automobiles, indicating type measuring instruments, telephone printing machines, hand-held communication devices, and many other day to day life products. This project can also be used for security purpose and in emergency conditions as it is microcontroller based. The microcontroller used in this project is used for the programming purpose for moving the elevator by storing the data and processing the data according to the user desires. This project is a human-machine communication system. also, in this project solar power is used to reduce the consumption of electricity from mains. Using solar as alternative power source reduces the electricity bill and power that we get from grids which is largely generated from non-renewable energy source like coal, uranium, fossil fuels, etc.

Keywords: Photovoltaic cells, Buck boost converter, Speech Control Unit, Arduino Uno Microcontroller board

Project Title: IMAGE STEGANOGRAPHY APPLICATION**Project ID:** EEE_8**Name of the Guide:** MRS. SHILPA G**Guide Email ID:** shilpag@bmsit.in

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Project Execution Time: In_House**Project Category/Area:** Application_Oriented

Abstract: In present times, with rapidly increasing amount and variety of data being generated, stored and transmitted through various mediums, it has become very important to secure our personal data from a third party or any malicious attack. This project addresses the security problems related to transmission of the data over internet network and deals with ensuring data security through image steganography technique. Steganography is a method of cloaking secret data, by embedding it into an audio, video, image or text file. The purpose of steganography is to maintain the integrity of data/information exchanged between two parties by ensuring that no third party can detect or view it. It is one of the methods employed to protect secret or sensitive data against malicious attacks. There are various types of steganography techniques used such as audio, video, text etc. In this project we are going to deal only with image steganography, which as the name suggests, refers to the process of concealing data within an image file. The proposed algorithm in this project uses binary codes and pixels inside an image. The zipped file is used before it is converted to binary codes to maximize the storage of data inside the image.

Keywords: Stenography, Image Stenography, Edge adaptive scheme, Least Significant Bit algorithm

Project Title: RAILWAY CRACK DETECTION SYSTEM**Project ID:** EEE_9**Name of the Guide:** SMT. MANJULA B K**Guide Email ID:** manjulabk@bmsit.in

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Project Execution Time: In_House**Project Category/Area:** Product_Development

Abstract: The Indian Railways has one of the largest railway networks in the world, criss- crossing over 1,15,000 km in distance, all over India. However, with regard to reliability and passenger safety Indian Railways is not up to global standards. Among other factors, cracks developed on the rails due to absence of timely detection and the associated maintenance pose serious questions on the security of operation of rail transport. A recent study revealed that over 25% of the track length is in need of replacement due to the development of cracks on it. Manual detection of tracks is cumbersome and not fully effective owing to much time consumption and requirement of skilled technicians. This project work is aimed towards addressing the issue by developing an automatic railway track crack detection system. This work introduces a project that aims in designing robust railway crack detection scheme, A system which avoids the train accidents by detecting the cracks on railway tracks. And also capable of alerting the authorities in the form of SMS messages along with location by using GPS and GSM modules. The system also includes a distance measuring sensor which displays the track deviation distance between the railway tracks.

Keywords: Crack detection, sensor, GSM, railway track

ELECTRONICS & COMMUNICATION ENGINEERING

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Project Title: Traffic Pal—AI based smart traffic controller**Project ID:** ECE_19**Name of the Guide:** Dr. Vijayalakshmi G V**Guide Email ID:** vijayalakshmi@bmsit.in

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Project Execution Time: In_House**Project Category/Area:** Environmental_Societal

Abstract: Traffic congestion is a severe problem in most cities across India and the world. Therefore, we identified the need of an automated system with decision making capabilities based on density of the traffic at any junction. Present day traffic signalling systems have a fixed time and operate for a fixed duration even when the road is completely empty or it has a kilometre long traffic jam. A lot of times it has been noticed in these scenarios where the violation of traffic rules was a common sight such as riders without helmets, skipping red lights, over speeding etc. These violators were caught by the traffic police putting them at high risk of accidents due to high density of traffic. Therefore, we got motivated to help out our traffic police force by making “TRAFFIC PAL” which will be an intelligent system that will control the traffic based on density flow and keep a check on riders without helmets and the people bouncing signals. The smart system will also capture the number plate details and send it to the nearest police station where it can be maintained by them in a database.

Keywords: traffic, automation, helmet detection, signal bouncing detection, violations, number plate detection, traffic density.

Project Title: Text Extraction and Translation from Image		Project ID: ECE_20
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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: Communication is an essential part of human beings, and in the world today there are almost thousands of languages being used for communication, a person knowing and learning all the languages is not possible. Hence this causes the problem of languages, acting as barrier for communication and leads to various other problems. So translation is required to convert one language to other languages, so that people can easily communicate each other across the globe. In the proposed system the problem is overcome by using software tools that convert the required image or document to any desired languages. The proposed method is an assistive text reading that helps to read text present on the text labels, printed notes and products in their own respective languages. It combines the concept of Optical Character Recognition (OCR), Translator, Text to Speech Engine.

Keywords: OCR, Text, translation, text detection

Project Title: DESIGN AND IMPLEMENTATION OF AUTOMATED FIRE FIGHTING AND RESCUING ROBOT AT RISK		Project ID: ECE_21
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Project Execution Time: In_House

Project Category/Area: Environmental_Societal

Abstract: An accidental fire is a type of disaster which causes irreversible harm to us. Firefighting is an extreme task which is performed by human who puts themselves in harm's way while trying to rescue the victims. Firefighting Robot is designed to help people in any destructive situation where the robot can extinguish burnt areas immediately using an autonomous system. Most robots assist only in small ways, helping fight fires from a distance or monitoring outside fire scenes. An indoor fire-fighting robot is capable of performing rescue operations without risking personnel, including fire extinguishing and helping people at risk. The idea is to create a Robot Technology which will be able to detect the exact direction of the fire source and sense accurately with increased flexibility, reducing the risk of fire fighters and human beings. This autonomous system will be designed using programming in ESP32 with Wi-Fi SoC and other additional circuits.

Keywords: Embedded System, SoC.

Project Title: Digital Design of Optimized DCTQ Processor for Image Compression		Project ID: ECE_22
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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: In this era of Internet of Things, wherein every 'thing' is integrated within the existing internet architecture, it becomes quite necessary that embedded computing systems process quickly, occupy less area and consume low power. This would enable them to work quickly with real time data and have a large shelf life. As such there is a need for development of optimized algorithms and their efficient implementation in hardware. This project presents a novel architecture for obtaining, DCTQ coefficients suitable for FPGA Implementation. The design is highly parallel and pipelined so as to exploit the massive parallelism of FPGAs and occupies considerably less area with a very high processing speed

Keywords: DCTQ,Verilog,FPGA.

Project Title: Smart Shopping Cart**Project ID:** ECE_23**Name of the Guide:** Ravindra.V.Asundi**Guide Email ID:** ravindra_v_asundi@bmsit.in



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Project Execution Time: In_House**Project Category/Area:** Product_Development

Abstract: has been created to maintain social distancing , minimal contact, wearing mask and sanitizing regularly. This paper proposes a Contactless retail shopping system using RFID Technology. Due to the increase in the covid-19 cases lockdown are imposed around the world and only limited time is provided for the customers to shop there daily essentials hence queues are often found at supermarket. This happens because the service time between consumers takes a long time, the cashier need to scan barcode of all items one by one, and make the transaction process at the cashier slow. Making the cash payments increase the possibility of covid-19 virus transmission more due to the exchange of currency notes and coins which might be a primary carrier of virus. Contactless payment systems represent cashless payments that do not require physical contact between the devices used in consumer payment and POS terminals by the merchant. The proposed system enable each item be equipped with an RFID tag, and the shopping cart be equipped with an RFID reader, so the items that are inserted into the shopping cart will be scanned and calculated in the system. When the customer approach the payment desk the bill data is transferred to cashier computer through Zig-bee module. RFID or smart cards both can be used in transit payment applications. This type of payment is supported by the three largest payment system cards: Visa (Visa Contactless), MasterCard (MasterCard PayPass) and American Express (ExpressPay).scan and pay with UPI payment gateway also can be carried out. That promotes fast looking and simply pays with a non-queuing method. It reduces labor efforts and avoid the transmission of the covid-19 from one another.

Keywords: e-commerce, RFID, Contact less shopping

Project Title: Smart Shopping Cart**Project ID:** ECE_24**Name of the Guide:** Ravindra.V.Asundi**Guide Email ID:** ravindra_v_asundi@bmsit.in


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Project Execution Time: In_House**Project Category/Area:** Product_Development

Abstract: has been created to maintain social distancing , minimal contact, wearing mask and sanitizing regularly. This paper proposes a Contactless retail shopping system using RFID Technology. Due to the increase in the covid-19 cases lockdown are imposed around the world and only limited time is provided for the customers to shop there daily essentials hence queues are often found at supermarket. This happens because the service time between consumers takes a long time, the cashier need to scan barcode of all items one by one, and make the transaction process at the cashier slow. Making the cash payments increase the possibility of covid-19 virus transmission more due to the exchange of currency notes and coins which might be a primary carrier of virus. Contactless payment systems represent cashless payments that do not require physical contact between the devices used in consumer payment and POS terminals by the merchant. The proposed system enable each item be equipped with an RFID tag, and the shopping cart be equipped with an RFID reader, so the items that are inserted into the shopping cart will be scanned and calculated in the system. When the customer approach the payment desk the bill data is transferred to cashier computer through Zig-bee module. RFID or smart cards both can be used in transit payment applications. This type of payment is supported by the three largest payment system cards: Visa (Visa Contactless), MasterCard (MasterCard PayPass) and American Express (ExpressPay).scan and pay with UPI payment gateway also can be carried out. That promotes fast looking and simply pays with a non-queuing method. It reduces labor efforts and avoid the transmission of the covid-19 from one another.

Keywords: e-commerce, RFID, Contact less shopping


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Project Execution Time: In_House**Project Category/Area:** Product_Development

Abstract: has been created to maintain social distancing , minimal contact, wearing mask and sanitizing regularly. This paper proposes a Contactless retail shopping system using RFID Technology. Due to the increase in the covid-19 cases lockdown are imposed around the world and only limited time is provided for the customers to shop there daily essentials hence queues are often found at supermarket. This happens because the service time between consumers takes a long time, the cashier need to scan barcode of all items one by one, and make the transaction process at the cashier slow. Making the cash payments increase the possibility of covid-19 virus transmission more due to the exchange of currency notes and coins which might be a primary carrier of virus. Contactless payment systems represent cashless payments that do not require physical contact between the devices used in consumer payment and POS terminals by the merchant. The proposed system enable each item be equipped with an RFID tag, and the shopping cart be equipped with an RFID reader, so the items that are inserted into the shopping cart will be scanned and calculated in the system. When the customer approach the payment desk the bill data is transferred to cashier computer through Zig-bee module. RFID or smart cards both can be used in transit payment applications. This type of payment is supported by the three largest payment system cards: Visa (Visa Contactless), MasterCard (MasterCard PayPass) and American Express (ExpressPay).scan and pay with UPI payment gateway also can be carried out. That promotes fast looking and simply pays with a non-queuing method. It reduces labor efforts and avoid the transmission of the covid-19 from one another.

Keywords: e-commerce, RFID, Contact less shopping

Project Title: Teaching Neural Network to Read Hand Writing		Project ID: ECE_26
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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: In the field of computer vision, handwritten character/Text identification is gaining tremendous demand. In order to interpret and forecast manually written word or downloaded, we can introduce a better and more detailed method. A multilayer support forward device class called Coevolutionary. Network is taken into account. In extracting and using the function data, a Coevolutionary Network has an advantage over other Artificial Neural Networks, improving the understanding of 2D forms with greater precision and invariant to localization, scaling and other distortions. We are going to take the appropriate dataset for preparation and identification. The primary purpose of this dataset is to categorize the handwritten data. For training and research, we have a limit of a few thousand images. For better outcomes, each digit is depicted as a 28 by 28 grey scale pixel intensity. The character is moved to LeNet input layers and then to the hidden layers comprising two sets of convolutional, activation and pooling layers. Finally, the totally related layer is mapped and a SoftMax classifier is provided to classify the words. We are going to implement this network using keras, tensor flow deep learning inbuilt python library.

Keywords: Hand writing, CNN, Neural Networks, RNN

Project Title: Placement Management System**Project ID:** ECE_27**Name of the Guide:** Mrs. Mamatha K.R**Guide Email ID:** mamathakr@bmsit.in

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Project Execution Time: In_House**Project Category/Area:** Application_Oriented

Abstract: As we are moving forward in life, we are facing challenges everyday and till date we are trying to have a better solution to it. With the increasing number of human population, the crave for jobs and recruitment is also increasing in heavy demand day by day and this won't stop ever. Rather it would get worse. So, looking into this factor the placement offices are facing problems to conduct the recruitment process smoothly. They are looking forward to some automated and online process so that the officers can take a break and cut down their stress of work duty. In the view of this we bring you "Placement Management System."

Keywords: Placement, Management, Python, Cloud computing, Java


Project Title: IOT based air monitoring system**Project ID:** ECE_28**Name of the Guide:** Mrs. Mamatha K.R**Guide Email ID:** mamathakr@bmsit.in

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Project Execution Time: In_House**Project Category/Area:** Environmental_Societal

Abstract: According to recent reports, India has more than ten metropolitan towns at the top. The air quality record (AQI) in India dispatched in 2014 under Swachh Bharat Abhiyan screens air contamination on 10 scales going from low (green) to direct (yellow) to genuine (red) through information examination of different air tainting matters like pm 2.5, O3, NO2, SO2, CO. The current project develops an Internet of Things (IoT)-enabled air quality monitoring system that is adaptable to changing conditions and can estimate smoke, temperature, pressure, humidity, dew point, and PM levels. The framework may calculate defilement in a given neighbourhood and produce dissected data. The system technology's ease of use and user-friendliness allow it to be implemented in homes and small spaces.

Keywords: IOT,Air Quality,Arduino

Project Title: extraction and classification of brain tumor using Convolution neural network		Project ID: ECE_29
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Project Execution Time: In_House

Project Category/Area: Reaearch_Oriented

Abstract: Brain cancer classification is an important step that depends on the physician’s knowledge and experience. An automated tumor classification system is very essential to support radiologists and physicians to identify brain tumors. However, the accuracy of current systems need to be improved for suitable treatments. In this paper, we propose a hybrid feature extraction method with regularized extreme learning machine for developing an accurate brain tumor classification approach. The approach starts by extracting the features from brain images using the hybrid feature extraction method; then, computing the covariance matrix of these features to project them into a new significant set of features using principal component analysis (PCA). Finally, a regularized extreme learning machine (RELM) is used for classifying the type of brain tumor. To evaluate and compare the proposed approach, a set of experiments is conducted on a new public dataset of brain images. Experimental results proved that the approach is more effective compared to the existing state-of-the-art approaches, and the performance in terms of classification accuracy improved from 91.51% to 94.233% for the experiment of random holdout technique.

Keywords: classification, principle component analysis (PCA), hybrid feature extraction

Project Title: Doctor Pipes: A leakage and blockage detection robot		Project ID: ECE_30
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Project Execution Time: In_House

Project Category/Area: Environmental_Societal

Abstract: All pipe networks on the planet may confront leakage and blockages issues because of various reasons and this can prompt asset wastage, monetary loses, injuries and in most pessimistic scenarios may likewise lead to the death of individuals. The seriousness of the damage caused may rely upon the sort of material that is being shipped in the pipe. In these situations, it turns out to be crucial to distinguish the leaks and blockages and fix it before any huge accident takes place. Given the fact that these pipes are in some cases inaccessible by the people, it's anything but an immense exertion to recognize the leakage and to arrive at the leakage point as quickly as possible to minimize further damage. Considering the above state of affairs, this paper presents a portion of the current employed methodologies alongside the proposed approach for leakage and blockage detection and correction. It also discusses the progress made in the past and ongoing exploration.

Keywords: Pipe leakage, leak detection, pipeline, water distribution system, pipe inspection robot.

Project Title: REAL TIME PARKING MONITORING AND AUTOMATIC BILLING

Project ID: ECE_31



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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: Smart parking systems typically obtain information about available parking spaces in a particular geographic area and process it in real-time to facilitate vehicle parking at available positions. One of the key issues that smart cities relate to is car parking facilities and traffic management systems. The objective of this work is to design, analyze and implement “IoT based sensor enabled car parking system”, this enables the user to pre reserve parking slot from remote place with the help of application. Authentication of the valid booking is incorporated to benefit valid user. This system is implemented using low-cost IR sensors, RFID and controller and actuators.

Keywords: Sensors, RFID, Controllers


Project Title: HELPING AID FOR VISUALLY IMPAIRED**Project ID:** ECE_32**Name of the Guide:** Mr. Shivarudraiah. B**Guide Email ID:** shivab@bmsit.in

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Project Execution Time: In_House**Project Category/Area:** Environmental_Societal

Abstract: On a day to day basis we witness people with visual impairment, struggling to distinguish people and things around them. This also limits them from interacting with the surroundings and hence, curbs their desire to step out of their house and explore the world. The World Blind Union has predicted that the cases will rise from 36 million to 115 million by 2050 if the treatment is not handled by better funding. Thus, using technology in order to make life easy for the visually impaired people, is the need of the hour. We were not technically advanced in the recent past, but as of now, the technology is ready and if used by like-minded people towards a specific goal, anything is achievable. In order to provide the blind people a hearable environment, this work focuses on the field of assistive devices for visually impaired people. It converts the visual data captured into an alternate hearable message that can be easily interpreted by the user

Keywords: Raspberry Pi, Face recognition, Object detection, gTTS, Python, Haar Cascade Classifier

Project Title: RFID BASED ATTENDANCE SYSTEM		Project ID: ECE_33
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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: RFID (Radio Frequency Identification) is one of the solid and quick methods for recognizing any material article. Their huge favorable position is that they can read wirelessly, contain more data than standardized identification and progressively hearty in nature and in view of non-observable pathway innovation. RFID tags can read in any natural testing conditions where others read innovation likes barcode or optical card reader useless. In this research, we purposed a secure system that provides information about the attendance of students. In this framework when the card brought close to the RFID module, it reads the card data and its contrasts and the information in the program memory and showcases the corresponding name to that card. The attendance is saved in a Wamp server and the data manipulations are carried out.

Keywords: RFID, Wamp server

Project Title: Unmanned Rover**Project ID:** ECE_34**Name of the Guide:** Mrs. Chandra Prabha R**Guide Email ID:** chandra@bmsit.in

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Project Execution Time: In_House**Project Category/Area:** Application_Oriented

Abstract: The COVID-19 pandemic in India is part of the worldwide pandemic of coronavirus disease 2019. India currently has the largest number of COVID-19 cases in Asia and has the second largest number of cases worldwide just after United States. There is no respite in sight as of now as the number continue to increase after each passing day. The only possible control to the virus is the availability of a vaccine, which will take a few months to be available to the masses. Till then, the global economy has to start reopening slowly with several precautionary in place as advised by the WHO. The Government of Indian has also opened its economy with all the precautionary measures in place. Disinfecting of places of work, modes of transports, Hospitals, and common areas is emerging as a mammoth challenge which could be solved by Surface Disinfectant Rover with the objective of arresting the spread of COVID-19 virus and in agriculture we use traditional methods, Rover can automate one aspect which is pesticides. The novelty of this portable device lies in its innovative design of spraying of sanitising liquidbased disinfection methodologies.

Keywords: precautionary, sanitising

Project Title: Design of a Collision Warning System Using Image Processing And Development of an Android SOS Application

Project ID: ECE_36



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Project Execution Time: In_House

Project Category/Area: Environmental_Societal

Abstract: In order to avoid the growing number of accidents year after year, we have developed a system to reduce the occurrence of accidents. The system involves maintenance of safe distance from one vehicle to the other and thus avoiding collisions. Image processing techniques have been employed to maintain safe distance between vehicles. A display of distance along with caution notice to the driver of the vehicle is also developed. In case the accident occurs due to the negligence of the driver and also not paying heed to the caution alerts, then an SOS app has been developed to assist the driver both in sending information to the next of kin as well as to provide medical emergency services. Java software is used for the development of SOS app. Open CV is used for the processing of videos captured by web camera.

Keywords: Open CV, WEB applications, Collision Avoidance, Obstacle Detection, Android applications

Project Title: Agricultural Land Maintenance Robot**Project ID:** ECE_37**Name of the Guide:** Dr. C.S.Mala**Guide Email ID:** csmala@bmsit.in

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Project Execution Time: In_House**Project Category/Area:** Environmental_Societal

Abstract: In the process of crop production, there are several obstacles such as growth of weeds, lack of labour to prepare the land, and expensive equipment. We have developed a prototype of the robot that can be used for weeding, leveling and ploughing tasks. The project has been developed keeping the poor farmers in view. Hence an affordable system has been proposed. smaller, cheaper and efficient robot that can perform. The system also detects obstacles and avoids collision by taking a detour. An user-friendly webpage is developed to interact with the farmers. The webcam relays a live stream of the video onto the webpage for remote monitoring and also clicks snapshots which are processed in order to identify the unwanted weeds and determine the percentage of weeds present in each snapshot

Keywords: Collision Avoidance, Weed Detection, User Interface, Weeding Task

Project Title: IMAGE SECURITY USING DATA ENCRYPTION AND WATERMARKING

Project ID: ECE_38



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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: Digital multimedia data provides a robust and easy way for editing and modifying data. However, digital media distribution raises a concern for digital content owners as digital data can be copied easily without any loss in quality and content. This poses a big problem for the protection of intellectual property rights of copyright owners. Watermarking is a solution to this problem. It can be defined as embedding digital data, such as information about the owner, recipient, and access level without being detected in the host multimedia data. Watermarking algorithm is typically used to identify ownership of image data but not provide any security to the image data whereas encryption algorithm provides security to image data, but not the ownership. In this project, we aim to combine both watermarking and encryption techniques for security as well as authentication of an image data. We aim to work on digital image watermarking domain and devise some robust means to make the watermark withstand several attacks like JPEG compression and cropping. We will develop an algorithm that will compress the image, then embed the compressed image as a watermark on a cover image, and finally encrypt the image. The proposed method is highly advisable when image is sent through a digital network system. It will prevent digital data from cropping attacks. It will resist cropping when an attempt to distort the watermark will be made. As this is an effective and strong modification method, it will be useful to prevent exploitation of digital data. The encryption technique will provide the security to image data when it transfers data in a network and watermarking will provide ownership of image data at receiver end.

Keywords: Data encryption, Image, water marking, Security

Project Title: IOT BASED GREEN HOUSE MONITORING AND CONTROLLING USING RASPBERRY-PI

Project ID: ECE_39



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Project Execution Time: In_House

Project Category/Area: Environmental_Societal

Abstract: An automated greenhouse is to make a positive ecological condition that uses the nursery innovations to develop ideal creation of plants. It provides a good environment to grow plants even in the cold and cloudy days. In a farm the parameters like temperature and high humidity can affect the plants hence controlling of this environment is very essential in order to grow the plants. This is basically the motive of Internet of Things. Internet of Things (IoT) is one of the promising technologies which can be used for connecting, controlling and managing intelligent objects which are connected to the Internet using various protocols and means. The automated greenhouse helps to take care of this situation it maintains the parameters such as temperature, light and soil moisture when we are not at home. The aim of the project is to design and implement a greenhouse that can maintain the environment by taking the live sensor data or readings. The automated greenhouse system is based on the Raspberry Pi.

Keywords: Green house monitoring, Raspberrypi, Internet of things

Project Title: AUTOMATED SOWING AND WATER SPRINKLING ROBOT

Project ID: ECE_40



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Project Execution Time: In_House

Project Category/Area: Environmental_Societal

Abstract: Agriculture is the backbone of rural India. Farmers face problems such as lack of timely availability of efficient workforce, as many have migrated from country side. Hence, to reduce the burden of farmers, automation in the field of farming is necessary. Automated robots are being developed over the past two decades to assist the agriculture activities like ploughing, sowing, weeding, pesticide spraying and fruit picking all over the world. This paper deals with building up an indigenous low-cost semi-automatic robot prototype that carries out a couple of farming processes. The robot developed in this work is semi-automatic and will be able to sow seeds based on seed spacing and depth while also regulating watering of plants. The applications of this can range from efficient and intensive commercial farming to using it for research and backyard gardening purposes. The developed robot prototype is tested for its functionality and performance in a restricted area. The robot is able to automatically seed and water according the path set by the user using the GUI that was developed. The amount of watering is based on the soil moisture sensor reading that is taken between the two plants. The developed robot can be extended further by mounting it on a DC motor chassis which can be used to move the robot in the entire field. In daily operations related to farming or gardening watering is the most important practice and the most labor intensive task. No matter whichever weather it is, either too hot and dry or too cloudy and wet, you wont to be able to control the amount of water that reaches the plants. Modern watering systems could be effectively used to water plants when they need it. But this manual process of watering requires two important aspects to be considered: when and how much to water. In order to replace manual activities and making gardener's work easier, we have created automatic plant watering system. By adding automated plant watering system to the garden or agricultural field, you will help all of the plants reach their fullest potential as well as conserving water.

Keywords: Agriculture, Automation, Sowing, Robot

Project Title: LAB in VR**Project ID:** ECE_41**Name of the Guide:** Dr. Anil Kumar D**Guide Email ID:** anilkumard81@bmsit.in

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Project Execution Time: In_House**Project Category/Area:** Application_Oriented

Abstract: Virtual reality is a fascinating technology in which the user is completely immersed in a simulated 3D environment. The three distinct features of VR that set it apart from other types of media are user dynamic control of viewpoint, 3D Stereovision, and the surrounding experience. In this paper virtual reality and animation is used to teach digital electronics lab. Earlier VR was expensive and not easily accessible to consumers. As processors became small, power-efficient and fast, we saw the emergence of consumer VR systems in 2013. The different applications of VR can be seen in the fields of the travel industry, healthcare, shopping and e-commerce, entertainment, education and training, etc. Especially, VR has gathered traction in education and training. To understand the circuitry subjects well, practical implementation of the circuit is very essential. In the current pandemic situation, online teaching has become a norm, be it a theory subject or a lab. Students are getting bored and exhausted because of online teaching which is delivered monotonously throughout the lecture on platforms as Google meet, Zoom, etc. The level of immersion VR or a 360 video provides is unmatched by a 2D video. VR is a transition from this monotonous learning as it provides an immersive fun learning experience. The environment and the equipment are built and the animations are done using blender, an open source software for 3d modeling and creating animations. The animated video is exported as a 360 video and uploaded to YouTube. Integrating animation in teaching laboratory experiments increases student's interest in learning. This animated can be used to access digital electronics lab remotely.

Keywords: Keywords— 360 video, Virtual reality technology (VR), Online teaching, Digital electronics lab, Blender

Project Title: CROWD DETECTION TO ENFORCE SOCIAL DISTANCING USING MACHINE LEARNING

Project ID: ECE_43



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Project Execution Time: In_House

Project Category/Area: Environmental_Societal

Abstract: The spread of COVID-19 in India has had severe consequences in the form of spiralling cases, reduced supplies of essential treatments, and increased deaths particularly in the young population. India's overpopulation and poor execution of a coherent containment strategy and policies have allowed a substantial number of viral mutations to persist in the environment. As COVID-19 continues to spread rapidly, it is essential to maintain social distance and avoid large public gatherings at one place to break the chain of corona infection. The authorities require reliable technology that can survey crowded places to prevent any unnecessary movement. Our COVID-19 Crowd Detection System can help in enforcing social distancing and spread awareness in people and in turn control the further spread of the virus.

Keywords: COVID-19, viral mutations, environment, public gatherings, Crowd Detection.

Project Title: AUTONOMOUS SURFACE VEHICLE**Project ID:** ECE_44**Name of the Guide:** Dr. Anil Kumar D**Guide Email ID:** anilkumard81@bmsit.in

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Project Execution Time: In_House**Project Category/Area:** Application_Oriented

Abstract: This paper considers the design and implementation of a low-cost and modular autonomous surface robot for inland water. The design process consists of three stages: Mechanical and electro-mechanical design, electrical and electronic design and software design. The mechanical design is based on a two-hull construction because of its low risk of capsizing in rough water. Off-the-shelf hulls and electric trolling motor are preferred to reduce the cost. The robot is steered by a rudder controlled by a servo motor. A Robot Operating System based software running on an on-board micro controller is developed to achieve autonomy. The robot's status is monitored using the ground station software. The developed system was tested through a series of field experiments. The system is also compared with the existing designs. The robot's available deck space and modular software architecture enable users to easily integrate various sensors and mechanical parts for a wide range of applications such as environmental monitoring, surveillance and patrolling.

Keywords: autonomous, ship

Project Title: CASTRO (Cultivation in Agriculture using Swarm Technology in Robotics)

Project ID: ECE_45



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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: The Multi Robot System is based on Interactive Robotics. The multi-robot system is a novel way to connect a large number of robots and has emerged as the use of mass particles in many robotic systems. Many robotic systems are more flexible and tolerant than single-functional robots. Seeking food together is one of the most important tasks in the study of the interaction of many robots. Some form of direct or indirect communication has been used to generate collaboration and improve performance. Swarm robotics is a new research area inspired by biological systems such as ants or bee colonies. It features a system with many small robots with simple control mechanisms capable of achieving complex interaction behavior at the locust level such as merging, pattern formation and joint movement. However, further research is needed to use swarm robotics in practice. Within the scope of our knowledge there are currently no swarm robotic applications for real-life problems. Current research often solves specific tasks in laboratory-controlled environments. In this paper we examine the existing functions of robotic robots and their applications and analyze their potential to solve real health problems.

Keywords: flexible, Interactive Robotics, Swarm robotics, tolerant

Project Title: ADAPTIVE IMAGE DENOISING TECHNIQUE**Project ID:** ECE_46**Name of the Guide:** Mrs. Shilpa Hiremath**Guide Email ID:** shilpasharankh@bmsit.in

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Project Execution Time: In_House**Project Category/Area:** Environmental_Societal

Abstract: The Evolution in multimedia technologies and internet brought about abundance of multimedia data in form of images, audio, video which are used in areas like surveillance systems, medical fields, satellite data, digital forensics and many more. However, digital images are mostly corrupted by the noises during process of transmission and acquisition, degrading their quality. So, to restore quality of images, some image denoising techniques must be used. Greatest challenge for a denoising algorithm is to enhance visual presentation of image, while protecting pertinent features like edges, during denoising. For edge- preserving, Wavelet transforms are largely used because of their capacity of decorrelation to separate appropriate signal and noise component. Countless denoising approaches on wavelet transforms are being proposed in last few decades and research is still continuing. Digital images are inevitably corrupted by noise. Based on Classification of noise appropriate filters are chosen. Filtering techniques are applied for noisy images. Denoised images are further enhanced using Clahe Algorithm.

Keywords: Clahe Algorithm, denoising images, Enhancement Image Classification, neural network

Project Title: AUTOMATIC SOIL AND CROP MONITORING SYSTEM

Project ID: ECE_47



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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: In the growth of agricultural countries like India, agriculture plays a crucial role. The growth of the country has been hampered by problems surrounding agriculture. By modernizing the new conventional methods of agriculture, the only solution to this issue is smart agriculture. IoT sensors provide knowledge about the nature of agricultural fields and then, based on the input farmer can take action. In our project, we propose an IoT-based advanced solution for monitoring the soil condition/state and also atmosphere for efficient crop growth. The developed system is capable of monitoring temperature, humidity, soil moisture level sensors connected to NodeMCU, and using image processing we provide the detection of disease of the plant by capturing the image of the plant leaf. Also, notifications is sent to the farmer's phones using Wi-Fi about environmental and Field Conditions.

Keywords: CNN, Image Processing, NodeMCU, soil moisture

Project Title: OneshotAI (Using FaceNet proposed by Google)**Project ID:** ECE_48**Name of the Guide:** Dr. Amit Kumar**Guide Email ID:** amitkumar@bmsit.in

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Project Execution Time: In_House**Project Category/Area:** Application_Oriented

Abstract: Despite significant recent advances in the field of face recognition implementing face verification and recognition efficiently at scale presents serious challenges to current approaches. In this paper we present a system, called FaceNet, that directly learns a mapping from face images to a compact Euclidean space where distances directly correspond to a measure of face similarity. Once this space has been produced, tasks such as face recognition, verification and clustering can be easily implemented using standard techniques with FaceNet embeddings as feature vectors. Our method uses a deep convolutional network trained to directly optimize the embedding itself, rather than an intermediate bottleneck layer as in previous deep learning approaches. To train, we use triplets of roughly aligned matching / non-matching face patches generated using a novel online triplet mining method. The benefit of our approach is much greater representational efficiency: we achieve state-of-the-art face recognition performance using only 128-bytes per face. On the widely used Labeled Faces in the Wild (LFW) dataset, our system achieves a new record accuracy of 99.63%. On YouTube Faces DB it achieves 95.12%. Our system cuts the error rate in comparison to the best-published result by 30% on both datasets.

Keywords: Covid-19, Convolution neural network, Face detection, image processing

Project Title: DESIGN AND DEVELOPMENT OF HARDWARE ACCELERATOR FOR RANDOM FOREST ALGORITHM BASED APPLICATION

Project ID:
ECE_49



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Project Execution Time: In_House

Project Category/Area: Reaearch_Oriented

Abstract: Random Forest is one of the supervised learning methods in Machine Learning. It generates classifiers in the form of an ensemble (“forest”) of decision trees. The classification of an input sample is determined by the majority classification by the ensemble. This work envisions coming up with the acceleration of Random Forest ensemble methodology on FPGA along with the comparison in performance of cloud FPGA and Python/Matlab implementation of Random Forest. In this project we worked on the Prediction of Diabetes and Type 2 Diabetes model and implemented it on both software and on FPGA. In this work, FPGA architecture for accelerating the RF training step is presented and a comparison of parameters like speed, time complexity, accuracy, etc., is made by implementing RF on Python, MATLAB and FPGA.

Keywords: Machine learning, Random forest, FPGA

Project Title: IoT Based Automated Sericulture System		Project ID: ECE_50
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Project Execution Time: In_House

Project Category/Area: Reaearch_Oriented

Abstract: Sericulture denotes rearing of silkworms to produce silk. Parameters like Temperature, Humidity and Light intensity are the important factors in the progression of silkworms and suitable encouragement must be done according to the requisites in every stage. Environmental variations assume an important part in the growth and development of silkworms. Sericulture is an important occupation in India and the techniques used by the agriculturists are yet outdated. Hereafter there is the need of developing modernization in sericulture cultivation. This endeavor gives a thought of providing automation in sericulture cultivation. The model goals at making use of developing technology that is IOT and smart Sericulture using automation. Observing environmental parameters of the silkworm rearing house is the most important aspect to improve vintage of the silk. The specialty of this model comprises enhancement of a system which can observe temperature, humidity, light power through sensors using NodeMCU and in case of any variations in the parameters send a notification on the user mobile application using internet connection. This system permits data assessment and scheduling to be programmed through the arduino IDE software.

Keywords: IOT, Sericulture, NodeMCU

Project Title: Coin based charging system**Project ID:** ECE_51**Name of the Guide:** Dr. Prachi Sharma**Guide Email ID:** prachisharma@bmsit.in

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Project Execution Time: In_House**Project Category/Area:** Application_Oriented

Abstract: The Coin-based Charging System delivers an exclusive service for the rural community where power is not accessible for wholly or part of the day and is also the good source of income for service providers. The coin-based charging systems especially for mobiles are often hastily and simply installed outside of any business parks. The mobile phone market is an enormous industry and has a range expanding to the rural areas as well as an essential and better way of communication. While most of the people in urban region use more luxury mobile phones with virtuous power batteries that last for quite a few days, whereas the rural people, at least few of them buy phones with poor battery backup or even pre-owned mobile phones that require recurrent charging. Many times, the battery drains-off in the middle of a talk, specially at troublesome times when there is no access to a standard charger. So the Coin-based charging systems are intended to undo this problem. The user must attach the portable to at least one of the connectors and supplement a coin, The phone will then starts charging and time counter starts decrementing. It does not make a mobile to go from zero to a state of full charge. The load capacity of the cell phones is designed with the help of predefined values.

Keywords: Arduino, Mobile Phone, Coin Sensor, Solar Panel


Project Title: INDIAN SIGN LANGUAGE RECOGNITION**Project ID:** ECE_52**Name of the Guide:** Dr. Prachi Sharma**Guide Email ID:** prachisharma@bmsit.in

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Project Execution Time: In_House**Project Category/Area:** Application_Oriented

Abstract: Sign Language is the only means of communication for deaf and dumb people. With the advancement of science and technology many techniques have been developed not only to minimize the problem of deaf-mute people but also to implement it in different fields. Being dependent on an experienced and qualified interpreter every time is a very difficult task and also unaffordable; but if the computer can be programmed in such a way that it can translate sign language to text format, the difference between normal people and the deafmute community can be minimized. The aim of this project is to analyze and recognize various alphabets from a dataset of sign images. The dataset consists of various images with each image clicked in with different hand orientations obtained from Kaggle. With a divergent dataset, it is possible to train our system to good levels and thus obtain good results using optimized algorithms for tracking, object recognition and tracking movement with the help of MATLAB using a Deep Learning model AlexNet. A series of captured images are compared with the dataset images and processed to display a text message which the sign implies, which is also provided as voice output. This would help in increasing the efficiency of communication of deafened and aphonic individuals among each other and with others, respectively.

Keywords: Sign Language, Deep Learning, aphonic individuals

Project Title: IMPLEMENTATION OF DRIVER DROWSINESS DETECTION AND ACCIDENT PREVENTION USING AN AUTONOMOUS CAR		Project ID: ECE_56
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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: This project is mainly implemented because of the number of road accidents that are being reported every year due to driver fatigueness and drowsiness. Due to deadlines and time constraints, people tend to push their bodies especially during the night, and force themselves to cover a major part of the journey. This causes fatigue ness and drowsiness which then affects their motor and judgment skills thus causing a large number of accidents on the highways leaving many people injured and in some cases loss of life also. This is a factor that can be controlled and prevented as it's a self-conscious decision taken by the person who pushes himself to drive during the night. In such cases to ensure a safe journey not only to the driver but also the passengers, we have decided to build a prototype around the same reasons. Here we propose and develop a framework for automatic switching of manual driving and autonomous driving based on driver drowsiness detection. This prototype will be tested in a controlled environment having all the necessary conditions. Second, we present the drowsiness detection algorithm which detects facial expression to recognize driver drowsiness. Third, a manual and autonomous driving switching mechanism is developed, which is triggered by the detection of drowsiness. Finally, experiments were performed on the environment to demonstrate the effectiveness of the proposed project. Google, the biggest network, has started working on self-driving cars in 2010 and is still developing new changes to give a whole new level to automated vehicles. Many jurisdictions around the world have started passing legislation to address this new technology and integrate it into modern transport systems. We feel that India needs to consider these different attempts and model its own legislation framework accordingly

Keywords: Drowsiness, Self-driving, Autonomous vehicle, Facial Expression

Project Title: Surveillance Robot		Project ID: ECE_57
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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: The main objective of our project is to develop a surveillance robot for domestic areas. The purpose of our robot is to roam, provide video streaming from the given environment, and send the obtained information using Wi-Fi. Human reach is not possible in critical environmental conditions. These conditions may include areas where fires break out, poisonous substances are stored, or exposure to harmful radiations. Unlike conventional surveillance robots which need to have manual support throughout, our robot is implemented using Multi-Sensor Fusion. In this project, the admin can control the robot with a desktop through the Internet of Things (IoT) and also can get live streaming of video. Our robot can be controlled in both manual and automated modes. Our robot uses various sensors which help control its behavior. Along with the live-streamed video, the admin can also view the machine-recognized video. Thus, the surveillance action can be performed. Further advancements in our project can provide applications even in Defense areas.

Keywords: surveillance robot, sensors, live-stream, Internet of Things (IoT)

Project Title: Steganography Technique to Secure Patient Confidential data using ECG Signal

Project ID: ECE_58



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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: Communication of medical data to the patient is changing in the current scenario, people no longer visit the hospitals and collect their reports and medical documents. The doctors' officially send the patient's report via email or through online portals. These options are efficient and easy, but they place the patient at a higher risk of medical data theft because information security of data transmitted over the internet is the biggest concern. Healthcare data breaches expose patients' sensitive information such as patients' medical history, medicare number, health insurance information etc. Hence, special care must be taken to transmit patient data. The main goal of our project is to enhance the security of Patient's medical data. To overcome the challenges of security and privacy of sensitive data, an ECG-Image Steganography model is proposed. This model is a combination of steganography and cryptography. This hybrid model is a remarkable technique for information security. Cryptography renders the information into an incomprehensible format and steganography conceals the presence of data in the first place. The patients' personal information and doctor's diagnosis form the confidential information and it is referred to as the secret data. The purpose of using cryptographic encryption is to ensure data integrity, confidentiality, and authentication and to prevent information forgery, tampering or counterfeiting.

Keywords: cryptography, steganography, AES_256, LSB, IWT

Project Title: Smart Agricultural Crop Prediction Using Machine Learning

Project ID: ECE_59



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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: Choosing a best crop which gives maximum yield and profit is very important to every farmer in agriculture field. Thus, by implementing technology in agriculture results in higher yields and improved quality of final product. In this paper, we propose a system based on machine learning algorithms which provide a best crop and its required fertilizers as a solution by which farmers will get more profit on growing system suggested crop. Our system can predict the best crop which is suitable to grow in the farmer specified location by accessing weather, temperature, rainfall information from the weather department and soil information from the agriculture department. Our system is designed in the form of web application which uses big data analytics, prediction analysis and other techniques to predict the most suitable and profitable crop and its required fertilizers, predicts yield per hectare and also value of crop based on current market price taking into consideration of current weather and soil conditions. Thus, farmers will benefit by using our system which will improve crop productivity and profit of farmers.

Keywords: Machine learning, knn algorithm, crop yield, profit, big data analytics, soil and weather conditions

Project Title: Image Rectification using Recurrent Neural Networks**Project ID:** ECE_60**Name of the Guide:** Saneesh Cleatus T**Guide Email ID:** saneesh@bmsit.in

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Project Execution Time: In_House**Project Category/Area:** Reaearch_Oriented

Abstract: Super resolution encompasses a set of algorithms used to enhance and up-sample the resolution of images. A single image is limited in terms of the information its pixels conveys. This is due to the low resolution image formation process. The adjective low resolution here refers to a blurry or pixelated image. This occurs due to a myriad of factors due to use of a low resolution input device/image sensor, random pattern noise which occurs due to motion during exposure and fixed pattern noise which manifests as blemishes/imperfection during longer exposure shots. The aim of this paper is to achieve superresolution with the use of multiple low resolution images.

Keywords: RCNN, Image Processing

Project Title: MUSIC PLAY BACK CONTROL USEING GESTURE SENSOR

Project ID: ECE_61



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Project Execution Time: In_House

Project Category/Area: Reaearch_Oriented

Abstract: Music is the art of arranging sounds and it has the composition of melody, rhythm, and timbre. It is one of the universal cultural aspects of all human societies. Nowadays music is a part of our lives while traveling makes us feel better. They are lots of equipment to listen to music such as recorders, gramophone, tape recorders, iPods, car stereo, etc., as the years pass, technologies are becoming smarter so we come up with an idea of this without interacting physically with the player to make it operate all the operations. Nearly 1.56 lacks people lost their lives during negligence of driving such as distracting out from driving. The music system is going to be difficult and risk their lives if we interact physically while riding. A gesture-based music controller is one of the options to avoid these deaths. Once a person gets to know how they operate it will become easy to handle the system by just waving the hand. By keeping in mind the similarities of human hand shape with four fingers and one thumb, this paper aims to present a real time system for hand gesture recognition on the basis of detection of some meaningful shape based features like orientation, status of fingers, thumb in terms of raised or folded fingers of hand and their respective location in image. A primary goal of gesture recognition research is to create a system which can identify specific human gestures and use them to convey information or for device control. The proposed system mainly focuses on scenarios where we are multitasking that is working on many applications at a time or running various programs at a time on our desktop and along with that listening to music in background that is music being played in one of the windows. At such times if we wish to pause or switch a particular music track we have to make some movements like switching to the music window and doing the desired operation. This process is bit long and time consuming as well. Suppose if you can do this operation without switching to the media player and by doing just one hand movement, it will save some time and also keep you linked with the work you doing currently. With the help of Music Controller, one can simply wave or do a simple gesture of hand movement in front of the webcam which will in turn switch or pause the particular music track that was being played.

Keywords: Gesture sensor, Embedded arch, Hand gestures.

Project Title: DETECTION OF PNEUMONIA/COVID 19 FROM X-RAYS USING IMAGE PROCESSING

Project ID: ECE_62



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Project Execution Time: In_House

Project Category/Area: Environmental_Societal

Abstract: A crucial aspect in the present COVID-19 pandemic is early identification and diagnosis of COVID-19, as well as precise separation of non-COVID-19 cases at the lowest cost and in the early stages of the disease. Despite their widespread use in diagnostic centers, diagnostic procedures based on radiological scans have flaws when it comes to the disease's novelty. Another silent killer is pneumonia, this disease is one of the leading causes of death in young children and older people worldwide. People affected by covid19 are extremely vulnerable to this disease. Both of these diseases can be detected via a chest X-ray, thus enabling the CNN to easily distinguish which person is affected by which disease and thus timely action can be taken. In the detection and diagnosis of this condition, image processing combined with CNN and deep learning reduces false-positive and negative errors, offering a chance to give patients with quick, inexpensive, and reliable service. The proposed identification model achieves better performances evaluated on chest radiograph dataset which depict potential pneumonia/COVID cases which in-turn better the rate at detecting the former mentioned.

Keywords: COVID 19, Image processing, CNN, Deep Learning using the VGG architecture

Project Title: STARTER MOTOR CONTROLLER USING CELL PHONE

Project ID: ECE_64



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Project Execution Time: In_House

Project Category/Area: Environmental_Societal

Abstract: The rapidly advancing mobile communication technology and the decrease in costs make it possible to incorporate mobile technology into home. The project report on “MOTOR CONTROL USING CELL PHONE” gives an elaborate view and understanding of the project design and functioning. The report is divided into parts for explaining the step by step development of the project. The first part introduces the idea behind the project and the underlying information of the technologies used. Next chapter is dedicated for information on the equipment’s used and how they were accommodated in the project circuitry. The working of the project with the programming code are explained after that. Lastly, the merits, de-merits and future prospects of the project are given.

Keywords: Arduino, gsm, IoT, pump controller system, Sensors.

Project Title: Prediction of Alzheimer's Disease using Machine Learning Models

Project ID: ECE_65



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Project Execution Time: In_House

Project Category/Area: Reaearch_Oriented

Abstract: The disease popularly known as Alzheimer's, which causes cognitive impairment, is extensively distributed throughout the world. The lack of a cure or strategy to stop the growth of the disease notwithstanding, it is one of the most extensively studied illnesses in medicine and health care. However, patients with AD have a variety of treatment options to select from, including pharmaceuticals or non-drug alternatives, to help them maintain quality of life. Over time, patients will need to be treated differently based on how far into the disease process they are. In this regard, early detection and classification of the illness stages can have a substantial impact on the treatment of symptoms. Early recognition of the Alzheimer's disease is crucial for the analysis of patient medicines and specialists. The objective of this project is to provide a comprehensive comparison of the techniques used in Alzheimer's disease detection and classification. Machine learning algorithms can be used to find out facts in medical research, particularly disease prediction. Machine learning algorithms such as Support vector machine [SVM], Decision trees, Bayes classifiers, K-Nearest Neighbours [KNN], Gradient Boosting etc. are used to determine different ailments. The use of machine learning algorithms can lead to fast and high accuracy prediction and classification of this disease. This project helps in analyses of different machine learning techniques and algorithms are used to predict, classify and provides an extensive accuracy comparison of the machine learning techniques used for the prediction and classification of Alzheimer's disease

Keywords: Machine Learning, Alzheimer's disease, disease detection

Project Title: Automatic Vehicle Speed Control and Accident Detection and Messaging System

Project ID: ECE_66



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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: Road accidents have been very common in the present world with the prime cause being the careless driving. The necessity to check this has been very essential and different methods have been used so far. However, with the advancement in the technology, different governing bodies are demanding some sort of computerized technology to control this problem of over speed driving. At this scenario, we are proposing a system to detect the vehicle which are being driven above the given maximum speed limit that the respective roads or highway limits. The overall project is divided in three categories; speed detection, controlling the speed, Automatic Vehicle Accident Detection and Messaging System. This project will provide an optimum solution to this draw back. According to this project, when a vehicle meets with an accident, the Micro electro mechanical system (MEMS) sensor will detect the signal and this signal will be analysed by Arduino. The Arduino sends the alert message through the GSM Module including the location to police control room or a rescue team. So, the police can immediately trace the location through the GPS Module, after receiving the information. Then after confirming the location necessary action will be taken. The aim of this work is to automatically detect an accident and alert the nearest hospital or medical services about the exact location of the accident.

Keywords: Road Safety, Accident Detection

Project Title: Smart Attendance Monitoring System using IoT**Project ID:** ECE_67**Name of the Guide:** Dr. Shobharani A.**Guide Email ID:** shobharani@bmsit.in





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Project Execution Time: In_House**Project Category/Area:** Application_Oriented

Abstract: The pace at which Digitalization is advancing is astonishing. Due to Covid-19, the process is amplified. College education needs to be smarter and should be automated from attendance management to smart classes. We as humans are susceptible to errors and automation is our friend. This report will present a project which will automate Attendance management with the existing Cameras. Attendance Systems have been outdated since the start of the education system. However, Digitalization and the revolution of the internet have been major factors for development of technologies like IOT, Automation and development of hardware Devices compatible for Communication through the internet. Development of IOT Systems has become popular due to the fast pace of the internet. You can easily gain the required information like your attendance status in real-time, from almost any location you are at. It only takes a smart device and internet connection.

Keywords: Smart Attendance, IOT, Automation, Digitalization

Project Title: AUTOMATIC MEDICINE VENDING MACHINE**Project ID:** ECE_68**Name of the Guide:** Dr. Deepa N. Reddy**Guide Email ID:** deepanreddy@bmsit.in

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Project Execution Time: In_House**Project Category/Area:** Product_Development

Abstract: Accessing basic healthcare is necessary for building a healthy future. Medicines are central to human life. Our project is a vending machine that will provide medication as per the customer's choice. It provides an immediate solution to an individual looking for relief for minor health issues like a cold. Vending machines located at factories (usually located in remote areas) helps operators because they can benefit from increased work efficiency and avoid chances of infecting other workers. Moreover, it prevents the huge amount of time wasted waiting in queues at pharmacies. Our idea is to make availability of medicine all the time and maintain accurate records of the same (to prevent hoarding and black marketeering). The project centers around the idea of a vending machine that supplies medicine as the customer desires. It allows the user to check the temperature using a sensor, select the required medicine, pay the amount after which it dispenses the medicine after deducting the amount from the wallet linked to the customer's RFID card. It reduces manpower, time, and energy. It can be set up in hospitals, bus stations, etc. The data of the medicines issued will get stored on a server, hence there is no need for manual records to be maintained. When there is a shortage of medicines an alert will be issued.

Keywords: Health care, RFID, Automatic vending machine

Project Title: Real Time Water Quality Management System for Aquaculture

Project ID: ECE_69



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Project Execution Time: In_House

Project Category/Area: Environmental_Societal

Abstract: While aquaculture and IoT have grown significantly in the world over the years, the combination of both domains is still in its infancy. Although water conservation is at the heart of the aquaculture industry, its complexity can push fish farmers away from it. We believe that the development of easy-to-use fish farming IoT tools will lead to a new era of connected, responsible and efficient marine living resources. Io aquaculture requires ingenuity, accessibility, ease of use, reliability and efficiency. Key Artificial Intelligence processing data provided by the IoT can also provide new services to address new agricultural challenges (eg due to the depletion of fish in the market, there has been a growing interest in aquaculture. However, fish farming in the Intensive Aquaculture System results in lower quality fish or even the killing of fish as fish are raised in tanks and bird systems, not in their natural habitat. This paper provides a water quality monitoring system with automatic adjustments to monitor and maintain important water quality parameters that are important for fish growth, such as temperatures, possible hydrogen (pH), turbidity , and dissolved oxygen to obtain high yields using LPC1768 (Arm Cortex M3) .Water quality is critical when it comes to aquatic organisms. As a result, preventive measures can be taken in time to reduce losses and increase productivity.

Keywords: IOT, AQUACULTURE, FISH FARMING


Project Title: AUTO BILLING SHOPPING CART USING RASPBERRY PI

Project ID: ECE_70



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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: Shopping is simple but waiting on a bill counter after shopping is just too boring and tedious task. Huge amount of rush plus cashier preparing the bill with Barcode scanner is just too time consuming and leads to long ques. So here we've made an innovative project which can be placed within the shopping trolley itself. The system consists of a RFID reader which is controlled by Raspberry pi. So whenever the consumer puts any product in trolley it's been detected by the RFID module and it's displayed on LCD alongside the amount of the item. If the shopper adds more things it's detected by the module and therefore the price consistent with that increases. Just in case if customer changes his/her mind and doesn't want any product added within the trolley he can remove it and therefore the price added are going to be deducted automatically. After shopping, the consumer will press the button which when pressed adds all the items alongside their price and provides the entire bill to be paid. At exit for verification the shopkeeper can verify the shopping with the assistance of master card. Hence this technique is suitable to be used in places like supermarkets, where it can help in reducing man power and in creating a far better shopping experience for its customers.

Keywords: Barcode scanner, Raspberry pi, RFID reader

Project Title: AGROSMART**Project ID:** ECE_71**Name of the Guide:** Mrs.Vinutha.B**Guide Email ID:** vinuthabacademia@bmsit.in

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Project Execution Time: In_House**Project Category/Area:** Environmental_Societal

Abstract: IOT and smart agriculture techniques to conserve the limiting natural resources and maximize the production of the fields. Agro Smart was directed to make the work of the farmers easier and less complicated. We have approached the solution of this problem by designing certain devices called Smart Pods, which are to be sowed in the soil (having a limited coverage) they will provide valuable information like soil quality, humidity, temperature (all the features required to be monitored while farming) easily with the help of controllers and the results are displayed in a webpage which is designed solely for monitoring real time data gathered from the Smart Pods. After analysing the statistical data and graphs we could predict the meteorological conditions of the area, the type of crop suitable for cultivation in that area and the optimum requirements of that crop in the given environment, which helped us in estimating the exact amount of resources required, the crop to be cultivated and what uncertainties to expect from the weather of the region.

Keywords: Agrosmart,IoT

Project Title: Cancer Classification using CNN		Project ID: ECE_72
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Project Execution Time: In_House

Project Category/Area: Reaearch_Oriented

Abstract: Cancer is a massive health problem around the world. According to the international agency for research on cancer, 27 million new cases are expected to occur by 2030. India accounts for 7.8% of global cancer incidence. While breast cancer (BC) remains the second most common for women worldwide, in India it is the most common cancer type with a mortality rate of 12.7 per 100,000 women. Despite significant progress made in the field of diagnostic imaging technologies, the final diagnosis including grading and staging is being done by pathologists with the help of a microscope. Classification of histopathological images into distinct histopathological patterns corresponding to the non-cancerous or cancerous condition of the analyzed tissue is often the primordial goal in image analysis systems. The main challenge of such systems is dealing with the inherent complexity of histopathological images. The automatic imaging processing for cancer diagnosis has been explored as a topic of research for more than 40 years but is still challenging due to the complexity of the images to analyze. This paper aims to explore and compare various parameters of pre-built neural nets and ultimately develop a convolutional neural network for the classification of cancer and improve its accuracy.

Keywords: Convolutional Neural Network, Cancer




Project Title: Credit card fraud Detection using machine learning

Project ID: ECE_73



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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: It is vital that credit card companies are able to identify fraudulent credit card transactions so that customers are not charged for items that they did not purchase. Such problems can be tackled with Data Science and its importance, along with Machine Learning, cannot be overstated. This project intends to illustrate the modelling of a data set using machine learning with Credit Card Fraud Detection. The Credit Card Fraud Detection Problem includes modelling past credit card transactions with the data of the ones that turned out to be fraud. This model is then used to recognize whether a new transaction is fraudulent or not. Our objective here is to detect 100% of the fraudulent transactions while minimizing the incorrect fraud classifications. Credit Card Fraud Detection is a typical sample of classification. In this process, we have focused on analysing and pre-processing data sets as well as the deployment of multiple anomaly detection algorithms such as Local Outlier Factor and Isolation Forest algorithm on the PCA transformed Credit Card Transaction data.

Keywords: credit card fraud detection, machine learning

Project Title: Detection of Autism spectrum disorder (ASD)**Project ID:** ECE_74**Name of the Guide:** Mr.LakshmiSagar.H.S**Guide Email ID:** sagar8.hs@bmsit.in

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Project Execution Time: In_House**Project Category/Area:** Environmental_Societal

Abstract: Autism spectrum disorder (ASD) is an early developmental disorder characterized by mutation of enculturation associated with attention deficit disorder in the visual perception of emotional expressions. An estimated one in more than 100 people has autism. Autism aspects almost four times as many boys than girls. According to the ASD problem starts with childhood and continues to keep going on into adolescence and adulthood. Propelled with the rise in use of machine learning techniques in the research dimensions of medical diagnosis there is an attempt to explore the possibility to use Support Vector Machine, Logistic Regression, KNN, and Data analysis and classification of ASD is still challenging due to unsolved issues arising from many severity levels and range of signs and symptoms. To understand the functions which are involved in autism, neuroscience technology has analyzed responses to stimuli of autistic audio and video.

Keywords: SVM, KNN, ASD

**ELECTRONICS &
TELECOMMUNICATION
ENGINEERING**

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Project Execution Time: In_House**Project Category/Area:** Application_Oriented

Abstract: Due to the increasing population and industrialization of nations, waste management has become a challenging issue for all of us. A small scale waste management is also adding same potential as large scale waste management. IoT and machine learning based waste management system for residential society are aimed to enhance the same concern as the waste management of smart city. This paper employs on monitoring of various dustbins located at different residential societies. Dustbin is equipped with sensors which monitors for dustbin capacity, metal level and poisonous gas level. The machine learning classification technique such as SVM, NB, RF, DT and KNN are used to test their ability to predict the accuracy of sending alert messages to third party in order to manage the waste of the society. In addition, results suggest that RF algorithm produced the most accurate forecasts of the alert message. The accuracy of RF algorithm is 85.29 %. The overall impact of this research is in the upliftment of the green technologies by reducing pollution of the smart city.

Keywords: Waste Management, Random Forest, Decision Tree, IoT

Project Title: Airborne Motion Tracking		Project ID: ETE_10
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Project Execution Time: In_House

Project Category/Area: Reaearch_Oriented

Abstract: Airborne Motion Tracking has become an integral part of our society having applications such as air traffic monitoring, surveillance, defense etc. This technology is also used by the military to track hostile aircraft and also used in airports to keep track of a large number of air crafts, thus, helping in easing the jobs of the air traffic controller. The radar System initializes, confirms, predicts, corrects, and deletes the tracks of moving objects. Inputs to the radar tracker are detection reports generated as an object by radar sensors. The radar tracker accepts detections from multiple sensors and assigns them to tracks using a suitable track selection algorithm. Airborne motion tracking involves simulating and verifying a radar system that can search and track multiple targets in the airspace and maintain the tracks consistently and faithfully. GNN (Global Nearest Neighbor) has been used as a radar tracker to enable multi-object track maintenance. IMM (Interactive Multiple Model) algorithm structure is used to efficiently manage multiple tracking filters that are applied at different trajectory phases of a target, which makes it ideal to track a maneuvering target. The simulation uses GNN(Global Nearest Neighbor) and IMM(Interactive Multiple Model) in combination to provide accurate multiple tracking.

Keywords: Processor In Loop, GNN (Greatest Nearest Neighbors), IMM (Interactive Multiple Model), EKF (Extended Kalman Filter), UKF (Unscented Kalman Filters), Raspberry Pi, Intel Galileo, FFT (Fast Fourier Transform), Doppler Processing.

Project Title: ADVANCED FOOT STEP POWER GENERATION SYSTEM USING RFID FOR CHARGING

Project ID: ETE_11



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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: The concept is to capture the normally lost energy surrounding. And convert it into electrical energy that can be used to extend the lifetime of electronic devices. One of the most interesting methods of obtaining the energy surrounding a system is to use piezoelectric materials. There exists a variety of energy harvesting techniques but mechanical energy harvesting happens to be the most prominent. This technique utilizes RFID components where the power is stored in a battery that can be used to charge a mobile phone using an RFID card. In this project we are generating electrical power as a non-conventional method by simply walking or running on the footstep. Non-conventional energy systems are very essential at this time to our nation. Non-conventional energy using the foot step is converting mechanical energy into electrical energy. Here we propose an advanced footstep power generator system that uses piezo sensors to generate power from human footsteps. The system allows for a platform for placing footsteps. The piezo sensors are mounted below the platform to generate a voltage from footsteps. The circuit is a microcontroller-based monitoring circuit that allows user to monitor the voltage and charge a connected battery by it. It also displays the charge generated and displays on an LCD display. Also it consists of USB mobile phone charging point where user may connect cables to charge mobile phones from the battery charge. Thus we charge a battery using power from user footsteps, display it on LCD using a microcontroller circuit, and allow for mobile charging through the setup.

Keywords: Arduino IDE, RFID sensor, USB cable, LCD, Atmega 328 microcontroller, Unauthorized.

Project Title: UNDERWATER OBJECT DETECTION USING LI-FI		Project ID: ETE_12
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Project Execution Time: In_House

Project Category/Area: Reaearch_Oriented

Abstract: WiFi runs our life. In fact, according to a survey carried out by Direct Line by Opinium Research online, it is the number one thing that their respondents couldn't live without. But no matter where you are in the world, you've probably experienced internet connectivity problems at one point or another. Enter LiFi, a type of wireless connection that can be up to 100 times faster than WiFi. Imagine a world where you can connect to high-speed internet by just flicking on your light switch. LiFi is a wireless optical networking technology that uses LEDs for data transmission. In simpler terms, LiFi is considered to be as a light-based WiFi which uses light instead of radio waves to transmit information. Using light to transmit data allows LiFi to deliver a couple of advantages such as working in areas susceptible to electromagnetic interference like hospitals and aircraft cabins and working across higher bandwidth while offering higher transmission speeds. The LiFi technology is currently being developed by numerous organizations around the world.

Keywords: Li-Fi, Underwater communication, background modeling, detection object, data transmission.

Project Title: DEVELOPMENT OF PRINTED ANTENNA FOR MULTIBAND APPLICATIONS USING COPLANAR WAVEGUIDE FEED AND DEFECTIVE GROUND STRUCTURE

Project ID: ETE_13



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Project Execution Time: In_House

Project Category/Area: Reaearch_Oriented

Abstract: In this project, the microstrip patch antennas have been designed on dielectric substrate referred as FR4 with relative permittivity of 4.4 to generate frequencies for WLAN, satellite and X-band applications. a) A mushroom shaped antenna with the dimension of 26x26x1.6 mm³ produces a frequency of 5.5 GHz. The substrate used is FR4-epoxy with a dielectric constant of 4.4. the proposed antenna has a return loss of -19.86 dB and a gain of 3.358 dB. This antenna also has a good VSWR in the operating frequency. b) A compact asymmetric octagonal patch antenna with DGS with dimension of 17x17x1.6 mm³ produces 5.9 GHz and 8.3 GHz frequencies. The substrate used is FR4-epoxy with a dielectric constant of 4.4. The proposed antenna has a return loss of -26.68 dB and -17.96 dB respectively. Gains of designed antenna are 4.18 dB and 6.07 dB. This antenna also has a good VSWR in the operating frequencies. c) A miniaturized multiband asymmetric octagonal patch antenna with coplanar waveguide feed with dimension 30x30x1.6 mm³ produces 5.1, 6.5 and 7 GHz frequencies. The substrate used is FR4-epoxy with a dielectric constant of 4.4. The proposed antenna has a return loss of -17.73 dB, -11.81 and -11.73 dB respectively. Gains of designed antenna are 4.18 dB and 6.07 dB. This antenna also has a good VSWR in the operating frequencies.

Keywords: Mushroom-shape, Asymmetric octagon, Coplanar waveguide feed.

Project Title: Design and Simulation of Novel Biosensors for Medical Diagnostic Applications

Project ID: ETE_3



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Project Execution Time: In_House

Project Category/Area: Reaearch_Oriented

Abstract: Medical domain is rapidly evolving with its dependence on electronics and technology that aid automation and minimize the need for expertise while operating the devices. With this rapid evolution and adaptation, the devices being developed are targeted towards attaining ultra-low latency, compactness, long term stability, and a relatively long shelf-life. Several studies have extensively already been directed towards the development of sensors that can achieve some or all of the above-mentioned objectives. Most of the studies have discussed development of MEMS based sensors in various configurations ranging from wired devices to wireless sensor systems. However, there is still scope for major improvement in this domain with regards to flexible wearables and devices that result in lesser false-positive reports. This project aims at exploring the different medical domains that demand the requirement of efficient compact electronic devices that are highly efficient, low-error prone with ultra-low latency. In particular, it concentrates on design and development of a medical device structure that uses similar MEMS principles as the underlying fundamentals that help it mimic the function of a biopotential measurement device. The device is aimed at detection of human pulse beat with minimum requirement of expert presence when the device is in operating condition. The device has been designed and developed at a size slightly smaller than the average human index finger diameter. Some important aspects that were kept in mind while design were flexibility, ease of use and long-term sustainability.

Keywords: MEMS devices, Flexible electronics, Medical Diagnostics, Biosensors, Biopotentials





Project Title: A DEEP LEARNING ALGORITHM TO DETECT GAMING DISORDER USING EEG BASED EMOTION STATES

Project ID: ETE_4



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Project Execution Time: In_House

Project Category/Area: Environmental_Societal

Abstract: Gaming Disorder has become a major source of concern in recent years and has therefore created immense interest among researchers for further study. Recent research suggests that physiological parameters (heart rate, skin conductance, pupil dilation, etc.) are less suitable for diagnosis. Hence, we have chosen Electroencephalography (EEG) for our study. Electroencephalography (EEG) has been widely used to investigate addictive behaviours, and offers advantages of accessibility, low cost, and excellent temporal resolution. Hence EEG can act as a real indicator of the emotion depicted by the subject. The EEG signals are acquired by the printed electrodes and transmitted to the computer via the EEG-SMT. For the training of the classifier, a predefined stimulus label, either positive or negative, depending on the type of stimulus, is added to the acquired EEG signal. The recorded signal is then ready to be used in stage. Spectrogram features are extracted from the EEG signal as the features of the signal to be classified. Classifier training and Real-time emotion detection: The classifier algorithm is initially trained using the labels from stage 1 and the features obtained from stage 2 to allow the classifier to distinguish different emotional classes. Once the training is completed the trained classifier can then be used to detect emotion in real-time.

Keywords: BCI, EEG, SEED-IV, RESNET, SPECTROGRAM

Project Title: ANALYSIS AND PERFORMANCE OF MACHINE LEARNING ALGORITHMS ON DISEASE DIAGNOSIS

Project ID: ETE_6



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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: Healthcare is one of the most significant and challenging fields in the history of mankind. It can be defined as the maintenance or improvement of health via the prevention, diagnosis, treatment, recovery, or cure of disease, injury, illness, and other physical or mental deteriorations and disablements in people. The best way to deliver healthcare would be by utilizing all the current resources and techniques used in all sectors, particularly the medical and technical fields. This project aims at embedding Machine learning in healthcare to give a more sophisticated, accurate, and well-defined approach to medical prognosis. The first part of the project aims at collecting various data about the prognosis and diagnosis of diseases from across the globe. This data is then methodically saved, stored, and cleaned. The second part of the project introduces this problem statement into various ML algorithms and uses an ensemble of these algorithms.

Keywords: algorithm, classification, prediction, test set, train set.

Project Title: “STUDY OF SPECTRUM ALLOCATION TECHNIQUES IN COGNITIVE RADIO NETWORKS”

Project ID: ETE_7



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Project Execution Time: In_House

Project Category/Area: Reaearch_Oriented

Abstract: With the rapid increase in the number of wireless devices, the demand for wireless radio spectrum is also rapidly increasing. With most of the communication taking place through multi-carrier systems, the allocation of available spectrum to various carriers is a prominent issue. As spectrum is a scarce resource, Cognitive Radio is a promising technology in order to tackle the issue of lack of spectrum and spectrum inefficiency in the current communication networks. Cognitive Radio technology is a promising technique that provides us a dynamic spectrum allocation environment. This is very prominent in order to perform the spectrum allocation quickly by considering parameters like Bit error rate, Power consumption, Channel handoff delay, Total Transfer Rate, Fair spectrum distributing, and so on. This Cognitive Radio Technology opportunistically senses the vacant spaces in the spectrum and it allocates that vacant part of the spectrum to the Secondary User (also called as Cognitive Users). Thus this enables us to achieve high spectrum utilization efficiency and overcome the problem of spectrum scarcity. Here, in this literature, we have considered two bio-inspired algorithms namely Particle Swarm Optimization (PSO) and Ant Colony Optimization (ACO) which are used to solve problems that involve complex solutions in order to reach an optimal solution within a short duration of time. The mentioned spectrum allocation problem has been solved by using PSO and ACO in order to maximize the total transfer rate of the system and minimize the channel handoff delay respectively.

Keywords: Cognitive radio, Wireless Communication, Dynamic Spectrum allocation, Particle Swarm Optimization, Ant Colony Optimization

Project Title: KEY DISTRIBUTION MECHANISM IN WIRELESS SENSOR NETWORK

Project ID: ETE_8



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Project Execution Time: In_House

Project Category/Area: Reaearch_Oriented

Abstract: This project aims at studying the Key distributions in WSN. The main objective is to evaluate and enhance certain issues like attack on the nodes, security in communication between the nodes, energy consumption and throughput. The concept of communication between the nodes using keys and establishing a secure connection helps in securing the network. An energy efficient hierarchical cluster-based routing protocol is used to obtain optimum number of clusters . Combinatorial design theory has been used to generate good-designed key rings for each sensor node in WSNs. The keys are distributed to the sensor nodes according to the Balance Incomplete Block Design (BIBD) of combinatorial design theory.

Keywords: Wireless sensor networks, security, key distribution, network scalability


Project Title: SMART SWEEPING BOT- AN INNOVATIVE APPROACH TO SMART WORLD

Project ID: ETE_9



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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: This paper aims to develop an innovative design for a new approach to collect and segregate waste (Automatic Waste Segregation – AWS), based on Arduino and a creative mechanical model connected over IoT. Here we propose using an intelligent sweeping bot that is low-cost and a convenient solution for household waste segregation. Our model attempts to distinguish waste into three categories: metal, wet, and dry wastes. The real economic importance of waste is brought to light by properly segregating garbage. The device uses a moisture sensor to separate wet and dry waste, as well as an inductive proximity sensor to detect metallic debris. The segregation of garbage using automated waste segregation has been effective, as evidenced by experimental studies.

Keywords: Automatic waste segregation, metallic, dry, wet, IoT.

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Project Title: Brain Tumor Segmentation using 3D U-net Architecture**Project ID:** ISE_1**Name of the Guide:** Dr. Rudresh Shirwaikar**Guide Email ID:** rudresh@bmsit.in

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Project Execution Time: In_House**Project Category/Area:** Reaearch_Oriented

Abstract: The aggregation of cells which are abnormal in certain tissues of the brain is what is known as Brain Tumour. Cancerous and noncancerous are the two types of brain tumours that currently exist in today's world. Glioma, Meningioma and Pituitary tumour are some of the most common types of brain tumours. The detection of such tumours in patients at various stages are found by the MRI images or scans. A variety of classification methods and different types of feature extractions are being used for detection of brain tumours from MRI images. The tumour at an early stage with a really high accuracy can be detected with the help of the Convolutional Neural Network image classification algorithm. Exploring the 3D CNN is done in order for automatic brain segmentation using the dataset. Gathering of both local and contextual information is done through the training of different CNN architectures to compare their design, quantitative and qualitative performance. Demanding memory requirements are one of the major limitations or drawbacks of the 3D architectures. 3D convolutions being computationally very expensive and the parameters increasing exponentially are also major drawbacks of this system. Due to the complexity involved in 3D CNN development is still in the early stages but on the brighter side if the implementation can be done successfully then automatic detection of important features without the supervision of human beings is possible. It's the most widely used architecture since it has proven to be very efficient computationally.

Keywords: 3D U-Net architecture, Convolutional Neural Network, brain tumour. c

Project Title: Deep Learning Approach To Detect Severity Of COVID-19		Project ID: ISE_10
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Project Execution Time: In_House

Project Category/Area: Product_Development

Abstract: ABSTRACT The novel coronavirus 2019 (COVID-2019), which first appeared in the Chinese city of Wuhan in December 2019, quickly spread worldwide and became a pandemic. It has had a devastating effect on public health, every day or daily life, and the global economy. It is important to get good cases as soon as possible to prevent the spread of the disease and to treat promptly affected patients. Demand for auxiliary diagnostic tools has increased as no accurate automatic tools are available. Recent findings using radiology imaging techniques suggest that such images contain evident details about the COVID-19 virus. The use of advanced artificial intelligence (AI) techniques associated with radiation thinking can help in the accurate diagnosis of the disease, and can also help to overcome the problem of shortage of specialized doctors in remote villages. In this study, a new model for the automatic detection of COVID-19 is introduced using green X-ray imaging images. The proposed model is designed to provide an accurate diagnosis of binary classification (COVID vs. No-Findings) and multidisciplinary classification (COVID vs. No-Findings vs. Pneumonia). The model produced accuracy (grade) of 96.69% for binary classes and 95.24% for most cases. The VGG16 model was used in the study as a separator. The model can be hired to assist radiologists in confirming their initial diagnosis and can be hired through the cloud to diagnose patients quickly.

Keywords: Covid-19 Deep learning VGG16

Project Title: SECURED IOT BASED SMART GREENHOUSE SYSTEM WITH IMAGE INSPECTION

Project ID: ISE_11



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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: The Greenhouse is generally affected by two factors: plant disease and weather condition, which leads to the fall in production. The weather condition can be controlled through Microcontroller Unit(MCU) and the plant disease can be monitored using image inspection system. The research recommends a cheaper image evaluation framework for the plant disease analysis and fully automated Greenhouse with data security

Keywords: Green house, MCU

Project Title: “TRAPPED HUMAN DETECTION DURING CALAMITIES USING CNN”

Project ID: ISE_13



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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: Natural disasters occur at any time, in any place. Estimates say that around 6,800 natural disasters occur every year, around the globe and as much as 68,000 people lose their lives in it. They also cause property damage and loss. Along with natural disasters, unforeseen accidents such as collapse of manmade structures like bridges and buildings are also a frequent event. In order to reduce the losses in such cases, the search and rescue team must be quick in helping the victims. However, there are many obstacles that come in the picture, such as searching for the trapped victims, unreachable regions due to bad weather conditions, etc. We thus propose a prototype model that can reach these places and conduct real-time object detection using CNN to identify the trapped victims and assess the severity of the situation.

Keywords: calamities, CNN, RNN

Project Title: Framework For Health Monitoring System Using Blockchain and AI

Project ID: ISE_14



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Project Execution Time: In_House

Project Category/Area: Reaearch_Oriented

Abstract: EHRs contain essential and delicate individual information for diagnosing and treatment in consideration. These data square measure an important stock of care knowledge. The sharing of care data is a vital advance toward making the consideration framework more brilliant and up the norm of care administration. Partner in Nursing EHR might be a construction in advanced arrangement of a patient's wellbeing data that is made and kept up all through the patient's life and is typically hang on by and unfurl among various clinics, facilities, and wellbeing providers. Blockchain innovation can possibly rebuild medical care by embedding the patient at the center of the wellbeing framework and expanding the insurance, security, and capacity of wellbeing information. This innovation may give a spic and span model for wellbeing information trade by making electronic wellbeing records extra affordable and secure. In partner EHR framework, when patient records zone unit got to for a couple of reason, the historical backdrop of all such occasions ought to be recorded in a very log document for later review on access chronicles. The log document is utilized for reproducing the previous condition of clinical records, and it are regularly painted as an instrument. In this manner, we should in every case immovably protect the log document from stole admittance and make it constant if feasible. We utilize the consortium blockchain to make a disseminated structure that coordinates existing EHRs utilizing Hyperledger Fabric. A similar record on which the location of a patient record in an EHR is composed is kept by peer hubs. Singular patients are known by explicit testaments given by nearby affirmation bodies that speak with one another on an organization channel.

Keywords: Machine Learning (ML), Artificial intelligence (AI), Electronic Health Record (HER), Text Ranking Algorithm


Project Title: Framework For Health Monitoring System Using Blockchain and AI

Project ID: ISE_15



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Project Category/Area: Reaearch_Oriented

Abstract: EHRs contain essential and delicate individual information for diagnosing and treatment in consideration. These data square measure an important stock of care knowledge. The sharing of care data is a vital advance toward making the consideration framework more brilliant and up the norm of care administration. Partner in Nursing EHR might be a construction in advanced arrangement of a patient's wellbeing data that is made and kept up all through the patient's life and is typically hang on by and unfurl among various clinics, facilities, and wellbeing providers. Blockchain innovation can possibly rebuild medical care by embedding the patient at the center of the wellbeing framework and expanding the insurance, security, and capacity of wellbeing information. This innovation may give a spic and span model for wellbeing information trade by making electronic wellbeing records extra affordable and secure. In partner EHR framework, when patient records zone unit got to for a couple of reason, the historical backdrop of all such occasions ought to be recorded in a very log document for later review on access chronicles. The log document is utilized for reproducing the previous condition of clinical records, and it are regularly painted as an instrument. In this manner, we should in every case immovably protect the log document from stole admittance and make it constant if feasible. We utilize the consortium blockchain to make a disseminated structure that coordinates existing EHRs utilizing Hyperledger Fabric. A similar record on which the location of a patient record in an EHR is composed is kept by peer hubs. Singular patients are known by explicit testaments given by nearby affirmation bodies that speak with one another on an organization channel.

Keywords: Machine Learning (ML), Artificial intelligence (AI), Electronic Health Record (HER), Text Ranking Algorithm

Project Title: MOBILE PRICE PREDICTION USING HYBRID MODEL

Project ID: ISE_16



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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: In this Modern Era, Smartphones are an integral part of the lives of human beings. When a smartphone is purchased, many factors like the Display, Processor, Memory, Camera, Thickness, Battery, Connectivity and others are taken into account. One factor that people do not consider is whether the product is worth the cost. As there are no resources to cross validate the price, people fail in taking the correct decision. This paper looks to solve the problem by taking the historical data pertaining to the key features of smartphones along with its cost and develop a model that will predict the approximate price of the new smartphone with a reasonable accuracy. Random Forest Classifier, Support Vector Machine and Logistic Regression have been used primarily. Based on the accuracy, the appropriate algorithm has been used to predict the prices of the smartphone

Keywords: Logistic Regression Support Vector Machine

Project Title: HAND GESTURE RECOGNITION FOR CONTROLLING COMPUTER APPLICATION

Project ID: ISE_17



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Project Execution Time: In_House

Project Category/Area: Reaearch_Oriented

Abstract: The primary purpose of employing hand gesture detection to control computer applications is to improve user-computer interaction by making the computer more responsive to user needs. Hand gesture recognition has been achieved using both non-vision and vision-based techniques. The detection of finger movement with a pair of wired gloves is an example of a non-vision based approach, whereas motion detection and hand gestured language are examples of a vision based approach. Vision-based techniques are more natural in general because they do not involve the use of any hand gadgets. Application of the project is to access an PPT(Power Point) without using a keyboard or a mouse, hand motion detection and sign language understanding. This results in enhanced human computer interaction, ease of accessing a computer application and getting rid of difficulties that exist between the user and computer caused due to any hardware damage or failure such as wear and tear of keyboard, mouse or any I/O device. Gaps that have been identified in gesture recognition were limited only to detection of hand gestures, understanding of the sign language, and decreased efficiency under low lighting conditions. However we have aimed to overcome the stated gaps and introduce a novel way of accessing a ppt by leveraging concepts and working principle of gesture recognition using machine learning. Motivation to do this project is extensive Research has been going on improving human computer interaction using hand gestures, enhanced user experience while accessing computer applications, scope of existing products is limited only to gesture recognition but not accessing the computer applications using gestures, Scope for full fledged access of any kind of any computer applications through this project in the future.

Keywords: Hand Gesture recognition, event handling, Machine learning, HCI

Project Title: Handwriting Recognition in Kannada Using Machine Learning

Project ID: ISE_18



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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: Handwriting Recognition in Kannada aims at developing a simple handwriting recognition engine to recognize handwritten data using a trained model. Handwriting Recognition in Kannada uses image pre-processing techniques to enhance the quality of an image and exploring deep learning technique for feature extraction. Various pre-processing steps like Gray-scale conversion, denoising, contrast normalization, binarization and segmentation methods will be applied to the input image to improve the model performance. Further, the pre-processed image will be used for feature extraction with the help of CNN, a deep learning technique. Convolution Neural Network (CNN), a deep learning technique effectively extracts the features from the input image which helps the model in better classification of Kannada handwritten character recognition. There are two stages namely training and testing. For training the system, dataset used is Chars74K. Chars74K dataset contains set of images that belong to 657+ classes. Each class consists of 25 handwritten characters, various augmentation techniques are used to expand the dataset. First step in the proposed approach after acquiring the input document is to convert colored image to grey scale, then converted image will be subjected to denoising. Denoising is a process of removing noise from digital document which may be caused by different sources which are often not possible to avoid in practical situations. After normalizing the data, boundaries of each line are marked in the given input handwritten document and subjected to segmentation.

Keywords: Handwriting Recognition CNN Denoising Segmentation Deep Learning


Project Title: Real Time sign language analysis using Deep Learning**Project ID:** ISE_19**Name of the Guide:** Mr Chandrashekar K T**Guide Email ID:** chandru@bmsit.in

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Project Execution Time: In_House**Project Category/Area:** Application_Oriented

Abstract: Hand gestures are one of the most important modes for non-verbal communication. It's primarily employed by people who are differently-abled, for e.g. people with speech or hearing impairments. There have been multiple efforts to develop systems which help with sign language by various manufacturers around the world, but they suffer from inflexibility and are not very cost effective. As part of this project we have developed a system, using computer vision, to automatically recognize hand gestures for sign language in order to help people with speech and hearing issues. The recognition of pattern as well as gesture are some of the important fields of research at present times. We have tried to develop an innovative and intuitive way of non-verbal communication. We use a collected set of images of hand-gestures and their corresponding labels (which denote the gesture represented in the images) to train a deep learning model, which in-turn would be used to run inference in real-time on incoming images to understand and predict the hand gesture made by the user.

Keywords: Deep Learning, Sign Language

Project Title: “Augmented Reality Educator”		Project ID: ISE_2
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Project Execution Time: In_House

Project Category/Area: Environmental_Societal

Abstract: One of the major issues faced in the educational field by students, professors, and other professionals, is the fact that they lack in practice or the opportunity to practice one’s knowledge of real-time problems. They may lack the ability to apply their knowledge practically, acquired by conventional ways of teaching and learning, and this project is to overcome the general problem of students tending to memorize concepts for examinations instead of understanding them. For this purpose, we will be using Augmented Reality (AR) that overlays computer-generated objects in a real-world environment and provides interactive experiences to the user. It's a very common practice to use 2-dimensional media in education rather than 3-Dimensional although the physical world is 3-dimensional. Combining AR technology with educational content creates new types of automated applications and acts to enhance the effectiveness and attractiveness of teaching for teachers and professors and learning for students in real-life situations. Augmented Reality is a new medium, combining aspects from ubiquitous computing, tangible computing, and social computing. It offers unique affordances, and combines the physical world with the virtual world, with continuous and implicit user control of the POV and interactivity. For implementation, Blender/Unity/Unreal Engine along with Vuforia engine to create 3D models and for further conversion to augmented reality. "Triggers" or "Markers" (i.e. objects, images, locations, and/or actions that trigger an action on the screen of the device in use, via the AR app). Making use of Augmented Reality in Education would change the way students and teachers interact, and it would enhance the quality of education. Teachers can convey their lessons in a much easier and effective way, and students can be more confident with their concepts, having worked with it in 3D real time space.

Keywords: Blockchain, Digital Transformation, Smart contract, Decentralization, Cryptocurrency

Project Title: IoT BASED SMART TRAFFIC SIGNAL MONITORING SYSTEM

Project ID: ISE_20



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Project Execution Time: In_House

Project Category/Area: Reaearch_Oriented

Abstract: Nowadays, Excessive traffic jams lead to delay in reaching home or workplaces, wastage of amount of fuel, wears and tears on vehicles or even road rage by the stressed and frustrated motorists. An increasing number of populations is directly related to an increasing traffic problem. Currently, adaptable and smart traffic control systems are being selective over a fixed amount of time. Considering this, the Internet of Things, which has proved its worth in almost everything in our daily life, can be considered as a tool for managing traffic through a central server. For counting vehicles in real-time, we will be using image-processing applications in Open-CV software. In this proposed system for urban settings, the real-time video data is acquired at first. Then, it is bifurcated into multiple frames, and then after binary conversion and noise removal, blob detection is performed and then, finally, the count is estimated using the proposed vehicle counting method. Using image processing techniques, the automatic counting of vehicles passing through a chosen destination will be obtained. Using a camera system to acquire real-time traffic flow video footage through the road. After acquiring the video through the camera, a portable microprocessor processing system was used to work on this data. The processing system is used to communicate the same information to the central control system. Using push button as a switch for an emergency. This amalgamation of computer vision technology with the IoT approach helps in developing a system that can handle traffic in an effective manner as in stipulated time. The proposed framework is working efficiently and providing fast outputs in real-time using the desktop based system as hardware. Cost-effective and portable system to help in decreasing the traffic congestion at peak points. Effectively able to alter the traffic light for emergency conditions irrespective of any particular traffic signal.

Keywords: IoT, Smart Traffic, Delay Open CV

Project Title: Social Media Analysis for Content Creators including News and PR Agencies

Project ID: ISE_21



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Project Category/Area: Application_Oriented

Abstract: Social media analysis is the study that yields the results of people's opinions on any topic to understand the sentiment, attitude and emotion of the public. It is expressed in written language. It has become of one the most agile research areas in natural language processing and text mining in the last few years. Social media analysis has achieved popularity for two reasons. Firstly, the reason is its wide range of applications in various fields because opinions and attitudes are the core of all human activities and pursuits. Their influence on people's behaviors plays an important role here. It is the people's urge to decide after hearing other's opinions on anything. Secondly, it gives out many challenging problems of research, which had not been aimed for or before the year 2000. The lack of study on social media analysis was because of very little opinionated text in digital forms.

Keywords: NLP, Social Media, Analysis, Sentiment

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Project Execution Time: In_House**Project Category/Area:** Reaearch_Oriented

Abstract: In this day and age headway in unobtrusive logical methods is pushing extra the limits of human reach in differed fields of innovation. One such field is that the field of character acknowledgment customarily called OCR (Optical Character Recognition). during this fast paced world there's partner degree Brobdingnagian inclination for the clinical guide of composed reports and documentation of information straightforwardly in advanced kind. There's still some hole during this space even these days. OCR procedures and their nonstop extemporisation every once in a while is making an endeavour to fill this hole. In this venture, partner degree creative strategy is given for composed person discovery exploitation profound neural organizations. In this day and age, it's gotten simpler to mentor profound neural organizations attributable to handiness of goliath amount of information and differed algorithmic developments that are occurring. Composed Text Recognition (HTR) is partner degree programmed because of decipher reports by a pc. There are 2 fundamental methodologies for HTR, explicitly covered up Markoff models and Artificial Neural Networks (ANNs). The arranged HTR framework depends on ANNs. Preprocessing ways upgrade the info pictures thus alter the matter for the classifier. These ways embrace differentiation normalization moreover as information increase to broaden the size of the dataset. The classifier has Convolutional Neural Network (CNN) layers to separate features from the input image and nonstop Neural Network (RNN) layers to spread data through the picture.

Keywords: Character Recognition, Text Recognition, Optical Character Recognition, Machine Learning, Neural Networks

Project Title: SCHOLARSHIP MANAGEMENT APPLICATION

Project ID: ISE_3



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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: Education is the most significant tool in eliminating poverty and unemployment. Moreover, it enhances the commercial scenario and benefits the country overall. So, the higher the level of education in a country, the better the chances of development are. But gaining education is not as easy as it sounds it requires one's dedication more importantly money which many cannot afford. Fortunately there are organizations that help the students in need. But the process of selecting potential students and maintaining their information is difficult. Our aim is to develop an application through which the process of maintaining scholarship information will become easier. The application that we are developing will not only allow information saving and retrieval but will also have a proper mentorship portal and also the analysis of students' performance will be completely automated. Thus making the process of scholarship maintenance and follow ups more easier. We are using React to develop the front-end and Node.js as a back-end tool and handle the requests. Socket.io is used for real time chatting functionality in the mentorship portal. Different graphical libraries are to be used for analysis of students' performance.

Keywords: Web Application Scholarship automated

Project Title: IoT BASED APP FOR FARMERS**Project ID:** ISE_4**Name of the Guide:** Mrs Shanthi D L**Guide Email ID:** gopalaiahshanthi@bmsit.in

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Project Execution Time: In_House**Project Category/Area:** Environmental_Societal

Abstract: Users and researchers can access online information about the crop, statistical details, and new trends through Smart Agriculture. The crop trends act in such a way that they are important to people who access them over the Internet. The information system's major characteristics are information retrieval capabilities for users from any location. For agricultural purposes, it is important that the data about field conditions, such as air and soil temperature, soil moisture levels be rapid and easily available for use by farm management systems, by specialists, or the farmer itself in decision-making processes. This work aims to implement, an App that promotes remote interaction of the users/farmers to the agriculture environment using natural language processing. We worked on an app which can answer basic queries of a farmers and can also provide a possible information and solution related to agriculture.

Keywords: AI Chatbot Agriculture

Project Title: HUMAN ACTIVITY RECOGNITION USING CONVOLUTIONAL NEURAL NETWORKS

Project ID: ISE_5



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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: Human activity recognition is a challenging time series classification of the task. Recognizing human activities from the video sequences or the images is a challenging task due to problems, such as background clutter, partial occlusion, changes in the scale, viewpoint, lighting, and appearance. Many applications, including video surveillance systems, human-computer interaction, and robotics for human behaviour characterization, require a multiple activity recognition system. Here we are developing a system, that is capable of identifying human activities from a series of observations on the action of subjects (human) with the help of machine learning techniques. Human Activity Recognition can be referred as the problem of classifying sequences of either sensor data or vision-based data that can be recorded from specialized sensors or any visuals capturing devices into well-defined movements. In Human Activity Recognition (HAR), different types of human activities like walking, running, sitting, sleeping, reading, etc are recognized. HAR is applicable to wide range of application such as elderly care, anomalous behaviour detection and surveillance system. There have been significant advancements in the area of HAR in recent years with the rapid advancement in Internet of Things (IOT). Till date, several machine learning algorithms have been employed to predict the activities performed by the human. However, the outdated traditional machine learning approaches have been outperformed by feature engineering methods which can select an optimal set of features and hence classify the human activities with greater accuracy.

Keywords: Human Activity, Machine Learning, Convolutional Neural Networks

Project Title: Intelligent Waste Bot using IOT and Deep Learning for a Smart City		Project ID: ISE_6
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Project Execution Time: In_House

Project Category/Area: Environmental_Societal

Abstract: Tonnes of garbage is generated all over the world every year and India alone generates approximately 1,00,000 metric tonnes of solid waste every day. With a population of 1.38 billion, the waste management in India still relies on rudimentary methods of human interface and time-consuming process with high risk of health hazards. In most of the metros, with the emerging rise in population and environmental safety, the waste management and waste segregation (biodegradable and non-biodegradable) problems need to be addressed. In cities such as Bangalore, the Bruhat Bengaluru Mahanagara Palike (BBMP) takes responsibility of the waste management in the nearby localities. At present the waste management process is manually carried out using auto tippers which move to every locality / society for garbage collection. In some parts of the city, the waste is segregated as biodegradable or nonbiodegradable which will be collected separately. The current setup in BBMP has one central place (node) where the coordination among auto tippers for garbage collection is done manually or based on fixed slots allocated to every society / locality. With the help of automation, the dependency on manpower can be reduced while maintaining high degree of hygiene. The idea is to replace human labour with automated waste segregation and management robot system: waste Bot along with added intelligence using deep learning techniques.

Keywords: Convolution neural network, waste segregation, 3D CNN

Project Title: STRESS PREDICTION IN WORKING EMPLOYEES USING MACHINE LEARNING

Project ID: ISE_7



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Project Execution Time: In_House

Project Category/Area: Environmental_Societal

Abstract: Stress disorders are a common issue among working IT professionals in the industry today. With changing lifestyle and work cultures, there is an increase in the risk of stress among the employees. Though many industries and corporates provide mental health related schemes and try to ease the workplace atmosphere, the issue is far from control. In this project, we would like to apply machine learning techniques to analyse stress patterns in working adults and to narrow down the factors that strongly determine the stress levels. Towards this, data from the OSMI mental health survey 2019 responses of working professionals within the tech-industry was considered. Various Machine Learning techniques were applied to train our model after due data cleaning and pre-processing. The accuracy of the above models was obtained and studied comparatively. Boosting had the highest accuracy among the models implemented. By using Decision Trees, prominent features that influence stress were identified as gender, family history and availability of health benefits in the workplace. With these results, industries can now narrow down their approach to reduce stress and create a much comfortable workplace for their employees.

Keywords: Stress Detection, Machine Learning, OSMI, Logistic Regression

Project Title: AI CHATBOT FOR BOOKOO		Project ID: ISE_8
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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: There was a time when we couldn't even imagine there were chatbots and now the picture has changed so much that we can't imagine acting without them! From there don't think the existence of an unthinking step without chatbots is a remarkable journey to learn. Chatbots were used to schedule meetings, set alarms, send reminder emails, and help customers complete their purchases. It simplifies one's desire to be with them at every pace and enhances the involvement of the text and voice bot in our lives. Both offer their role in providing customers with advanced information and that may be the reason why their demand is growing exponentially in the eCommerce market. But the popularity of eCommerce voice chat has increased so much that we need to think about the reasons for it and take appropriate action accordingly. Voice bots are voice-enabled conversations that exchange dialogue with a human voice. They are designed to communicate with people and to receive instructions orally and in writing. At the moment, Amazon Echo and Google Home are the most popular audio markets. One of the great limitations of chat-bot is that it is designed to handle questions only at the first level. They may not be able to solve difficult questions. You need to train them to communicate with your customers in the right way. We overcome this in our project using a technology called BERT. BERT trains the database to a large database, which enables the chat-bot to answer second-degree questions.

Keywords: Chat Bot, BERT, Ecommerce, NMT

MASTER OF COMPUTER APPLICATIONS

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Project Title: Analysis of Trends in Automobile Industry using Machine Learning

Project ID: MCA_1



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Project Execution Time: Industry

Project Category/Area: Reaearch_Oriented

Abstract: Sales forecast is most important and present numerous trends in business in which all the companies prosper and which regulates the future aims and process to achieve it. The information is about the car sales various parameters. Sales of cars are does not contains any independent variables since it contains various parameter such as fuel type, height, mileage, engine type, number of doors, horsepower, city-mileage, highway-mileage and preparations are the different features that impact the sales. The prophecy first of we have to contrivance the methodology of analytic hierarchy process in order to get logically idea about how well the various criteria in our dataset works and after this we will apply the machine learning algorithms such as K Nearest neighbor (KNN), Support Vector Machine (SVM), Logistic Regression to get the best clusters and we process them in to Random Forest to get best accurate feature in it. On Anaconda Navigator we are used Jupiter file for searching internet which is a tool which helps to investigation for to arrive at a decision when some people face the one or more selection pattern problem and the final resultant derived from all these methods gives the fittest feature which inspirations the customer in purchasing the vehicle which indirectly gives the company to research market results for predicting the future sales of car. The Jupiter note book contains Python code. Using a regression algorithm with predicted variables in the expression, the lopsided relationship between attribute level concert and overall customer happiness could be confirmed. the breakdown of time series data shows that a confident and noteworthy relationship exists between in customer satisfaction and changes in the routine of the company which impact on increase in customer satisfaction and company profit, even though obscured in the short run by many factors, is meaningfully confident in the long run time.

Keywords: Sales, knn, SVM, logistic regression, Random forest


Project Title: THE PREDICTION OF TEMPERATURE, HUMIDITY AND MOISTURE OF AN AGRICULTURAL FIELD USING IOT AND ML

Project ID: MCA_10



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Project Execution Time: In_House

Project Category/Area: Environmental_Societal

Abstract: In India agriculture is the main occupation of Indians and Indian economy. The 75% of the Indian economy depends on agriculture. Even though this is the case India stands 32nd country in growing profitable agricultural products. Many farmers are living in below poverty line in India. To improve the agriculture and living standards of our farmers we have prepared our project “The prediction of Temperature, Humidity and Moisture of an agricultural field using IOT and ML”. In this project we are going to help the formers from various things such as first saving the water and providing good yield. IOT project can be get the Temperature, Humidity and moisture level of the land so that the former can get to know which type of crop is good for this land and also this project can automatically pump on and off can be done based on the moisture level. We are providing an android app to the former so that the former can see the land conditions through the smart phone. The former can operate the motor through the android phone manually. The former can get the SMS and also Email alert when the motor is on and off. In android app each data will be stored with date and time. That data can be made as dataset to predict the land values by using machine learning concepts. In this project machine learning algorithms such as random forest and regression can be used to predict the variation of the land temperature, humidity and moisture and also lowest and highest of land values and also what is the percentage of dry and wetness of the land. Python programming language and jupyter notebook tool can be used for prediction.

Keywords: Arduino Board and Sensors, Android Application, Machine Learning concepts.

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Project Execution Time: In_House**Project Category/Area:** Environmental_Societal

Abstract: Total national output is the complete financial worth of the every one of the completed labour and products delivered inside a country in a particular time-frame. Nations with bigger GDPs will have a more noteworthy measure of labour and products created inside them, and will by and large have a better quality of living. Gross domestic product is normally determined on a yearly premise, it is at times determined on a quarterly premise too. Gross domestic product is significant on the grounds that it gives the data about the size of an economy and how an economy is performing. This project aims is to predict the world's GDP by using machine learning and also calculate their year to year growth .Every year to year GDP is fluctuating it is important to know the current and importance of the factors which is affected for the country's GDP. By showing this thing in a graph it is easy to understand. This research based project also calculating the importance of features affected for the calculation of the GDP. It is very useful for the viewer to view the GDP growth of the different countries and also they can see the best and worst predict performance.

Keywords: GDP, Predictor, Machine Learning


Project Title: Online Shopping Sales and Product Prediction using Machine Learning

Project ID: MCA_12



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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: Machine Learning is the technology which uses algorithms to understand the dataset and then predict the data based on experience. The aim of the project is to predict the online shopping sales and recommend the products based on popularity of the products among customers. The prediction of sales of the shopping dataset consists of Random forest algorithm, Gradient Boosting, K-Neighbors' classifier, Decision tree, AdaBoost-Random forest, AdaBoost ore Adaptive Boosting , Support Vector Classifier(SVC) are the algorithms used, in which Random forest algorithm is best to predict the sales with highest accuracy as it is combination of multiple decision trees. The popularity based recommendation system is used to classify the most and least selling products based on popularity. The project also consists of the products sales based on country, color and size of the products with highest and lowest sales and the factors which are affecting the increasing and decreasing of the sales and the products sold with highest count based on popularity and sales of the products based on the count of products sold. By applying the algorithms and model we get accurate and precise results for sales prediction and product recommendation based on popularity.

Keywords: Machine Learning, Random forest algorithm, Popularity recommendation model

Project Title: VISION-AI-BOT

Project ID: MCA_13



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Project Execution Time: Industry

Project Category/Area: Application_Oriented

Abstract: “VISION-AI-BOT” is an application which is tend to focus on Image processing and video processing. Man-made reasoning (AI) is insight exhibited by machines, in contrast to the regular knowledge showed by people and creatures, which includes cognizance and emotionality. The qualification between the previous and the last classes is regularly uncovered by the abbreviation picked. 'Solid' AI is normally marked as AGI (Artificial General Intelligence) while endeavours to copy 'normal' insight have been called ABI (Artificial Biological Knowledge). Any device that sees its present situation and takes actions that grow its chance of successfully achieving its destinations. The articulation "mechanized thinking" is oftentimes used to portray machines (or PCs) that imitate "mental" limits that individuals cooperate with the human mind, for instance, "learning" and "basic reasoning". AI is the investigation of PC calculations that improve consequently through experience and by the utilization of information. It is viewed as a piece of man-made consciousness. It is the future and we will actually want to see. Computer based intelligence/ML supplanting a considerable lot of our everyday undertakings soon. It simply backs out things with less burden and makes everyday routine experience simpler and better with headways in innovation. Computer Vision plays a significant job as well and is now being executed and will be utilized in an ever increasing number of situations. Individuals are looking forward with regards to how these advancements will assume control over the world furthermore, even in the living of people everyday life.

Keywords: Computer Vision, Machines/Systems, Artificial Intelligence, Intelligence, Machine Learning.

Project Title: Parkinson illness utilizing Machine Learning**Project ID:** MCA_14**Name of the Guide:** Drakshaveni G**Guide Email ID:** drakshavenig@bmsit.in

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Abstract: Parkinsons disease is a movement condition caused by a central nervous system malfunction. This project is mostly concerned with voice modulation. The major faults of Parkinson's disease speech include short rushes of speech, harsh and breathy voices. Parkinson's symptoms include Head tremors, Swallowing difficulties, Speech that is unclear, Loss of weight, etc. The project's goal is to determine the correctness of several models based on data and then choose the best model among them. The models used in this project are the Linear Regression model, Logistic Regression, Decision tree, Support Vector Machine model, Random forest Classifier, XgBooster, Neural Network model.

Keywords: KEYWORDS: Linear Regression, Parkinson, Logistic regression, Random Forest Classifier, XgBooster, Decision Tree, Neural Network model, Support Vector Machine.

Project Title: Dog Breed Classification Using Deep Learning**Project ID:** MCA_15**Name of the Guide:** Drakshaveni G**Guide Email ID:** drakshavenig@bmsit.in

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Project Execution Time: In_House**Project Category/Area:** Reaearch_Oriented

Abstract: This project which is one of the multi-class classifications which presents a fine-grained image recognition problem, i.e. determining the breed of a dog in a given image. In this project, the Stanford Dogs dataset is being used which will be evaluated and trained with two different networks. The present system is integrated with innovative methods in deep learning which also included convolutional neural networks. The machine learning product “Dog Breed Identifier” has been developed using four pre-trained models; from these pre-trained models, respective features are being extracted and have been merged into one. Here, the evaluation and usage of CNN i.e. convolutional neural networks have been represented using a software system. This system includes libraries and components on a neural network in offline environments. The current project is being executed in the Jupyter notebook by Anaconda where the dataset information or the collection of dog images has been depicted in terms of graphs where it shows the number of images of each unique dog breed. This project uses machine learning and as mentioned, the pre-trained models: InceptionV3, Xception, InceptionResNetV2, NASNetLarge. To predict the unique dog breed of the given image, features are extracted from the mentioned pre-trained models using Keras. All of these features are merged into one and using this the dog breed is identified successfully. Keras is the deep learning library API used in python which can be called an interface for the TensorFlow library.

Keywords: Keywords: Dataset, InceptionV3, Xception, InceptionResNetV2, NASNetLarge, Machine Learning, Convolutional neural network, TensorFlow, Keras.

Project Title: EC2 ½ Troubleshooting Automation**Project ID:** MCA_16**Name of the Guide:** Venkatesh A**Guide Email ID:** venkatesha@bmsit.in

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Project Execution Time: In_House**Project Category/Area:** Product_Development

Abstract: Abstract: EC2 instances can sometimes become unreachable resulting in “½ status checks failed” status. Issues related to EC2 ½ checks failure are common among Windows server instances and are only troubleshooted manually which requires a lot of time and expertise. Keeping in mind the complexity of the troubleshooting operation there was a need to create an automation application which can handle the troubleshooting and thus eliminate the need of manual intervention. An EC2 instance is a vital component in any organizations cloud infrastructure. It serves business critical data and services. When a large fleet of instances are hosted in the cloud it becomes cumbersome to troubleshoot reachability issues that can occur due to various reasons. This project is designed to take into account all the common scenarios that can cause the issue and try to troubleshoot the systems automatically. Issues ranging from user error to bad driver updates were taken into consideration while designing this automation project and the ability to include Operating System logs are also implemented. The project is an Automation document that takes the instance ID as the input and runs several steps of automation on the affected instance. The document performs troubleshooting related to common causes that can result in an unreachable instance. It tries to change the network interface, run driver installation on the instance in offline mode, change the instance types between Nitro and Non-Nitro. Finally, if the instance still remains in unreachable state, the document starts a new instance and collect the logs from the affected instance using this new instance and stores the logs in a S3 bucket for manual troubleshooting

Keywords: EC2, S3, Cloud Computing, Windows Server, Instances, Automation

Project Title: Object Detection with Yolo Algorithm and Text to Speech

Project ID: MCA_17



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Project Execution Time: In_House

Project Category/Area: Reaearch_Oriented

Abstract: YOLO (You only look once) algorithm approach for detecting the object which is going to remodel the classifier to represent detecting the object. Detection of the object which relapses the query to structurally separate bounding boxes and analogous the class probabilities. Users can detect and recognize multiple objects which are in the form of videos or images easily, anyhow objects that arrive for computer devices it is a little bit challenging to identify, recognize and, revolting things. Single-neural networks that predict the bound boxes and probability which come straight from images, one by one appraise an unit of the architecture which is especially faster. YOLO model which processed images and video in real - time as 45 frames per/second and it is the smallest version of YOLO to network, fast YOLO processed astound 155 frames per/second which still achieve the double mAP of another real-time detector for the object. While comparing the state-of-the-art detecting system, YOLO makes more localization errors but still, it must be less likely to predict false and positively in the background. Lastly, YOLO teaches a very common representation of objects. In this technique, there is an advantage when compared to other object detector algorithms, while in another algorithm like CNN, F-CNN, but YOLO algorithm predicts bound boxes using probabilities of classes for those boxes and detecting the images as fast while comparing to other algorithms.

Keywords: YOLO (You only look once), CNN, Bounding box, Class name, Accuracy of object, Text- to speech

Project Title: customer relationship management**Project ID:** MCA_18**Name of the Guide:** Drakshaveni G**Guide Email ID:** drakshavenig@bmsit.in

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Project Execution Time: Industry**Project Category/Area:** Application_Oriented

Abstract: Customer Relationship Management is intended to help the small business company To directly interact with their supplier without contacting superior authorities. The application helps to provide emerging companies with affordable cloud-based SaaS software which has deeper functionality and addresses the complexities of Business processes. This application contains three major sections namely Service Manager, Sales Manager, Expense manager. The service manager will helps service personnel to create and manage service tickets. The sales Manager contains details of each sale done by the company. Expense Manager is an expense and claims management tool. Every employee can use this tool to report and claim expenses viz. conveyance, travel, accommodation, food, beverage, client entertainment, etc. The expense amount must be specified to which task it is spent that must be specified. Generate reports for sales, expenses, services. Project timeline can be viewed and can generate an email to the respective admin if the project is not completed within time. Admin/owner set the target of the project. User details can be added modified by the admin. Each task of the project will be assigned to employees by the admin. Store the details of the Client Company.

Keywords: Customer Relationship Management , Service Manager, Sales Manager, Expense manager.

Project Title: USING DEEP LEARNING To PREDICT PLANT GROWTH AND YIELD IN GREENHOUSE ENVIRONMENTS

Project ID: MCA_19



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Project Execution Time: Industry

Project Category/Area: Reaearch_Oriented

Abstract: Agriculture is India's major source of income and the backbone of the Indian economy. 75% of the Indian financial system relies upon agriculture. In the greenhouse environment, successive plant growth and yield forecast is a fundamental task. In this project, we develop models that can accurately forecast growth and yield can assist producers in improving environmental management, matching supply and demand, and decrease costs. In this project, we mainly focused on the prediction of plant growth and development in greenhouse environments. A ficus plant data set can containing various parameters like humidity, co2, radiation, inside temperature, outside temperature. To predict the crop yield, various machine learning algorithms such as support vector regression, random forest algorithm, and long-term short-term algorithm can be used. To evaluate the performance of various methods, the mean square error criterion was used.

Keywords: Keywords: Growth rate, Yield rate, stem diameter, ficus plant, accuracy.:

Project Title: Smart Dustbin**Project ID:** MCA_2**Name of the Guide:** Dr. Aparna K**Guide Email ID:** aparnak@bmsit.in

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Project Execution Time: In_House**Project Category/Area:** Application_Oriented

Abstract: Our government has provided dustbin in all the public places though we are unable to keep clean. No one worried about the overflow of waste in public places. No one here cares about hygiene. Due to this, all human beings are facing lots of diseases like skin allergy, breathing problems, and many more infections. Authority is unaware of the overflow of the garbage. No one was able to take responsibility to inform the municipality to empty the bins. To overcome this problem started to build a dustbin that kept our surroundings clean and hygienic and protects us from an overflow of garbage. Since the smart dustbin is additionally captivating and children make fun with it so it will help to maintain sanitation in home. It will be practical for various type of waste. Dustbin will open its mouth when someone/object is near at some range then it will wait for given time period than it will close automatically. Here lid will close when you don't want to use and it will only open when it required. This is IOT Based Smart Dustbin, an innovative way that will help to keep the cities clean and healthy by notifying about the garbage levels of the bins. Smart dustbin detects the motion around the bin and opens the lid automatically. Predicates the wet and dry waste and places in its portion without any human help when the garbage is segregated lid will close automatically. It will notify the authority people or end-user to empty the dustbins; it shows the location of the dustbin. Smart dustbins solve the problem of rising due to the overflow of the garbage. Like this, our surroundings will be fresh and disinfection. Smart dustbin makes our work easy and helpful

Keywords: Smart Dustbin, IOT, Segregation.

Project Title: Sustainable Services To Address Current Challenges Around Urban Living

Project ID: MCA_20



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Project Execution Time: In_House

Project Category/Area: Environmental_Societal

Abstract: The project "sustainable services to address current challenges around sustainable living using spring boot" is the use of fostering the Go Green idea in IT. This application offer types of assistance like gardening, paperwork, cleaning, project work, and so on to the corporates each work is considered as engagement, all the details required are gathered in the administrator field. The thought behind this project is offering all the services needed to corporate with loads of advantages and cost savings. Nonetheless, there are numerous tools for performing functions identified with sustainability, life cycle assessment (LIC) is one such device for environmental effects. Advancement is a changing wonder as the platitude "each activity has a contrary response" so activity embraced towards improvement development additionally have an antagonistic response and its effect essentially on climate. And, this project is equipped for dealing with engagements and taking care of assignments, workshops dependent on the prerequisite of the corporate by staying away from expanded dangers in booking the group. The At Quest application is a versatile, got cloud stage that is powerful to address the issues of corporates. It additionally assists with enabling the corporates to manage the cross- useful in-administration measures perfectly.

Keywords: Sustainable, Services, Assignments, AtQuest, documentation

Project Title: Secure Data Transfer and Deletion from Counting Bloom Filter in Cloud Computing

Project ID: MCA_21



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Project Execution Time: In_House

Project Category/Area: Industry_Project

Abstract: Secure data transfer and deletion from counting bloom filter in cloud computing is the project that is being created for an expanding number of data owners prefer to re-appropriate their data to the cloud server, which can incredibly reduce the local storage. Since various service providers offer unmistakable nature of information storage services, e.g., security, reliability, access speed and cost, cloud information movement has become a major prerequisite of the information owners to change the service providers of cloud. This application provides how to safely transfer the information starting with one cloud then onto the next and furthermore for all the time removed the migrated information from the first cloud, this is the main concern of data owners. In existing system that requires third party to delete data but also they did not permanently delete the data securely. To take care of this issue, we build another concept called counting bloom filter-based scheme in this application. The proposed scheme not exclusively can accomplish secure information move yet in addition can understand perpetual information removal. Furthermore, the proposed plan can fulfill the public obviousness without requiring any confident in outsider.

Keywords: Cloud storage, Data deletion, Data transfer, Counting Bloom Filter, Public verifiability.

Project Title: BI Mechanism Associated Incident Controller**Project ID:** MCA_22**Name of the Guide:** M Sridevi**Guide Email ID:** sridevim@bmsit.in

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Project Execution Time: Industry**Project Category/Area:** Industry_Project

Abstract: The system is being designed as a convertible panel which provides various types of automated activities for the distributed collaboration and for different types of incident references. Global interactions can be performed with the help of the system and individual panel references can be established for response distribution for different types of business Associates and clients. Establishing automation with the help of regulations and to minimize human intervention is also supported in the system which makes it much easier when the working has to be considered globally. The system also provides interactive valuations and various types of knowledge design references so that the work automation and task references can be property recognized in real time. Multiple types of conditional triggers can be used for automation and it helps to manage cost effective communication and flexibility for the company. The system is also subjected with various types of intelligent rule formations which will be used by the system for the business intelligence related workability to be implemented.

Keywords: Business Intelligence, Automation, Separation Technique, Customised Service Settings, Incident Management.

Project Title: Django Framework For Heart Disease Prediction Using Machine Learning Algorithm

Project ID: MCA_23



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Project Execution Time: Industry

Project Category/Area: Environmental_Societal

Abstract: In healthcare sectors, disease and diagnosis are the major aspects. They collect large amount of patient data personally by the means of certain tests for this purpose. In this project, we mainly concentrate on prediction of heart diseases. A set of heart disease data containing various parameter of the test conducted along with their results are fed to various machine learning algorithm for training. Then the pre-trained models are used for the prediction of new input data of new patients. The machine learning algorithms such as Naïve Bayes theorem, Decision Tree, SVC along with Logistic Regression are used in this project. The results of these algorithms are summed up to get one output for any patient's heart disease prediction.

Keywords: Healthcare, Heart Disease, Prediction, Machine Learning, Algorithm


Project Title: Performance prediction and assessment of influence of various parameters on the performance of students in SSLC

Project ID: MCA_24



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Project Execution Time: In_House

Project Category/Area: Environmental_Societal

Abstract: The aim of this is to predict student future stream on the basis of different types of student data like student parents education, health etc. This machine learning application will analyze the data set of the student's parameters to decide which stream the student would perform at their best in future. For this application the data set containing of 10,000 data point is analyzed and fit with various machine learning models to perform appropriate classification task. By using various evaluation metrics, the model that perform best is selected in order to predict about the student stream. At one time student and student's parents will not able to decide in which stream after SSLC student will perform best and in which area student is good by seeing student academic performance. In this case, student and student's parent can provide data to application and application will guide that in future what academic stream student should choose so that student will perform best and student can build future in that area. The application investigated and compared the machine learning models' performance accuracy and efficiency by using different classifications techniques and best performing model is selected to predict the future stream for a student.

Keywords: Machine Learning, Random forest, k-nearest neighbor, Neural network, Classification.

Project Title: Lecturer Student Communication App using Flutter**Project ID:** MCA_25**Name of the Guide:** M Sridevi**Guide Email ID:** sridevim@bmsit.in

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Project Execution Time: Industry**Project Category/Area:** Environmental_Societal

Abstract: Education institutes are using Email, Telegram, WhatsApp, Carrier Pigeon, fax for communication and for sharing any type of information like study materials, announcements, circulars etc. The personal data that is being shared on these platforms is no longer private, and may end up falling into third-party websites or into advertising companies, or may fall into the wrong hands. The goal of this project is to develop a mobile application in which teachers and students can log in and teachers can share data with students and can send announcements, circulars, and also be able to send text messages to individual students. The data of teachers and students is stored on their own servers and there will be no leakage of data to third party websites. Data is not shared for advertising purposes. Developing mobile applications for different platforms like Android and iPhone is concerned with learning different programming languages like Java, Kotlin for Android and Objective C and Swift for IOS. This complexity can be avoided by using frameworks which are capable of developing mobile applications for all types of platforms in a single programming language and codebase. Flutter is one such framework that allows you to create fast, attractive, natively built apps for mobile, web, and desktop using a single programming language and codebase. It is also open source and free. It was created by Google and is currently governed by an ECMA standard. The Dart programming language is used to create Flutter applications. Dart programming has a lot of similarities to other programming languages like Java, and it can be converted to JavaScript code.

Keywords: Flutter, Firebase, Dart, Mobile application, Android, IOS, Lecturer, Student


Project Title: ANALYSIS OF NETWORK INTRUSION DETECTION USING DECISION TREE AND RANDOM FOREST ALGORITHM

Project ID: MCA_26



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Project Execution Time: In_House

Project Category/Area: Reaearch_Oriented

Abstract: With the growth in technology and increase in the usage of the same, we have seen that how Network Intrusion Detection has emerged and have also become a most important aspect in the area of research. The Intrusion Detection System broadly classifies the attack as normal or hostile attack based on the activities of the users. An Intrusion Detection System deals with Traffic data of networks. It is non-linear and can deal with complicated problems. In the past researches, many Intrusion Detection System was proposed with different accuracy levels. Even though there is no model that can precisely detect or predict an attack. Therefore, it is important to develop a robust and effective Intrusion Detection Model. In this project we have developed a Network Intrusion Detection System using Decision Tree and Random Forest classifier. These techniques give us a better accuracy and performs pretty well when compared with some other traditional classifier for classifications of attack effectively. The NSL-KDD dataset have been used to conduct our experiments and evaluate the performance of our model. The final results shows that our proposed method is efficient enough to give a low false alarm rate and high detection rate.

Keywords: Network Intrusion Detection System (NIDS), Machine Learning, Decision Tree Algorithm, Random Forest Algorithm, KDD dataset.


Project Title: OBSTACLE AND OBJECT DETECTION SYSTEM FOR VISUALLY IMPAIRED USING MACHINE LEARNING

Project ID: MCA_27



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Project Execution Time: In_House

Project Category/Area: Reaearch_Oriented

Abstract: Obstacle and object detection system for visually impaired using machine learning is a visual aid and is very important for visually challenged people. Orientation and mobility improvement are the main focuses of this real time system which can help vision impaired people. Without vision it is not possible or difficult to carry out daily life such as navigate, to find books, to read documents, cross roads, recognizing objects, people and places. Hence an assistive tools or technology plays very important role for visually impaired in day-to-day life. The main focus being the cost which should be low, portability and a system which cannot be tampered by others should be built although there is quite an effort put in by detecting objects and avoiding them by using sensors and camera data that is images or video. Blind people or people with low vision power require help or guidance which can be accomplished by humans or modern devices which are freely available. But the human helpers may not available always or willing to help the visually impaired. The white or walking cane, which is a traditional visual aid that helps someone with low vision power or total vision loss to navigate and avoid obstacle are effective to some extent. Other forms of visual aids are guiding dogs and modern gadgets like phones are not affordable by everyone. Hence there is a scope or demand for develop of a more effective and low cost system. The system which is in need and required for visually impaired is a modern and cost-effective solution which can detect object, currency and fetch text from a document then convert it to a speech format.

Keywords: Computer vision, deep learning, visually impaired, visual aid, object detection, low cost, portable, and non-intrusive.


Project Title: MEDIATORX - BROAD BROADCASTING SYSTEM

Project ID: MCA_28



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Project Execution Time: Industry

Project Category/Area: Application_Oriented

Abstract: This project is being developed for broadcasting purposes; this project is a broadcasting tool which provides various functionalities which makes broadcasting simpler and easier for the broadcasters. This project is having highly adaptable, cohesive, framework doubter platform which can work for media benefit administration. This tool is being developed to work with TPA (Transmission Payout Automation) which merges a template driven channel stamping engine and can reach into the media benefits administration and utilize custom metadata fields. It is trained to work with NLD (Non Linear Distribution), used to apprehend all business superordinate, critique and some scientific information. If we talk about over a decade of innovation in this field then we can say that this project is an undertaking class program, can run on a general or separate cloud framework. The final proposed system will be capable of handling each and every task which is mentioned here. It will work very smoothly and efficiently at the final stage after deployment. Some of the difficulties arise on developing the project which is solved by using some of the open source technologies like python, MySQL, JavaScript, etc. The particular system can be arranged and can run on the media benefit administration, transmission Payout and non-linear delivery core functions.

Keywords: Media Benefit Administration, Transmission Payout Automation, Non-linear Delivery


Project Title: Deep Learning based detection of Covid-19 using Chest XRay images.

Project ID: MCA_29



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Project Execution Time: Industry

Project Category/Area: Reaearch_Oriented

Abstract: The usage of chest xray pictures to detect the sarscov-2 also said as respiratory syndrome which is the main reason for covid-ailment illness in the year2019, is life-saving for both patients and doctors. xray,ct-scans are inexpensive and are readily available at public health facilities, hospitals, and clinics in rural areas, and to be used to detect COVID19-related lung infections quickly. As a result, we present practical, systematic dl-based categorization of chest-radiograph, DL-CRC framework for distinguishing COVID19 instances from other pneumonia, ordinary patients with high accuracy. The poster anterior view of chest of xray pictures for COVID19, pnuemonia, ordinary patients is compiled from four publically available sources to create a unique dataset. Because they have pre-trained weights, models have been previously trained on image net database, minimizing the requirement for huge training data or image sets. The training data, which includes real and pseudo chest xray pictures, is uploaded into DL-proprietary CRC's Convolution Neural Network (CNN) model, that achieves detection accuracy of 94percent,compared to 55percent within the state of affairs while not information augmentation (i.e., once solely a number of actual corona chest X-ray image samples square measure offered within the original dataset). Wearing masks in public places is one of the most common ways for people to protect themselves. Because of our proposal's excellent classification accuracy, it can quickly automate COVID19 detection from radiographic pictures, providing quick and reliable result of covid infection in lungs to supplement existing covid 19 diagnostic modalities.

Keywords: Chest X-rays, Convolution Neural Network (CNN), Deep Learning, accuracy, Covid19, DL-CRC.

Project Title: Smart Refrigerator**Project ID:** MCA_3**Name of the Guide:** Dr. Aparna K**Guide Email ID:** aparnak@bmsit.in

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Project Execution Time: In_House**Project Category/Area:** Application_Oriented

Abstract: The main motive of this project is to make normal refrigerator into smart refrigerator that combines smart refrigerator micro controllers and a mobile phone to send SMS notification that will monitor the food product that the users keep inside the refrigerator. This refrigerator is developed using some sensor and components that is installed in specific place inside the refrigerator here all sensor will transfer data to the micro controllers like Arduino Uno, GSM modem, RTC sensor and LCD display which is interconnect by digital pins and jumper wires. The kitchen is the central unit of the traditional as well as modern homes. It is the place where all members of house sit together to eat food. The smart refrigerator is the lateral of all that and it plays an important role in human regular life to keep food safe and fresh. In this smart refrigerator the user can know about their food status when the food product will expire they can know about it from any where, here the users will get SMS about the expired product and they will not spoil their food using this technique and food can be finish before expire so that they will not eat expire or waste food. Sometime people takes food from the refrigerator and forget to close the door and it open till long time and like that they waste electricity also but in this smart refrigerator when such types of things will happen it will send SMS to user to remind about door status that the door is open please close the refrigerator door, and like that they can save electricity. Now a day's everyone is engage in his/her daily life and they do not have set up to check inside what product they have inside the refrigerator and what is finished inside the refrigerator .They will get SMS that there in no product inside the refrigerator so that they can bring product and they can save their time also.

Keywords: User, Admin, refrigerator


Project Title: DigiGST an Intelligent Tax Automation Tool for GST using Spring Boot

Project ID: MCA_30



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Project Execution Time: Industry

Project Category/Area: Application_Oriented

Abstract: The project “DigiGST an Intelligent Tax Automation Tool for GST using Spring Boot” is the automated tool which allow the user to file the GST by collecting the invoice in bulk. GST can be filed under various GST Returns (GSTR). Once the file of invoice is uploaded under a particular GSTR, the GST calculation is processed automatically by the tool. Once the data is processed, it allows user to download the processed data in the form of report. DigiGST handles only B2B transactions. DigiGST is a special technology tool that coordinates regulation of both the ASP (Application Service Providers) and GSP (GST Suvidha Provider). It collaborates capability of technologies, sector knowledge and expertise of tax domain. It is provided on the profoundly secure local Microsoft Azure cloud in India with a diverse security design for more prominent versatility. Versatile and adaptable foundation fit for taking care of huge volumes of exchanges and data patterns are unpredictable. However, this can granularly manage the detailing necessities and can handle the increased risks. The aerosol is a scalable, secured cloud platform that is intelligent and robust to meet the GST obedience needs of all. It also helps with empowering the corporates to deal with the cross-functional in-service processes flawlessly.

Keywords: GST Returns (GSTR), B2B transactions, ASP (Application Service Providers), GSP (GST Suvidha Provider), Microsoft Azure cloud, Security, Robust.

Project Title: Australian Music Toys**Project ID:** MCA_31**Name of the Guide:** Dr. P SUDARSANAM**Guide Email ID:** sudarsanamp@bmsit.in**USN****Student Name****Email ID****Contact No****Student Photo**

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Project Execution Time: Industry**Project Category/Area:** Application_Oriented

Abstract: Every vendors wants to spread there business in a wide range. This can be done by using an internet because these days internet has seen a massive growth in recent years. Web-based(online) shopping has become a new trend of shopping now a days and due to wide spread of internet is quickly becoming an important part of the life style. E-commerce web Applications became a more popular in these days because everyone wants everything in there comfortable zone. From e-commerce they can buy a products in there places no need to wander around shops. Due to wide spread of online usage and e-commerce usage by traders, online shopping has seen a massive growth. The majority of shoppers are young people and they are shopping the items by comparing the items in different ways so its very useful for everyone to know the product details. People who have minimum knowledge of education they can easily use this online shopping.

Keywords: Online shopping, E-payment, Email-confirmation.

Project Title: Concealer and Privilege Furnisher Including Tools**Project ID:** MCA_32**Name of the Guide:** Dr. P SUDARSANAM**Guide Email ID:** sudarsanamp@bmsit.in

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Project Execution Time: Industry**Project Category/Area:** Application_Oriented

Abstract: The organization management related actions that has performed can be mechanized where information technology resources can be responded with a virtual infrastructure management system. The system will have multiple instance of resources that are pre built and provided that can be accessed in response to the requirements. Central native console will be provided for directly accessing the resource management system by the provided authentication where the enforcing usage and the policy security requirements will be considered for the entire life cycle of the cloud service instance that will be provided. Release and allocation will be available with the help of the physical infrastructure where the instance is required to be started, used and interminate according to the work consideration of the clients. Various divisions of the collaterals are incorporated on the interface design that can be selectively used by the client according to the evaluation required to be worked on that will have a specific authentication provided by the administrator or the group administrator. The inclusion of various collaterals will provide a classified usage of required tools and the resources across offices on a global be provided in a controlled fashion under virtual range with all work synchronisation and administration required. The perception working is based on self-setting which will be provided in multiple categories and all types of category reference are established in a way that recognize self-service digitalized and usage regulation setup. The multiple collateral integrations are provided that are recognized and will be saved onto the working frame for usability and security approaches can also be identified. When it comes to the security references it is also divided into multiple types of categories based on the data, transfer, accessibility, compatibility and other environmental regulations so this will help the users to promote their own references with proper guidelines understandability. To support all types of control, the system is also identified with elaborated reports.

Keywords: Infrastructure, Authentication, Categories, Synchronisation, Integrations, Security.

Project Title: Driver Fatigue Detection System Based On Visual Characteristics of Driver

Project ID: MCA_34



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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: Driver exhaustion detection is to alert the driver based on their visual characteristics. It detects the drivers face through camera and check for fatigue level. Driver's lack of attention due to drowsiness may distract the driving alertness. Distraction happen when an object grabs person's attention from the driving .same way driver drowsiness is exactly same as driver's distraction, so just to make driver alert at every situation a technology required to make them attentive. Driver drowsiness detection system is nothing but detection of driver's exhaustion to prevent the road accidents which may occur due to sleepiness of the driver. Basically this project is developed with the help Python, Machine Learning and Image processing. And to achieve face detection haar cascade algorithm is required. Driver exhaustion detection is a main part of driver safety for road accident prevention, but there are some safety measures is taken while manufacturing the car, like seat belt and balloon bags etc. but it is not enough for safety purpose. In other cases the safety measures are provided in only in costly cars where everyone cannot afford those cars .for that reason, this project is inexpensive technology for face detecting system is implemented. To make a low cost and efficient system python and machine learning technology implemented so that this technology is having dynamics ways to approach the drowsiness detection system.

Keywords: Fatigue , Haar Cascade, Exhaustion detection, Image Processing

Project Title: Movie Recommendation System Using Machine Learning

Project ID: MCA_35



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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: With the advancement over technology, there is huge evolvement of websites bringing every possible organization online. As the products were everywhere around the web, it's been difficult for users to look up at all products. So, recommendations systems are implemented by providing recommendation for users based on their previous search history or the type of content they look at. Movie recommendations system is that helps for the movie fans by bringing all content at one place. This system helps user to bypass all the search process to watch a movie by categorizing the data and providing the recommendation of the movie based on their search content. The aim is to reduce the effort for choosing a movie to watch of our interests. This is implemented based on content-based filtering technique as it is independent of user's history and can explicitly produce the content out of the box making the user to experience new content. It differs from collaborative-based filtering technique as it requires user previous history and the content is only implicit avoiding user on new content. This system is designed to collect all reviews available on the movie from the dataset. It also has provided a platform for reviewers or critics as it collects all the reviews by bringing a sentiment over the review. The limitations for searching the movie are broken out by merging all requirements at one place helping the users through movie recommendations and performing analysis over reviews by stating the outcomes whether the review is positive or negative. This application will also have enormous impact in the market and making a huge income for the company. So, we focused on solving these problems by making a better project.

Keywords: Content-Based, Cosine Similarity, Sentimental Analysis, Movie Recommendations, Genre

Project Title: Vidyadaan – A management system for charity organization

Project ID: MCA_36



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Project Execution Time: Industry

Project Category/Area: Application_Oriented

Abstract: In the beginning of the World Wide Web, web content administration laid totally in the possession of the website admins. With the advancement of the web innovation and requesting business prerequisites, the obligation of web substance the executives has moved from website admins to anybody with no amount of web programming information. A non- profit organisation wants to reach out to their internet audience using a website. They have opted to use a Web-based approach that will allow administrative members with only basic computer abilities to handle the website's content. This solves the problem by creating a Web CMS with easy-to-use user interfaces that allow administrators to manage digital content. Administrators should be able to register on the website dashboard, upload photographs, and allow end users to donate. This study compares and contrasts several online payment systems: Finally, the approach that proves to be the most appropriate for the organisation is selected and deployed just for online inquiry donations. The result is a web-based Content Management System that allows administrators to edit and publish content using a basic text editor. The motivation behind developing such this system is for a sole reason that is to provide a solid management system that can serve as a fully functional database to the organization that can help eliminate the manual process of all their daily activities such as marking attendance and publishing exam results to individual students, also since it is a charity organization details of students and their parents are essential for the sake of records.

Keywords: MS, WEB PORTAL, PARTICIPANTS

Project Title: GAN LOGO GENERATOR**Project ID:** MCA_37**Name of the Guide:** Dr. P SUDARSANAM**Guide Email ID:** sudarsanamp@bmsit.in

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Project Execution Time: Industry**Project Category/Area:** Application_Oriented

Abstract: Logo designing is a long, expensive and complicated process for most of the designers. Recent advances in generative algorithms, on the other hand, have produced models that might suggest possible answers. Huge number of logos can be generated by the Generative Adversarial Network model which the client can choose what kind of logo he needs. Further parameterization can also be done for the new features which can also be added according to the demand. Logos may be generated using Generative Adversarial Networks, which could help in reducing time and effort to design logos. The results of the Generative Adversarial Networks project provide a first look at how artificial intelligence (AI) can be used to assist logo designers in their creative designs and point to promising future directions, such as adding more descriptive labels to create a more comprehensive and user-friendly system. Generative Adversarial Networks are generative models, which means they generate new data instances that look like the training data. GANs, for example, can produce pictures that resemble photos of human faces, despite the fact that the faces do not belong to anybody. And huge number of logos from the existing logos with variable features to choose from along with parameterization options.

Keywords: Generative Adversarial Networks (GAN), Convolutional Neural Networks, Deep Learning, Parameterization.

Project Title: PREDICTION OF LOAN APPROVAL USING MACHINE LEARNING

Project ID: MCA_38



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Project Execution Time: Industry

Project Category/Area: Industry_Project

Abstract: Machine Learning is one of the trending topics and also playing a very important role in the modern society nowadays. Machines can be made to learn a specific process, which can learn in no time than humans and the result will be accurate. This can be done using machine learning algorithms. In this current era, world is almost being constructed with applications which are masterminds of machine learning algorithms. One such domain is bank. With the increase in activities and offers in banking sector, people tend to apply for loan for different purposes such as building a house, for education, for agriculture, purchasing car, medical, vacation and many more. Loan is nothing but a money given to a person for some period of time in exchange for some amount with interest for a specific period of time. Loan falls under secondary functions of bank activity. Banking can make money out of the interest paid by the loan holders. But bank has only limited resource which can be assigned to few people only. So to find out to whom the loan should be granted is a tedious process and difficult. This can be automated by using machine learning algorithms. The Prediction of Loan Approval is a proposed solution to this problem. The chief objective of the system been proposed is that to approve loan by prediction based on datasets using machine learning algorithms. Right predictions are very important for bank to increase their profits. The Logistic regression model approach is used to predict the loan approval. This model of regression is meant for exploitation technique which can tell the relationship between variables in financial domain. Logistic regression approach helps to grant loan for right customers by calculating the probability. Accuracy is the main factor upon which the whole loan approval process depends.

Keywords: Machine Learning, Bank, Loan, Machine Learning Algorithms, Datasets, Profits, Logistic Regression model, Prediction, Accuracy

Project Title: RAINFALL PREDICTION USING WAVELETS		Project ID: MCA_39
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Project Execution Time: Industry

Project Category/Area: Application_Oriented

Abstract: Agriculture is the foundation of Indian economy. Rainfall is the most important factor in agriculture. Nowadays, global warming is highly increasing and it majorly causes effects on rainfall. Sometimes rainfall occurs in non-rainy season. Sometimes heavy rainfall will occur then it will cause floods and also it will cause effects on economy. Rainfall prediction targets the determination of rainfall conditions over a region. Many machine learning techniques are used to predict rainfall in earlier days but the main problem is accuracy. Accuracy is not good and error rate also so high. To overcome these problems in this proposed work wavelets are combined with artificial neural networks to get more accurate results. Here 268 years of data Kerala rainfall data has been taken to predict monthly rainfall. In this proposed work first rainfall dataset will be uploaded. Then WNN will be generated and will predict rainfall with accurate result using mean squared error. The rainfall prediction also helps to organize precautionary measures like in case of disasters and floods. 70% of rainfall data is used for training and 30% of data is used for testing. Three hidden layers and four neurons are used for neural network. Root mean square error is 28.95 and wavelets decomposition is done by using discrete wavelet transform.

Keywords: Rainfall, WNN model, predictions, economy


Project Title: Virtual Space Design with Operations and Commercial Extension

Project ID: MCA_4



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Project Execution Time: Industry

Project Category/Area: Application_Oriented

Abstract: Virtual platform with integrated policy based commercial frame design is provided to the users so that various types of commercial activities can be performed from a central console. The system is designed in such a way that different interactive platforms can be obtained and through which various types of commercial activities can be cost effectively managed. Any type of design formats which are required is also provided so the users will be not confused that how different commercial pages are designed and they will be having multiple inbuilt choices. The system is also provided with various types of conditional setups which are needed to be acknowledged in reference to the usability so any type of related modification means can be obtained. System also recognizes analytical pattern which constitutes of different types of overview reports and summary optimization reports so which type of real time activity that will be acknowledge can be navigated. Associations of various types of stakeholders of the business can also be collaborated with the help of digital distribution system which is being provided. Self-organized regulations which are required to be acknowledged for various types of categorical solutions are properly drafted so any type of identity references or any type of projections which are required can be easily arranged with the help of the system.

Keywords: Virtual platform, central console, commercial frame design, collaboration, generate reports, own commercial page, marketing techniques, control panel, tools, reusability, cost-effective

Project Title: Quantum Fabric -A Middleware system To Build Banking System		Project ID: MCA_40
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Project Execution Time: Industry

Project Category/Area: Application_Oriented

Abstract: The project quantum fabric - A middleware system to build banking system is an application of banking system. Project main aim is secure internet banking system. It is accessible for all clients who has valid user Id and password. This software provides to help clients to make account and have the features like transaction. This helps clients to save there money in accounts and do transaction in everywhere by using the banking software. The project main is to make safe and secure banking system and built the trust with clients. The banking application involves deposit and transaction with the other person for this all clients requires trust with the banking software application. Having a unique user id and password they can make secured transaction in identity services. Middleware allows developers to write custom code Project provides safe and secured software system which make transaction securely. Having a valid user Id and password it gives the user to make transaction easily and trust. The clients can use the features available in the banking application. Project aim is to makes the clients secured transaction with the other clients by using the banking software application. Having a unique user id and password they can make secured transaction in identity services. Middleware allows developers to write custom code. This can either be done in script for java writing custom code requires the creation of the project, which turn the depend on libraries provide by fabric and also extend the specific classes from the middleware API. Main aim is to keep money safe for the clients and giving best services securely Middleware software used to customize the banking application and having secured transaction. It provides several service like transaction management, security authentication, message notification, application servers and directories.

Keywords: Maven ,Junit, Spring, Spring Boot and Hibernate Technologies.

Project Title: ETRAINING MODEL**Project ID:** MCA_41**Name of the Guide:** Dr.Nagabhushan S V**Guide Email ID:** nagabhushansv@bmsit.in

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**Project Execution Time:** In_House**Project Category/Area:** Application_Oriented

Abstract: The whole idea behind this was to reduce the cost of education provided to the learners across different parts of the world. eTraining model is an online portal which is an intrinsic part of smart education. There are multiple eTraining model available in the market and to educational institutions. By the use of the eTraining model users can access to the study material from anywhere in the world they just need an internet connection to access the eTM. In this eTraining model many organizations can register themselves and can teach their students online. Once the organization is created successfully, now the students can enroll to the various courses provided by the organizations. Students can access all the study materials provided by the organization. They can watch videos which are available to them. The proposed eTraining model is designed with the popular django framework and python programming language. The proposed eTraining model is planned with the well known django system and python programming language. This eTraining model is tried to give new highlights and advanced ideas. The portal is adequately adaptable to use by the association, educator and students. This eTraining model will permit the student to concentrate from the main instructors all around the world structure their particular spots.

Keywords: Participant, Trainer and Organization.


Project Title: FAKE REVIEW DETECTION ON YELP DATASET USING CLASSIFICATION TECHNIQUES IN MACHINE LEARNING

Project ID: MCA_42



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Project Execution Time: Industry

Project Category/Area: Application_Oriented

Abstract: The primary factor which is considered by a customer before purchase a product or any online service are the reviews. The reviews will help in giving feedback to the companies about their service for any kind of improvement. Motivates wrongdoers are motivated by the huge impact of reviews on customer’s decision making to fake reviews to deliberately promote or demote any service. This can be called as Opinion Spam, in which the spammers will manipulate the reviews for their own benefit. Detection of fake reviews is the most important in order to provide right information to the customer. Manual detection of the fake reviews will be time consuming therefore we need an automated technique that detect the fake reviews. Machine learning can be used to extract meaningful features from text content of reviews therefore by which it is possible to detect fake reviews using various machine learning techniques. We have considered hotel dataset to find the fake reviews. Fake review writers try to use words or topics that create an impact on readers mind in order to influence people. By identifying this difference in word choice pattern in fake and true review can be used as a method to identify the fake reviews. It is known that the fake review writers will use the words that are different from truthful ones based on this factor an automated method is created by using various machine learning techniques to segregate fake and truthful reviews. The method is used to improve the efficiency and performance of fake review detection.

Keywords: Machine learning , News, fake detection

Project Title: DS-OFFICE AUTOMATION**Project ID:** MCA_43**Name of the Guide:** Dr.Nagabhushan S V**Guide Email ID:** nagabhushansv@bmsit.in

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Project Execution Time: Industry**Project Category/Area:** Application_Oriented

Abstract: DS office automation is the character development of Enterprise Resource planning, Which is commonly helpful for the management to go through quickly. Verifiably, Admin depended on paper works which he had to write down the information of the office process in a book, So it has been difficult to put every document adequately. With the coming of the ERP, Admin can be able to put everything in the correct format with day to day updates in this case he need not worry about the loss. Lately, the quantity of DS office automation has developed quickly while disconnected paper and bookwork, for example, Writing down the attendance in book ledger, have declined. As a characteristic outcome of this move-in client, they are very happy to see the development process because they can see their project details and how much it has been finished and the status of the project.

Keywords: web, erp

Project Title: Smart Parking System using Image Processing		Project ID: MCA_44
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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: Abstract: With increasingly high population growth and new vehicle production, requirement of parking space and facilities are also high. This Project plans regarding enhancement of parking facilities by presenting a replacement Smart Parking Systems which might decrease vacant parking lot finding time. The greater part of the new parking technologies relies on sensors to identify vacant parking spot and didn't explicitly guide them to particular parking area. With rapid increases in usage of vehicles, in recent years, searching a parking spot is harder, this resulting in practical contentions like as traffic jam. A strong system has employed in recognition of a vacant space in parking lot and keeping track of vehicles which are parked. It is exceptionally helpful for the drivers, to track down a free space before they arrive at their destination, and to figure a stopping charge before leaving the parking region. The vehicle is recognized utilizing image processing and the parking amount for every vehicle is identified based on the time that the vehicle is in the parking area.

Keywords: Smart parking system, traffic jam, image processing.

Project Title: “Cyber Threat Detection Based on Artificial Neural Networks Using Event Profiles”

Project ID: MCA_45



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Project Execution Time: Industry

Project Category/Area: Application_Oriented

Abstract: In this digital world, one of the main problems we are facing in cyber security is providing an automated and efficient technique for cyber threat identification. As digital transformation takes over the business world, security groups are entrusted with preparing and ensuring risks in unprecedented amount of data. Since artificial intelligence plays a major role in cyber threat detection so here we are using the deep learning based neural networks technique. The proposed neural networks technique transforms the gathered events of security to specific profile events for detecting the cyber attacks. The AI-SIEM system concentrates on identifying negative alerts which helps security experts to react rapidly to cyber attacks. This system is developed for data processing based on event profiling and uses a different neural networks method which includes LSTM, FCNN and CNN. Here two benchmarking datasets i.e., CICIDS2017 and NSLKDD and two more datasets gathered in physical world enterprises. The five ordinary AI techniques i.e., DT, RF, NB, k-NN and SVM are used to assess the comparison of performance with existing system. The experimental results assures that the proposed techniques are qualified as learning based models for cyber threat identification and the performance surpass the conventional machine learning methods.

Keywords: NSL, KDD, SVM

Project Title: Abnormal activity detection under surveillance**Project ID:** MCA_46**Name of the Guide:** P Ganesh**Guide Email ID:** pganesh@bmsit.in

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Project Execution Time: In_House**Project Category/Area:** Application_Oriented

Abstract: This project classifies as one of the utilizations of existing face recognition system determining the face from the given image. In this project winsound library is separately defined in a file to make sound with a tone and delay for notification. The Email functionality is implemented by the library smtplib in the mail ID of senders there is setting that needs to be allowed for accessing the ID to send Mails. The SMS module used in the project consists Requests library to access a domain for sms functionality, it requires a code to identify the account holder uniquely. This project predicts the face with the help of OpenCV library with the keyword cv2 in the program. All the features are merged into one and using the appropriate image of the face, the face is identified successfully with a notification, all the above libraries are put together using Tkinter library for the forms to authenticate and show information. An increase in nefarious activities like murder, robbery and, other crimes has raised with the development of our country India. Most criminal activities still happen even with the cameras installed in public places like ATMs, Supermarkets, Malls, Banks, jewellery shops, streets, and offices. Every human has a face and it's something quite difficult to hide hence taking that as an opportunity and utilizing it in this project to give a solution. The solution for this problem is by getting access to some particular cameras and tracking the faces in real-time with the help of this project, even if the official sat in front of the system and loses visuals, the software can give a notification if found within the limitations of the frame.

Keywords: OpenCV, Tkinter, Algorithm, Smtplib, Winsound, face detection.

Project Title: SECURE SIMILARITY SEARCH OVER ENCRYPTED NON-UNIFORM DATASETS”

Project ID: MCA_47



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Project Execution Time: Industry

Project Category/Area: Application_Oriented

Abstract: The problem of security is very important in an organization, with the increase in the use of cloud computing services, users are facing many issues in data security. While storing or outsourcing the data in the cloud, data owner will be encrypting the data using different encryption schemes. SSE encryption scheme is one such scheme used to encrypt the data in client-side, by controlling the ability to search the data outsourced to a cloud server by unauthorized users. The encryption schemes that is already existing can improve performances in many perspectives. However, these techniques do not consider the data distribution and protection problems. When the dataset is non-uniform, search quality gets decreased. Therefore, these techniques of searchable symmetric encryption cannot provide a high quality of searching and protection of non-uniform datasets. Most of the solutions given by searchable symmetric encryption schemes cannot hide the query set distribution. So, in this project we are designing a novel way, which improves the quality of search, security and protection of non-uniform datasets, idea is to combine searchable symmetric encryption with a hashing technique called locality-sensitive hashing [LSH]. This technique has a better performance on non-uniform data using selective hashing. We will also use a novel approach that hides the query set and provides more security of datasets. Here, the experimental results of the project indicate high security over query attacks and search quality of non-uniform datasets.

Keywords: LSH, Dataset, SSE

Project Title: Personality Prediction using Machine Learning**Project ID:** MCA_48**Name of the Guide:** P Ganesh**Guide Email ID:** pganesh@bmsit.in

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Project Execution Time: Industry**Project Category/Area:** Application_Oriented

Abstract: Personality can be defined as a set of characteristics of an individual person that can be their way of thinking, feeling or it can be their way of behaving which makes one person unique. There are some conventional ways which may help in knowing one's personality but that can cost too much of manual efforts. The "PERSONALITY PREDICTION USING MACHINE LEARNING" project aims in identifying the personality of individual person by using big 5 model and also using machine learning algorithms. In this project Django a Python web framework is used, here the user is asked to upload their own CV that is used for knowing the technical skills of the candidate, The CV of the user is uploaded using the Django framework. The main aim of this project is to measure the personality by using Big five personality traits, here the candidate is asked to take a test that contains few set of personality question and according to these question which is answered by the user the personality of a person is predicted, for this various machine learning classification algorithms are used for prediction purpose, the algorithm used in this project are Logistic Regression, Naive Bayes, SVM, K-Nearest Neighbour's algorithms. Finally after completing the test candidate can view their own Big Five test results which predicts the personality and also shows their technical skills according to their CV.

Keywords: Big five model, Logistic Regression, Naive Bayes, SVM, K-Nearest Neighbour's algorithm, Django Framework.


Project Title: Smart Harvest**Project ID:** MCA_49**Name of the Guide:** P Ganesh**Guide Email ID:** pganesh@bmsit.in


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Project Execution Time: In_House**Project Category/Area:** Environmental_Societal

Abstract: Agriculture is most important sector as it's contribution to the country's economy is way more than any other sector. Yet, it is the most under looked sector in terms of adoption to new technologies to increase efficiency, productivity and profit. There can be alternatives to other things but, there can't be any alternative to food we consume. So, it is very important to keep finding ways to enhance the quality of agricultural activities both quality and quantity and provide ways by which people i.e., farmers most importantly also get benefitted by technology advancements. In past decade Artificial intelligence has advanced so much that it has become impossible to think a world without it. The two sub-sets out of many subsets of Artificial Intelligence are Machine Learning and Deep Learning. Now, that Machine Learning and Deep Learning have become so advanced that it can be used in any work to improve the quality of work by folds. The idea here is to use them that it becomes easy for the farmers to carry out their agricultural activities. Farmers have been cultivating their lands based on the past experiences they or their fellow farmers have. Now, they will have access to a system that incorporates many factors to suggest farmers best crop they can cultivate based on their land properties and also suggest them with the fertilizers they can use on their crops and moreover also help them to cure their crops disease of they get effected by any. All of it under one roof or more apt under one website.

Keywords: Agriculture, Crops, Website, Artificial Intelligence, Machine Learning, Deep Learning.

Project Title: High Tech Expert Channeling Frame With Profiling		Project ID: MCA_5
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Project Execution Time: Industry

Project Category/Area: Application_Oriented

Abstract: Innovation in any domain organization plays an important role so the system is designed for elaborated strategic alliance and with the help of embedded software multiple references of innovations can be acknowledged. The system is associated in a format that various types of skill based users can have a proper application of the working through interactive reference and with the help of different types of innovative features which are provided to support the research is also accompanied. System is helpful because it provides more integrated reference of usage to the users based on information analysis, data science, interactions, technology, security, accessibility, virtual working etc. The system can be established in a format that any type of prominent collaboration and coordination can be achieved by individuals and by different types of Corporate from a single system making it more flexible and when the collaborative working will be undertaken the system provides various types of settings based on the access and based on the security of the data. System can be reached handled with detailed profiling and objective collaboration and searching is promoted. Various types of innovative project research and development works can be established and the system also provides a tracking mechanism so that detail updating about the subject can be also provided. Worldwide Alliance which is provided within the system is very much helpful to acknowledge the considerable research verb and various types of article and forum blocks are also provided so that Global discussions and work promotions can be establish in a cost effective manner.

Keywords: Research, Articles, Survey, Collaboration, Toolbox, Forum

Project Title: AMONG US Simulation**Project ID:** MCA_50**Name of the Guide:** P Ganesh**Guide Email ID:** pganesh@bmsit.in**USN****Student Name****Email ID****Contact No****Student Photo**

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**Project Execution Time:** In_House**Project Category/Area:** Application_Oriented

Abstract: AMONG US - is a known game among children and adults. As well as rules and regulation of the game are also well-known. This game comes with multiplayer mode. The game developed in a space theme. From the game start to end it maintains the spooky environment and weird tasks. Initially players were divided into two categories, one - killer, two - innocent. This game is in many platforms i.e, Mobile, Play Stations, Xbox and Roblox. This game involves many drawbacks including limited maps. Loading time of the game is quite more. There are limited tasks and functionalities. To overcome these problems and to learn the game design and functions this proposed project is developed. This proposed project is the simulation of an AMONG US game. In this project the time issue is solved. This game is built in a different theme called Castle - theme. And the Avatars of the players are also very different from the original game. More tasks and functionalities are added. Proposed project is developed using 3D graphics and plugins. This project has a different environment compared to the original game. Original game is available in many platforms but the proposed project is developed only in the Roblox platform. Game development is one of the largest growing sectors in the world. 3D games are more demanding. This project gives all the effects and feel of 3D for the players. And also players can choose their avatars, outfits etc. This project is the game which all players wish to play. This game can be published in the open platforms like Roblox which means any player can play online or download and play.

Keywords: Game, Among Us, Game Development Project, Roblox, 3D game

Project Title: Hygienic restroom using IoT		Project ID: MCA_51
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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: In our country, one among the major issues we are facing is sanitation. This is not just the problem of the rural areas but in the urban areas too. India having a population of 1.3 billion providing a hygienic sanitation system is a hurdle for the government of India. The people of our nation do not show concern when it comes to keeping the public sanitation system clean like they show at their houses. These unhygienic toilets/restrooms will cause many diseases. The bacteria which are present in toilets are not visible to our naked eyes. Even if the toilets are washed frequently, if people don't use proper cleaning products like phenyl, even though the toilet looks like it cleans dangerous bacteria which will lead to urine infection to even death. So keeping the toilet/restroom not just clean but also bacteria free is must in public places such as toilets in public, bus stations, railway stations, trains, schools etc. Many ideas and new system have come to existence but yet the public sanitation system of our country fails to meet the standard tidy and hygienic restrooms because maintaining these frequently is difficult and cost is high. Many companies, private sectors and the government have tried to change this but they kept failing because of the lack of knowledge of people how to use the toilet/restroom. Toilets/restrooms are built in public places for people to use them but these are not maintained properly and even water will be stopped in a few months because of this poor system people are not able to use these public systems, they feel uncomfortable to even enter the rooms. To overcome this problem, we are going to create a Hygienic Restroom using IoT which is going to help the cleaners to keep these places clean. We are going to introduce IoT devices which will be a medium to communicate with humans without physical appearance. Automated systems have been implemented in different ways but making them smart is our main goal. One more factor which includes when it comes to sanitation is wastage of water. Water scarcity not just in our country but everywhere in the world. So limiting the use of water is also our prime focus in this project development.

Keywords: Smart restroom, Automatic flushing, Ammonia detection, IoT, Sensors.

Project Title: Infinity for Retail Banking - A digital banking solution for all segments		Project ID: MCA_52
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Project Execution Time: Industry

Project Category/Area: Application_Oriented

Abstract: The project “Infinity for retail banking — A digital banking solution for all segments” is an application of retail banking. This software will provide user-friendly online transfers for the customer and it will also help the customers to get lots of benefits and also with the best features and security to perform transactions. It will also contain the mobile banking features with different countries' currency transactions, and users can bulk transfers the money of the multiple country currencies at a time, and users can take a separate card for shopping with debit and credit cards. In this application, it gives more importance to the customers to daily transactions with all-over countries. It allows users to add domestic or international accounts to transfer funds to their accounts. Individual customers can preschedule the date of transaction for due bills to EMI’s. Users can also add a particular recipient and make a payment to him on the particular date by templates and users can request to the payee to send money to him/her and users can also get the alert messages like transaction success or not and users can view the exchange rate of particular country currency and user can transfer the money to the particular clients by this application. An idea behind the project is basically not new but here in this project, it can check for the availability of better transaction features. Usually, these are referred by the large financial institutes with the best transaction features for their customers.

Keywords: Bulk, funds, EMI’s (equated monthly instalment), exchange rate, preschedule.

Project Title: Detection of Diabetic Retinopathy utilizing Deep Learning

Project ID: MCA_53



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External Guide

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Project Execution Time: Industry

Project Category/Area: Application_Oriented

Abstract: Currently, in India, around 18 million blind peoples are there. Blindness will occur due to some genetic mutations, birth defects, nutritional deficiencies, eye infections, eye injuries, premature birth, and other reasons. Diabetic retinopathy is an eye disease, it will cause blindness. Diabetic retinopathy is one of the medical conditions in which damage will occur to the retina due to diabetes. Diabetic retinopathy (DR) is an eye disease, it will be created mainly due to encounter diabetes and it will cause the blindness among the working-age population in the developed countries. Now a day's so many people's suffering from diabetes. Diabetes consists of some stages of diabetic retinopathy. In the majority of diabetic retinopathy cases detecting symptoms in time can prevent blindness. However, finding the symptoms is bit difficult with present methods and tools. There has been a requirement for comprehensive and automatic diabetic retinopathy detection tools and ways. By using proper tools and methods this project can find out it early, and with proper care and treatment, we can stop blindness in diabetes patients. In this project, black and white colour fundus images have been used and the result will be predicted using a convolutional neural network (CNN) model. In this project, around 70% of images have been trained to the model and 30% of images have been utilized to test the model.

Keywords: Diabetic retinopathy, convolutional neural network, black and white fundus images.

Project Title: Data Visualization and Analysis of Prediction of Movie Genre based on User Interest

Project ID: MCA_54



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Project Execution Time: In_House

Project Category/Area: Reaearch_Oriented

Abstract: The film industry depends heavily on the use of posters to advertise films in order to increase Ratings and profits. Only movie poster photos are used to classify movies into categories. A good poster can convey important qualities of the movie, such as the theme and genre to be produced. This movie seems to attract to a wide audience possible. The piece of work of concluding a genre of movie from its poster can be very difficult, unsettled and huge changeability of movie posters. Because the movie might apply to numerous genres. This is a very big challenge because a movie can belong to various categories. A deep neural network is used to categorize a given movie poster in image into several categories by combining visual appearance and object information. In this project, have gathered an extensive poster of the movie with dataset several metadata. To concentrate on the visual portrayal, and this project have modified a pre-trained Convolutional Neural Network established on a wide-range dataset of movie poster and introduced and trained a model to learn how to predict the type of poster it constitutes by selecting the movie poster.

Keywords: Dataset, Conversion of images into NumPy array, CNN model, Prediction of Movie Genre.

Project Title: Fast Secure And Anonymous Key Agreement Against Bad Randomness

Project ID: MCA_55



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Project Execution Time: Industry

Project Category/Area: Application_Oriented

Abstract: Cloud computing is the process of accessing resources remotely. cloud users are accessors through public channels, resources are usually in cloud public channels. Key agreement is used in this project to protect communication in the middle of a cloud user and a cloud service provider. In simple words, a key agreement provides security here. Older key generation center protocols for cloud computing did not work in some challenges. For example, delay in connection, avoiding certificate management problems, user privacy increasing and eliminating lack of pattern. Anonymous key agreement is used to face these challenges, against the lack of pattern for the establishment of a safe channel in cloud computing. It prominently increases the competence of the secure channel initiation process. There are two users in this project, one is the end-user and another one is the data owner. End-Users can open the new accounts and log in to the account and they can view cloud files and they can request a secret key and they can download files. The data owner can open the new account and log in to the account and they can upload the files and they can view the uploaded files. Key Generation Centre is a third party and it generates a long-term partial private key to the user according to the request of the cloud user. To protect cloud service security, a secure channel must be initiated in the middle of the cloud user and the cloud service provider. The protocol satisfies traditional security and user privacy.

Keywords: cloud computing, secure channel, key generation center, partial private key, cloud service provider.

Project Title: AI Based Image Analysis**Project ID:** MCA_6**Name of the Guide:** Dr. Aparna K**Guide Email ID:** aparnak@bmsit.in

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Project Execution Time: Industry**Project Category/Area:** Application_Oriented

Abstract: AI Based Image Analysis is essential and important in all company for tracking the attendance and performance of employee and before the AI Based Image Analysis, it was not an easy task to check each employee is present on that day or not. AI Based Image Analysis forms the lifeline of any business organisation or institute to manage the employee and their attendance. It is very important for an Organisation to handle the employee's attendance and their activity. It also very useful of organisation to check its employee's emotions and their activities while doing their job continuously for mutual development. The AI Based Image analysis includes various features such as face detection, face recognition of the employee, Emotion detection and Nod Approval. The face detection is used for detecting the employee or unknown face, which is enters the office area. Using the face recognition, we can easily identify the employee and mark the attendance. The emotion detection will help the company people to track the emotions of the employee, so that if they are facing problem can be detected easily. Nod approval will be going to help the manager for fast approval of the employee's leave. The project AI Based Image Analysis has a user interface were one can access all these features and monitor the employee's activity.

Keywords: Face Detection, Face Recognition using the AlexNet, Emotion Detection, Employees leave approval using Nod Approval


Project Title: DAILY REPORT MANAGEMENT SYSTEM
(TRASHCON)

Project ID: MCA_7



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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: Trashcon Application can help company's customers, operators, and admin to manage machine information without involving any field work. It is an online platform where a group of company's employees can easily communicate with each other by sticking on their respective clients. This Application have machine manuals also, with the helpful for clients as well as operators. Trashcon has decided to move their procedure an implement in Android base platform. This Application has always been placed where company's operators gather to get latest information about machine status. In this way of using an application, it's also server their client and operators list and which operators are operating which machines. This eliminates the requirement to keep a separate information list using cloud database which is hard to maintain before due to involvement of many users. The aim of "Daily Report Management System (Trashcon)" is to make the daily procedure in easy way and android application which could locate a list of machines located in the factory. The users of the company and clients finds the information about the machines.

Keywords: Trashcon, clients

Project Title: BLOCK THE CALL IN ANDROID**Project ID:** MCA_8**Name of the Guide:** Dwarakanath G V**Guide Email ID:** dwarakanathgv@bmsit.in


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Project Execution Time: In_House**Project Category/Area:** Application_Oriented

Abstract: In communication, call sending is an element given by versatile organization administrators to empower the cell phone clients to move or divert the approaching calls to another telephone under a few conditions. The essential point of this undertaking is to permit the clients of Android-fuelled cell phone to can handle the approaching calls as per their requirements. A nitty gritty correlation of the current arrangements and the portable organization administrators was performed. They may permit us to advance any calls that bring in to our cell phone to another cell phone, however shockingly, we probably won't have the option to choose which call to advance, and which one ought to be dropped. It is significant where now and again we do get a couple of undesirable calls or messages in light of the fact that our cell phone number has been unveiled to undesirable individuals or some different reasons. This task is to foster an application to change a current Android-controlled cell phone to turn into a middle of the road point that permits the clients to control each approaching calls and channel the approaching calls before the telephone tells the client. The yield material of the task would obstruct the calls application for Android-controlled cell phones.

Keywords: Android Devices, Call Hindering, Block List, Application, Telecommunication Industry, Block the Call, Incoming calls.

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Project Execution Time: In_House**Project Category/Area:** Environmental_Societal

Abstract: Cancer becomes the common cause in the world wide. In cancer there are different types of cancer. one type of cancer is breast cancer .It comes from the cells of the breast .In breast cancer disease or diagnosis or prognosis the size and shape of the breast cells Will change when they have disease. It takes some time to develop the technique which gives minimum error to increase accuracy .we use algorithms to predict the breast cancer they have LOGISTIC REGRESSION, K-Nearest Neighbors. outcome have been compared in the different datasets . All experiments are executed in Jupiter notebook .. Breast cancer is type of cancer in human. But women who have breast cancer with close blood relatives have a higher risk .

Keywords: Binary classification using logistic regression, Binary classification using K-nearest neighbors algorithm .

MECHANICAL ENGINEERING

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Project Title: EXPERIMENTAL INVESTIGATION ON PERFORMANCE AND EMISSION CHARACTERISTICS OF HONGE SEED OIL BIODIESEL BLENDS

Project ID: MECH_1



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Project Execution Time: In_House

Project Category/Area: Reaearch_Oriented

Abstract: The availability of fossil fuels is depleting at faster rate. Also, the emissions from the fossil fuels are increasing day by day leading to high environmental pollution. Hence, an alternative fuel is necessary for the automobile sector. Biodiesel is one of the most promising alternatives for diesel needs. The attention is primarily focused toward biodiesel from non-edible feedstocks due to the food fuel crisis and land availability problems. Furthermore, the production of biodiesel from non-edible feedstocks reduces the cost of biodiesel significantly compared to edible feedstocks. This required identification of new kinds of non-edible vegetable oil. With this objective, the present work has focused on the comparison of performance and emission characteristics of diesel engine using Honge seed oil and its blends with diesel. The engine was operated at different loads i.e., 20%, 40%, 60%, 80% and full load condition for the various blends of biodiesel. Performance characteristics of an engine such as brake thermal efficiency, brake specific fuel consumption and exhaust gas temperature were evaluated and emissions such as carbon monoxide, hydrocarbons, nitrogen oxides and carbon monoxide are measured. Also, various fuel properties considered for review are specific gravity, viscosity, calorific value, flash point, and fire point.

Keywords: alternative fuel, Honge seed oil, biodiesel, emissions

Project Title: INDUSTRIAL PURPOSE ROBOTIC ARM		Project ID: MECH_10
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Project Execution Time: In_House

Project Category/Area: Product_Development

Abstract: Today, technology is developing in the same direction in line with rapidly increasing of human needs. The work done to meet these needs makes life easier every day, and these studies are concentrated in robotics studies. Actually in recent year’s scientists use the word "Robot" to mean any man-made machine that can perform work or other action normally performed by humans, either automatically or by remote control because of this robot pervasive machine because of it is accuracy of work and doing thing that people can’t do in addition robot can work in dangerous regions that human can’t work in it because of all these reason robot became one of the most popular thing that scientists still persevere to make it better by finding new controllers and designs that make robot more efficient and more reliable and in our project we have built a robot arm with 5 DOF (degree of freedom). In fact there are several methods were implemented to make a 5-DOF manipulator capable of performing pick-and-place operations.

Keywords: Technology, Robotics, Remote control, pervasive Machine, Accuracy, Degree of freedom, manipulator, pick-and-place operations

Project Title: DESIGN AND FABRICATION OF SHREDDING CUM COMPOSTING MACHINE

Project ID: MECH_11



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Project Execution Time: In_House

Project Category/Area: Environmental_Societal

Abstract: India is one of the top countries in the world in terms of per capita food waste; which is 51 kilograms per year. The combination of high food consumption rate and very low food waste recycle rate, results in mountains of food dumped into landfills where they get burned and therefore produce harmful gases. In our project, we are introducing a practical solution for every kitchen to recycle the food waste instead of sending it to the landfill. The solution is to design an eco-friendly machine that converts food waste to fertilizer. The use of recycled food waste as compost improves the soil health and structure, increases drought resistance and reduces the need for supplemental water, fertilizers and pesticides. The composting process is fully automated, it consists of several steps under controlled environmental conditions (i.e., temperature, humidity) to fasten the process. A mechanism is designed to reduce food waste volume by over two-thirds. Also, experiments were conducted to figure out the best conditions of temperature, moisture content and the bulking agent that would result in a high-quality fertilizer within hours. The aesthetics aspect was considered by designing an elegant and socially accepted machine with a suitable size to be placed in a society.

Keywords: Waste management, Food waste, Fertilizer, Shredding.

Project Title: MID AIR RECHARGING FOR MULTIROTOR UAVs**Project ID:** MECH_12**Name of the Guide:** Prof.T.N.Praveen Kumar**Guide Email ID:** tnpmech@bmsit.in

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Project Execution Time: In_House**Project Category/Area:** Application_Oriented

Abstract: Mid-Air charging was intended to overcome the major limitations of the low battery life multirotor. This limits the volume and range of payload. Because of the above reasons, multirotors were not implemented in areas such as search and rescue, multirotor delivery, disaster relief etc. The objective of this project is to establish a multirotor recharge system in the middle air. Over the years, various teams have been trying to achieve this goal. However, all previous attempts to recharge a drone wirelessly have had several main disadvantages, such as the need for an ongoing and large power source, in this method of recharging a multirotor. In this project, the regular direct contact method for recharging the batteries was chosen over the wireless method to overcome these incidents and to increase the practicality of multi-rotor middle air recharging. In addition, the above method required a multi-rotor to approach the surface because it was necessary to place the recharge station on the surface. The recharge station in this project is a solar panel airship, lithium-ion batteries and a distribution board. This makes it easy to operate the recharge station wherever the operation requires it and at any altitude. The Multirotor can dock and recharge its batteries while flying. This enhances the operating range, payload capacity and multirotor flight time.

Keywords: Drone, aerial recharging, multirotor

Project Title: DESIGN AND FABRICATION OF PNEUMATIC POWERED EXOSKELETON SUIT FOR ARM

Project ID: MECH_14



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Project Execution Time: In_House

Project Category/Area: Environmental_Societal

Abstract: The future of technology lies significantly in the field of R&D. With extensive research and the desire to obtain abilities beyond the human capability, the concept of anthropomorphic equipment came into being. The thirst for indomitable power was quenched by the development of the “Human Exoskeleton.” A Human Exoskeleton also known as Powered Armor, Exo frame, Hard suit, or Exo suit, is a wearable mobile machine that can be powered by a system of motors, pneumatics, levers, or hydraulics that amplifies the force of the operator and enables them to possess superhuman strength. This concept has a wide scope for improvement and is a tantalizing topic for research. With the dawn of this advanced technology, the term “weakness” can be eliminated from the human perception. This project aims to empower the physically weak individuals by helping them harness the power of pneumatics to amplify the strength of their arm. By incorporating a pneumatic cylinder in the system, it is possible to significantly reduce the amount of muscle effort required, by an individual, while lifting loads up to twenty-five kilograms. The design has been realized for one arm but can be extended to the other arm as well. The exoskeleton arm is a subassembly of an entire portable suit, and it permits the transfer of external loads to the stronger sections of the body by means of accurately placed linkages and joints. The arm is intended to be an auxiliary source of strength for any person willing to exercise themselves back to fitness or just perform arduous domestic tasks.

Keywords: Exoskeleton, Human arm, Pnaematics.

Project Title: PERFORMANCE EVALUATION OF PARABOLIC TROUGH COLLECTOR (Using Graphene oxide as nano fluid)

Project ID: MECH_15



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Project Execution Time: In_House

Project Category/Area: Reaearch_Oriented

Abstract: Solar energy has becoming most important energy in present world due to depletion of non-renewable source of energy. At present solar energy is used solely in domestic and industrial water heating. There are many possible ways which can convert solar energy into usable energy; concentric trough solar water heater is one the best way to covert solar energy into water heating. A parabolic trough is a type of solar thermal collector that is straight in one dimension and curved as a parabola in the other two, lined with a polished metal mirror. The energy of sunlight which enters the mirror parallel to its plane of symmetry is focused along the focal line, where objects are positioned that is intended to be heated. The tube runs along the length of the trough at its focal line. The mirror is oriented so that sunlight which it reflects is concentrated on the tube, which contains a fluid which is heated to a high temperature by the energy of the sunlight. The hot fluid can be used for many purposes. Often, it is piped to a heat engine, which uses the heat energy to drive machinery or to generate electricity. This solar energy collector is the most common and best known type of parabolic trough. The parabolic trough solar collector is designed for component testing and development in a solar energy research programmer. Test was performed by using nano fluids as the working fluids basically and the aluminum tube painted black surrounded by glass tube was used on receiver side. Following nano fluids such as copper oxide with glycol, aluminum oxide with water and glycol are used in the study. Graphene oxide as nano fluid

Keywords: Solar energy, parabolic trough collector, nanofluid, efficiency

Project Title: NOVEL APPROACH TO FLEXIBLE DRONES STRUCTURES

Project ID: MECH_16



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Project Execution Time: In_House

Project Category/Area: Product_Development

Abstract: In today's fast growing and developing world, it is very important as well as essential to be up-to-date with the surroundings. As industrialization increases, number of companies increases. This in turn results in increase in demands of goods and services. Presently, to cope up with the demand and supply need of the goods and services. Traditionally, drones are trained for a particular task, majorly for recreational purposes. They are able to perform that task in a repetitive fashion. With the onset off the industrial revolution 4.0 drones have found a wide variety of applications in the industry. Yet, they propose a problem. As the drone application increases, they either lack in range or stability which results in the weight of the drone to compensate for either, which is not economically feasible in most cases. Thus, we have proposed a novel implementation of a flexible drone structure which can hover and cruise, as and when needed. It includes implementation via different operating software. This indeed works as incorporation to industry 4.0.

Keywords: Drone, Vrep, quadcopter

Project Title: IOT BASED ROCKER BOGIE		Project ID: MECH_17
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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: Developing surveillance and monitoring systems can be quite challenging at times, since the systems should be designed with consideration of the environment to be monitored. Good surveillance systems need to have dynamic features, e.g. monitoring cameras. Monitoring such a large area would also be a challenge for the security officers, as they will need to spend too much time to patrol covering all places. To address the challenges like surveillance of a large building with many levels, which would ensure a high cost to install many cameras at many places dynamic surveillance systems include dangerous areas.

Keywords: surveillance, cameras, large building, dangerous areas

Project Title: EXPERIMENTAL STUDY ON PSEUDO-ELASTIC BEHAVIOUR OF NiTi SUBJECTED TO STRAIN VARIATIONS

Project ID: MECH_2



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Project Execution Time: In_House

Project Category/Area: Application_Oriented

Abstract: Over the last two decades, Shape memory alloys have become a growing area of research for its unique and highly effective properties of pseudoelasticity and shape memory effect. Pseudo elasticity, in particular, is one element which has had a significant impact in multiple industries for its ability to not only withstand larger stresses and loads but also for its ability to be highly elastic and regain its original shapes after unloading of conditions. Keeping this in mind NITINOL shape memory alloy is the most widely used in the industry due to its properties and the following study conducted is done to understand and analyse the best shapes at which the mechanical properties of NITINOL is most effective in the industry. By evaluating the key achievements and shortcomings of recent studies of this alloy from multiple journals and studies, this project follows on to set and experiment the alloy in physical conditions widely used in the industry from cyclic loading and unloading to varied strain rates and more, in order to obtain a thorough comparative analysis of the most widely used shapes of the alloy in the industry and find out its most productive and effective shapes for its industrial applications.

Keywords: Shape memory alloy, NITINOL, Pseudo elastic, Strain Variations

Project Title: Design and Fabrication of Indirect Solar Dryer**Project ID:** MECH_3**Name of the Guide:** Prof.O Gurumurthy**Guide Email ID:** ogmmech@bmsit.in

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Project Execution Time: In_House**Project Category/Area:** Application_Oriented

Abstract: The solar drying system utilizes solar energy to heat up air and to dry any food substance loaded, which is beneficial in reducing wastage of agricultural product and helps in preservation of agricultural product. Based on the limitations of the natural sun drying e.g. exposure to direct sunlight, liability to pests and rodents lack of proper monitoring, and the escalated cost of the mechanical dryer, a solar is therefore developed to cater for this limitation. This project presents the design and construction of a domestic passive solar dryer. The dryer is composed of solar collector (air heater) and a solar drying chamber constraining rack of three cloth (net) trays both being integrated together. The air allowed in through air inlet is heated up in the solar collector and channel through the drying chamber where it is utilized in drying. Locally available material used for the construction, chiefly comprising of wood, glass, aluminium metal sheet, copper and net cloth for the trays. The optimum temperature of the dryer is 55C with a corresponding ambient temperature of 34.5C

Keywords: Solar energy, dryer, collector

Project Title: DESIGN AND FABRICATION OF SHREDDING CUM COMPOSTING MACHINE

Project ID: MECH_4



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Project Category/Area: Environmental_Societal

Abstract: India is one of the top countries in the world in terms of per capita food waste; which is 51 kilograms per year. The combination of high food consumption rate and very low food waste recycle rate, results in mountains of food dumped into landfills where they get burned and therefore produce harmful gases. In our project, we are introducing a practical solution for every kitchen to recycle the food waste instead of sending it to the landfill. The solution is to design an eco-friendly machine that converts food waste to fertilizer. The use of recycled food waste as compost improves the soil health and structure, increases drought resistance and reduces the need for supplemental water, fertilizers and pesticides. The composting process is fully automated, it consists of several steps under controlled environmental conditions (i.e., temperature, humidity) to fasten the process. A mechanism is designed to reduce food waste volume by over two-thirds. Also, experiments were conducted to figure out the best conditions of temperature, moisture content and the bulking agent that would result in a high-quality fertilizer within hours. The aesthetics aspect was considered by designing an elegant and socially accepted machine with a suitable size to be placed in a society.

Keywords: Waste management, Food waste, Fertilizer, Shredding

Project Title: DESIGN AND FABRICATION OF SHREDDING CUM COMPOSTING MACHINE

Project ID: MECH_6



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Project Category/Area: Environmental_Societal

Abstract: India is one of the top countries in the world in terms of per capita food waste; which is 51 kilograms per year. The combination of high food consumption rate and very low food waste recycle rate, results in mountains of food dumped into landfills where they get burned and therefore produce harmful gases. In our project, we are introducing a practical solution for every kitchen to recycle the food waste instead of sending it to the landfill. The solution is to design an eco-friendly machine that converts food waste to fertilizer. The use of recycled food waste as compost improves the soil health and structure, increases drought resistance and reduces the need for supplemental water, fertilizers and pesticides. The composting process is fully automated, it consists of several steps under controlled environmental conditions (i.e., temperature, humidity) to fasten the process. A mechanism is designed to reduce food waste volume by over two-thirds. Also, experiments were conducted to figure out the best conditions of temperature, moisture content and the bulking agent that would result in a high-quality fertilizer within hours. The aesthetics aspect was considered by designing an elegant and socially accepted machine with a suitable size to be placed in a society.

Keywords: Waste management, Food waste, Fertilizer, Shredding

Project Title: DESIGN AND DEVELOPMENT OF SOFT ROBOTIC GRIPPER

Project ID: MECH_8



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Project Execution Time: In_House

Project Category/Area: Product_Development

Abstract: Soft robotics is a growing area of research which utilizes the compliance and adaptability of soft structures to develop highly adaptive robotics for soft interactions. With an increased requirement for automation, robotics systems are required to perform task in unstructured and not well-defined environments; as a deduction in this report based on the study carried out, we look forward in improving speed, accuracy of a soft robotic pneumatically actuated Gripper. The following study conducted is intended to design and develop a real time industrial applicable gripper utilizing our knowledge of soft technology and an optimization is achieved by carrying simulation by varying physical parameters of the working actuators. A paradigm shift in the methods and materials used to develop robots such that they can adapt to and work safely in human environments has been brought about in this study. A noticeable improvement of the Control characteristics of the Gripper Control system is accomplished. The emphasis on successful implementation of a PID controller with an advanced PWM technique to actuate the solenoid valves is also been successfully implemented. The study will induce a fair insight on the entire knowledge even for a person with no technical expertise about the whole of Soft robotic grippers. The achievements and shortcomings of recent technology in these key areas are evaluated, and concluded with a discussion on the potential impacts of soft manipulators on industry and society.

Keywords: Soft robotics, Gripper, Optimization,

Project Title: EXPERIMENTAL ANALYSIS AND OPTIMIZATION OF PROCESS PARAMETERS OF TIG WELDING

Project ID: MECH_9



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Project Execution Time: In_House

Project Category/Area: Environmental_Societal

Abstract: ABSRACT Tungsten inert gas welding is one of the widely used techniques for joining ferrous and non-ferrous metals. TIG welding offers several advantages like joining of dissimilar metals, low heat affected zone, absence of slag etc. The aim of this project is to investigate the effect of TIG welding process parameters on welding of Aluminium-6061. Taguchi method was used to conduct the experiments. The parameters selected for controlling the process are welding current, arc pulsing and gas flow rate. Strength of welded joints were tested by a UTM and the hardness of welded joints were tested on a Rockwell Hardness testing machine. From the results of the experiments, optimization was done to find optimum welding conditions to maximize tensile strength and hardness of welded specimen.

Keywords: TIG, Aluminum 6061,parameters

Courses Offered : -

Post Graduate

- Masters of Computer Applications (MCA)
- M.Tech in Computer Science and Engineering
- M.Tech in Machine Design

Under Graduate

- Artificial Intelligence and Machine Learning
- Civil Engineering
- Computer Science and Engineering
- Electrical and Electronics Engineering
- Electronics and Communication Engineering
- Electronics and Telecommunication Engineering
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- Mechanical Engineering

Research Centers

- Artificial Intelligence and Machine Learning
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- Masters of Computer Applications (MCA)
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