

# Project details 2019-20

**1.Project title:** Automatic controlled environment agriculture

**Student's:** Kaveri, Jesmitha, Kavya

**Guide:** Prof.Shrikanth Rao.S.K

## **Abstract:**

The eternal need of every human being in this world is oxygen. Plants play a vital role in maintaining the carbon dioxide and oxygen content in the air. Numbers of plants are being destroyed each and every day for urbanization process. The number of plantings made is also reduced. Apart from these things more plants die due to lack of maintenance. The main aim of this project is to maintain the nature of the plants by continuously monitoring the parameters leading to the increased life of both plants and human beings. The automatic systems are preferred to a manual system. MIT App Inventor is used to create mobile applications which are used to monitor the parameters of the garden and automate the watering process. NodeMCU is used to connect different sensors which collect the parameters of soil and transmits the information to firebase through inbuilt Wi-Fi. The aim this project is to monitoring farm by using NodeMCU. Emergence of Controlled Environment Agriculture (CEA) ranging from computer-controlled water irrigation system to lighting and ventilation has changed the conventional scenario of farming. This project proposes and demonstrates an economical and easy to use NodeMCU based controlled irrigation system. The designed system deals with various environmental factors such as moisture, temperature and amount of water required by the crops using sensors like water flow sensor, temperature sensor and soil moisture sensor. Datas are collected and received by NodeMCU which can be linked to an interactive app which show the real time values. This allows user to control irrigation pumps from far distance through an app and to meet the standard values which would help the farmer to yield maximum and quality crops. In India, farming is done by traditional method, farmer's plant crops traditionally without knowing the content of soil and quality of that soil. As a result farmers will not gain sufficient profit from there farming. Due to human intervention there are chances of human errors so farmers may receive incorrect report. So there is need of automated process for soil testing and

crop prediction.

**2. Project title:** Diabetic Retinopathy Detection using Digital Fundus Image

**Student's:** Prathiksha Rai, Mala B G, Shreelatha K, Pavithra U D

**Guide:** Dr. Roshan Joy Martis

**Abstract:**

Diabetic Retinopathy (DR) detection using digital fundus image is used for detecting whether the person is suffering from DR or not. It takes selected images from DRIVE database as the input and mainly detects presence of exudates using SVM algorithm to differentiate between normal image and Diabetic Retinal image. It also extracts different properties of images like standard deviation, entropy, mean, variance, energy, contrast, correlation and homogeneity.

**3. Project title:** Assistive Device for Visually, Auditorily and Vocally impaired individuals

**Student's:** Pavithra, Roopashree C, Prakrithi, M Kavita

**Guide:** Mrs. Jovita Lasrado

**Abstract:**

In resolving difficulties with visually and vocally impaired people, here, the tiny credit card sized computer named raspberry pi is used. By this device we provide the solution for visually, auditorily and vocally impaired people. For visually impaired individuals the image is converted to voice by using Tesseract software. The auditorily impaired individuals receives their content, as soon as the opposite person speaks out and it is displayed as a message. The vocally impaired individuals convey their message through text instead of sign language. We have provided necessary steps to resolve the problems of those masses.

**4. Project title:** Automated Monitoring and controlling System for Food Grain Storage

**Student's:** Pooja Rai B, Sushmitha N T, Raksha M J

**Guide:** Mrs. Nisha G R

**Abstract:**

This project proposes an integrated system to monitor and control the environment factors like temperature, humidity and light illumination of food depots using wireless network system. The

NodeMCU model has been used to collect environmental data from DHT22 sensor nodes inside the warehouse and monitored using the Arduino IDE software. The environmental conditions are maintained for the respective food product. An automated aeration control strategy is used to provide aeration inside the warehouse to maintain the environmental conditions to ensuring the food security.

**5. Project title:** Development of Campus Assistance System (CAS)

**Student's:** Nisarga P S, Nisarga N, Srividya Rao

**Guide:** Mrs. Prabha G S

**Abstract:**

Campus Assistance System (CAS) is a mobile application that provides intra campus assistance. If a campus is very vast and consist many sub blocks, then there will be confusion among the students, workers and other visitors. There is hardly any facility for navigation assistance to the various blocks, departments and various sections in the campus. Thus, the CAS provides the navigation assistance to find the route to various blocks in the campus. CAS provides a blueprint of the intra-college and highlights the destination according to the clients demand and shows the way to the destination highlighted.

**6. Project title:** Atrial Fibrillation Detection Using RR Interval Features of ECG

**Student's:** Sneha R Rai, Bhumika P T, Kshama N, Kumari Disha

**Guide:** Dr. Roshan Joy Martis

**Abstract:**

Atrial Fibrillation is one of the main causes for the death across the world. ECG interpretation is quite a complex process because a very minute change in the signal may represent a different state of heart. So, in order to differentiate an ECG signal into normal or atrial fibrillated we use a method where RR interval features are made use. Based on the information obtained from the RR interval features SVM is trained to differentiate ECG as normal or atrial fibrillated

**7. Project title:** Line Following Electric Vehicle

**Student's:** Premachandra K, Vishal K, Pavan Kumar, Swastik S Rai

**Guide:** Mr. Yadunandana

**Abstract:**

India is a developing country and second largest populated country, this result in increased consumption of non-renewable resources. The large amount of resources is used for transportation purposes. Since the appearance of the internal combustion engine and specifically its installation and use in wheeled automobiles, motor cars, have been creating pollution as a result of their emission to the environment. The degree of this pollution has been increasing over time with more and more automobiles appearing on the roads through the years. This problem can be overcome by using Electric Vehicles, which have gained significant popularity over the past few years as they are believed to be a greener solution compared to their gasoline peers.

**8. Project title:** Solar Powered Smart Helmet

**Student's:** Sumantha K K, Sanath Kumar G, Varun, Sujana Rai

**Guide:** Mr. Shivaprasad

**Abstract:**

The model of Solar powered smart helmet, with advanced features like GPS, GSM, Cooling system, Bluetooth headset to authenticate with bike to unlock the ignition, so that it should save the life of the rider and provide comfort.

**9. Project title:** Wireless data communications through LiFi technology

**Student's:** Kuttappa G P, Sathwik Jain, Manoj Devadiga, Shreyas P

**Guide:** Mr. Praveen M Ullagaddi

**Abstract:**

The model of LiFi can be thought of as a light-based wifi that is it uses light instead of radio waves to transmit information and instead of Wi-Fi modems LiFi would use transceiver-fitted LED lamps that can light a room as well as transmit and receive information.

**10. Project title:** Content Aware Video Synopsis

**Student's:** Tilak Gokul, Sandeep, Nithin Kumar B, Kiran K V

**Guide:** Mr. Vinay P

**Abstract:**

An intelligent surveillance system aims at providing condensed representation of video datasets that can be easily captured from digital cameras, especially for daily surveillance videos. Previous work in video synopsis usually moves active objects along the time axis, which inevitably causes collisions among the moving objects if compressed much. Here, we propose a novel approach for compact video synopsis using a unified temporal optimization. Our approach globally shifts moving objects in temporal domains, shifting objects temporally to reduce the length of the video. It also reduces the inactive video frames which does not have any motion in it to reduce the length of video. And our approach also implements time information of objects which shows that the compact video synopsis we produced can be browsed quickly, preserves relative temporal, and avoids motion collisions. Content Aware Video Synopsis is a presentation of events that enables the review of hours of videos footage in just minutes. The technology tracks and analyzes moving objects/ events, and converts video streams into a database of objects and activities. Overall the application has a wide range of user who deal with surveillance videos.

## **11. Project title: Assisting tool for wellness of women**

**Student's:** Anushree K Babu, Akshatha N, Divya K R

**Guide:** Mrs.Rajani.Rai B

### **Abstract:**

The project analyzes and evaluates one of the method for the prediction and detection of ovulation, with emphasis on the role this plays in management of infertility. Most of the women are inlay the problem of infertility due to irregular menstruation to overcome these, EEG analysis is the one of the method. Electroencephalogram (EEG) helps analyzing and recording the electrical activity of brain. Assisting tool for wellness of women analyze the EEG signal of the subject, based on the relationship between the EEG and the hormones (estrogen and progesterone). In signal classification, feature extraction of EEG signals is done. It is based on the POTENCOR method. For a given EEG data The absolute powers of different EEG sub bands are directly obtained using potencor method. the absolute power and relative power of different EEG

sub bands are selected as features for the feature extraction. All these features are given to the classifier. The classification of extracted EEG data is done by using FFT algorithm. The performance is evaluated by potencor and FFT and the period of ovulation and menstruation can be identified depending on the frequency of brain signals.

**12. Project title:** Real time eye ball tracking for password authentication

**Student's:** Krupa, Chaitra, Greeshma

**Guide:** Prof.Mahabaleshwar Bhat.P

**Abstract:**

Personal identification numbers are widely used for user authentication and security. Password authentication using PINs requires users to physically input the PIN, which could be vulnerable to password cracking via shoulder surfing or thermal tracking. PIN authentication with hands-off gaze-based PIN entry techniques, on the other hand, leaves no physical footprints behind and therefore offer a more secure password entry option. Gazebased authentication refers to finding the eye location across sequential image frames, and tracking eye center over time. This is a real-time application for gaze-based PIN entry, and eye detection and tracking for PIN identification using a web camera.

**13. Project title:** Food Ordering and Transaction in Canteen Management System

**Student's:**Bhavya N S, Hemavathi, Deepthi B, Vinaya

**Guide:** Prof. Naveen.C

**Abstract:**

The purpose of Food Ordering and Transaction in Canteen Management System is to automate the existing manual system by the help of computerized equipment and full-fledged computer software, fulfilling their requirements, so that their valuable data/information can be stored for a longer period with easy accessing and manipulation of the same. The required software and

hardware are easily available and easy to work with. Company Canteen Management System, as described above, can lead to error free, secure, reliable and fast management system. It can assist the user to concentrate on their other activities rather to concentrate on the record keeping. Thus it will help organization in better utilization of resources. The organization can maintain computerized records without redundant entries. That means that one need not be distracted by information that is not relevant, while being able to reach the information. The aim is to automate its existing manual system by the help of computerized equipment and full-fledged computer software, fulfilling their requirements, so that their valuable data/information can be stored for a longer period with easy accessing and manipulation of the same. Basically the project describes how to manage for good performance and better services for the clients.

14. **Project title:** Unmanned aqua drone for waste collection

**Student's:** Adarsh K, Kishan Bharadwaj, Hemapraksh V, Jagadeesh

**Guide:** Mrs. Sangeetha B L

**Abstract:**

India, a country with a vast population, is struggling with waste management due to the rise in waste generation. The generated wastes are generally dumped into water bodies such as lakes, rivers, ponds etc. making them unfit for amphibian life and human utilization. The government of India has taken initiative to clean rivers and invest huge capital in many river cleaning projects. This project “Unmanned Aqua Drone for Waste Collection” also focuses on the same issue. The main aim of this project is to reduce manpower, time consumption for cleaning the water bodies and measurement of water quality. Here an RF transmitter and receiver is used to control the movement of the designed system.

15. **Project title:** Design of Electric Vehicle and Speed

**Student's:** Gopalakrishna M , Anirudh Narayana, Vignesh, Aditya Hegde

**Guide:** Mr. Gurusandesh M

**Abstract:**

Electric vehicle drives offer a number of advantages over conventional internal combustion engines, especially in terms of lower local emissions, higher energy efficiency, and decreased dependency upon oil. Yet there are significant barriers to the rapid adoption of electric vehicles, including the limitations of battery technology, high purchase costs, and the lack of recharging infrastructure. With intelligently controlled charging operations, the energy needs of potential electric vehicle fleets could be covered by existing German power plants without incurring large price fluctuations. Over the long term, electric vehicles could represent a sustainable technology path. In the short to mid-term, however, exceedingly optimistic expectations should be avoided, especially with respect to the reduction of greenhouse gas emissions. Electric vehicles as such will not be able to solve all current problems of transportation policy. Yet they may constitute an important component of a larger roadmap for sustainable transportation.

16. **Project title:** wearable smart system for the visually challenged

**Student's:** Charan, Dhanuvarsha, Vishanka, Hariprasanna

**Guide:** Mr. Udaya Kumar S

**Abstract:**

The ability of visually challenged to navigate in a particular place and organize their daily activities is of vital importance for their well-being. In the present scenario, the available aids for visually challenged only detects obstacles and does not help them to identify type of obstacle they face. This project proposes a scheme that provides a moderate budget and efficient navigation aid for visually challenged people which gives a sense of artificial vision by providing information about the environmental scenario of static and dynamic objects around them. Wearable Raspberry Pi based smart system which is capable of obstacle detection and person identification with enhanced features like voice assistance, GPS and GSM system. The GPS system is used to track the user's present location. This could result in a better movement of the user. A voice module will be attached so that it can alert the user about the obstacles and person identified. GSM is used to send the message about the current location to his friend or relative

and the current location announcement which involves text to speech conversion is given to the user by the system.

**17. Project title:** Auto guided wheelchair

**Student's:** Deekshith Shetty, Karthik, Koushik A G, Dhanush Naik

**Guide:** Prof. Suhandas

**Abstract:**

The development of intelligent wheelchairs can bring a good solution to assist severely handicapped people who are unable to operate the classical electrical wheelchair by themselves in their daily activities. Several researches have been undertaken to assist and help handicapped and elderly people to gain mobility and lead to independent life and particularly those related to smart wheelchairs. In this direction, a localization function can be considered as the main process improving performances in terms of autonomy and mobility. Thus, making a wheelchair intelligent and autonomous allows us to develop new methodologies taking into account the type of handicap, environment dynamics, new communication technologies such as wireless sensors networks (WSN) and recent developed approaches for monitoring and control. The aim of this project is to propose a system using trilateration localization approach for wheel chair monitoring and control operating autonomously in a WSN environment.

**18. Project title:** Prosthetic arm

**Student's:** Aiyappa, Ajay, Anirudh N S, Hemanth

**Guide:** Prof. Sowmya Anil

**Abstract:**

In this paper, we are discussing the concept, de-sign, modeling, and prototype of a Myoelectric Prosthetic Arm, which uses the EMG signals from the patient for controlling the movements of the Prosthetic Arm. The electromyography sensor allows the user to measure the electrical activity of muscles. It is also used for controlling the prosthetic device. The signal ac-quired from the patient's body and after suitable

processing, it is transmitted to Arduino, which uses the received muscle signal as an input to drive motors which are in turn coupled to the prosthetic arm. So, the amputee wears the arm to initiate the control mechanism. Though an amputee is dependent on the prosthetic arm, it is his/her myoelectric signals which run the arm, which is a confidence-boosting aspect of the myoelectric prosthetic arm.