

PROJECT DETAILS-2022-23

1. Project Title: Dual axis solar tracking with weather monitoring system using ML

Project Guide: Mr. Shivaprasad

Project team: Nayana M J, Meghana P E, Ranjita K Padti, Shreya

Abstract:

As a future inexhaustible and nonpolluting energy sources, solar energy is advancing to meet our ever-growing energy requirements. The automated solar tracking system based on the Arduino prototype is mainly built using the Arduino Nano, four LDRs and two servo motors. A mixture of hardware and firmware programming is used to run the machine. Four lightbased resistors (LDRs) are used for the capture of maximum incident light in hardware production. To shift the solar panel according to the extent incident light operated by LDRs, two servo motors are used. The software controls the solar panel's vertical and horizontal rotation. Thus, according to the incident sunlight on the solar panel, it can follow the direction of the Sun, not only the vertical rotation, but also the horizontal rotation. This device can also achieve optimum illumination and reduce the cost of generating energy by requiring a minimum number of solar panels.

2. Project Title: Blood Glucose level Monitoring by Non invasive Method using Near Infra Red (NIR) sensor

Project Guide: Ms. Sowmya Anil

Project team: Arpitha N Kotian, Kavya H R, Kavyashree, Jayalakshmi M.A

Abstract:

Diabetes is a common chronic disease seen in most of all countries worldwide. The most commonly used method to measure glucose level in blood is an invasive method which is painful, expensive and could be a danger in spreading of infectious diseases. Over a long term. the invasive method results in damage of finger tissues. As an alternative, the non-invasive method can be used which facilitates frequent testing, relieves pain and discomfort caused by frequent finger pricks. In this project a non-invasive method of glucose level measurement is proposed. The variation in the intensity of NIR light received from the photodetector after passing through the finger is used to determine the glucose level of blood. The measured glucose level is displayed in LCD display and also transmited to the android phone which is used to display and store data via Bluetooth

3. Project Title: Fully Automated solar grass cutter

Project Guide: Ms. Nisha

Project team: Nikhil, Keerthan, Prajwal

Abstract:

In the present generation grass cutter machines are becoming very popular. Pollution is manmade, which we can be seen in our daily life. In old model of grass cutter IC engine was used and hence because of its environmental impact, pollution level rises. IC engine driven cutter is more costly. Maintenance of such conventional machine is more. To avoid these drawbacks, we plan to build new type of grass cutter which runs on solar energy and this model is economical compared to previous one. The aim of our project is to make the grass cutter which operates on solar energy, hence save the electricity, and reduces manpower. In this project we use raspberry pi for controlling the operations of a grass cutter. Also, the grass cutter has a camera module for obstacle detection and identification. The grass cutter operates automatically hence it does not require skilled people to operate. The fully automated solar grass cutter is a fully automated grass cutting robotic vehicle powered by solar energy that also avoids obstacles and is capable of fully automated grass cutting without the need of any human interaction

4.Project Title: Animal intrusion detector and repellent using Image Processing

Project Guide: Mr.Nithin

Project team: Madhushree B,Manjunatha M P, Meha, Shobha

Abstract:

A prominent conflict is observed due to increase in human encroachment into wildlife spaces, Human-Wildlife disputes are becoming a serious issue in many parts of the globe. Few of the major consequences are: Injury, loss of life, damage to human property, crop damage, destruction of human habitats and many more. Adaption of temporary solutions like electric fences, trenches, manual surveillance, guard dogs, etc. are used to protect the habitat but are not economic and proven to stay as an unsafe solution for wildlife as well the humans. Defensive and retaliatory killing may eventually drive these species to extinction. In order to initiate safety for both wild animals and humans, some mitigation plan is required to solve this issue. While there are various IoT-based Animal Surveillance and repellent systems in market, a touch of Image Processing can make it more reliable and efficient. This will certainly push forward the bars that are kept limited with the use of IoT alone. The proposed system aims in protecting human habitation and livestock at the outskirts of the forest area/ fields by developing an automated system that detects the intrusion of wild animals and repels them back to their normal being. System mainly uses illumination of light and sound alarm system and particular irradiating noise that safely repels the animals away without inflicting any harm on them. It also

ensures protection of farmer lives by warning them of approaching danger. Hence minimizing the dangerous consequences caused by the Human-Wildlife conflict

5. Project Title: AI based automated vehicle

Project Guide: Mr. Shivaprasad

Project team: Apeksh Shetty , Harendra , K Praneeth Ballakuraya, and Sanath Shetty P

Abstract:

The idea of AI-based pick and place robots is discussed in this abstract, with particular emphasis on how effectively they manipulate objects using AI algorithms and computer vision systems. The integration of AI algorithms and robotic manipulators, sophisticated computer vision techniques for real-time object detection, adaptive grasping strategies based on object attributes, and machine learning for ongoing improvement are some of the important topics covered. The abstract highlights the advantages of pick and place robots powered by AI, including enhanced productivity, less errors, improved worker safety, and adaptability to a variety of materials and surroundings. A special emphasis is placed on the possible applications in sectors including manufacturing, shipping, and e-commerce. Overall, pick-and-place robots powered by AI provide a game-changing way to precisely and effectively automate item manipulation activities.

6. Project Title: Ventilator Using Arduino.

Project Guide: Mr. Shrikanth Rao

Project team: Poornesh, Prajwalkrishna M, Sandarsh Rai, Vignaraj

Abstract:

Positive pressure ventilation has been an important component of respiratory disease management for the last 50 years. External instruments called ventilators are intended to help a patient accomplish a certain operation. It is to maintain or enhance a person's breathing capacity if he has a problem with his own breathing. It is a piece of equipment, software application, or product scheme that is used to increase, sustain, or boost the functional capacities of people with pulmonary difficulties. The ventilator's robustness and functionalities, which are not only easily adaptable but also exact lower cost and cost-effective. The proposed system works without essential to the human hand since it breathes by the compression of a traditional bag-valve mask. In addition, it has a low-battery warning system as well as an assist control. This method implemented is novel, low-cost, less dependent on external power and easy to manage.

7. Project Title: Automated waste segregator

Project Guide: Mr. Akshay S.P

Project team: Pavithra, Shruti Vinod Revanakar, Shyamala Nagayya Gonda, Sweekrithi B bearing

Abstract:

The rapid growth in the population has also led to the surge in the volume of waste being generated on a daily basis. This increase in the generation of waste due to continuous growth in the urbanization and industrialization has become a severe problem for the local and the national government. It is also posing a serious problem for the local authorities to manage the wastes being dumped everywhere as landfill. To ensure the minimal risk to the environment and human health, it is necessary to take meticulous measures when segregating and transporting waste. Segregation of waste in a proper manner brings to the limelight actual economic value of the waste. The traditional method used for segregating of waste in India is through rag pickers which are time-consuming and can have adverse effects on the health of the people who are exposed to such wastes. Here we propose the use of an Automated Waste Segregator (AWS) which is cheap and an easy-to-use solution for segregation of household waste. It is designed to segregate the waste into three categories like metallic, dry and wet waste

8. Project Title: Arrhythmia detection using ECG

Project Guide: Ms. Sowmya Anil

Project team: Kishor Kumar, Prashanth C., Xavier Tumarikopp, Vishranth A

Abstract:

An Electrocardiogram (ECG) is defined as a test that is performed on the heart to detect any abnormalities in the cardiac cycle. Arrhythmia is considered a life-threatening disease causing serious health issue in patients, when left untreated. An early diagnosis of arrhythmias would be helpful in saving lives. In this paper, an expert system for Electrocardiogram (ECG) arrhythmia detection is proposed. Discrete wavelet transform is used for processing ECG recordings, and extracting some features, and the Artificial Neural Network (ANN) performs the detection task. The project is carried out on the dataset taken from the website physionet.org Data Repository. Few ECG signals Challenge 2015 Training Set are downloaded from the PhysioNet for analysis. One easy way to get ECG signals directly in MATLAB compatible format (*.WFDB) is to use PhysioNet ATM.

9. Project Title: Assistive device for visually Impaired

Project Guide: Ms. Shruthi P.R.

Project team: Swaroop Shankar, Thejaswi, Govinda, Manith Kumar, Neelappa S

Abstract:

Visual impairments have become one of the most predominant problems for the last few decades. To keep doing their daily tasks, vision-impaired people usually seek help from others. Developing a system that can identify indoor and outdoor objects, notify the user, and send all information to a remote server repeatedly at a fixed time interval can help visually impaired people. This device also recognizes the face of the known people. Real-Time Object Detection might sound quite a mouthful. However, with a few awesome libraries at hand, the job becomes much easier than it sounds. Object Recognition is a process of detecting an object and identifying it using various image algorithms. This project helps the blind to detect obstacles in front of him, also it recognizes the known face. After recognizing the object, it is informed to the blind by a transducer.

10. Project Title: Automated Detection of Epilepsy using EEG signals

Project Guide: Ms. Rajani Rai B

Project team: Adishree, Ashika D, Dishmi A, Indira Shradda

Abstract:

A seizure or convulsion is a brief interruption of electrical activity in the brain and is a symptom of epilepsy, a neurological disorder. These seizures can cause a variety of symptoms, including loss of consciousness, muscle spasms, convulsions, and hearing problems. People of all ages can be affected by epilepsy, which affects approximately 50 million people worldwide. It is also important to address the stigma and discrimination that epilepsy patients and their families often face. Seizures can be divided into focal and non-focal according to the location of origin. It can be difficult to distinguish between focal and non-focal seizures because their symptoms and features can overlap, making it difficult to distinguish between the two types of epilepsy. It is usually defined using medical history, electroencephalographic data (EEG), and classification of focal and non-focal seizures. Even with these tests, it can be difficult to determine the type of epilepsy. By contrast, traditional diagnostic methods are time-consuming and error-prone in determining which category to target. The automated detection of epilepsy using a machine learning algorithm can reduce human error and can classify focal and non-focal epilepsy with some accuracy. However, improved epilepsy diagnosis, treatment, and social support are needed to address this public health issue. Overall, ongoing efforts to improve epilepsy diagnosis, treatment, and social support are needed to address this public health issue and improve

outcomes for people with epilepsy.

11. Project Title: Lifi based data and audio communication

Project Guide: Mr.Naveen

Project team: Sanath Kumar, Shashikiran P, Vikhil

Abstract:

The light fidelity technology refers to visible light communication that uses light as a medium to deliver high speed data which is much greater than that of Wi-Fi. Li-Fi data is transmitted in several bit streams and the receiver side consisting of an IR detector decodes the message. The transmission happens in the form of binary data where 0 means LED in “OFF” state and 1 means that the LED is in the “ON” state. Transmitter and receiver sections contain Arduino which is programmed using Arduino IDE. High power intensity led’s are used in the Li-Fi transmitter. In the receiver section photodiode module is used to detect the light signal generated by the Li-Fi transmitter. In this we are transmitting the 2 different data using light they are Audio signal and Text signal. Hence the study of various topologies to understand the characteristics of a Li-Fi system. Li-Fi (Light Fidelity) technology using IoT (Internet of Things) is a promising solution for wireless communication in a range of IoT applications. Li-Fi uses visible light for data transmission, providing high-speed, secure, and energy-efficient communication that is immune to electromagnetic interference and reduces network congestion. However, Li-Fi technology also has limitations, such as its limited range, line-of-sight requirement, and infrastructure cost, which may restrict its practical applications in certain IoT use cases. Despite these limitations, Li-Fi technology offers significant advantages over traditional wireless communication technologies, particularly in areas where data security and speed are critical. As the technology continues to evolve and become more affordable, we can expect to see more widespread adoption of Li-Fi technology using IoT in the future

12. Project Title: RF based IV fluid monitoring device for hospital drip administering.

Project Guide: Dr.Mahantesh Choudhari

Project team: Anargya, Bhavya S P, Bhoomika A, Kavana M

Abstract:

An intravenous (IV) fluid monitoring device is a technological tool designed to assist healthcare professionals in the administration of IV drips in hospital settings. This device tracks the amount and rate of fluid being delivered to a patient, as well as provides real-time monitoring of their vital signs. By using sensors and advanced algorithms, the device can detect changes in fluid levels and alert

medical staff in case of potential complications. This monitoring tool has the potential to improve patient outcomes by reducing the risk of medication errors and helping healthcare professionals provide more accurate and timely care

13. Project Title: SHATRAKSHAK

Project Guide: Mr. Shrikanth Rao

Project team: Chaithresh, Charan Kumar, Gautham Shankar N, Jagrathi J Nayak

Abstract:

A Nation's first line of defense is its Armed forces. The Indian Armed Forces consist of three professionally uniformed services, the Indian Army, the Indian Navy, and the Indian Air Force, and are supported by various other services. Among them, the Indian Army and other services that operate on land are prone to casualties due to them being the units on the frontline, facing the enemies up close. On land, the defense personnel deployed at a critical area to eliminate threats might fall prey to traps set up by enemy units like mines. The casualties due to this can be reduced or avoided by gathering information on such traps and ambush positions before the troops are sent in. In our project, we are providing a system that helps with landmine detection using a remote hexapod robot controlled by a mobile application on a smartphone. The hexapod robot is a land-dwelling vehicle that detects mines, and sends crucial information back to the user that contains the accurate GPS location of mine detected along with the images of the surroundings, which can be remotely accessed by the user. This in turn will reduce the risk of injuries and possible deaths when the troops face such situations.

14. Project Title: Smart charge point for electrical vehicles

Project Guide: Mr. Mahabhaleshwar Bhat

Project team: Ananya U D, Gowthami B, Harshitha S

Abstract:

The exponential rise in electricity demand has become the primary reason of generating electricity from various new sources. Up until now, fossil fuels were the major source for generating power but it has changed drastically in recent years. Vehicles commonly used in today's world run solely on fossil fuels (i.e. gasoline, diesel, liquefied petroleum etc.) and their prodigious usage hints at the current overreliance on them. Fossil fuels are nonrenewable and consequently, the existing transportability prototype is rendered untenable. Effects of energy shortage, meteoric decline in fossil fuel reserves along with environmental issues have diverted attention towards Electric vehicles. Electric vehicle is now the center of the attention and is termed as the future of transportability model. Use of Electric

vehicle gives multiple advantages that include more use of renewable energy, less use of nonrenewable energy sources, clean environment and energy storage options. In this project, how electric vehicles can be charged using solar energy is developed. In addition to this information is given about how an app can be connected to the charging station to start the charging of the vehicles after successful payment done by the client or the user.

15. Project Title: Smart power monitoring system using IOT

Project Guide: Mr. Mahabaleshwar Bhat

Project team: Vishwajith, Shama B E, Thanmaya Rao

Abstract:

In this modern era the use of electronic gadget drastically increased which led to increased demand for electrical energy and decreased supply of fossil fuels. Due to this there is an increased cost of electrical energy. So, we have to follow the culture of saving electrical energy. This habit must be cultivated in the community. On the other hand, energy-saving behaviors cannot be realized massively without a supporting system that can control energy use. So, with the help of IOT we can control supporting system easily and efficiently. The Internet of Things (IOT) is one of the grounded beliefs that advance in microelectronics, communication and information technologies. Due to their size, cut down prize, energy consumption, processors, modules etc. IOT is integrated to every object today. In order to save energy in smart way we have come with idea of smart power monitoring system that has ESP32 Wi-Fi module and current sensor as measuring device and Ubidots website as monitoring system. Using this website, we can monitor and keep track of the power consumed by multiple loads.

16. Project Title: Speech Recognition Sensed Voice Operated Smart Display

Project Guide: Mr. Naveen

Project team: Adarsh Sharma S, Anusha B, Apoorva Rai R, Chaithra B L

Abstract:

The speech recognition system using a voice-operated display, utilizing the Raspberry Pi platform. The system incorporates a Raspberry Pi, a microphone, and a display that can be controlled through spoken commands, enabling users to interact with the device without physical input. The system utilizes advanced algorithms for speech recognition and natural language processing, ensuring high accuracy and efficiency in recognizing user commands. The Raspberry Pi's low cost, flexibility, and accessibility make it an ideal platform for the development of this system. The system has the potential to improve the quality of life for individuals with disabilities or those who require hands-free operation, providing

them with greater independence and autonomy. Additionally, the system has applications in home automation, entertainment, and various other industries.

17. Project Title: Telegram channel integrated ambulance system using IOT

Project Guide: Mr. Venkatesh

Project team: Adarsh Mushigeri, Aravinda K M, Karthik P, Keerthan

Abstract:

The Integrated Ambulance System Using IoT is a project aimed at developing a smart and efficient ambulance system that utilizes Internet of Things (IoT) technology to provide faster and more effective emergency medical services. The project involves the integration of various IoT devices, including sensors, cameras, and communication devices, with an ambulance to enable real-time monitoring of patient health and status, as well as the tracking and management of ambulance operations. The system is designed to work in two main modes: the emergency mode and the non-emergency mode. In the emergency mode, the system is activated when a call for emergency medical services is received. The ambulance is then dispatched to the location of the emergency, and the onboard IoT devices are activated to collect and transmit data on the patient's vital signs, such as heart rate, blood pressure, and oxygen levels. In the non-emergency mode, the system is used to track and manage ambulance operations, including scheduling and dispatch, maintenance, and inventory management. The system is designed to be highly scalable and can be easily integrated with existing ambulance systems and medical facilities. It is expected to significantly improve the quality and efficiency of emergency medical services, as well as reduce response times and improve patient outcome

18. Project Title: GST tracking system

Project Guide: Ms. Prabha G.S

Project team: Abhijna S R , Anushree C R, Divyashree S

Abstract:

Goods and Services Tax (GST) is an indirect tax used in India on the supply of goods and services. It is a comprehensive, multistage destination-based tax: comprehensive because it has subsumed almost all the indirect taxes except a few state taxes. This tax is included in the final price of the product. The customer who buys the product pays its price inclusive of the GST. The seller or retailer then forwards its GST portion to the government. The project focuses on building a user-friendly GST tracking system in which the customer can track the GST amount that they have paid to the retailer.

19.Project Title:Smart patch -An IoT based anti -child trafficking solution

Project Guide: Mr. Shreyas

Project team: Ananya A.S, Akanksha Rao, Chaitra B P, Jashmitha R Nadavali

Abstract:

Human trafficking is an act of recruiting or harboring a person through the use of fraud or force for compelled labor or commercial requirement. It remains one of the most complex criminal activities that is extremely difficult to detect and track. Even if discovered, victims generally remain reluctant to speak out or act, mostly because of a lack of resources, awareness, absence of accurate information, or even social stigma. Unlike in the case of adults, children get trafficked unknowingly and without consent; with virtually no chances of escape. Thus, a child must be constantly monitored and tracked, using proactive mechanisms and real-time responses, so that any possible bid at trafficking is detected and relayed to the guardian as soon as possible; to initiate actions to thwart the attempt.

20..Project Title:IOT Based water monitoring system

Project Guide: Dr.Mahantesh R.Choudhari

Project team: Jithin R, Karthik, Karthin Suvarna,Jayaprakasha K

Abstract:

The Internet of Things (IoT) based smart water distribution system is a revolutionary solution for efficient and intelligent water management. It is a network of interconnected devices that enable real-time monitoring and control of water distribution systems. The system uses sensors, data analytics, and machine learning algorithms to collect and analyse data on water quality, usage, and distribution patterns. The information is then used to optimize the distribution of water resources, reduce wastage, and improve the efficiency of the entire water supply chain. The system has been designed in such a way that it will monitor the available water level continuously. System has been implemented by using embedded system and communication will takes through IoT.

21..Project Title:CNC Machine

Project Guide: Ms.Prabha G S

Project team: Aaron lobo, Rohith, Sandesh Kumar B, Viraj

Abstract:

ABSTRACT

Computer Numerical Control machining is a process used in the manufacturing sector that involves the use of computers to control machine tools without direct human assistance. Computer Numerical

Control is a very broad term that encompasses a variety of types of machines all with different sizes, shapes, and functions. Computer Numerical Control has found its applications mainly in lathes, drills, milling machines etc. In this paper, a two-dimensional Computer Numerical Control machine designed and implemented in efficient and low-cost hardware architecture, it is able to draw images/texts. In addition, the idea behind our project is to design and draw Printed Circuit Board layouts based on a low-cost Computer Numerical Control system. The control mechanism of the designed machine is based on using Arduino UNO, Inkscape and the G-Code sender software.