

CYBER SHADEZ 2023

IDEA PRESENTATION

IoT MODELS



PROJECT CO-ORDINATORS

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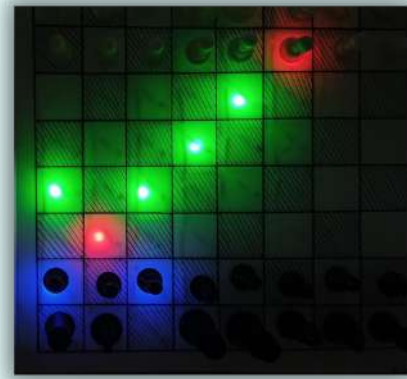
ChessMate

ChessMate is a smart chess board that utilizes various electronic components and an Arduino DUE micro-controller to offer a unique gaming experience that combines tradition and innovation. The board features an 8x8 matrix with reed switches that can identify each chess piece using a specific number. The linked list system stores the chess piece number and its corresponding location, allowing for smooth movement of the pieces across the board. RGB LED lights are used to indicate the possible moves for each piece, with green indicating available moves, blue indicating blocked squares and red indicating squares where a piece can be captured. Resistors and transistors are used to ensure the optimal functioning of the LED lights at the correct voltage. The chess program is written in C++ for Arduino DUE, making it highly accurate and precise during game play. The ChessMate board is ideal for both beginners and experienced players, with the LED lights making it intuitive and easy to learn for new players. The project is a testament to the possibilities of IoT and demonstrates how technology can be used to enhance traditional games.



Developed By: (SYBCA)

Anoushka Banerjee
Janvi Patel
Parth Savaj



Magic Mirror

A Magic Mirror is a two-way mirror with an inbuilt display behind the glass. At a first glance, the device appears like a regular mirror but would have a screen inside and you would be able to interact with it using voice commands and a smartphone. The raspberry pi is programmed using JavaScript and connects to a monitor with the inbuilt speaker to provide an onscreen interface and voice assistance.



Developed By: (SYBCA)

Abhimanyu Tomar
Dev Jadhvani
Kishan Thanki

Indoor Navigation System

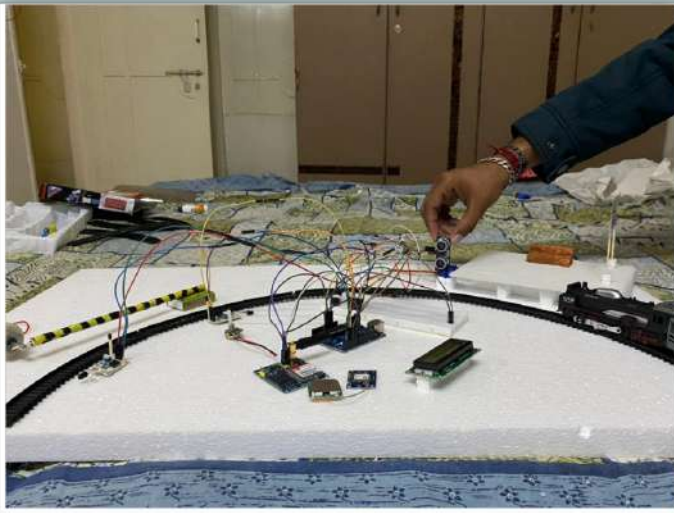
Navigation systems help users access unfamiliar environments. Current technological advancements enable users to encapsulate these systems in handheld devices, which effectively increases the popularity of navigation systems and the number of users. In indoor environments, the lack of Global Positioning System (GPS) signals and line of sight with orbiting satellites makes navigation more challenging compared to outdoor environments. BLE technology is being used for indoor positioning by utilizing the signals transmitted by BLE devices known as beacons. Bluetooth Low Energy (BLE) is used for applications that do not need to exchange large amounts of data and can run on battery power for years at a cheaper cost. The basic idea is to use the received signal strength (RSSI) of the BLE signals to estimate the proximity of the device to the beacons. This information can then be used to calculate the position or the distance of the device within a specific area.



Developed By: (SYBCA)

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Harish Kumawat
Vashisht Purani

Automatic Railway Gate and Platform Controller



Developed By: (SYiMSCIT)

Krishna Shah
Harsh Vithalapara

This system helps to open and close the railway gate upon detecting the arrival or departure of the train. In general, Railway gates are opened or closed manually by a gatekeeper. The information about the arrival of the train for opening or closing of the door is received from the nearby station. But some railway crossings are unmanned and many railway accidents occur at these unmanned level crossings. In order to avoid human intervention at level crossings completely, we need to automate the process of railway gate control. Along with this, the platform is controlled by the system.

Blind Reader Using Raspberry Pi

Raspberry Pi - Based Reader is an automatic document reader for visually impaired people using OCR technology. The proposed project uses a camera based assistive device that can be used by individuals to read printed text in different languages such as Gujarati, English and Hindi. In this digital world, reading a normal book remains a big challenge for visually challenged people. It can be solved by converting the image or text into an audio format. This conversion can be done by extracting text from an image. Raspberry Pi Based Reader helps a blind person to read a paper without the help of any human reader or without a tactile writing system.



Developed By: (TYiMSCIT)

Nakshi Shah
Chinmai Kewlani
Nisha Sumara

Automatic Sliding Roof for Drying Clothes



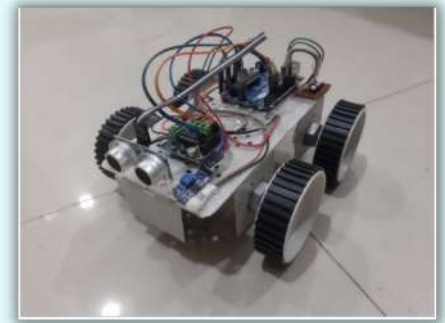
Developed By: (SYiMSCIT)

Keyur Rakholiya
Ridham Shah

During the monsoon season, the concern of the majority of people is how and where to dry clothes. Usually people dry clothes indoors with the help of fans but it cannot be the effective way as it consumes extra power and sometimes clothes become stinky. An Automatic Sliding Roof for Drying Clothes can be considered a fine solution to this problem. The system is coupled with a Rain sensor and a Light Dependent Resistor. It detects the surrounding weather through the mentioned sensors. If the sensor does not receive sunlight then the system will assume that it will rain, so automatically the sliding roof will slide forth to cover the clothes kept for drying. Later when the weather is clear and the sensor detects sunlight the system will pull back the sliding roof.

Delivery Robot

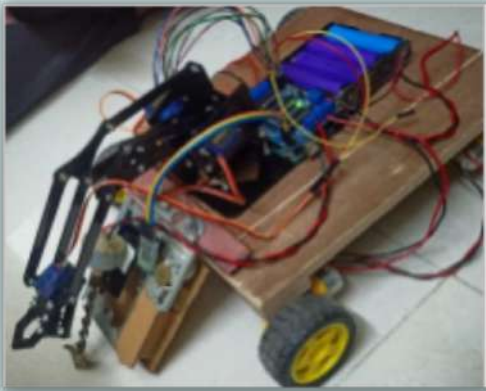
The autonomous delivery robot is meant to be a substitute for a goods delivery person. The delivery robot is capable of navigating from a source location to a destination point. The autonomous robot will move on an undesignated path i.e. an unmarked route unlike the archaic robots only capable of moving inside a marked black lane. The automatic light facility is available to work in a dark place. When the customer gets delivery then they will provide Goods delivery confirmation. After receiving the delivery confirmation robot will be moved forward for the next delivery. The use of autonomous robots is not a new advance in the field of delivery as multinational companies such as Amazon and DHL have initiated the use of such robots for the purpose of handling packages in their warehouses.



Developed By: (SYBCA)

Mehul Kshatriya
Mukesh Kumawat
Tisha Chelani

Unwanted Weeds Remover



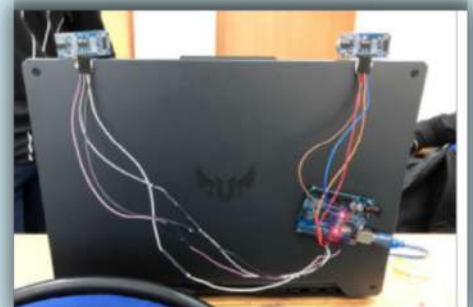
Developed By: (SYIMSCIT)

Parth Bhakhar
Vrunda Mulivala
Aaryan Rojesara

Agriculture is the backbone and most important arena of India. There are lesser innovations in the agricultural field as compared to other fields. In order to make the work of farmers more efficient and effortless, we have come up with the idea of an IoT based unwanted weeds removal robot. With the help of this technology, tasks like removing weeds from fields and collecting them into a basket automatically. It can also remove weeds which have strong roots by drilling it. So the farmers just have to sit in a chair and can operate the whole robot by using a mobile application effortlessly. We are also planning to introduce our app where the farmers can save all the data about their fields. There will also be constant monitoring sensors to fetch the quality of soil and the data can be used to improve the production.

Hand Gesture Control Based Laptop

In today's world of automation, hand gesture technology is not just limited to gaming applications but it is also used in various areas such as medical applications, industry applications, IT hubs, Banking sectors, etc. This project is based on a similar concept of a hand gesture control-based laptop or computer. Instead of using various equipment like keyboards, mouse, joystick, etc, now simply we can use hand moments/hand gestures to control the functions of the computer/laptop. We provide various operations through hand gestures such as forward and backward operations, volume up and down operations, play/pause operations, change the slide of the presentation, screenshot capturing, and many more.



Developed By: (SYIMSCIT)

Manav Banswani
Gaurav Rathod
Namya Shah

Ana- Email Assistant for Visually Impaired People

E-mails are considered to be the most reliable way of communication over the Internet, for sending or receiving some important information. A visually impaired person can only send an Email with the help of human assistance in order to compose and send the email. However this problem can be solved by introducing "Ana-Email Assistant for Visually Impaired People". This system provides the user the ability to send emails using voice commands without any human assistance or other visual things. The system not only sends mail, it has voice based features such as telling jokes, playing music and providing information.



Developed By: (SYBCA)

Ritik Agarwal
Dhanraj Chhalani
Aaryan Chokshi

Smart Shopping Trolley

Shopping is simple but a rush at a billing counter makes shopping a boring and tedious task. Huge amount of rush plus the cashier preparing the bill with a barcode scanner is too time consuming and results in long queues. This innovative project helps us to generate an automated billing system which can be placed within the shopping trolley. This automated payment system consists of a RFID reader which is controlled by Arduino. So, whenever the buyer puts any product in the trolley it is detected by the RFID module and is displayed on LCD along with the price of the product.



Developed By: (SYBCA)

Rut Mandaliya
Dev Pavagadhi
Pavitra Patel

As the buyer goes on adding products, all products are detected by the module and therefore the price will increase accordingly. In case a customer changes his/her mind and doesn't want any product added in the trolley he/she can remove it and the price added will be deducted automatically. At the end of shopping the buyer will press the button which adds all the products along with their price and gives the total amount to be paid. Hence this technique is an appropriate method to be used in places like supermarkets, this will help in reducing manpower and helps in making a better shopping experience for customers.

Smart Vacuum Cleaner

In our hectic life we do not get enough time to clean our house properly. The solution to the problem is very simple, you just need to buy a domestic vacuum cleaner robot which will clean your house with the press of a button. But such commercial products share one common issue, which is cost. Our designed system fulfills both the requirements: it is simple to use and it is inexpensive too. On top of that, this robot will have ultrasonic sensors. The ultrasonic sensor will allow the robot to avoid obstacles so that it can move freely until the room is properly cleaned.

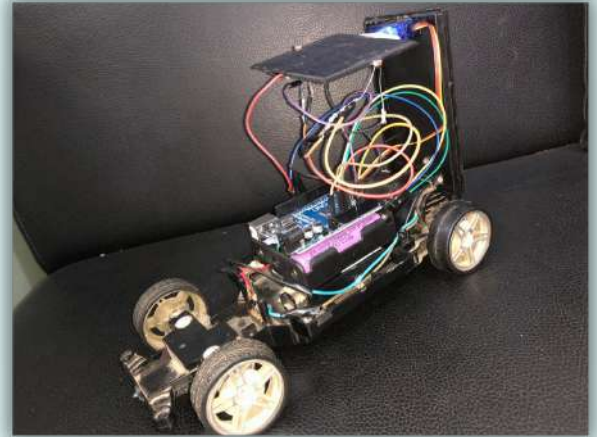
Developed By: (SYBCA)

Pramila Meel
Vrut Talsaniya



Sun Tracking Solar Panel Car

Solar energy is the most utilized renewable energy of the 21st century as the sunlight is a natural and free source of energy. This system is focused on solar radiations or electromagnetic radiations. In the solar energy system, these radiations are used to generate electricity with the help of Photovoltaic cells or Solar cells. When the “Sun Tracking Solar Panel Car” is idle, the solar panel charges the battery and when adequate sunlight is available to the solar panel, it gives motion to the car. The generated electrical power is used to run the micro-controller which controls the movement of the solar panel.



Developed By: (SYIMSCIT)

Ayan Shaikh
Museb Shaikh
Qureshi Hamza

Smart Shoes



Developed By: (TYBCA)

Mahmood Furkan Topiwala
Vishwa Shah

The design of Smart Shoes is centered around the piezoelectric effect. Piezoelectric Effect is a phenomenon to generate an electric charge in response to applied mechanical stress. This effect measures pressure, acceleration, temperature, strain or force. Footsteps of the person will generate renewable energy as the smart shoes convert the foot pressure to an electrical charge. Smart shoes will be an ideal wearable for fitness freaks as they will keep a track of burnt calories. The pair of shoes is a great assistant to the blind people as they detect and alert them for obstacles on their way. A GPS module attached with the shoes is used for sending the live location of the person to his or her family members.

Dam Overflow Monitoring System

A dam is a man-made structural barrier built to store and control the flow of water in lakes or rivers. However, mismanagement of dams or extreme weather conditions leads to man-made or natural disasters respectively. Therefore, it is crucial to develop an efficient monitoring system for maintaining safe water levels in dams. In this project, we have developed an Internet of Things (IoT) based monitoring system to indicate the water level of rivers or lakes and sensitize people to take some corrective actions. Sensors continuously check the level of water, and if the water level indicates an overflow, the system activates a buzzer to alert people to go to a safe zone. The system can prevent man-made and natural calamities.

Developed By: (SYIMSCIT)

Nirmal Patel
Shivangi Patel
Punit Soni





ChessMate



MagicMirror



Delivery Robot



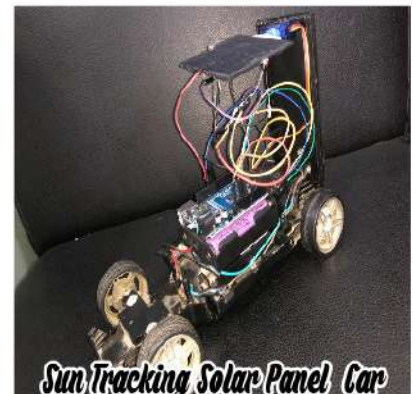
Drone



Smart Shoes



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Sun Tracking Solar Panel Car



Dam Overflow Monitoring System



Automatic Sliding Roof for Drying Clothes