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## **IOT Based Student Library Management System Using RFID**

This project proposes an Internet of Things (IoT) based student library management system using Radio-Frequency Identification (RFID) technology. The proposed system aims to automate and streamline the processes involved in managing a library, such as book borrowing, returning, and inventory management. Using this system, students can easily borrow and return books without the need for manual check-ins and check-outs. Library staff can also monitor the status of books in real-time and identify missing or misplaced books quickly.



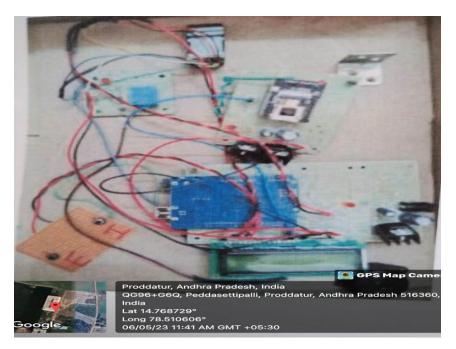
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#### Secure Fingerprint Bank Locker With Image Capture Using Arduino

The secure fingerprint-based bank locker system is an enhancement to the traditional bank locker system that uses keys. The fingerprint authenticated bank locker system is safe as well as easy to use and maintain. The system uses fingerprint sensing and image capture. This system scans the fingerprint and also capture the image of user and compares with registered customer image. If match is not found with existing image of the particular user, then it sends the message to the concern bank manager and the customer. Also, the buzzer is used to know about the unauthorized person to the bank manager immediately. If it matches with both fingerprint and image then the locker opens.



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## Finger Print Vehicle Starter By Using Arduino

The fingerprint vehicle starter using Arduino is aimed at increasing the security of vehicles by allowing only authorized users to start the engine. The system uses a fingerprint sensor to authenticate the user and an Arduino board to control the starter motor. The Arduino board is programmed to read the fingerprint data from the sensor and compare it with the stored data of authorized users. If the fingerprint matches an authorized user, the Arduino sends a signal to activate the starter motor, and the engine starts. If the fingerprint does not match, the Arduino will not send the signal, and the engine will not start.



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## ID Detection Based Student Attendance To Parents Through Push Notification

Students in INDIA have been cutting classes for some time now and it has become a bad habit. They leave their house toward their educational institutions, either school or college, but in fact, they go somewhere else. The issue was supported by the lack of communication between the schools and parents related to the student attendance. Dealing with the problems mentioned above, it is required to create a Messenger application for student presence as a solution. Application-based student presence Messenger was made to ensure that students attend classes, by steps as follow: firstly, students must hand in the ID card to the teacher on duty, then the teacher will tap the card, and finally the data will be recorded and be saved in the database automatically. The data will be saved automatically every day, and then it will be sent personally to their parents who had their mobile phones registered to receive information regarding their children presence at school on the particular date and hour. In addition, this application provides service for the parents to find the information on daily and monthly basis. This application can also be a part of consideration in decision making for the principals by downloading student attendance data in Microsoft Excel file format. The implementation of the applications based on Messenger for students' presence at school was expected to be a solution for the problems of student absence due to skipping school.

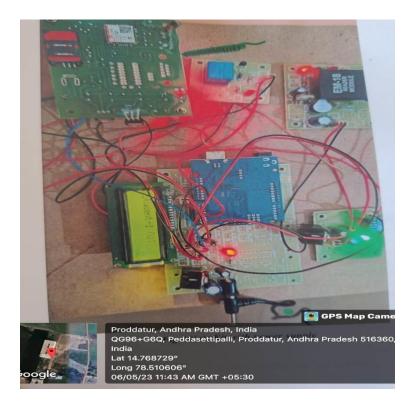
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#### **HRV Monitoring System Based On IOT**

HRV (Heart Rate Variability) monitoring system using loT (Internet of Things) is a system that allows the continuous monitoring of heart rate variability through the use of lot devices.

HRV is a measurement of the variation in time between consecutive heartbeats, and it is considered an important indicator of overall health and stress levels. The HRV monitoring system consists of a wearable device that is placed on the chest of the user and connects to a smart phone app through Bluetooth.

Overall, the HRV monitoring system using IoT has the potential to improve the management of chronic conditions such as cardiovascular disease, diabetes, and hypertension by providing real-time monitoring and feedback to patients and healthcare professionals.



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## **Human Face Detection Based Home Door Oprning System Using RASBERRY-PI**

In the today's world the security of the home is the prime concern. The traditional methods of securing our home are very easy to break and lead to theft. To protect the home, we need to install the costly security system. To overcome this problem, we are presenting IoT based solution where we can setup a smart home security system. In this we are proposing the system with the help of face recognition to develop the automatic door lock and unlock system. It also gives us the facility to monitor our home remotely and take appropriate action if anything goes wrong. The Pi camera will be attached to the Raspberry pi accompanied with Passive Infrared and other sensors. Camera captures an image of the person in front of the door, then real-time face recognition is done using local binary pattern (LBP). If person's image matches with one of the home members or identified person then the door will unlock otherwise won't. Email containing image of the unknown person will be sent to the homeowner to his Gmail Id. The proposed system keeps the owner informed in the real time about the unknown person at the door of the home. This information will help the user to take necessary actions.



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## **Auto Floods And Tsunami Alerting Center**

A Tsunami and Floods Alerting System is a system that detects and alerts people about possible floods and tsunamis in a given area. The system uses various sensors and data sources to gather information about the current weather conditions, water levels, and seismic activity. This information is then analyzed to determine if there is a risk of flooding or tsunami.

The system is designed to provide real-time alerts to people living in the affected areas. This can be done through various means, such as text messages, phone calls, social media posts, and emergency broadcasts. The alerts provide information about the type of disaster, the expected severity, and the recommended actions to take.



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#### A Proposed System For Advanced Security And Automation In Metro Trains To Prevent Accidents

In order to achieve high safety, we need advanced metro train system. The further features have been added in this metro train system electronically and mechanically, which help to achieve quick delivery without any muffle congestions. In order to overcome the drawbacks of existing system we are presenting Fully Automated metro train with enhanced safety features. The proposed system can provide comfortable travel to the passengers. Here Train runs between two predefined stations without having any driver inside in it. Since this prototype is fully, when implemented in real time system, it provides more safety against antisocial activities such terrorist attacks. It helps to rescue the people from unexpected situations such as fire accidents and also provides medical alert, Theft alert and emergency alert to next station as well as control unit which is not present in current metro train system. It ensures the journey of the train on the tracks is safe by monitoring the tracks through monitoring unit. This fully automated metro system also makes efficient use of solar energy and piezoelectric energy. The LI-FI communication is used for announcements.



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## **Autonomous cleaning ROBOT Using IOT**

Cleaning the dust from the floor is one of the daily tasks that must be completed. This is a common practice not only at home, but also at companies and shopping malls. Due to the fact that dust-cleaning operations take a long time, other activities are sometimes disregarded. To eradicate this problem, we came up with this project based on cleaning mechanism, our robot can reach out to places where human access is not possible. Taking the advantage of advancements achieved in mechanical technology innovation have made human life much easier and more pleasant. Today's clinics are becoming more sophisticated and automated Homegrown robots are making their way into people's homes and daily lives, although the sector is still in its infancy. Regardless, a shift is expected, and the adoption of indigenous robots is moving forward. There are a few mechanical vacuum cleaners on the market, but only a handful of them can clean wet floors. Using a remote mechanical cleaning framework, this robots makes floor cleaning simple and rapid. This remote framework includes a transmitter app that sees a surge in demand for an android portable app that allows the robot to follow directions supplied by the client via the transmitter app. The floor cleaner robot is designed to make cleaning interactions easier than they would be if done manually. The main purpose of this project is to design and build a cleaning robot model using NodeMCU.

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#### Implementation of IOT and voice controlled E-Notice Board

The Notice Board is a computer-controlled machine. This automated system can reduce the manual work. The construction of a simple and low-cost Controlled Notice Board is addressed in this framework. The aim of this device is to create an automatic display board that is controlled by the Internet. This electronic machine is made up of both software and hardware components. The key goal of this device is to provide a remote notice board that faculty can use to post the most recent notices and announcements. The other goal is to improve contact speed while still saving time and money. It may also be used to increase the reusability of existing designs and reduce the amount of space available, lowering costs. Wi-Fi-based cellular serial data networking is used in the proposed system. For Wi-Fi connectivity between an Android-based personal digital assistant and a remote wireless display screen, Android-based device applications are used. In this design, messages are sent through an Internet from an authorized transmitter and then message is transmitted to the Node MCU and the message is read and sent to digital display board.



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## **Autonomous cleaning ROBOT Using Bluetooth**

Clean Bot is a smart phone-controlled floor cleaning robot which cleans a dirty floor automatically using a set of commands given to your device by a smart phone. Clean Bot has two modes of cleaning-Mopping and Wiping. These two variations can be dedicatedly used in various applications in the cleaning industry and can break the manual labor in terms of cleaning is concerned. The device communicates through Bluetooth technology via a HC05 Bluetooth module that will be used to exchange commands to the microcontroller -Arduino UNO. The robot is given power by a 12V lead-acid battery, the apt voltage requirement used for all motors here. The driver motors uses 150 rpm type while the run with mops 60rpm plastic geared motors attached.

Essentially Clean Bot lus a very discrete design in terms of compactmess and usability as it is very handy and easy to operate. The mops and wipers are used out of discarded materials and hence cater to the object of smart innovation and environment friendliness. With the onset of age of technology, we have always been trying to bring down the amount of menial labor by substinning it with machines and devices. Thus, taking the similar case in the area of household cleanliness and hygiene, there has been very slow and gradual. Hence this is an attempt to create and explore in the area of household hygiene by taking mopping as our primary area of interest for our project, bence creating a Remote-Controlled Autonomous Floor Cleaning Robot, or CLEANBOT.

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## **Autonomous cleaning ROBOT Using Bluetooth**



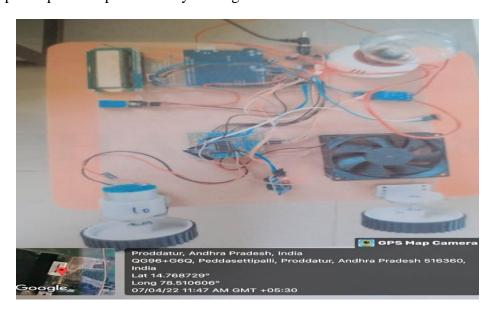
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## **Smart Poultry Farm Using IOT**

For easy day to day life enhancement in technology has been developed so widely and in much faster rate. Smart poultry farms can emancipate the farmers from the traditionally tedious procedures which were outdated and time consuming. In preliminary stage, a smart poultry farm shows many distinctive features such as, automated food and water supply, egg collection, maintaining precise environmental factors etc. In this Safety measures such as fire protection, anti-thief features which ensures an overall surveillance of the farm has been incorporated. Data storage through IoT is another enticing trait of this work which enables the users to Fig. out the required pre steps to adopt before any endangerments can occur.



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#### IOT Based Industrial Parameters Monitoring And Controlling Using ZIGBEE

The current industrial revolution is the industry 4.0. One of its main aims is the replacement of old communication that uses wired links with new communication that is wireless, communication. The main reason to move to wireless communication is to improve the mobility, reduce the deployment cost, and reduce cable damage and to improve the scalability. To do this, the type of industrial application needs to be taken into consideration. The proposed communication protocol must, plays important role when compared to the existing. One of the main challenges faced by industrial automation is interference with other communication devices and reflection with metallic objects in industries. The current industrial revolution is the 4.0 industrial revolution which combines different technologies such as Internet of Things (IoT), robotics, virtual reality and artificial intelligence. The second aim of this project is to connect devices to single place to improve the accessibility of the industry from anywhere in the world. The proposed protocol to be used is ZigBee communication protocol with sensors, devices, equipment to transfer the information & to communicate among devices intelligently to achieve smart monitoring and control.



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## **IOT Based Anesthesia Machine Control Using RASPBERRY PI**

It is important that during any operation, for the patient to be in an anesthetic condition. The patient won't feel any pain during the medical procedure using anesthetics and the impact of the anesthesia should be there for as long as the operation goes on. It is also important to measure biomedical parameters such as heart rate and body temperature since these parameters play a vital role. It will create serious health problems if proper dosage of anesthesia is not administered at specified time intervals and to overcome such unfavorable situations this project has been designed to develop an automatic anesthesia control system. Using this, the predefined number of doses can be administered at regular time intervals by simultaneously measuring parameters such as heart rate and temperature. This system uses a syringe pump to deliver the right amount of anesthesia to the patient. The anesthetist can set the desired amount of anesthesia that can be given to the patient with the help of a switch panel or heart rate of a patient.



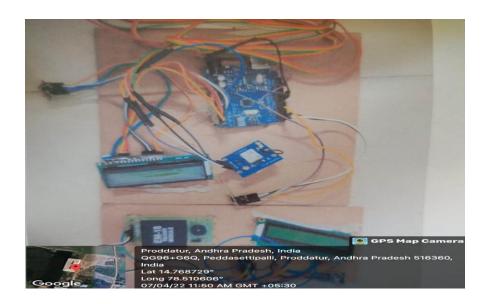
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## **Real Time Vehicle Detection, Traking And Counting**

In this project, we propose a vehicle tracking system by using Arduino connected to Wi-Fi. Automated counter system is an efficient solution for counting the number of vehicles entering or leaving a Mine. This project attempts provide a unique solution which can automatically count the number of vehicles. It intelligently discovers and counts the number of people with the help of internal code from the Arduino UNO. This has been achieved by using an RFID reader, ESP 8266-01WiFi module.



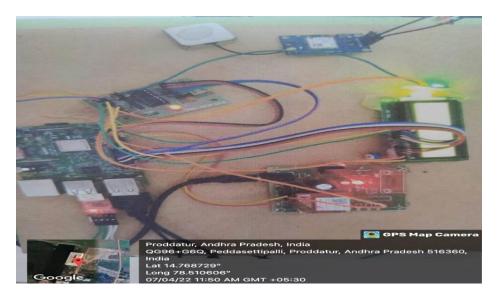
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## **IOT Based Health Monitoring System**

This proposed idea will help doctors to know about the state of patient health and monitor anywhere in the world. In this proposed idea the sensors gather the medical information of the patient that include patient's heart rate, Temperature, and pulse rate through the Raspberry kit and this information is sent to the care taker through SMS, Internet and stored in server. The doctor and patient can monitor the patient data from any place of the world through the provided IP server address anytime. The emergency alert is sent to the patient related person or doctor if the sensor value is exceeded the threshold data. Thus the patients health parameters are watched lively and regular monitoring through the medical server to a doctor will help to make effective diagnosis and almost accurate care can be given. The data collection through the IOT will help the patient to recover easily and also enhanced medical care can be given to the patients with low cost.



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## **Charging For E-Vehicle Using Solar With IOT**

Currently, we are facing issues related to lack of fuel. So, we are moving towards electrical vehicle. But still people are not ready to prefer electrical vehicle over present ones. It is because of price as well as lack of available charging stations. Even if there are few charging stations are available, it is necessary to spend extra time for charging the vehicle. So, by taking in views these issues we can provide smart charging availability at the most commercial buildings. Also, there is no need to invest more time for finding charging station and for charging at charging station. This project outlines the power transfer technology for EV's and charging systems with IOT.



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#### **IOT Based Smart Alert System For Drowsy Driver Detection**

This Project is an example for IOT based Drowsiness Detection system using IR sensor and camera based. Here IR based eye sensor is used to detect the eye blink of the driver. This project presents a real-time driver drowsiness detection system for driving safety. Based on computer vision techniques, the driver's face is located from a color video captured in a car. Then, face detection is employed to locate the regions of the driver's eyes, which are used as the templates for eye tracking in subsequent frames. Finally, the tracked eye's images are used for drowsiness detection in order to generate warning alarms.



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