

1) Team Member Name- Jasraj Sandhu

Green-House Management System using Wireless sensor Network

Abstract

In modern greenhouses, several measurement points are required to trace down the local climate parameters in different parts of the big greenhouse to make the greenhouse automation system work properly. Cabling would make the measurement system expensive and vulnerable. Moreover, the cabled measurement points are difficult to relocate once they are installed. Thus, a Wireless Sensor Network (WSN) consisting of small-size wireless sensor nodes equipped with Wi-Fi and sensors such as DHT22, MQ – 135 and Luminosity Sensor, is an attractive and cost-efficient option to build the required measurement system. In this work, we aim to develop a wireless sensor node for greenhouse monitoring by integration of sensors using LabVIEW and three commercial sensors capable to measure four climate variables viz. Temperature, Humidity, CO₂ and Luminosity sensors. Wi-Fi has a range of 50 meters which is not hindered by any obstruction and its range can be extended by deploying repeaters. These features of Wi-Fi are advantageous over its counterpart Radio. The feasibility of the developed node will be tested by deploying a sensor network into a Model Greenhouse. During this experiment, we will collect data to evaluate the network reliability and its ability to detect the microclimate layers, which typically exist in the greenhouse between lower and upper. We will also try to show that the system can detect the local differences in the greenhouse climate caused by various disturbances, such as direct sunshine near the greenhouse walls.

2) Team Member Name – Piyush Garg

Smart storage of Pharmaceuticals

Proper storage of medicines is always an important consideration during periods of extreme heat or cold. Drugs can undergo physical, chemical and microbial changes on storage. The main aim of this proposed project is to design and implement a flexible, cost-effective and powerful GSM Based Drug Storage security system. A GSM based system is needed for the occupant's convenience and safety. This system helps to detect leaking of harmful gas, smoke caused due to fire and after detecting suspicious activity, it sends an alarm message to the security personnel. The concerned person will take some action then. Also, it consists of a Bluetooth-controlled gate, which only an authorized person can open or close, which makes the storage safer. The project also consists of a temperature sensor, which on detecting a temperature higher than permissible level, switches on a fan through microcontroller. Also, it consists of a LDR sensor, which detects intensity of light inside the storehouse, and if intensity falls below a particular level, a bulb is switched on via microcontroller and relay circuit.

3) Team Member Name – Kartik

Wireless Posture Detection and Alert System

Posture is a way in which a human holds his body so that there is less strain on muscles during movement. Poor body posture leads to many health issues. Incorrect posture problems, which range from back pain to fatigue may rise up and affect our daily activities. The Nowadays maximum population suffers from back pain, injuries, neck pain and shoulder problems etc., hence a need to develop a device is increased. A wearable device has been designed in the form of a neck band. Also a mechanism has been designed to detect the area of stress and time duration for which a person is sitting in the same posture.

The main aim of the system is to detect the correct or incorrect posture by detecting the changes occur in human posture using sensors i.e. gyro sensor and accelerometer embedded inside MPU6050. The Device uses arduino nano for computation and HC-06 Bluetooth module for serial communication. The trigger signal is sent to the android application which then alerts the user about incorrect posture. The Device is designed for human comfort and good body posture, which is required to maintain body and mind healthy.

4) Team Member Name - Simran Kaur

Self Balancing Robot

Balancing systems are one of most challenging problems in Control field. There are lots of platforms for this sake like cart-pole system (inverted pendulum), ball-beam system, double and multiple inverted pendulums. Automation is increasingly becoming a larger part of daily life. From automated telephone calls to machines in manufacturing, robots are generally an effective and efficient way to reduce overhead costs, increase consistency in products and services, and perform tasks that may be hazardous to humans. The successful design and building of a two-wheeled balancing robot demonstrates knowledge of control systems and sensor interfacing that can translate to real world applications. Helping seniors live on their own, performing dangerous mining work, repeatedly screwing the same piece in an assembly line, are great examples of a controls automation system freeing time up for a person to perform more important or more complex tasks, and all of these tasks use design techniques similar to that of a balancing robot. The robot will balance on two wheels and be able to have loads of varying weight and size placed on the top platform. It will be capable of handling disturbances including bumps from humans or running into stationary objects and it can accommodate flooring changes (carpet, tile etc.) while maintaining balance. An accelerometer and a gyroscope feed information back to a pic microcontroller which feeds a PWM signal to two motors that drive the wheels so they stay under the center of mass of the robot.

5)Team member name-Danish Arora

Electricity theft detection system

Electricity theft is a common practice in developing countries which cannot be controlled by the governments due to lack of technology. Emerging trends such as Automatic Meter Reading (AMR)

eliminate the need of person visiting each house but this advancement further increases Non-Technical losses (NTL) because of no regular inspection at the residence. However traditional meter reading by human operator is inefficient to meet the future residential development needs.

This project proposes a new system based on Arduino Uno to protect the energy meter from phase line bypassing, neutral line disconnection, whole meter bypassing and meter tampering. An SMS is automatically sent to utility (electricity board) server through Global System for Mobile (GSM) network when these measures are detected.

In this project a method is proposed to solve the problem with AMR systems without affecting its major advantage of remote monitoring. Integrating this new feature into smart meters provides an effective metering solution. A system has been proposed that uses GSM network to send the SMS whenever an electricity theft is detected. The electricity theft measures that have been incorporated into this project are phase line bypassing, disconnecting the neutral line and bypassing the whole meter. Phase line bypassing blinds the current transformer to show zero current. Disconnecting the neutral line and giving local ground makes the voltage transformer to show zero potential. Bypassing the whole meter results in zero energy measurement by the energy meter. These four measures have been addressed and a system to avoid such measures has been designed and presented as a prototype model.

6) Team member name- Haider Zulfiqar

Thought Recognition using Brain Computer Interface.

Brain computer interface technology represents a highly growing field of research in which researchers aim to build a direct channel between the human brain and the computer. It is a collaboration in which a brain accepts and controls a mechanical device as a natural part of its representation of the body. The BCI can lead to many applications especially for disabled persons. Its contributions in medical fields range from prevention to neuronal rehabilitation for serious injuries. Mind reading and remote communication have their unique fingerprint in numerous fields such as educational, self-regulation, production, marketing, security as well as games and entertainment. Brain Computer Interface (BCI) technology is a powerful communication tool between users and systems. It does not require any external devices or muscle intervention to issue commands and complete the interaction. These actions range from moving a wheelchair, getting something for eating or drinking by using robotic arms or wheels controlled by brain. Brain computer interface (BCI) systems build a communication bridge between human brain and the external world eliminating the need for typical information delivery methods. It works as a physiological measuring tool that retrieves and uses information about an individual's emotional, cognitive or effectiveness state. The target of brain signals utilization has been extended beyond controlling some object or offering a substitution for specific functions, in what is called passive BCI. Through BCI, researchers have managed to send and decode silent thoughts from human brain. Thus, this technology is helpful for handicapped people to tell and write down their opinions and ideas via variety of methods such as in spelling applications, silent speech recognition etc. BCIs can also facilitate hands-free applications bringing the ease and comfort to human beings through mind-controlling of machines. They only require incorporating brain signals in order to accomplish a set

of commands and no muscles intervention is needed. BCI assistive robots can offer support for disabled users in daily and professional life, increasing their cooperation in building their community.

7) Team Member Name- Anmol Narang

Smart Solar Tracker

The project aims to create a Smart Solar Tracking System. The solar energy is a clean, freely and abundantly available alternative energy source in nature. Capturing solar energy from nature is an advantageous task for power generation. Conversion of sun energy into another form is a highly complex phenomenon. Automatic Sun Tracking System is a hybrid hardware/software prototype, which automatically provides best alignment of solar panel with the sun, to get maximum output (electricity). In remote areas the sun is a cheap source of electricity because instead of hydraulic generators it uses solar cells to produce electricity. While the output of solar cells depends on the intensity of sunlight and the angle of incidence. It means to get maximum efficiency; the solar panels must remain in front of sun during the whole day. But due to rotation of earth those panels can't maintain their position always in front of sun. This problem results in decrease of their efficiency. Thus to get a constant output, an automated system is required which should be capable to constantly rotate the solar panel. The Smart Solar Tracking System (SSTS) was made as a prototype to solve the problem, mentioned above. It is completely automatic and keeps the panel in front of sun until that is visible. The unique feature of this system is that instead of taking the earth as its reference, it takes the sun as a guiding source. Its active sensors constantly monitor the sunlight and rotate the panel towards the direction where there is maximum intensity of sunlight. Due to this property when after some time e.g. half an hour when the sun again gets visible, the solar panel is exactly in front of sun. Moreover the system can manage the errors and also provides the error messages on the LCD display.

8) Team Member Name – Dikshant Singhal

CNC machine : 2D plotter

ABSTRACT

CNC PLOTTER is an embedded system that is based on the principle of Computer Numerical Control (CNC). CNC Plotter works with two DVD drives for X and Y axis and one DVD-drive for Z axis, wherein the CNC PLOTTER plots the input it receives from the computer using a drawing board based on open-source physical computing platform Arduino Uno. The CNC PLOTTER has a two DVD-drive axis control and one single DVD-drive to raise and lower the pen. Each axis is powered and driven by using an Arduino Uno compatible driver A4988. The X and Y axes mainly consists of stepper motors scavenged from the DVD-drives. The software used for programming the Arduino board is the Grbl software. The

correct and efficient arrangement and proper use of the programs along with the circuit makes up for an efficient DVD-ROM CNC PLOTTER.

9) Team Member Name – Samiksha Kaushik

Smart city

The Smart City aims to make optimal and sustainable use of all resources, while maintaining an appropriate balance between social, environmental and economic costs. In the Smart City project, various modules were successfully designed and implemented to make efficient use of technology and make the day to day life of people more convenient.

- Automatic Railway Crossing - The arrival and the departure of the train is automatically detected, thus controlling the railway crossing in an unmanned manner. This ensures the security of the people crossing the railway tracks, thus reducing the number of accidents
- Density Based Traffic Light Controller- It controls the traffic light based on the density of traffic. This module will help in controlling the traffic based on density of traffic means that timer of the green light will increase when the traffic is heavy. The status of current lane and green time left is also displayed on LCD.
- Smart Dustbin – It sends an SMS alert to the garbage collector when it is about to get full to prevent over flowing of the garbage bins and to save the fuel in case the garbage bin is not full on its scheduled collection day. The percentage of garbage is indicated using green, yellow and red LEDs.
- Air Quality Monitoring System - help in monitoring the various air quality parameters i.e. concentration of various gases including temperature and humidity, thus helping us to take adequate steps in saving our environment.

10) Team Member Name – Raman

Smart Anti hijacking System

ABSTRACT

1. In today's world where the technology has improved our standards of living in many ways it has also created certain security hazards wherein the lives of many innocent personnel are endangered by some anti-social elements for their personal / organisational illegitimate gains by criminal acts such as hijackings and terror attacks etc. Air travel is becoming the favourite means of transportation in present times. At the same time air accidents and hijackings are also on the rise. The hijackings of aircraft to blackmail the governments or other organisations have been going on ever since 1928 or so. The hijacking of Indian Airlines Flight 814 (IC 814) on 24 December 1999 which took off from Kathmandu in Nepal for Delhi in India and was hijacked by Pakistan based Harkat-ul-Mujahideen terrorists cannot be forgotten by our country.

2. Therefore in order to find some solution to hijacking bids of passenger aircraft by these anti-social elements, an endeavour has been made to make a Smart Anti Hijacking System (SAHS), which can be fitted onboard passenger aircraft and operated by onboard crew and also by authorities ashore to overpower the hijackers and save the lives of innocent passengers. With minor changes in the avionics and onboard fitted systems a new Smart Anti Hijacking System may be introduced in these aircraft wherein a suitable anaesthetic agent would be released to temporarily make the hijackers unconscious and allow security forces to storm the aircraft and overpower the hijackers. This way loss of precious human lives can be prevented and air travel can be made safer.

3. This is an entirely new project using innovative ideas and techniques wherein a system has been made that would be operated from inside the aircraft by the crew members either by operating a push button or just by giving a vocal command. It can also be operated from a far off distance (about 15 KM) may be from the Air Traffic Control Tower or Airlines office / Base Station located in the same airfield using LoRa Technology. LoRa is Long Range machine to machine communication. It is a wireless technology that has been developed to enable low data rate communications to be made over long distances by sensors and actuators for machine to machine and Internet of Things applications.

4. For designing of this system, detailed research was carried out on various avionics fitted on board aircraft and their air conditioning systems and environment control systems. It emerged that with minor modifications and changes in the avionics and air conditioning systems, it is possible to develop a smart anti hijacking system that can be operated with a few safety cut-outs.

5. This Anti Hijacking system would comprise of appropriate number of bottles of a general anaesthetic agent (gas) that could be suitably placed in the Environment Control System (ECS) of the aircraft. The number of anaesthetic agent bottles would depend on the type of aircraft in use and its total air capacity. The control of the Anti Hijacking system activation switch can be provided in the cockpit and atleast one or two other places in the main aircraft so that it can be operated by flight crew members sitting in the front, middle or aft portion of the aircraft. A suitable codeword may also be used by the Pilot to activate the same using blue tooth technology. When the switch is activated it would operate the valve of the gas cylinders but for safety reasons they would open / get activated only when the aircraft is not moving at all for about last 5 minutes or so to ensure that in no case it gets activated when aircraft is airborne or moving on ground. For this the system would get inputs from landing gear and nose wheel of the aircraft. Once operated, a limited amount of anaesthetic gas would be induced into the air inside the aircraft that would affect all present in the aeroplane. This way all onboard including the hijackers would get intoxicated and loose their consciousness temporarily.

6. In addition to this, after two minutes of its activation, a message would automatically get transmitted through the LoRa Transceiver on board or the VHF communication set using airport control frequency that the system has got activated in the aircraft. At the same time a coloured light (may be amber/ purple etc) would get switched on under the nose of the aircraft indicating that Anti Hijacking system has been activated. This system could also be activated or deactivated from ashore using LoRa wireless technology. The ashore authorities would also have control over one of the doors that can be opened from outside itself using this technology. Accordingly after getting all these inputs and opening

the door, security forces from outside may storm into the aircraft and take control of all personnel including the hijackers.

7. To put this system into effect, a fully operational model using proper hardware and software has been made to demonstrate the concept and the system. Minor changes such as immediate activation of the anaesthetic gas cylinder on receiving inputs from landing gear, operation of gas for 5 seconds etc have been incorporated to save on the wastage of time while operating the model. These changes may be incorporated with minor changes in the source code of the system according to the aircraft in which that particular system is being fitted. Therefore this system would be very easy to fit on board various types of aircraft with minor modifications depending on type of avionics, capacity and environment control system already fitted on board that aircraft.

8. The system can also be used in future by incorporating minor changes for many other applications where security of the area is involved.

11) Team Member Name – Khushwant Rai

Braille Tablet

Abstract

According to WHO (World Health Organization), there are 285 million people all around the world who are visually impaired out of which 39 Million are legally blind, and 246 Million people are on the verge of blindness. India is now home to the world's largest number of blind people. Technologies for the visually impaired available in the market are very few and the ones that are present are quite expensive and not affordable. There are 5.03 million people who are visually impaired in India but there are only 20-25 Braille printers available in India and you can barely find any Braille tablet. The braille printer starts from \$2000 and braille tablet starts from \$500. There is a dire need for cost effective Braille tablets in India.

The project Braille Tablet has used a new technique of printing Braille using electronic impulses, thus innovating new cost-effective Braille reading process. The developed prototype of Braille Tablet has a touch screen on front side and braille tactile on the opposite side of the tablet. The tablet is voice command enabled to help visually impaired to independently control the Braille tablet. It is an objective of the present invention to provide a Braille tablet with new technology which will be available in the market at a very economical cost affordable by common man, having features according to latest technology, simple-structured, user friendly and complete-functioned.

12) Team Member : Divya Trehan

Cinema Automation

Abstract

The aim of the project is to create an automatic seat locator with the help of RFID card reader. This application provides an actual view of the seating area from your position. Even in the modern era, we are using manual guidelines for locating the seats in a theatre or in seminar hall. As per the AI we want to create an automatic system for seat location in seminar hall or cinema hall. Instead of paper ticket we will use RFID card for the allotment of seat. We have to scan that card on RF reader that will provide signal to the controller of the project and after reading the unique id of the card the controller will switch on the lights arrangement related with the particular unique id.

We also have a fault alert system in this project. If any of the seat location system or circuit goes faulty then the system immediately will alert the authority of the theatre with a message. For messaging alert service we are using GSM and for fault detection we are using relay circuit.

To create smart environment we are using temperature sensor (LM 35) that will regularly alert the Controller about the temperature of the theatre so that the controller can take care of AC and other appliances to maintain a friendly environment. We are also using the smoke sensor (MQ5) for smoke alert.

Over all we have created a scenario of a theatre that is completely automatic with all of its segment and also environment friendly.

13) Team Member Name- Lovleen Arora

Sign Language Conversion to Speech and Text using Machine Learning

Abstract

Technology has always proven to be of great help in reducing the gap between people and helping the physically challenged to lead a normal and healthy life like others.

Reducing the distance between mute communities and normal people in this modern era is currently a major challenge. One of the major and concerned obstacle to this idea is language barrier between users of sign language (signers or signing people) and those who cannot interpret it (non-signing people). Hence, it is imperative to design and develop a system that can translate sign language into speech that acquires variation in hand movements and translate this data into speech for other person to comprehend it easily. Other part of this system is converting speech to text, to enable two way communication between prospective user who is deaf and dumb and normal individual.

This project aims at developing a Data Acquisition and Control system for acquiring gesture based data converting it into electrical signals and later converting mapped values into appropriate format.

In abstract terms, the first part of system is a device shaped as glove, fitted along with flex sensors across the length of each finger and thumb which detect the different patterns of motion and way the finger curls. Further, a 9-axis Inertial Measurement Unit (IMU) sensor is used to determine changes in

spatial environment of the hand and henceforth detect hand movements since hand movements constitute as major component of sign language grammar. The device takes in data based on change in resistance of flex sensors (amplified) and changes in IMU sensor unit given to microcontroller to process and estimate the given hand gestures. One of the basic components of any system is accuracy of the system, for which metal contacts and software systems were added to improve precision. The second part of the system includes Application Program Interface (API) to convert speech to text for bidirectional communication.

All components are aligned to provide free motion to the user, and thereby not restricting the user while performing other daily tasks.

14) Team Member Name- Harshit Tyagi

Autonomous Car

Abstract

The automotive industry is making a gradual but consistent move towards autonomous vehicles. From innovation giants such as Google to long time industry players such as Nissan, companies all around the world are taking huge strides toward this paradigm shattering new method of transportation. Recent developments in the industry include cars sporting an autopilot mode, self-parking cars, and even experimental fully autonomous vehicles. Autonomous vehicle technology is progressing faster than ever and will bring significant changes to the transportation ecosystem.

This project is designed to develop an autonomous vehicle using raspberry PI and wireless technology for remote operation attached with wireless camera for monitoring purposes. The vehicle along with the camera can wirelessly transmit real time video with stop sign detection capabilities. It can also avoid collisions from up front vehicles or any obstacle using its ultrasonic sensor. This kind of vehicle can be helpful for automatic parking purposes and also to drive safely in traffic.

The main motive of the autonomous car was to make it user friendly. The autonomous car can easily move, track the road and wirelessly transmit the data, thus giving information about any up front vehicle or obstacle and also about curvature of the road. The autonomous car will move itself depending on the data it gets after processing through raspberry pi about the curve of the road. Ultrasonic sensor is used to avoid front collisions. Wi-Fi signals are used to start the vehicle and also to stop it in case of any emergency. By using these signals encoding is done and signal is sent through the transmitter. At the receiver end, these decoded signals are given as input to drive the motor. The autonomous car can be used for long distance travelling as it is based on Wi-Fi.

15) **Team Member Name:** Akshita Kalra

Project Name: Railway Crack Detection & Collision Avoidance System

Abstract:

Railway systems that offer complete safety, excellent economics, environmental-friendly performance, and punctuality are recognized as a core element of urban development. They play an increasingly important role in alleviating problems such as road congestion and air pollution. New plans for high-speed intercity railway links are being initiated around India. Progress is also being made on incorporating advanced information systems into stations and other parts of the railway network as a core aspect of the creation of “smart cities” that take advantage of IT.

We are proposing to design a smart system, which helps to detect cracks on railway tracks and to protect trains from collision with other trains on the same track. The crack detection would be done by passing a signal from the left wheel of the train and receiving it back from the right wheel to check for distortion. The railway communication would be done by accessing the GPS coordinates to operate the trains easily even in foggy weather and passing the information of one train to other trains which are passing nearby. All these objectives are successfully achieved on the prototype of the project.

Crack Detection module is initialized at the starting of train and checks the track for crack detection. The data is transmitted to controller for processing and the controller checks for cracks in the railway tracks. In case of crack, the controller displays a warning message or if crack is not detected, it shows ‘Safe-to-go’ message. Crack detection module also alerts the driver in case of any train coming on its same track.

The communication segment of the project is mainly divided into two parts for better understanding and working - one is sender and the other is receiver. From sender, data of one train is entered using PS/2 keyboard and this data is send to the controller i.e. Arduino Uno. Controller displays the data on LCD 16x2 and this data is being transmitted to other nearby passing trains with the help of RF Transmitter module. On the other hand, if other train transmits the data, RF receiver module receives the data and displays it on LCD. GPS module transmits the data to the controller and controller sends the data to center for displaying it on the Monitor Screen. All the proposed functions are working accordingly as per need. On the receiver end, we have used Arduino Mega 2560 as a controller, all the other working is the same as sender part.

16) Team Member Name- Rahul Tulani

Smart Energy Grid

The project “SMART ENERGY GRID” (USING IOT) is an advanced system of power distribution and monitoring which provide solution to many current problems of Discoms. It eases the workload of power distributors. It has following components/ phases

i) Advanced switching mechanism

As the natural resources are getting depleted, people are shifting to the use of renewable energy. Solar panels are common now a days but a lot solar power is not utilized efficiently So, the project provides a

solution for efficient use by automatic switching as per the load. In this project we used Arduino Mega which constitute "ATMEGA 2560" as processor checks current requirements and shifts the supply as per the power load using Relay. This helps in efficient use of solar power and dependence on Grid supply by Discoms.

ii) **Electricity consumption monitoring using IOT**

The general process of electricity billing is that a representative of Discom comes to each household and takes the reading of the electric meter and accordingly bill is generated. The present system very inefficient and leads to wastage of manpower. The IOT presents a solution to the problem and same is presented in the project. The reading of the meter is sent to the Things-Speak server and updated to Discom Website using Global Communication Network (GSM) . Arduino reads the data sent it to GSM via RX-TX pins which further sent it to the server.

(iii) **Theft Protection:**

In India, the common practice in some areas is to theft electricity and this leads to huge loss to government and Discom. To prevent this, project proposes an extra meter at each sub level transformer locality. This can alert authorities if the difference between the consumption at sub block level and sum of total of consumptions by household meters. If it increases a threshold then a alert message with locality area will be sent to the concerned authorities.

17) Team member name: Zabarjang

Project: VSS with enhanced modifications of speed limiting and accidental alert.

ABSTRACT

Insecurity is one of the major challenges that the entire world is facing now, each country having their peculiar security issues. The crime rate in every part of the society these days has become a threatening issue such that vehicles are now used for committing criminal activities more than before. The issue of vehicle theft has increased tremendously, mostly at car parks. The development of a vehicle theft alert and location identification system becomes more necessary for vehicle owners to ensure theft prevention and a speedy identification towards recovery efforts in situations where a vehicle is missing, stolen or driven by an unauthorized person. The theft alert function makes use of a RFID reader which acts as a key & if any unauthorized person breaks in the car, then a message will be sent to the owner along with the GPS coordinates. The communication is established via SMS. One other aspect which has been taken care is the problem of rising no. of accidents in the country. An auto braking system has been used which continuously senses the presence of an obstacle in the way with the help of ultrasonic sensor. If there is an obstacle present, then it starts reducing the speed of the vehicle and when the distance between the obstacle & the vehicle is less than 20 meters, then the car come to halt. A collision detection sensor has also been employed which detects if the vehicle has collided with some object and send the message to a nearby hospital detailing the whereabouts of the collision.

18) Team member name: Shivani Verma

Project name: Modern Transport System

ABSTRACT

This **Modern Transport System** project has been assigned keeping in view the need for a smart transport network in a city so as to improve the traditional system and get away with the ongoing problems concerned with road safety & challan system. As the vehicles are increasing and roads are falling short, nowadays frequent traffic jams or long queues can be seen at the toll stations waiting for paying the toll. Paying the toll every-time through cash or checking the pass takes a lot of time. And today time is more precious than money. Therefore, this project is aimed at reducing time consumed for manual transactions and human effort.

In this project, after going through a lot of discussions, a prototype has been designed for making a convenient fare collection method and challan system. An automated fare collection (AFC) system is the collection of components that automate the ticketing system of a public transportation network - an automated version of manual fare collection. An AFC system is usually the basis for integrated ticketing. At the onset, the goal of this project group was to design an Automatic tolling system for collecting toll. After studying various techniques like weight-based systems, barcoding etc. We chose Radiofrequency identification, which is an emerging technology applied for tracking and communication. RFID (Radio frequency Identification) is an area of automatic identification that has quickly been gaining momentum in recent years and has now being seen as a radical means of enhancing data handling processes, complimentary in many ways to other data capture technologies such as bar coding. In today's era of technology, where machines are being extensively used in all the fields. This is a sincere try at emulating the concept, which will be of great use in public transport systems. Today a person has to travel long distances into vastly unknown territories for job, business, or even for tourism. Therefore, this project is aimed at reducing time consumed for manual transactions and human effort.