Smart Stolen Vehicle Detection System using RFID

Mr. P. B. Mohite[1] Mr. R. D. Bhosale[2] Mr. Y. S. Choudhary[3] Prof. A. V. Kale[4]
[1,2,3]Student [4]Assistant Professor
[1,2,3,4]Department of Electronics & Telecommunication Engineering
[1,2,3,4]DACOE, Karad, India

Abstract— In automobile field, the security and theft prevention are one of the main areas in current scenario. The security goals are achieved by RFID & GSM technology. But with the increase of number of the vehicles, the safety of vehicles becomes more complex and insecure, so there is more demand of safety and security of the vehicle rather than only monitoring its location. Now the more intelligent systems are deployed with increasing popularity, which will also provide some additional benefits to the vehicle users. If there are availability of many technologies in market then also a vehicles can be theft. To fulfil these requirements, the smart system needs to be developed. In this project, we propose a smart system which will be based on Microcontroller, Bluetooth module(HC-05),GSM and passive RFID(EM-18) technology,Buzzer,16*2 LCD Display for the monitoring, controlling and security of the vehicle. The place of the vehicle is identified using RFID Reader, address of the Bluetooth module and Global System for Mobile Communication (GSM). These systems constantly captures the movement of Vehicle and report the status on demand after the detection of vehicle with Data base. When the theft is identified, the GSM can send the message to respected person and also inform the nearer police station. Then control room can send a message to nearer station to detect the vehicle. A vehicle unique ID is programmed with information of owner, vehicle number, chasing number and develop software to store these ID.

Key words: Microcontroller Atmega328, Passive Radio Frequency Identification (RFID)-EM-18, Global System for Mobile Co1mmunication (GSM), Vehicle Unique ID, Bluetooth Module (HC-05), 16*2 LCD Display

I. INTRODUCTION

In the last few decades, our country has progressed at such a huge rate that many companies have strongly established themselves here. Vehicle Tracking System is now one of the most popular technological changes in all over the world that is going to make our personal and business life lot easier. As the term suggests, it enables one to detect or monitor the location of vehicle in instant time.

In today's life in there are so many vehicle tracking technologies are available in market then also the number of stolen vehicle are same as previous five years. There are thousand number of vehicles are theft every year in allover India out of them just few vehicles are recovered so in these project we have developed a system which will very beneficial to recover the theft vehicle.

These day's vehicle robbery cases are higher than any other time. There are so many systems are available in market which are working on the system of antitheft vehicle detection. If there are so many systems are available in market then also the percentage of stolen vehicles are same as of previous five years. So we are try to develop a system based on RFId technology which help to recover the stolen vehicle as soon as possible. Now a days its take too many time recover vehicle. But after the launching of our project it is possible to getting stolen vehicle very easily with very small interval of time. We are developing the Central App for that recovery system. Primarily, the system functions with the help of different technologies like the traditional cellular network such as Global System for Mobile Communications (GSM) and other radio frequency medium. But GPS is more effective and accurate in this field. As far as vehicle tracking in India is concerned, its uses and market are expected to increase within a couple of years. Vehicle detecting system in India is mainly used in transport industry that keeps a real-time track of all vehicles in the fleet. The location details are later transferred to users via SMS, e -mail or other form of data transfers. The GSM Based System is one of the most important systems, which integrate GSM technology. It is necessary due to the many of applications of GSM systems and the wide usage of them by millions of people throughout the world.

II. LITERATURE SURVEY

In 1945, Leon Theremin invented a listening device for the Soviet Union which transmited incident radio waves with the added audio information. Sound waves vibrated a diaphragm which slightly altered a shape of resonator, which modulated the reflected radio frequency. Even though this device was a covered listening device, rather than an identifications tag, it is considered due to be a predecessor of RFID.

Mr.P.Manivannan, they have proposed a novel method of vehicle tracking and locking systems used to track the theft vehicle by using GPS and GSM technology.

Ms.M.Vinodhin, they have proposed Microcontroller, GPS, GSM and RFID based smart system for the remote vehicle monitor, control, and security and fuel management purpose, has a Business Intelligence (BI) capabilities

Montaser N. Ramadan, the application included a transmitting module which contains an embedded system to combine GPS and GSM devices to retrieve location and vehicle status information and send it to the other stationary module; the second part is the receiving module which collects the transmitted information by SMS and process it to a compatible format to Google Earth to view the location and vehicle status online.

Mr. N. NAGARAJU, they have describes that a Radio Frequency on (RFID) is an□□auto identification technology which uses Radio Frequencies to identify objects remotely that proposes a system which does the job of detecting vehicles.

All rights reserved by www.ijsrd.com

III. BLOCK DIAGRAM

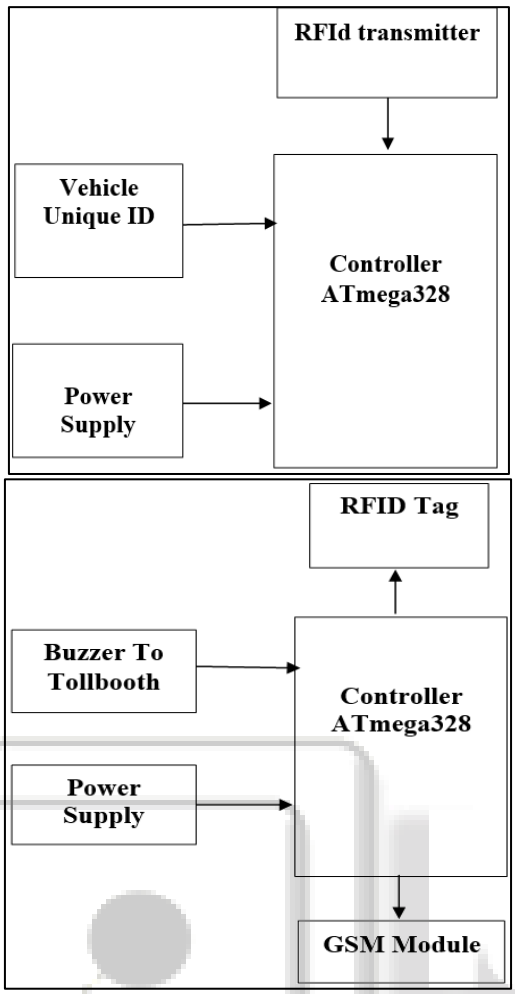


Fig. 1: Block Diagram

IV. HARDWARE COMPONENT

A. Microcontroller ATmega328

The ATmega328 is a single-chip microcontroller reated by Atmel in the megaAVR family. An ATmega328 in DIP package, pre-loaded with the Arduino UNO (16MHz) Bootloader. This will allow you to use Arduino code in your custom embedded project without having to use an actual Arduino board. To get this chip working with Arduino IDE, you will need an external 16MHz crystal or resonator, a 5V supply, and a serial connection.

The Atmel 8-bit AVR RISC-based microcontroller combines 32 kB ISP flash memory with read-while-write capabilities, 1 kB EEPROM, 2 kB SRAM, 23 general purpose I/O lines, 32 general purpose working registers, three flexible timer/counters with compare modes, internal and external interrupts, serial programmable USART, a byte-oriented 2-wire serial interface, SPI serial port.

B. RFID

RFID (radio frequency identification) is a form of wireless communication that incorporates the use of electromagnetic or electrostatic coupling in the radio frequency portion of the electromagnetic spectrum to uniquely identify an object, animal or person.

RFID refers to a technology whereby digital data encoded in RFID tags or smart labels (defined below) are captured by a reader via radio waves. RFID is similar to barcoding in that data from a tag or label are captured by a device that stores the data in a database. RFID, however, has several advantages over systems that use barcode asset tracking software. The most notable is that RFID tag data can be read outside the line-of-sight, whereas barcodes must be aligned with an optical scanner. A RFID system is made up of two parts: a tag or label and a reader. RFID tags or labels are embedded with a transmitter and a receiver. The RFID component on the tags have two parts: a microchip that stores and processes information, and an antenna to receive and transmit a signal. The tag contains the specific serial number for one specific object. To read the information encoded on a tag, a two-way radio transmitter-receiver called an interrogator or reader emits a signal to the tag using an antenna. The tag responds with the information written in its memory bank.The interrogator will then transmit the read results to an RFID computer program.

C. Bluetooth Module

Each GPS satellite transmits radio signals that enable the GPS receivers in your vehicle to estimate the satellite's location, as well as the distance between it and your vehicles. The receivers then use these measurements to calculate where your vehicles are located o n Earth and convert the calculations into geodetic latitude and longitude. A receiver needs signals from three GPS satellites to pinpoint your vehicle's position.

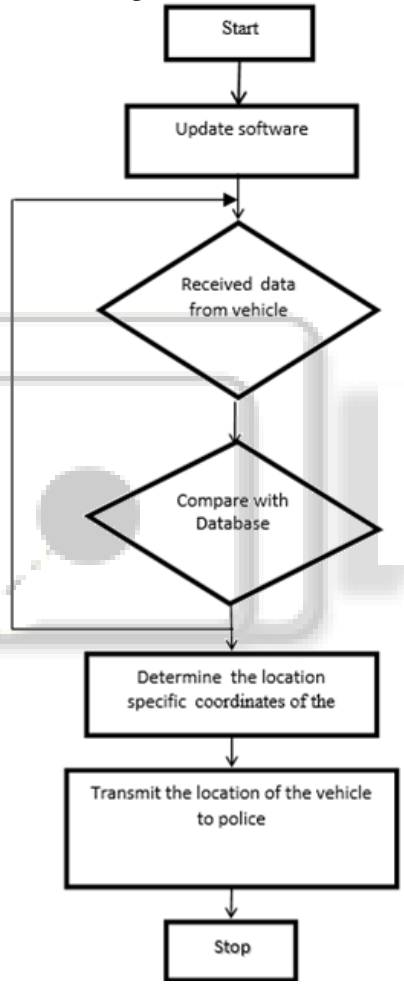
D. LCD Display

Various display device such as seven segment display. LCD display, can be interfaced with microcontroller to read the output directly. In our project we use a two line LCD display with 16 characters each.16X2 dots with cursor Built-in controller (KS 0066 or Equivalent).Features of LCD + 5V power supply,1/16 duty cycle,B/L to be driven by pin 1, pin 2 or pin 15, pin 16 or A.K (LED),N.V. optional for + 3V power supply,RS232 compatible serial interface (2400 & 9600 baud selectable),Externally selectable serial polarities (Inverted & Non-Inverted),Serially controllable contrast and backlight levels,8 user programmable custom characters,16 Byte serial receive buffer.

V. RESULT

All rights reserved by *www.ijsrd.com*

Fig. 5: Flow Chart



VI. CONCLUSION

We have proposed a novel method of vehicle tracking and locking systems used to track the theft vehicle by using RFID and GSM technology. The goal of the project was to design a system, such that the recovery of stolen vehicle as early as possible. It should be easy to implement and medium range. The project is implemented through on-board Bluetooth, which is placed at every toll plaza. Entire system controlled using ATmega328 which is very low in cost. System gives information to vehicle owner also via GSM which is very easy for implementation. RFID transmitter are attached to engine of vehicle so the removal of it doesn't possible easily.

REFERENCES

[1] Mr.P.Manivannan "A Mobile Vehical Tracking System with GPS/GSM Technology", Proceeding of the 5th student conference on research and development, May 2007.Ms.M.Vinodhini "Automobile Antitheft System Based on GSM GPS Module, "Intelligent Networks and Intelligent Systems (ICINIS)", 2015 Fifth International Conference on , vol. 2, No. 3, pp.199, 201, 1-3 aNov2012.S. S. Pethakar, N. Srivastava, and S. D. Suryawansh."RFID, GPS andGSM based vehicle tracing and employee security system, International Journal of Advanced Research in Computer Science andElectronics Engineering, vol. 1, no. 10, pp. 91-96, Dec. 2012.Tamil, E.M.D.B. Saleh and M.Y. Idris Tamil, E.M.D.B. Saleh and M.Y. Idris, "A Mobile Vehicle Tracking System with GPS/GSM Technology", Proceeding of the 5th student conference on research and development, May 2007.

All rights reserved by *www.ijsrd.com*