

Real-Time Vehicle Locking and Tracking System

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Abstract— The GPS/GSM Based System is one of the most important systems, which integrate both GSM and GPS technologies. It is necessary due to the many of applications of both GSM and GPS systems and the wide usage of them by millions of people throughout the world. This system designed for users in land construction and transport business, provides real-time information such as location, speed and expected arrival time of the user is moving vehicles in a concise and easy-to-read format. This system may also useful for communication process among the two points.

Keywords: Real-time, GPS, microcontroller, GSM, IR sensor

I. INTRODUCTION

In the last few decades, India has progressed at such an enormous rate that many companies have strongly established themselves here. These companies bring a huge amount of workforce with them. Arranging transportation to such a huge mass is a cumbersome task involving many intricacies. Generally, this transport is arranged through the local transport vendors on a yearly contract basis, recently happen mishaps such as burglary, rape cases etc. The development of satellite communication technology is easy to identify the vehicle locations. Vehicle tracking systems have brought this technology to the day-to-day life of the common person. Today GPS used in cars, ambulances, fleets and police vehicles are common sights on the roads of developed countries. All the existing technology support tracking the vehicle place and status.

II. BLOCK DIAGRAM

The Block diagram of Vehicle tracking and locking system based on GSM and GPS technology is shown in the figure. It consists the power supply section, keyboard, GSM, GPS, microcontroller, MAX232driver, relay driver, IR Transmitter, IR receiver, LCD and door locker. The GSM board has a valid SIM card with a sufficient recharge amount to make outgoing calls. The circuits powered by +5v Dc.

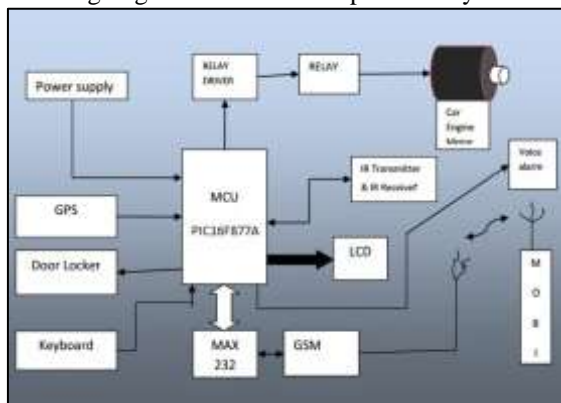


Fig. 1:

III. WORKING

The project consists of GPS receiver and GSM modem with a micro controller. The whole system is attached to the vehicle. In the other end (main vehicle station) one GSM mobile phone is attached to the computer with VB application. So the GPS system will send the longitudinal and altitude values corresponding to the position of vehicle to GSM Modem. Imagine the bus has left Bangalore at 6 o'clock in the morning. If the officer in charge for that vehicle wants to know where the vehicle is, he will come to the computer and click on the vehicle number on the VB program. The VB program will send an SMS to the vehicle number.

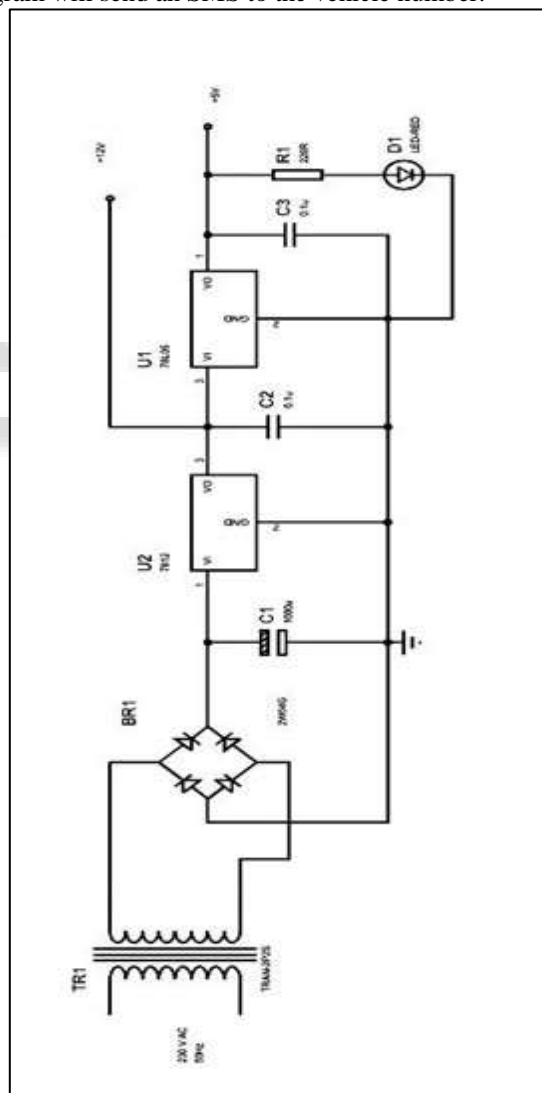


Fig. 2:

The SMS sent would come through the GSM service provider and then reach the vehicle, which is travelling, because the vehicle has a GSM device with sim card. This GSM modem will receive the SMS and send to the

microcontroller in the vehicle. The microcontroller will receive this SMS and compare the password and the command. If everything matches then it will perform the request required by the office. A place name is assigned for each longitude & latitude. The GSM receiver in the vehicle office receives these data & gives to the PC through serial port.

IV. FLOWCHART

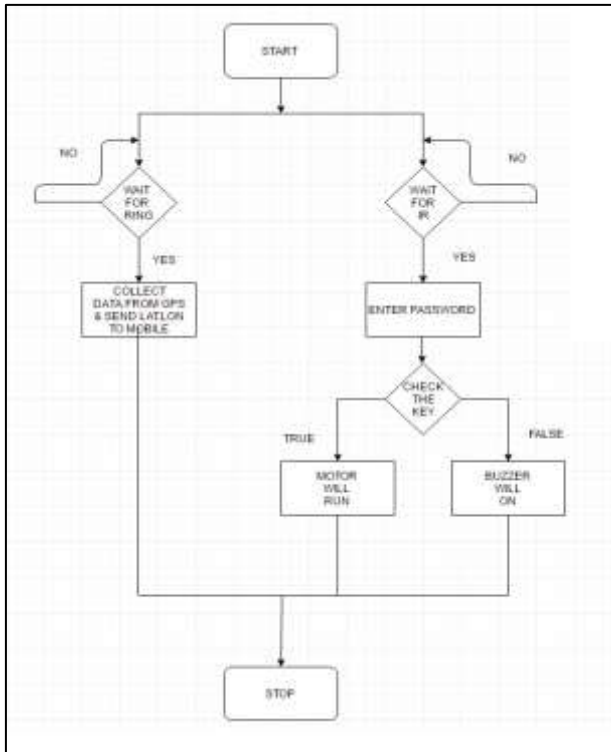


Fig. 3:

V. DESIGN

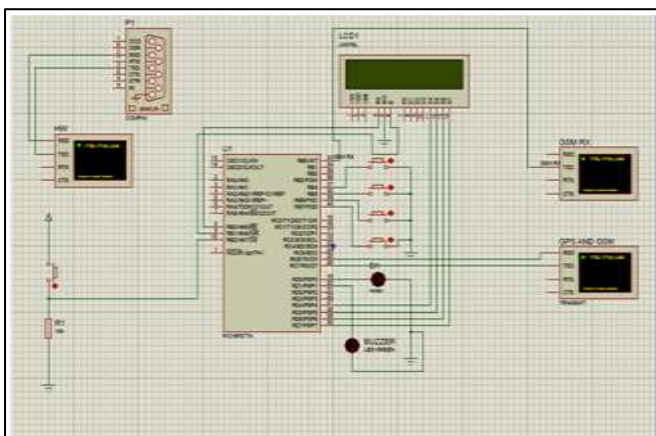


Fig. 4:

First step, we need to make single side PCB layout for the given circuit diagram. After made the PCB the following process is required to complete the project.

- 1) Assemble all the components on the PCB based on circuit diagram. TX and RX pins of the GSM modem to pins 13 and 14 of MAX 232 and insert a valid SIM in the GSM modem.
- 2) Connect the GPS module according to circuit diagram.

VI. ADVANTAGES

Commercial fleet operators are by far the largest users of vehicle tracking systems. These systems are used for operational functions such as routing, security, dispatch and collecting on-board information.

These are also used for fire detector in large vehicles like train, bus etc. because the vehicle like train contains large number of people and the sending alert of fire accident can save many lives.

The applications for this project are in military, navigation, automobiles, aircrafts, fleet management, remote monitoring, remote control, security systems, tele services, etc.

- Fleet monitoring
- Vehicle scheduling
- Route monitoring
- Driver monitoring
- Accident analysis
- Geo-fencing geo-coding

These are just a few advantages of the project that has been introduced in this report. We can interface more number of sensors in order to serve multiple purposes. The microcontroller that has been used in this project have inbuilt ADCs and hence the controller is capable of accepting analog inputs, which is the biggest advantage. Since all real world signals are analog in nature, by incorporating different sensors required purpose can be served.

VII. FUTURE SCOPE

We can use the EEPROM to store the previous Navigating positions up to 256 locations and we can navigate up to N number of locations by increasing its memory.

We can reduce the size of the kit by using GPS+GSM on the same module. We can increase the accuracy up to 3m by increasing the cost of the GPS receivers.

We can use our kit for detection of bomb by connecting to the bomb detector.

VIII. CONCLUSION

In this paper, we have proposed a novel method of vehicle tracking and locking systems used to track the theft vehicle by using GPS and GSM technology. This system puts into the sleeping mode vehicle handled by the owner or authorized persons; otherwise goes to active mode. The mode of operations changed by persons or remotely. When the theft identified, the responsible people send SMS to the micro controller, then issue the control signals to stop the engine motor.

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