

ADVANCE SECURITY SYSTEM FOR CARS

Viraj Kulkarni, PrashikKhare, AbhijeetJadhav, SujalKotkar
Third year Electronics and Telecommunication, Guru Gobind Singh Polytechnic, Nashik
Email:kulkarnivi123@gmail.com)

ABSTRACT:The rapid development of electronics provides secure environment to the human in present day of life. Using this development in the field of electronics “ADVANCED VEHICLE SECURITY SYSTEM WITH THEFT CONTROL” is designed to reduce the risk involved in losing the vehicles and providing accident notification which will reduce the rate of deaths .An efficient security system is implemented for anti-theft using an embedded system occupied with a Global Positioning System (GPS) and a Global System of Mobile (GSM). The user interacts through this system with vehicles and determines their current locations and status using Google map. The user can track the position of targeted vehicles on Google Maps Map. Using GPS locator, the target current location is determined and sent via Short Message Service (SMS) through GSM networks to user by sending SMS user can automatically demobilizes the car by disconnecting the ignition key supply from the car battery. In addition we have given the finger print sensor and the user cannot start the car. Without the green tick from the figure print sensor or license detector the user cannot start the car. If in worst conditions the car get stolen the user can lock the engine of the car by our engine locking system, By the sending the secrete code on the SMS.

Keywords– GPS, GSM, SMS, Engine lock, Identity detector

INTRODUCTION

Now a day the vehicle stolen rate has been increasing day by day, when compared to previous decade the theft rate has been increased. In order to avoid this vehicle stole rate this system provides security to the vehicles. In this work the advanced ARM LPC2148 is used. C programming is used for better accuracy, GPS and GSM modules which helps use to trace the vehicle anywhere on the globe. GSM is used to send the exact location of the vehicle and message to mobile phone.

In a situation where there is high level of theft, there is need for better security system. It is much safer to have a system that monitors and communicates to the device owner without putting human life to risk in the name of —Watchman on any attempt of theft the system sends a text message to the device owner, demobilizes the system (vehicle) and then starts up an alarm. With this, the vehicle is always protected and more to it

There are figure print sensors and license detector, so If someone try to start the car without verification the security system will send the alert message to the car owner and through our app the owner can lock the engine of car at once by our car lock system

PROPOSED PROJECT WORK:

We are proposing a system which will play important role in tackling such transportation problems

- 1) Location of vehicle will be shown on mobile handset.
- 2) License detection and figure print sensors.

- 3) When the vehicle is lost, owner can lock the engine by sending the message.

Vehicle Tracking: In the proposed system, location of vehicle is tracked by using GPS receiver. This location is displayed on mobile handset.

Antitheft system: When vehicle is lost at that time current location of vehicle is displayed on the mobile phone. Also owner can lock the engine by sending the message. There are figure print sensors and license detector, so If someone try to start the car.

SYSTEM ARCHITECTURE:

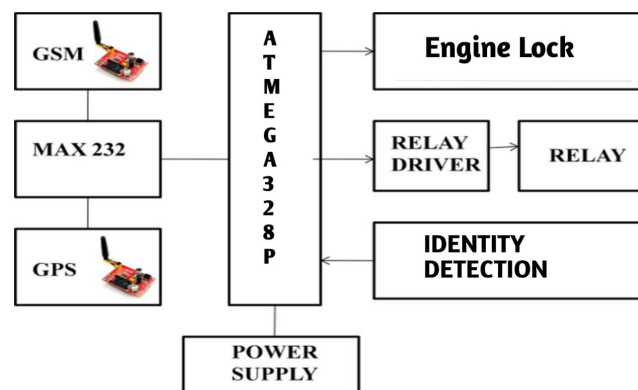


Fig.1 System block diagram

The system is mainly divided into four parts.

1. Tracking and identification system.

2. Controlling system.
3. Locking system.

1. Tracking and identification system: GPS will trace the position of vehicles where accident is happened. If user is in safe condition then message is displayed on the LCD 'Drive safely'. If user is injured then GSM module will inform the numbers stored in SIM-card which is inserted in GSM module. So vehicle owner can get accidental indication & locations.

2. Controlling system: ATMEGA328 processor is used as controlling device. The data obtained from the GPS receiver is in the ASCII format acceptable by the processor. Required 'C' language programming is done in order to parse the data obtained from the GPS receiver and extract necessary information regarding the position (latitude and longitude) and time of recording the position of the GPS receiver. To actually interface the processor with the GPS receiver we use the MAX232 IC since the processor uses Transistor-Transistor Logic (TTL).

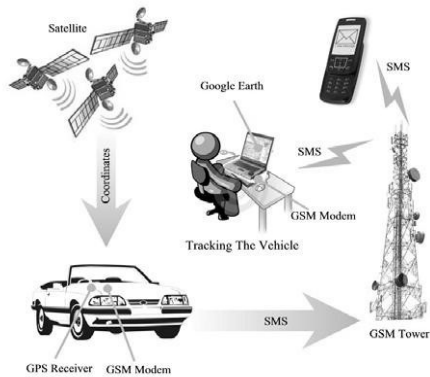


Fig.2 Block diagram of the system which is used to found lost vehicle .

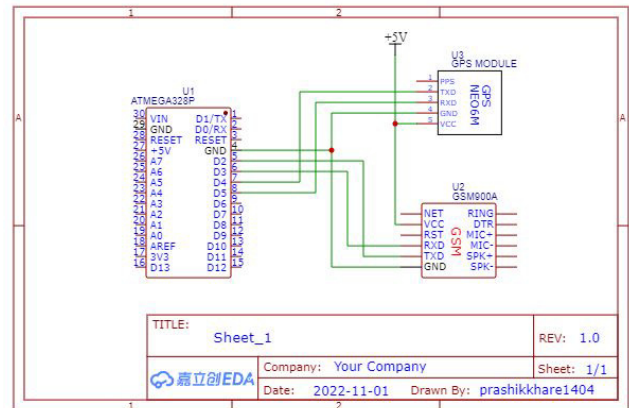
3. Locking system: Vehicle owner can lock/unlock his vehicle by breaking system with the help of a simple SMS. When vehicle is lost, we will send the message as 'data' to the GSM. Then GSM modem receives the message through the SIM card present in the modem. The GSM forwards this message to processor. Then processor verifies whether the received message from user or not (the mobile number is already fed in the processor). At the same time the GPS receiver continuously calculates its location where it was on the earth with the help of satellite signals from the space and sends this information to processor in the form of longitude and latitude. After seeking this information processor sends this to the user via GSM .

When the location is detected then user sends a message as 'lock' to lock the engine of the vehicle. This message is forwarded to processor through GSM. Then the processor demobilizes the system (vehicle) and then starts up an alarm .

HARDWARE DESCRIPTION:

The circuit consists of following components:

1. GSM modem
2. GPS module
3. ATMEGA328



1. GSM modem:

This GSM modem is a highly flexible plug and play quad band GSM modem for direct and easy integration to RS232. Supports features like Voice, Data/Fax, SMS, GPRS and integrated TCP/IP stack.

2. GPS module:

GPS is mainly used to enable a location processing logic to transmit the positioning data to the SMS-GSM module. GPS (Global Positioning System) is a worldwide radio-navigation system formed by a constellation of 24 satellites and their ground stations. With four satellites, a GPS receiver can provide very accurate clock (time, date) and position information. The Module must be used outdoors. It uses patch antenna. Provides current time, date, latitude, longitude, altitude, speed, and travel direction .

3. ATMEGA 328 processor:

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, 3 flexible timer/counters with compare modes, internal and external interrupts, serial programmable USART, a byte-oriented 2-wire serial interface, SPI serial port, 6-channel

10-bit A/D converter (8 channels in TQFP and QFN/MLF packages), programmable watchdog timer with internal oscillator, and 5 software-selectable power-saving modes. The device operates between 1.8 and 5.5 volts. The device achieves throughput approaching 1 MIPS/MHz.

ADVANTAGES:

- The vehicle which is undergone to an accident can be identified by using tracking technology without any delay.
- From this system we can try to save our car from anywhere in this global world.
- System can be implemented externally.
- Live location of car will be send to the owner by means of SMS.
- The vehicle cannot be started without licence or fingerprint identification.
- The owner can control the car with the help of SMS codes.

APPLICATIONS:

- Ship custom duty.
- Root navigator.
- In very important courier services.
- For tracking purpose in different fields.
- Useful in many industries and institutes such as School bus, dairy.
- Locking security.

CONCLUSION:

Combination of GSM and GPS devices is used to retrieve location, vehicle status information and send it to the other stationary module.. In anti-theft system major input is like an interrupt and upon reception by ARM7 processor it goes through the iteration of demobilizing the car, sending text message and starting up an alarm. The system exhibits a satisfactory performance. Because of the flexibility of embedded system, this system is very much compatible to any kind of vehicles. Overall this system is very much affordable to a common man and this system can be easily implemented.

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