

AUTOMOBILE MUGGING REVEALING AND AVOIDANCE USING GSM AND GPS**BIVARAPU SURESH***, Ms. **NAGULAPATI SOWJANYAM****, **T.VENKATA RATNAM*******PG SCHOLAR***, **ASSISTANT PROFESSOR****, **ASSISTANT PROFESSOR & HEAD OF DEPARTMENT *****

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ABSTRACT:

In This Article We presents a mechanism to make vehicle thefts almost impossible. GSM and GPS technologies are used for that purpose. The proposed system provides two levels of security, password protection for the vehicle and remote ignition cut-off mechanism. This system also provides provision for vehicle tracking using GPS. GSM technology is used for intimating the owner. An alert message is sent to the owner if the wrong password is entered. Message is also sent when the ignition system of the vehicle is started. The owner can respond with an SMS to stop the engine. A buzzer is also activated to alert the nearby people or the security personnel if the right password is not entered after maximum number of trials. Message is sent to owner even when vehicle is started using correct password.

INTRODUCTION

In today's world almost every common man owns a vehicle. Vehicle theft is a common issue which everyone faces in insecure

parking places. This is a major problem which seemingly little being done about it. Several underlying problems have led to increase in vehicle theft, ranging from sheer human absent mindedness, to the lack of vehicle parking structures. The safety of the public vehicle is extremely essential. Current security systems have certain vulnerabilities. GSM and GPS technologies are employed to make vehicle theft almost impossible. Global System of mobile communication is a globally accepted standard for digital cellular communication. Owner of the vehicle uses Subscriber Identity Module (SIM) inserted within his cell phone to send messages to GSM modem which is a part of vehicle theft prevention system that is attached to vehicle. A GSM modem is a specialized type of modem which accepts a SIM card, and operates over a subscription to a mobile operator, just like a mobile phone. From the mobile operator perspective, a GSM modem looks just like a mobile phone. GPS technology is used for tracking vehicle. The Global Positioning System (GPS) is a spacebased navigation

system that provides location and time information in all weather conditions, anywhere on or near the Earth where there is an unobstructed line of sight to four or more GPS satellites. The development of satellite communication technology has made it easy to identify the vehicle locations. The proposed system integrates both GSM and GPS technologies. It provides real-time information such as location of user in moving vehicles in a concise and easy-to-read format. Currently GPS vehicle tracking ensures user's safety while travelling. This vehicle theft prevention and tracking system is used in client's vehicle as a theft prevention and rescue device.

II. RELATED WORK

- In [1], the owner sends a message to the central controller system in case of vehicle theft. The central controller system sends signals to the security system installed in the vehicle that stops or locks the engine immediately. The vehicle is brought to the normal condition upon entering a password. The weakness in [1] is that it relies on the central controller system to take necessary actions in case of theft. The vehicle is not stopped immediately as it takes

time for information to pass from owner to central system and then to the security system. There is no confidentiality of password as it is known to the central system which may be misused.

- In [2], Advanced RISC Machine processor and face recognition system is used as a means of authentication. The owner is notified using MMS with the help of GSM/GPRS when an attempt is made to steal the vehicle. The weakness in [2] is that it uses face recognition for authentication which means only one user will be considered as authorized to drive the vehicle or multiple face recognition system must be used.
- In [3], IR sensors send message to controller. Car location information is sent to owner. The engine is stopped and doors are locked automatically if the theft is detected. A password has to be entered to unlock the doors and switch on the engine to bring the car to normal condition. The weakness in [3] is that the system uses IR sensors. They are incapable of distinguishing between objects that irradiate similar

thermal energy levels. Infrared detectors are also rather expensive, so they are not as widely used as they could be.

- In [4], password or fingerprint is used for authentication. GSM and GPS are used for notifying the owner and providing location information. Car engine can be turned off if theft is detected. In case of accident, engine is turned off and doors are opened. The weakness in [4] is that the system is vulnerable to password hacking and it uses fingerprint for authentication. This limits the ownership of car to one person.
- In [5], keyless access is provided to vehicle using a password. High security is provided by an alarm system which is triggered when number of incorrect entries exceeds the set limit. Additional security measures include a GSM Module which alerts the owner through SMS in case of a theft attempt. The weakness in [5] is that the system is vulnerable to password hacking. If the thief is able to enter the right password, then, the system fails to prevent vehicle theft.

- In [6], three stages of protection are used to strengthen the security of the car. If wrong password is entered, the power will remain disabled. Disabling the starter motor from being turned on in case the power is shifted by others. Directional valve is set so that engine is not turned on if unauthorized person connects the starter motor directly to the car battery. System in [6] is a very good model for ensuring safety in cars. But this system is specific to cars. The system is vulnerable to password hacking.

PROPOSED SYSTEM:

Proposed System consists of Remote ignition cut-off and Vehicle tracking modules. Both of them make use of GSM sub module. Vehicle tracking module further makes use of GPS sub module and Remote ignition cut-off module uses password authentication sub module. User enters the correct password to start the vehicle. If incorrect password is entered three times, an auto-generated message is sent to owner and a buzzer activates alerting the nearby personnel. GSM modem is used to send OTP to owner. The owner is also notified if his vehicle is started. The owner can respond

with an SMS. The ignition of the vehicle will be disabled whenever \$OFF message is sent. GPS technology is used to track the vehicle. Location co-ordinates of the vehicle are sent to owner whenever \$LOC message is sent. Steps explaining detailed functioning of the system are as follows.

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1. Initialize I/O devices.
2. Initialize UART1 & UART2.
3. Enable reception interrupt for UART2.
4. Check for the presence of SIM in GSM modem.
5. Configure GSM modem using AT commands.
6. Read OTP from memory location.
7. Perform mathematical calculations which result in generation of OTP.
8. Send OTP message to the user.
9. Initiate keypad operation.
10. Read key and compare them with stored OTP.
11. Repeat above step for all four keys pressed.

12. Repeat the above two steps for three trails if wrong password is being entered.
13. Lock keypad. Turn ON buzzer. Send message to owner after three wrong password entry attempts.
14. If the entered password is correct, initiate GPS operation.
15. Extract Longitude and latitude from information received by GPS receiver.
16. Read GSM message.
17. If message is \$LOC, send location co-ordinates to corresponding mobile.
18. If message is \$OFF, turn ON buzzer and send message to owner about location of the vehicle

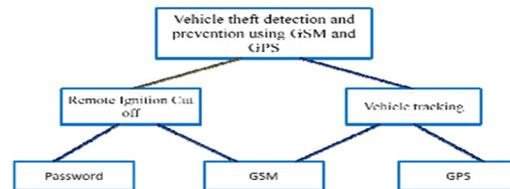


Fig: Flow chart

Proposed Block Diagram:

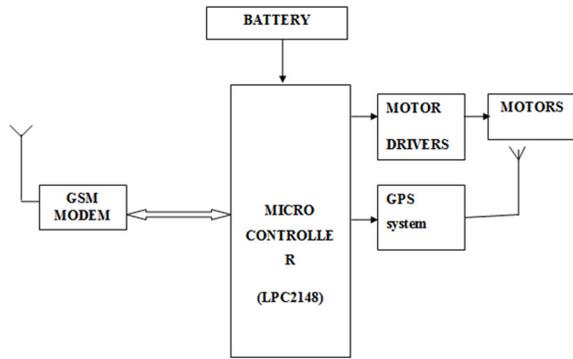


Fig: Block Diagram

Block Diagram Explanation:

In this section we will be discussing about complete block diagram and its functional description of our project. And also brief description about each block of the block diagram.

Microcontroller:

In this project work the micro-controller is plays major role. Micro-controllers were originally used as components in complicated process-control systems. However, because of their small size and low price, Micro-controllers are now also being used in regulators for individual control loops. In several areas Micro-controllers are now outperforming their analog counterparts and are cheaper as well.

POWER SUPPLY

This section is meant for supplying Power to all the sections mentioned above. It basically consists of a Transformer to step down the 230V ac to 18V ac followed by diodes. Here diodes are used to rectify the ac to dc. After rectification the obtained rippled dc is filtered using a capacitor Filter. A

positive voltage regulator is used to regulate the obtained dc voltage. But here in this project two power supplies are used one is meant to supply operating voltage for Microcontroller and the other is to supply control voltage for Relays.

LCD Display Section:

This section is basically meant to show up the status of the project. This project makes use of Liquid Crystal Display to display / prompt for necessary information.

GSM MODEM

Here we are using GSM MODEM to communicate with the mobile phone to which we are going to send the message. Whenever an authorized person wants to know the status of parameter or whenever parameters values increases above the threshold value then a message will be sent through modem. This fault is indicated by displaying in LCD. This project will facilitates us to monitor as well as control different parameters at a time which increase accuracy and speed.

Buzzer Section:

This section consists of a Buzzer. The buzzer is used to alert / indicate the completion of process. It is sometimes used to indicate the start of the embedded system by alerting during start-up.

Driver circuit:

L293d is to construct with transistors and Motor. It is used to rotate the device.

MOTORS:

Motor is an output device; its speed will be varied according to the speed set by the switches. The speed can be varied by varying the voltage given to the PWM converter (using keypad). The speed of DC motor is directly proportional to armature voltage and inversely proportional to flux. By maintaining the flux constant, the speed can be varied by varying the armature voltage.

RESULTS

The methodology explained in section II was tested. GSM module's working was tested using the terminal software. GPS module's working was tested using the Trimble studio software. Program was compiled using keil C compiler, debugged using keil. All these modules were integrated and tested again for different input conditions. Results obtained were as expected.

CONCLUSION AND FUTURE WORK

The implementation of Vehicle theft detection with high level authentication is done successfully. A Vehicle Positioning System is thus designed by using arm32 controller along with GPS, GSM and password modules. When the latitude and

longitude values obtained and fed into Google Earth software, the location of the vehicle could be found out. Authentication is also provided so that only the authorized users can access the vehicle. The use of One Time Password makes it almost impossible for the thief to hack the password. A wide future scope guarantees that an enhancement to this system finds a great importance in real time system. The model can be implemented in bikes with adjustments made to spark plug, battery and key. The system can further be improved with speed control mechanism, that is, to stop the engine if the speed exceeds certain limits. The system can further be improved for providing parental guidance that is to stop the vehicle if it crosses a certain range of distance.

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