

GSM and GPS BASED VEHICLE SECURITY and CONTROLLING SYSTEM

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ABSTRACT

Vehicle security is the major concern now a day's. Vehicle manufacturers try to modify security system by implementing different technologies. Currently central locking system and also theft detection system is available in the vehicle these can alert Vehicle owner for theft detection. But major problem with all these system having a major limitation that it can alert local user only not remote. Consider a condition user is far away from vehicle and theft detection siren start then user can't listen alert and he can't take any step. And consider a condition owner wants to control his vehicle remotely using any technology it is not possible at this stage. To overcome this type of problem we are trying to implement a system which can used to interact with the system remotely.

I. INTRODUCTION

Vehicle stealing is now a day's common problem. Daily many Vehicles got stolen. Many Vehicles never get recovered and customer gets suffered due to this. Much security system work to keep Vehicles safe from theft. But these options are useless once your Vehicle get stolen. No one can detect or recover customer Vehicle easily. Keep all this in consideration we are trying to build a project which can make your Vehicle after stolen. For this we need to developed and install some system inside Vehicle which will tell you the Vehicle location after stolen. Keep this in mind we are trying to start one project which can fulfill all our requirements related Vehicle security. We are trying to build a project which will help to keep your Vehicle safe even after it get stolen. We also are trying to make Vehicle accessible using remote system. After deep discussion and work we complete our problem definition. That is we are developing GSM enabled system which will help customer control his Vehicle remotely using just a mobile phone.

II. NEED OF NEW SYSTEM

Following are some major points which describe how proposed system can help user to make his vehicle safe.

- Theft Detection system
- Remote Alert System

- Remote User vehicle Interaction system
- Remote Vehicle controlling system

III. STRUCTURE

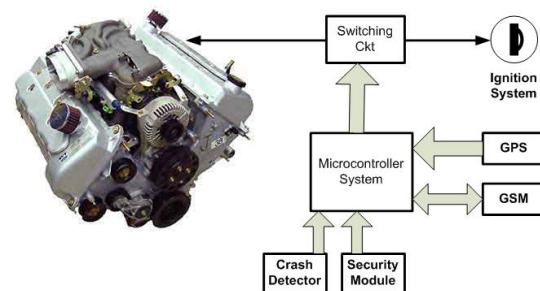


Fig. 1

Figure 1. describe how all these things or logic will applicable in real world and how we are developing it. See as we all know now Vehicles are already available with security system and crash detection system. To make it more advance we need to connect some component like microcontroller, GSP device, GSM modules and switching circuit. It is not possible to control Vehicle engine using circuitry but we can control Vehicle ignition system to stop Vehicle engine working all these component can control through microcontroller.

IV. LITERATURE REVIEW

1) **GSM technology:** GSM/GPRS delivers all the power of instant wireless connectivity to your multiple applications. Because the modem is fully type approved it can dramatically speed up the time to market with a full range of Voice, Data, Fax and SMS features (Optional TCP/IP) Housed in a rugged Aluminum alloy extrusion casing with good aesthetics and surface finish to withstand toughest field environments. The open interfaces and AT commands can embed and run your applications very efficiently. With its proven technology, the modem can be relied on for enduring and dependable performance.

2) **Parallel Port:** Parallel port is a simple and inexpensive tool for building computer controlled devices and projects. The simplicity and ease of programming makes parallel port popular in electronics hobbyist world. The parallel port is often used in Computer controlled robots, Atmel/PIC programmers, home automation.

3) **Hardware Controlling:** There is one function which will use to write data on the parallel port so that we can generate different level of voltage on the different pins of parallel port. First program get the input from user. As program decide to which device to ON or OFF it will use some function to send +5v to parallel port program will use.

V. PROPOSED PLAN OF ACTION

Basic idea behind the project is to implement the Vehicle security system using GSM technology. Proposed system will be able to control user Vehicle or any vehicle using GSM based SMS service as a communication media where at both end users need a GSM based modem or phone. Consider a condition if user come to know that his vehicle is not there where it should be. Then user can stop the Vehicle activities by sending some king of predefined SMS to the system connected to the Vehicle and Vehicle will operate itself by switching off the can engine ignition system

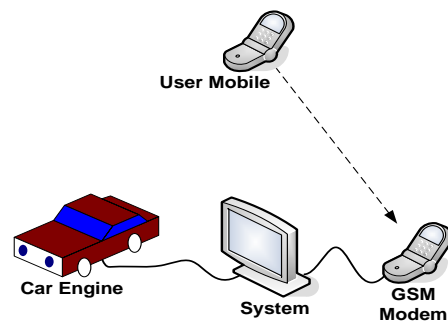


Fig. 2

Above diagram will show the basic block of the project. User first sends the formatted message to the Vehicle where this message is received by the GSM modem and transferred to the system and if command is to control the Vehicle engine then system will control the Vehicle engine as per the command send. System planning is to implement following modules.

- 1) **User Mobile:** User Send message from their mobile to control the Vehicle
- 2) **GSM Modem:** This is connected to the Vehicle so that user can send command to Vehicle. This device is reads incoming command in the form of SMS and then system takes action as per command.
- 3) **System:** This is the main command processor which will take command from GSM modem and then control the Vehicle engine.

VI. PROGRAMMATICALLY MANAGED MODULES STRUCTURE

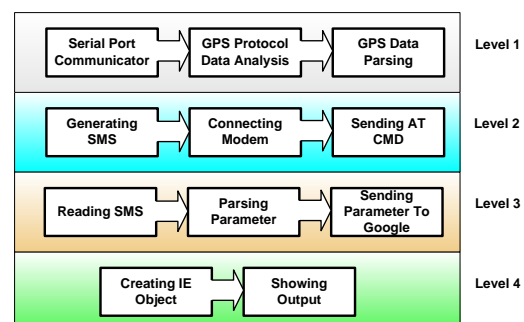


Fig. 3

The Proposed system consists of 5 programmable modules as explained below:

- 1) **Module 1:** The GPS device will be planted on the train whose location is to be tracked. This GPS device sends signals of a particular frequency to satellites. The satellites, in return, send data to the GPS device. From this data, the latitudes and longitudes of the GPS device can be extracted. As the device is planted on the train, so we get the current location of the train in terms of latitudes and longitudes. We get real time values for latitudes and longitudes as the train keeps on moving.
- 2) **Module 2:** Now, this data that we get from the GPS device is to be sent to the railway station where the location of the train is to be displayed. For this purpose, we use a GSM modem to send the data via SMS to the railway monitoring system located at the railway station.
- 3) **Module 3:** We will use another GSM modem at the railway monitoring system which will receive the SMS sent by the other GSM device. Here, the data is parsed and the latitudes and longitudes are extracted to be used in Module 4.
- 4) **Module 4:** This latitude and longitude value will be continuously sent to the Google Map Scripting which will return a map keeping that location as the center of the map. The map can be of type- simple, satellite or hybrid.
- 5) **Module 5:** Finally, this map will be displayed at the tracking stations with the help of a User Interface.

VII. REQUIREMENT ANALYSIS

Followings are some requirement for project development

1) Development tools:

- Embedded C
- AVR DUDE
- Win AVR

2) Hardware Requirements

- AVR AT MEGA 16
- Sensors
- GSM Modem SIM 900
- GPS Module
- LCD
- Port connector and cable
- Toy Vehicle

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