

# GPS Vehicle Theft Tracking and Identification Control System

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**Abstract** - This project greatly reduces the man power, time and operates efficiently without human interferences. In modern world, many new technologies such as RFID, bio metric recognition, GPS, GSM or mobile communication techniques and so on have been integrated into car security system. At the same time the amount of accident of car still remains high especially lost. In the system the processing system sends the signal to the processing unit. In this project, GPS is used to find the position of the vehicle and GSM used to send the message to the specified person whose number is stored in the micro controlled. At once if the vehicle seems to be theft, the owner has to just send SMS to that vehicle means vehicle will be stop all the door will be locked then theft will be locked in the car.

**Index items** : GPS, GSM, SMS, microcontroller, vehicle tracking

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## I. INTRODUCTION

The purpose of the study is investigate the feasibility of vehicle tracking technologies for vehicles as probes two technologies were evaluated. Global positioning system (GPS), Global system for mobile communication (GSM) Vehicle probes information can be complementary to those freeways that have single loops since the single loops are not capable of producing the most accurate GPS location probe vehicle data can also be used for rural freeways or minor urban freeways where no instrumentation is planned. Local streets and arterials are also good candidates for collecting data from probe vehicles. GPS is one of the most promising techniques for vehicle positional accuracy available to data.

Especially with different GPS, a greater accuracy can be achieved by using two ground based satellite receivers one of receiver monitors variation of the GPS signal and communicates them to the other receiver that corrects its positional calculation for a greater accuracy carrier phase GPS is another technique to improve the position accuracy. It can be used for more precise timing measurement since its carrier frequency is much higher than the GPS signal. Another type of GPS is called

augmented GPS. This technique is used for the transmission of differential correction and GPS satellite status information for instrument landing in space.

A mobile cellular network converts all the areas where its communication service is available, which implies that the freeway to be monitored is also converted with a series of cells. In particular, in the case of a freeway in rural areas, the mobile cellular network is provided with a group of cells exclusively for the freeway, the shape of which narrower and longer than that of the conventional cells in urban areas. The newly proposed cell based methodology involves all possible reference points that reside on the freeway e.g., the location of existing detectors or variable message signs, the entry and exit points of the freeway and other points based on these, travel times are calculated.

In the earlier systems the car alarms were used where if the intruder but the car the alarm starts sound but the safety is not assumed and then the car once theft can't be assured that we can get back the car. The alarm sound made by the car remains unnoticed and this major cause for the car theft.

## II RELATED STUDIES

The proposed system we introduced a low cost extendable frame work for car security. It consists of 1. Password protection module 2 GPS, 3.GSM, 4 Controllers

### 2. RFID MODULULE

#### 2.1 RFID Technologies

Radio frequency identification as known as RFID is generic term of technologies that use radio to automatically identify people or object. The acronym reference to small electronic devices that consist of small chip and an antenna the chip typically a capable of carrying 2000 bytes of data or less the RFID provides a unique identifies for that object.

##### 2.1.1 RFID SYSTEM

An RFID system is composed of three main components 1.An antenna or coil.2.A Transceiver (with decoder) and 3.An RFID Tag. The antenna will transmit radio signal to activate the tag so the data could be read or written Data Storage and retrieval purposes are performed using special devices the RFID Tag. The tag is very small and can be placed anywhere on anything.

##### 2.1.2 RFID TAG

RFID Tag is a small object that can be attached to or incorporated into a product. It contains antennas to enable them to receive and transmit radio frequencies to and from transceiver. There are two bases of the RFID Tags passive and active. Passive tags required no internal power source and are commonly used with issues relating to securing. In contrasts, active tag required a power source, and is expensive. In addition, there is another type of tag which is called semi-passive tags except to the addition of a very small battery allowing in having a small amount of constant power

##### 2.1.3 RFID reader

RFID reader is device that is used to interrogate an RFID tag the reader has an antenna that emits radio waves the tag responds by sending back its data. A number of factors can affect the distance at which a tag can be read the frequency used for identification the antenna gain, the orientation and polarization of the reader antenna as well as the placement of the tag on the object to be identified will have an impact on the RFID system read range.

Name	Power source	Transmissio n mode	Range within	Life
Passive	Scanning	Reflective	3m	Unlimited

Semi-passive	Battery	Reflective	10m	5-10years
Active	Battery	Active	100m	1-5years

Table 2.1 RFID tags classified by the source

#### 2.2 GSM

GSM ( Global system for mobile communication ) is a digital mobile telephony system that is widely used in Europe and other parts of the world.GSM uses a variation of time division multiple access (TDMA) and is the most widely used of the three digital wireless telephony technologies ( TDMA, GSM and CDMA ). GSM digitizes and compresses data then sends it down a channel with two other streams of user data each in its own time slot it operates at either the 900MHZ frequency band.

#### 2.3 GPS

GPS (Global positioning system) is a great boon to anyone who has the need to navigate either great or small distances. This wonderful navigation technology was actually first available for government use back in the late 1970s. In the past 10 years it has been made a valuable to the general public in the form of handheld receivers that use this satellite technology provided by the U.S. government.

GPS receiver help us to navigate back to a starting point or other predetermined location without the use of maps or any other equipment.

#### 2.4 PIC micro controller

The controller we are used here is PIC (peripheral interface controller) separate code and data spaces for device other than PIC 16f877A which has a von Neumann architecture instruction most instruction are single cycle exclusions and skips.

#### 2.5 SMS

SMS (short message service) is a service available on most digital mobile phone that permits the sending of short message. Short message also knows as text message or more conoquially SMS, text or even texts between mobile phone, other handheld devices and even landline telephones other uses of text messaging can be for ordering ringtones, wallpaper and entering competitions.

## III IMPLEMENTATION OF PROTOTYPE SYSTEM

The system requirement is divided into hardware and software part. First, the project criteria was examined and outlined in the following paragraph. The

remaining paragraphs elaborate the hardware and software.

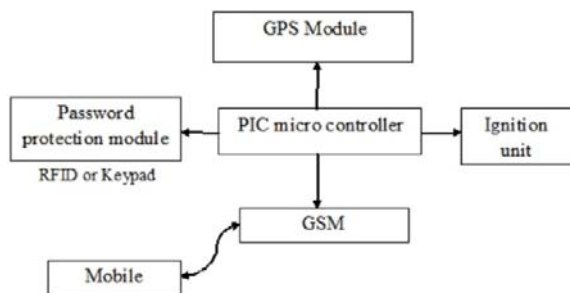


Fig.1 System Architecture

Password protection module is used for security identification of driver. Password protection is connected to the PIC to track the user details by correlating the password and the user details already stored in micro controller which has inbuilt. After the user enters the password in password protection the engine will start.

The processor is connected with the ignition unit, the GSM, the password protection, the end user who will be the owner where his/her mobile number is stored in the data based on the latest technology. After the user enters the password in password protection the motor will be start. If the password is wrong the GPS location is sent to the owner's mobile. If any unauthorized person is trying it drive the car, at that time we can stop the vehicle and lock the entire door.

#### IV CONCLUSION

In this project GPS vehicle theft tracking and identification control system modern technologies such as GSM and GPS are used in order to know the exact location of the theft vehicle alert the user so that the user can stop the vehicle by sending SMS. The users can easily identify the location of the theft vehicle which in turns saves the money and time. Further, by providing proper control signal even the direction of the vehicle, steering moment and fuel injection, acceleration and starting of the motor can be easily controlled by the user and this process can be implemented effectively.

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