

A Review on GSM and GPS Based Vehicle Tracking System

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Abstract— In this paper a survey is done on various vehicle method of tracking techniques using GSM & GPS. Vehicle navigation is one of the most important factors in the context of navigation which is mostly used by many drivers. A vehicle tracking system combines the installation of an electronic device which is mounted in a vehicle, or inside of vehicles, with purpose-designed computer software to allow the owner or a user to track the vehicle's location, collecting data in the process. Today vehicle tracking systems commonly use Global Positioning System (GPS) technology for locating the vehicle, but other types of automatic vehicle location technology can also be used. Vehicle information can be viewed and located on the electronic google maps via the Internet or specialized software.

Keywords— GSM (Global Services for Mobile Communication), GPS (Global Positioning System). Vehicle Tracking, Navigation .

I. INTRODUCTION

Vehicle navigation is one of the most important applications in the field of navigation which is mostly used by drivers. The maps given to the driver in the system plays most important role in this field. When large object or vehicles were spread out over ground, the owner corporations often found it difficult to keep track of what was happening[8]. They required some type of system to determine where each object was at any given time and for how long it travelled. Also the need of tracking in consumer's vehicle use to prevent any kind of theft because police can use tracking reports to locate stolen vehicle. GSM and GPS based tracking system will provide effective, real time vehicle location, and reporting. [7] A GPS- GSM based tracking system will inform where your vehicle is and where it has been, how long it has been. The system fetches the geographic location and time information from the Global Positioning Satellites. During vehicle motion, its real-time parameters such as location are reported by SMS message [9]. The system takes advantage of wireless technology in providing powerful management transportation engine.

II. LITERATURE SURVEY

1. Advanced Vehicle Tracking System on Google Earth Using GPS and GSM

In this paper GPS based vehicle tracking/navigation system is implemented. This is done by fetching the information of the vehicle like location, distance, etc. by using GPS and GSM. The information can be transformed with the following features: The information of the vehicle like location, etc. is obtained after every specified time interval defined by the user. Then this periodic information of location is transmitted to monitoring or tracking server. This transmitted information is displayed on the display unit by using the google earth to display vehicle location in the electronic google maps. [1]

2. Vehicle tracking and accident warning System using GPS and its implementation in FPGA

In this paper also the location of the vehicle is determined by using the Global Positioning System. The information from the GPS receiver is sent in the form of SMS to the user with the help of GSM. Once this SMS is received from the user, a response type of message is sent to the owner of the vehicle through the GSM modem. A sensor which is named as accelerometer sensor is then used to detect any kind of mishaps or accidents happened with the vehicle also it will trigger some kind of signal in case of any mishappenings. Unlike the microcontroller used in many system this system also uses a FPGA Spartan processor is used which manages all the parts responsible in system as according to the program done. [2]

3. GSM & GPS based tracking system

This system is helpful for public transport vehicles such as buses and taxis, it provides Tele monitoring and management system for the transportation of the taxis and buses within the city. In this paper the system mentioned consists of an “On- board module” which is mounted in the vehicle which is to be tracked. This on-board module consists of Global Positioning System, a GSM modem and ARM processor. The navigation message which is broadcasted by the GPS position satellite is received and resolved by the GPS receiver of the vehicle terminal. This satellite computes the longitudes and latitudes of vehicle coordinates, then transform it into the short message form by using GSM communication controller and this message is sent to the monitoring center through the GSM network. [3]

4. Design and development of GPS-GSM based Tracking system with google map based Monitoring

This system uses Global Positioning System (GPS) which is used to receive the coordinates of latitude and longitude form the satellite during the critical information. We all know that tracking system is now-a-days a very important in modern world. This system can be used in the monitoring of soldiers, also in tracking the theft of the vehicle and in many more other applications. This system uses microcontroller, Global Positioning System (GPS) and Global System for Mobile Communication (GSM). This system uses only one GPS device and GSM enable a two way communication process. GSM modem is provide with a SIM card which uses the same and regular communication process as we are using in regular phone.[4]

5. GSM and GPS based vehicle location and tracking System

This paper uses to a RF transmitted; the RF transmitter is attached with the vehicle which consists of its own identification. The data which will be continuously transmitting to the RF receiver that is connected to the microcontroller. The GPS will receive the location of the vehicle and will transmit this data to the microcontroller. Supposedly the RF transmitter is not receiving the signal from the RF transmitter then the receiving unit triggers a signal to the microcontroller, and from this signal we can identify the theft. If it is identified that the vehicle is theft then it automatically sends location of the vehicle to its user as the owner of the vehicle receives the information in the form of SMS through the GSM modem. This system is much simpler and cost effective than the others. The vehicle is automatically stopped if a password like SMS sent by the user. [5]

III. COMPARATIVE STUDY

From the above mentioned vehicle tracking techniques we can say that each technique is appropriate with its function but in some system we need continuous net access and this system can go down if net fails. In the first system the GPS tracks the vehicle location and send it to the controller and the google maps display the location of the Vehicle on the display unit, this system is useless without net because the location of vehicle can only be presented by the google maps. In the other system FPGA is used to detect all the parts according to program. By considering all these factors the upcoming implementation should overcome all the disadvantages and introduce many more facilities which will make the system user friendly and efficient.

III. CONCLUSION

Tracking system is nowadays the most important system for the person who want their car security in efficient hands this is the main reason why the vehicle tracking system are getting popular day by day not only in metropolitan areas but also in small cities. This system is completely integrated and it becomes possible to the user to track his car very easily at any time and from anywhere. As the vehicle theft is increasing day by day but due to this people can't avoid buying vehicles but they found an efficient way to keep an eye on their vehicle without being very close to them. These systems can keep a good control on the thefts and help avoiding them to some extent. Basically in all these system the GPS & GSM are used to track the vehicle. Using this system the user can determine where the vehicle is, how much has it travelled, and the distance completed by it. The user is able to access the position of his vehicle at any instant of time. This system is reliable any very secure. Upgrading this setup is very easy which makes it open to future requirements without the need of rebuilding everything from scratch, which also makes it more efficient.

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