

Research on Technology Used in GPS VEHICLE SYSTEM

Harshit tyagi¹, Namit Gupta²

¹B.sc.(H) cs, Teerthanker Mahaveer University, Moradabad

² Assistant Professor, Teerthanker Mahaveer University, Moradabad

¹Tyagiharshit465@gmail.com

Abstract - This project deals with the design & development of a theft control system for an automobile, which is being used to prevent/control the theft of a vehicle. The developed system makes use of an embedded system based on Global System for Mobile communication (GSM) technology.

A vehicle tracking system combines the installation of an electronic device in a vehicle, or fleet of vehicles, with purpose-designed computer software to enable the owner or a third party to track the vehicle's location, collecting data in the process. Modern 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 on electronic maps via the Internet or specialized software. In the main they are easy to steal, and the average motorist has very little knowledge of what it is all about. To avoid this kind of steal we are going to implement a system it provides more security to the vehicle. Existing System: In the previous system security lock and alarm is implemented in a car.

Keywords— Global Positioning System (GPS), RF receiver and transmitter, operations and maintenance center (OMC) and Gaussian minimum shift keying (GMSK).

I. INTRODUCTION

GSM and GPS based vehicle location and tracking system will provide effective, real time vehicle location, mapping and reporting this information value and adds by improving the level of service provided. A GPS-based vehicle tracking system will inform where your vehicle is and where it has been, how long it has been. The system uses geographic position and time information from the Global Positioning Satellites. The system has an "OnBoard Module" which resides in the vehicle to be tracked and a "Base Station" that monitors data from the various vehicles. The On-Board module consists of GPs receiver, a GSM modem
Vehicle Tracking System:

A vehicle tracking system combines the installation of an electronic device in a vehicle, or fleet of vehicles, with purpose-designed computer software at least at one operational base to enable the owner or a third party to track the vehicle's location, collecting data in the process from the field and deliver it to the base of operation. Modern vehicle tracking systems commonly use GPS or GLONASS technology for locating the vehicle, but other types of automatic vehicle location technology can also be used. Vehicle information can be viewed on electronic maps . Vehicle tracking systems are also popular in consumer vehicles as a theft prevention and retrieval device. Police can simply follow the signal emitted by the tracking system and locate the stolen vehicle. When used as a security system, a Vehicle Tracking System may serve as either an addition to or replacement for a traditional Car alarm. Some vehicle tracking systems make it possible to control vehicle remotely, including block doors or engine in case of emergency. The existence of vehicle tracking device .

II. GPS OVERVIEW:

The Global Positioning System (GPS) is a space-based global navigation satellite system (GNSS) that provides reliable location and time information in all weather and at all times and anywhere on or near the Earth when and where there is an unobstructed line of sight to four or more GPS satellites. It is maintained by the United States government and is freely accessible by anyone with a GPS receiver. The GPS project was started in 1973 to overcome the limitations of previous navigation systems, integrating ideas from several predecessors, including a number of classified engineering design studies from the 1960s. GPS

was created and realized by the U.S. Department of Defense (USDOD) and was originally run with 24 satellites. It became fully operational in 1994.

III. LITRATURE REVIEW:

GSM Overview:

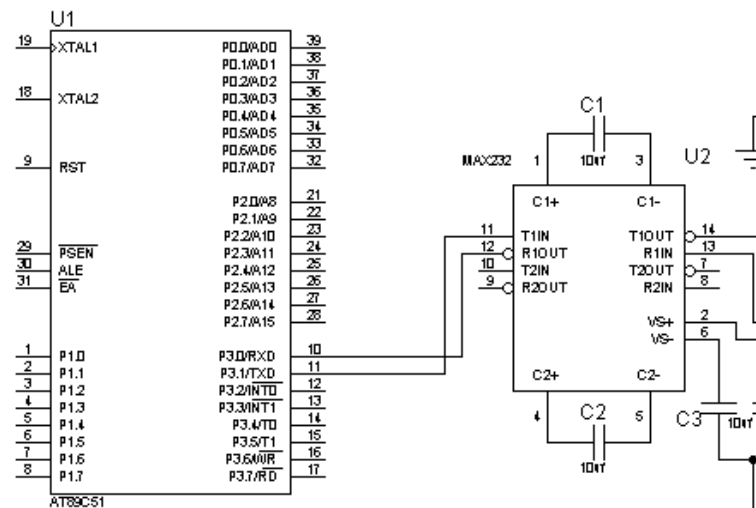
Global System for Mobile Communications or GSM (originally from Groupe Spécial Mobile), is the world's most popular standard for mobile telephone systems. The GSM Association estimates that 80% of the global mobile market uses the standard.[1] GSM is used by over 1.5 billion people[2] across more than 212 countries and territories.[3] This ubiquity means that

subscribers can use their phones throughout the world, enabled by international roaming arrangements between mobile network operators. GSM differs from its predecessor technologies in that both signaling and speech channels are digital, and thus GSM is considered a second generation (2G) mobile phone.

GSM MODEM:

European mobile cellular radio system operating at 900 MHz. A GSM modem is a wireless modem that works with a GSM wireless network. A wireless modem behaves like a dial-up modem. The main difference between them is that a dial-up modem.

CIRCUIT DIAGRAM:



Global system for mobile communication (GSM) is a globally accepted standard for digital cellular communication. GSM is the name of a standardization group established in 1982 to create a common European mobile telephone standard that would formulate specifications for a pan-

Neither of these approaches proved to be the long-term solution as cellular technology needed to be more efficient. With the experience gained from the NMT system, showing that it was possible to develop a system across national boundaries, and with the political situation in Europe lending itself to international cooperation it was decided to develop a new Pan-European System. Furthermore it.

IV. SPECIFICATIONS AND CHARACTERISTICS

FOR GSM:

- frequency band—The frequency range specified for GSM is 1,850 to 1,990 MHz (mobile station to base station).
- duplex distance—The duplex distance is 80 MHz. Duplex distance is the distance between the uplink and downlink frequencies. A channel has two frequencies,

80 MHz apart.

- channel separation—The separation between adjacent carrier frequencies. In GSM, this is 200 kHz.
- modulation—Modulation is the process of sending a signal by changing the characteristics of a carrier frequency. This is done in GSM via Gaussian minimum shift keying (GMSK).
- transmission rate—GSM is a digital system with an over-the-air bit rate of 270 kbps.

V. GSM AND GPS BASED VEHICLE LOCATION AND TRACKING SYSTEM:

Present project is designed using 8051 microcontroller in this Project it is proposed to design an embedded system which is used for tracking and positioning of any vehicle by using Global Positioning System (GPS) and Global system for mobile communication (GSM). In this project AT89S52 microcontroller is used for interfacing to various hardware peripherals. The current design is an embedded application, which will continuously monitor a moving Vehicle and report the status of the Vehicle on demand. For doing so an AT89S52 microcontroller is interfaced serially to a GSM Modem and GPS Receiver. A GSM modem is used to send the position (Latitude and Longitude) of the vehicle from a remote place. The GPS modem will continuously give the data i.e. the latitude and longitude indicating the position of the vehicle. The GPS modem gives many parameters as the output, but only the NMEA data coming out is read and displayed on to the LCD.

VI. APPLICATIONS AND ADVANTAGES:

APPLICATION:

- Stolen vehicle recovery.
- Field service management.
- It is used for food delivery and car rental companies.

ADVANTAGES:

- It provides more security than other system.
- From the remote place we can access the

system.

- By this we can position the vehicle in exact place.

VII. CONCLUSION AND FUTURE SCOPE

Vehicle tracking system is becoming increasingly important in large cities and it is more secured than other systems. Now a days vehicle thefting is rapidly increasing, with this we can have a good control in it. The vehicle can be turned off by only with a simple SMS. Since, now a days the cost of the vehicles are increasing they will not step back to afford it. This setup can be made more interactive by adding a display to show some basic information about the vehicle and also add emergency numbers which can be used in case of emergency. 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.

I. REFERENCES

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