Theft Intimation of a Vehicle through GSM and GPS

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***Abstract*- Most of the people having their own vehicle, theft happen in insecure parking places. The safeties of vehicles are extremely essential for public vehicles. Vehicle tracking and locking system installed in the vehicle, to track the place and locking engine motor. The place of the vehicle identified using Global Positioning System (GPS) and Global System Mobile communication (GSM). These systems constantly watch a moving Vehicle and report the status on demand. When the theft identified, the responsible person send SMS to the microcontroller, then microcontroller issues the control signals to stop the engine motor. Authorized person need to send the password to microcontroller to restart the vehicle and open the door. This is more secured, reliable and low cost. As the crime rate is going up, security system for vehicles is extremely essential. The GPS/GSM based system is one of the most important systems, because of its applications over a wide usage of millions of people throughout the world.**

***IndexTerms*- vehicle tracking,GPS,GSM,microprocessor**

1. INTRODUCTION

An efficient vehicle tracking system is designed and implemented for tracking the movement of any equipped vehicle from any location at any time. Vehicle tracking systems have brought this technology to the day-to-day life of the common person. Today GPS used in cars, ambulances, fleets and police vehicles are common sights on the roads of developed countries. All the existing technologies support tracking the vehicle place and status.

The proposed system made good use of a popular technology that combines a Smartphone application with a microcontroller. This will be easy to make and inexpensive compared to others. The designed in-vehicle works using Global Positioning System (GSM) and Global system for mobile communication (GPS) technology that is one of the most common ways for vehicle tracing. It is necessary due to the many of its applications because of wide usage of them by millions of people throughout the world.

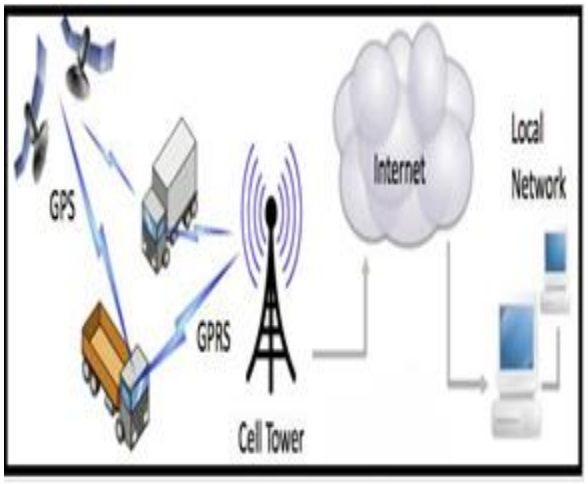

Figure 1: Physical working of the proposed system

The proposed technology significantly avoids the accident in highways. A major problem today for car owners is that they are in constant fear of having their vehicles stolen from a common parking lot or from outside their home. Microcontroller based real time vehicle theft detection and prevention system provide an ultimate solution for this problem. Research has shown that every day 2 vehicles are stolen from a state. That's why it's more important than ever to protect your vehicles with a stolen vehicle recovery system that is reliable and effective.

Audio alarm system insertion to car, in this particular systema siren is connected to a few sensors to ensure that as soon as a person opens a door, a signal is transmitted to the microcontroller. A major problem today for car owners is that they are in constant fear of having their vehicles stolen from a common parking lot or from outside their home. Microcontroller based real time vehicle theft detection and prevention system provide an ultimate solution for this problem. Research has shown that every day 2 vehicles are stolen from a state. That's why it's more important than ever to protect your vehicles with a stolen vehicle recovery system that is reliable and effective iler form the sensor.

Car theft prevention using code locking system, the main objective of this system is to avoid the vehicle theft by disconnecting the petrol tank connection during the emergency situation automatically, to detect the vehicle theft and to alert the owner of vehicle about the vehicle theft. In this project, we can start the car only after we given the correct password. In this proposed work, the vehicle tracking and locking system used to track the theft vehicle by using GPS and GSM technology. This system puts into sleeping mode while the vehicle handled by the owner or authorized person otherwise goes to active mode, the mode of operation changed by in person or remotely. If any interruption occurred , then the vibration sensor senses the signals and SMS sends to the microcontroller. The microcontroller sends the message that 'vehicle theft in progress please take immediate action' and also sends the Latitude and Longitude about the place of the vehicle to the car owner or authorized person.. Engine motor speeds are gradually decreased and come to the off state.

II.RELATED WORK

Chen, H., Chiang, Y. Chang, F., H. Wang, H, (2010)[1], Toward Real-Time Precise Point Positioning: Differential GPS Based on IGS Ultra Rapid Product. The proposed GPS/GSM based System has the two parts, first is a mobile unit and another is controlling station. The system processes, interfaces, connections, data transmission and reception of data among the mobile unit and control stations are working successfully.

V.Ramya, B. Palaniappan, K. Karthick[2], "Embedded Controller for Vehicle In-Front Obstacle Detection and Cabin Safety Alert System", Proposes a method for monitoring the level of the toxic gases such as CO, LPG and alcohol within the vehicle provided alert information as alarm during the dangerous situations. The SMS sends to the authorized person through the GSM. In this method, the IR Sensor used to detect the static obstacle in front of the vehicle and the vehicle stopped if any obstacle detected.

Kunal Maurya , Mandeep Singh, Neelu Jain[3], "Real Time Vehicle Tracking System using GSM and GPS Technology".This paper proposed to design a vehicle tracking system that works using GPS and GSM technology. This system built based on embedded system, used for tracking and positioning of any vehicle by using Global Positioning System (GPS) and Global system for mobile communication (GSM).

Asaad M.J.Al-Hindawi, Ibraheem Talib[4], "Experimentally Evaluation of GPS/GSM Based System Design".In this proposed paper the hardware and software of the GPS and GSM network were developed. The proposed GPS/GSM based System has the two parts, first is a mobile unit and another is controlling station. The system processes, interfaces, connections, data transmission and reception of data among the mobile unit and control stations are working successfully. These results are compatible with GPS technologies.

AlbertAlexe, R.Ezhilarasie[5], "Cloud Computing Based Vehicle Tracking Information Systems".The proposed tracking system based on cloud computing infrastructure. The sensors are used to monitor the fuel level, driver conditions, and speed of the vehicle. All the data transferred to cloud server-using GSM enabled device. All the vehicles equipped with GPS antenna to locate the place. To avoid the drunk and drive, the alcohol sensor installed to monitor the driver status.

III BLOCK DIAGRAM

The Block diagram of Vehicle tracking and locking system based on GSM and GPS technology is shown in the fig 2. It consists the GSM modem, GPS modem, microcontroller, MAX232, ignition key, LCD, buzzer, DC motor, motor driver. The GSM board has a valid SIM card with a sufficient recharge amount to make outgoing calls. The circuits powered by +5v DC.

The authorized person puts the vehicle in active mode and moves away. When the unauthorized person tries to steal the car, interruption occurs in any side of the door. Vibration sensor senses the signal and sends the request to microcontroller to turn on the buzzer. As soon as the buzzer turns on GPS modem gets activated and sends latitude and longitude to GSM modem and GSM modem sends the alert SMS to authorized person along with latitude and longitude. Then the authorized person changes the mode, as soon as he changes the mode the engine speed gradually decreases and comes to off state.

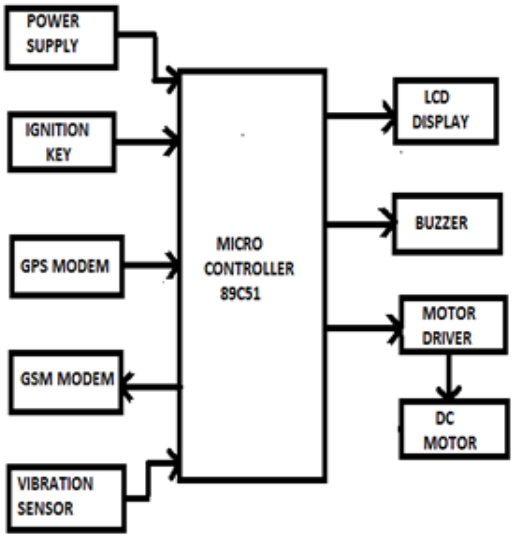

Figure 2: Block diagram of vehicle tracking and locking system based on GSM

The flow chart in the figure 3 shows the working of Vehicle tracking and locking system based on GSM and GPS to track the vehicle location. If the vehicle has theft then the authorized person gets the message with the latitude and longitude. When the authorized person change the mode in the mode selector switch the speed of the motor 1is gradually decreases and comes to off state.

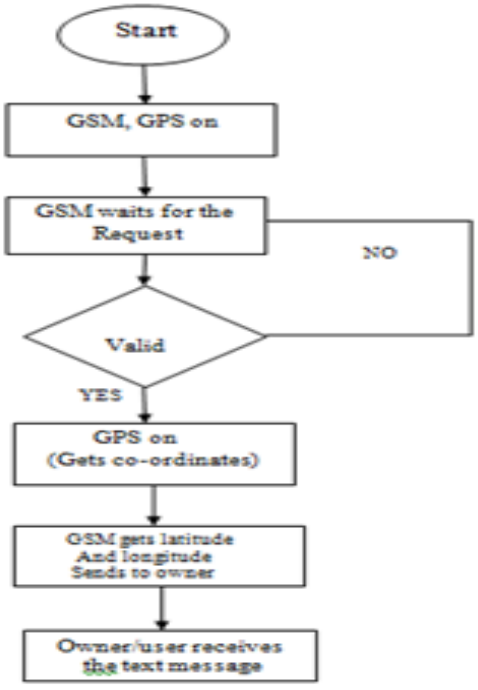

Figure 3: Flow chart of the vehicle theft intimation

IV RESULTS

Vehicle tracking and locking systems used to track the theft vehicle by using GPS and GSM technology. This system puts into the sleeping mode vehicle handled by the owner or authorized persons; otherwise goes to active mode. The mode of operations changed by person or remotely. If any interruption occurred then the vibration sensor senses the signals to the microcontroller. The microcontroller sends the theft message and latitude longitude of the vehicle through GPS to the car owner or authorized person. The owner needs to change the mode through mode selector switch, and then Engine motor speed gradually decreases and comes to the off state.

Figure 4: Overview of the project

Figure 5: LCD output and text message in user cell phone

The figure 5 shows final output which an authorized person can get in his cell phone with the latitude and longitude via SMS. The latitude and the longitude displays on the LCD which is connected to the micro controller.

IV. CONCLUSION

With the knowledge of new techniques in 'Electronics' we are able to make our life more comfortable. we have proposed a novel method of vehicle tracking and locking systems used to track the theft vehicle by using GPS and GSM technology. This system puts into the sleeping mode vehicle handled by the owner or authorized persons; otherwise goes to active mode. The mode of operations changed by persons or remotely. When the theft identified, the responsible people send SMS to the micro controller, then issue the control signals to stop the engine motor. We can monitor some parameterers of vehicle like over heat or LPG leakages. We can dial an emergency call if the vehicle goes out of a certain or pre decided track. One such application of electronics is used in "Vehicle Theft detection using GSM and GPS technology". We feel that our project serves something good to this world and we like to present it before this prosperous world.

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