GSM BASED VEHICLE THEFT IDENTITY AND ENGINE CONTROL

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*Abstract:*An efficient automotive security system is implemented for anti-theft using an embedded system integrated with Global Positioning System (GPS) and Global System for Mobile Communication (GSM. System presented has Two types of tracking, one is online tracking with GPS system can only receive the vehicle location information from satellites and other is offline tracking. GSM system is installed in the vehicle for sending the information to the owner of the vehicle. The preventive measures like engine ignition cutoff is installed in the vehicle which is controlled using user or owner GSM mobile. The owner can lock or unlock his/her vehicle with the help of SMS. The system is implemented on general purpose printed circuit board (PCB) Using ARDUINO.

*IndexTerms:*GSM,GPS,AURDINO,SIM800L

I.INTRODUCTION

Vehicle tracking systems were first implemented for the shipping industry because people wanted to know where each vehicle was at any given time. These days, however, with technology growing at a fast pace, automated vehicle tracking system isbeing used for car theft detection which tracks and displays vehicle's locations in real-time. GPS is a real-time satellite navigation system for three dimensional position determination. The Global System for Mobile Communications (GSM) is the second-generation digital

cellular mobile network. Due to its wide availability, it is chosen as the medium for transfer of location information. The simple and inexpensive Short Message Service (SMS) allows users to send up to

160 characters. System presented here incorporates the development of in-vehicle tracking device to locate the coordinates of the vehicle stolen, whicharethen plotted on the Google map application to get the exact and accurate location. Also the developed system can switch-off the ignition of engine with the help of SMS.

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LITERATURE REVIEW

Some people uses the GPS system only to the vehicle to trace the vehicle location like the latitude, longitude and speed of the vehicle but not useful for controlling the vehicle. Some people uses only GSM for controlling the vehicle but not useful to trace the vehicle, some researchers uses GSM, GPS system to control the vehicle as well as to trace its location. The literature review of the work is as follows. Kaushik et al developed an anti-burglary vehicle security system, which uses thumb impression to start the vehicle. The authorized persons thumb impressions are stored in the database of the system. The vehicle is started if the finger print of the database is matched. If anyone accessed the vehicle by chance then the fuel tank will be emptied through the relay bolt fitted to the tank at the same time it gives alarm that the vehicle is theft so that the unauthorized person cannot refill the emptied fuel tank. S

S Pethakar uses GSM, GPS & RFID security system for taxi like vehicles. For starting the vehicle the worker must use the RFID card in which the identification number is provided such that the identification numbers already preloaded in to the database of the system, If the number is matched, GPS and GSM comes in to play and sends SMS to the vehicle owner the location like latitude and longitude October 2017, Volume 4, Issue 10 JETIR (ISSN-2349-5162) JETIR1710060 Journal of Emerging Technologies and Innovative Research (JETIR) www.jetir.org 367 of the vehicle. If the owner detected theft by chance then he sends the SMS to the GSM such that it will lock the doors of the vehicle. Nagaraja used GSM system, Microcontroller, and relay switch for the ignition system. It theft is detected the Microcontroller activates the GSM system to send SMS to the owner, If the owner gives reply to the SMS then the relay switch is activated and it deactivate the ignition system. Alkheder uses GPS-GSM system that uses Google earth application. The system contains GPS module provided in the vehicle, this GPS module exchanges information with the GSM system to send SMS to the owner. After getting SMS to the owner, he can trace the latitude, longitude and speed of the vehicle using Google earth application.

II. EXISTING SYSTEM

The GPS/ GSM Based System is one of the most important systems, which integrate both GSM and GPS technologies. It is necessary due to the many of applications of both GSM and GPS systems and the wide usage of them by millions of people throughout the world. This system is designed for users in land construction and transport business, provides real-time information such as location, speed and expected arrival time of the user in moving

vehicles. This system may also useful for communication process among the two points. Currently GPS vehicle tracking ensures their safety as travelling. This vehicle tracking system found in clients vehicles as a theft prevention and rescue device. Vehicle owner or police follow the

signal emitted by the tracking system to locate a robbed vehicle in parallel the stolen vehicle engine speed going to decreased andpushed to off.

After switch of the engine, motor cannot restart without permission of password. This system installed for the four wheelers. Vehicle tracking is usually used in navy operators for navy management functions, routing, send off, on board information and security. The applications include monitoring driving performance of a parent with a teen driver. Vehicle tracking systems accepted in consumer vehicles as a theft prevention and retrieval device. If the theft is identified, the system sends the SMS to the vehicle owner. After that vehicle owner sends the SMS to the controller, issue the necessary signals to stop the motor

A few of the leading manufacturing countries of car security system includes China, USA, Italy and India. Some of the highly demanded car security systems are listed.

The power supply block powers the whole system. Three voltage levels for the system which comprises the microcontroller, GPS module, GSM modem, immobilizer and the camerawould be designed. The microcontroller and camera are separate and use 5.0V each. The GSM and GPS modules are combined on one board (called MG2639 shield) hence they use the same voltage level which is 3.8V. The immobilizer (which consists basically a relay) operates at 12V, hence the three voltage levels are 3.8V, 5.0Vand 12V.
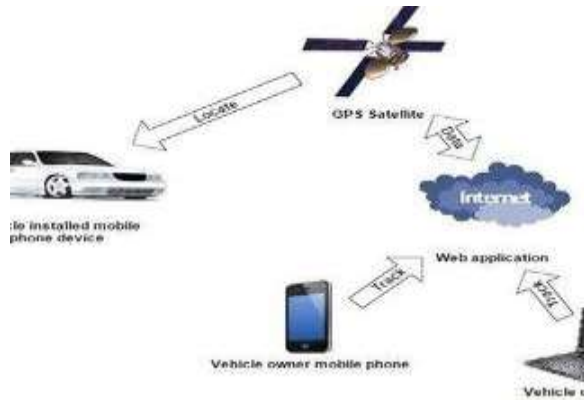
Fig1: Existing System

III. PROPOSED SYSTEM

Proposed Method In this proposed work, a novel method of 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 in any side of the door, microcontroller is interrupted and SMS is sent to the microcontroller. The controller issues the message about the place of the vehicle to the car owner or authorized person. When send SMS to the controller, issues the control signals to the engine motor. Engine motor speeds are gradually decreases and come to the off place . After that all the doors locked. To open the door or restart the engine, authorized person needs to enter the passwords. In this method, tracking of vehicle place easy and doors locked automatically, thereby thief cannot get away from the car.

The Global Positioning System (GPS) is a satellitebased navigation system consists of a network of 24 satellites located into orbit. The system provides essential information to military, civil and commercial users around the world and which is freely accessible to anyone with a GPS receiver. GPS works in any weather circumstances at anywhere in the world. Normally no subscription fees or system charges to utilize GPS.
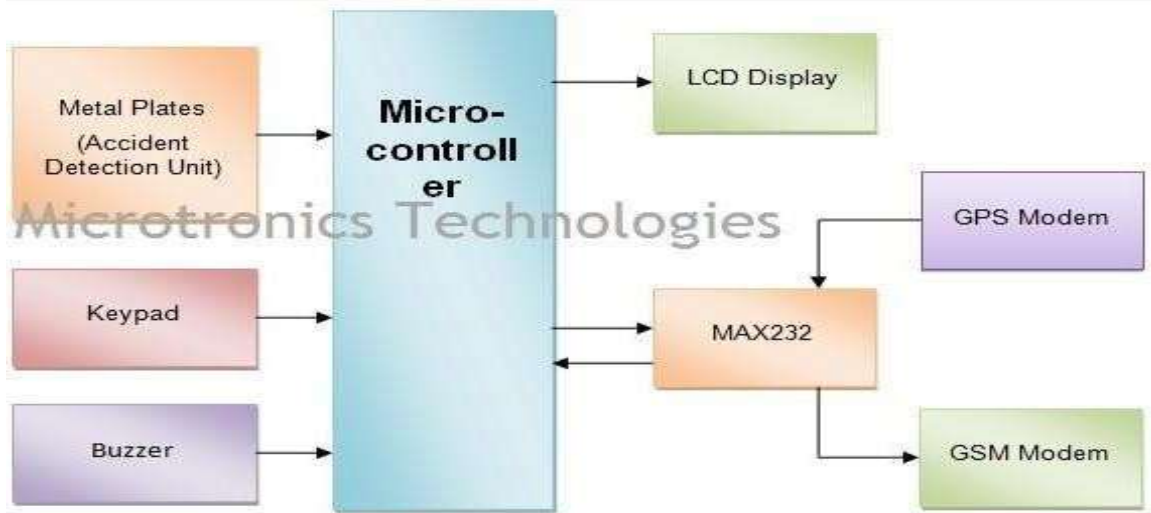
Fig2:Block Diagram

IV. SOFTWARE DEVELOPMENT

The software of the project is based on the flow chart in figure 3.4. If vehicle is forcefully ignited then automatically turn on anti theft detection system. On the other hand, If vehicle is started in authorized way feedback system automatically disables the anti-theft detection system. When vehicle started forcefully a warning message is delivered to registered mobile number as "Car Started". Owner has access to stop the vehicle by sending the message "Stop" in relay and GPS enable the Arduino to send location coordinate. GPS attached to the arduino enable GSM to send the live coordinates of the location in every 10 second. These coordinate when used in Google map help to locate the exact position of the vehicle.
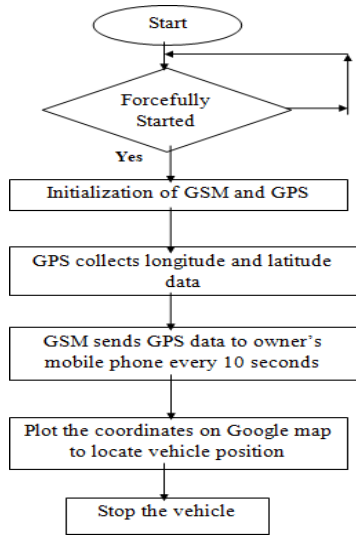
Fig3:Flow Char

V. RESULT

This proposed project model is tested by forcefully starting the vehicle as in case the vehicle is stolen. The results obtained are as per expectations of the project designed. As soon as the car is forcefully started by the unauthorized person, theft detection system kicks in and the owner gets the SMS within 15 to 20 seconds. There may be slight delay, if any due to mobile network. Central arduino sends signal to control section in real time. In this paper, 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. After that all the doors locked. To open the doors or to restart the engine authorized person needs to enter the passwords. In this method, easily track the vehicle place and doors lock.
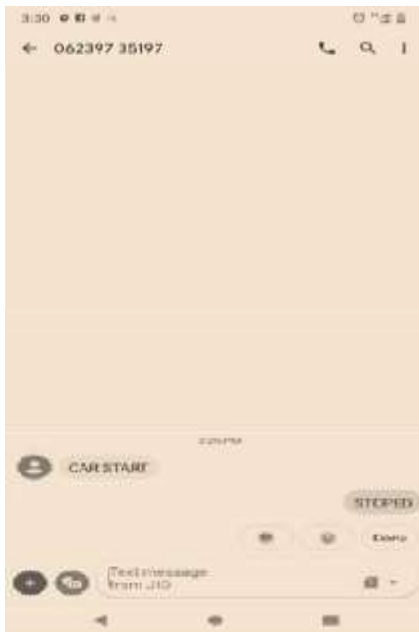
Fig3:Message alert on mobile

Fig4:Owner responding to message

After receiving the alert message from the theft detection device, the user responds via 'STOPED' message and after receiving the response from the owner mobile, the GPS and GSM modules keeps tracking and sending the updated location coordinates every 10 seconds to the owner mobilenumber.

Figure 4.4: Message showing coordinatestracked bydetection device.

VI. REFERENCES

[1] N. Kaushik, M. Veralkar, Pranab. P, k. Nandkarny, "Anti-theft vehicle security system", International journal for scientific research and development, vol. 1, no.12, pp. 2845-2848, March 2014.

[2] S. S. Pethakar, S. D. Suryavanshi, N. Srivastava, "RFID, GPS and GSM based vehicle tracing and employee security system", International Journal of Advanced Research in Computer Science and Electronics Engineering, vol. 1, no. 10, pp. 91-96, Dec. 2012.

[3] B. G. Nagaraja, Mahesh. M, R. Rayappa, C. M. Patil, "Design and development of a GSM based vehicle theft control system", presented at the International Conference on Advanced Computer Control, Singapore, January 2009
. [4] M. A. Khedher, "Hybrid GPS-GSM localization of automobile tracking system", International journal of computer science and technology, Vol. 3, no. 6, pp. 75-85, December 2011

[5] N. Kaushik, M. Veralkar, Pranab. P, k. Nandkarny, "Anti-theft vehicle security system", International journal for scientific research and development, vol. 1, no.12, pp. 2845-2848, March 2014.

[6] S. S. Pethakar, S. D. Suryavanshi, N. Srivastava, "RFID, GPS and GSM based vehicle tracing and employee security system", International Journal of Advanced Research in Computer Science and Electronics Engineering, vol. 1, no. 10, pp. 91-96, Dec. 2012.

[7] B. G. Nagaraja, Mahesh. M, R. Rayappa, C. M. Patil, "Design and development of a GSM based vehicle theft control system", presented at the International Conference on Advanced Computer Control, Singapore, January 2009.

[8] Karl Koscher, Alexei Czeskis, Franziska Roesner, Shwetak Patel, Stephen Checkoway, Damon McCoy, Brian Kantor, Danny Anderson, Hovav Shacham, and Stefan Savage,"Tadayoshi Kohno, Experimental Security Analysis of a Modern Automobile", IEEE Symposium on SecurityandPrivacy, 2010.

[9] http://www.rmiia.org/auto/auto_theft/statistics.asp

[10] PankajVerma and Bhatia J.S, "Design And Development Of Gps-Gsm based Tracking System with Google map Based Monitoring" International Journal of Computer Science, Engineering and Applications (IJCSEA) Vol.3, No.3, June 2013.

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