

## GSM & GPS Vehicle Antitheft Tracking System

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**ABSTRACT**— A vehicle tracking system is an electronic device installed in a vehicle to enable the owner or a third party to track the vehicle's location. This design of vehicle tracking system that works using GPS and GSM technology, which be the cheapest source of vehicle by using Global Positioning System (GPS) and Global System for mobile communication. The purpose of this project is to find the vehicle where it is and owner can stop that particular vehicle by sending a command signal .The entire system is hidden inside the vehicle. A button is provided inside the vehicle where owner need to press it within 60 second of starting the vehicle, else a text message is send to the owner and if no decision is taken by the owner then vehicle automatically turns off by the microcontroller within 15 minutes. And also we can track the live location of the vehicle using a Android App named as Antitheft.

This design will continuously monitor a moving vehicle and report the status of the vehicle on demand. For doing so an ATmega328 microcontroller is interfaced serially to a GSM Modem and GPS Receiver. A GPS modem will continuously give the data i.e the latitude and longitude indicating the position of the vehicle.

**Keywords**—GSM & GPS Modem, Android App

Date Of Submission: 30-05-2019

Date Of Acceptance: 14-06-2019

### I. INTRODUCTION

In the 21<sup>st</sup> century, there is a need to give your vehicle an excellent protection with the only reliable anti-theft device. Vehicle Electronic control unit ensures the Best guarantee to protect your bike from different kinds of theft cases all over the world.. It is a vehicle security device that offers excellent protection to your vehicle. A vehicle with Electronic control unit security system helps the user to lock and unlock engine by the pressing a button and relay tripping. Mainly two types of Electronic control unit are used in Auto industry -Automatic Electronic control unit and Manual Electronic control unit that ensures smoother and secured operation. Again this system could not prove to provide complete security and accessibility of the vehicle in case of theft. So a more developed system was needed to be implemented

The main concept in this design is introducing the mobile communications into the embedded system. The vehicle thief takes only a few minutes to deactivate the security system. Furthermore, nobody will pay an attention when the bike alarm goes off. Based on these reasons, it is proposed that a GSM-based vehicle anti-theft system development is designed and developed to improve the performance of the current vehicle security system. Somehow if there is another way of transmitting the alarm to the vehicle owner that is not limited to the audible and line of sight, the system can be upgraded.

SMS is a good choice of the communication to replace the conventional alarm and an android app is very effective to know your current live location on Google map, because it can be done and does not require much cost. Although most of people know GPS can provide more security for the vehicle but the main reason people does not apply it because the cost. Advance vehicle security system is too expensive and not yet implemented. Cost for the circuit is too high. Besides that, the payment is taken . The main objective of this project is to design, construct and test a GSM-based vehicle anti-theft system that can be used to track the performance of vehicle security system.

### II. CONSTRUCTION AND WORKING

Currently almost all the people own vehicles, theft is happening on parking and sometimes driving insecurity places. The safety of vehicles is 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 is identified using GPS modem whereas when the theft ignites the vehicle, message is send to the user by using GSM modem. After identified vehicle theft User sends a message to the microcontroller, then microcontroller issue the control signal to stop the engine motor. A button is provided inside the vehicle where owner need to press it within 60 second of starting the vehicle, else a text message is send to the owner and if no decision is taken by the owner then vehicle automatically turns

off by the microcontroller within 15 minutes. And also we can track the live location of the vehicle using an Android App named as Antitheft.

When we switch ON the key a Pulse is generated which is connected to the interrupt of the microcontroller. As the signal is passed, microcontroller comes to know and it sends a Text Message to the user as "Your Bike is Used By Unauthorized Person". When the message is read by the user, user opens the app for live tracking of the vehicle. At the Right Top of the App a "BLOCK UNBLOCK" button is placed, where user can block or unblock the vehicle by just clicking on it. This design will continuously monitor a moving vehicle and report the status of the vehicle on demand. For doing so an ATmega328 microcontroller is interfaced serially to a GSM Modem and GPS Receiver. A GPS modem will continuously give the data i.e the latitude and longitude indicating the position of the vehicle.



Fig 1. GSM & GPS Modem

### III. ILLUSTRATION

SIM808 is a miniature cellular and GPS module which allows for GPRS transmission, sending and receiving SMS and making and receiving voice calls and it provides latitude, longitude and altitude using GPS satellite. Low cost and small footprint and quad band frequency support make this module perfect solution for any project that require long range connectivity. After connecting power module boots up, searches for cellular network and login automatically. This module works on AT commands and we can turn on GPS and Bluetooth using at Commands provided in datasheet. ATMEGA328P is a high performance low power controller from Microchip. Atmega is an 8-bit microcontroller based on AVR RISC architecture. It is the most popular of all Avr controllers as it is used in Arduino boards. Atmega is a single-chip microcontroller created by Atmel in the Mega AVR family. This is most wanted feature of our project to prevent vehicle theft. The Electromagnetic relays are used to turn on and off the ignition. Electromagnetic relay is basically a switch (or combination of switches) operated by the magnetic force generated by a current flowing through a coil. Essentially, electromagnet comprising a coil and a magnetic circuit, a movable armature, asset of contact, and a frame to mount all these

components. A typical relay switch circuit has the coil driven by a NPN transistor switch, TR1 as shown depending on the input voltage level. When the Base voltage of the transistor is zero (or negative), the transistor is cut-off and acts as an open switch. In this condition no Collector current flows and the relay coil is de-energised because being current devices, if no current flows into the Base, then no current will flow through the relay coil.

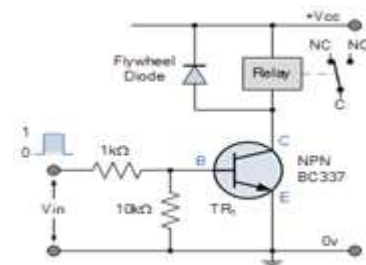


Fig 2. BC547 Transistor

### FUTURE WORK

Future work will include interfacing the system with GSM so that the User will get the messages directly irrespective of the time and place where he is. The main purpose of our project is to track live location of our vehicle using Web based interface.

### IV. CONCLUSION

We are concluding that, vehicle tracking systems becomes increasingly important in large cities and it is more secured than other systems, whereas we can track the live location by using an Android App. By using this circuitry we can have a good control on it. In future we think that demand for this system will increased rapidly. This technology can also help to advance the system of transportation and can be used in many organizations for security purpose and tracking purpose.

### V. ACKNOWLEDGMENT

Apart from the efforts given by us, the success of any project depends largely on the encouragement and guidelines of many others.. We express our deepest gratitude towards our project guide Prof. VISHAL PANDE for his valuable and timely advice during the various phase. We would like to thank him for his support, patience and faith in our capabilities and for giving us flexibility in terms of working and reporting schedules.

We thank our college for providing us with excellent facilities that helped us to complete and present this project. We would also like to thank the staff members and lab assistants for permitting us to use computers in the lab as and when required.

### REFERENCES

- [1]. Assad M. J .Evaluation of GPS/GSM Based System Design, Journal of Electronics System.
- [2]. Kunal Maura, Mandeep Singh, Neelu Jain, "Vehicle tracking System" using GSM Technology-An Anti-Theft Tracking System, International Journal of Electronics and Computer Science Engineering.`
- [3]. V.R.B.Palaniappan, K.Karthik, Embedded Controlled for vehicle in-front Obstacle Detection and cabin Safety Alert System, International Journal of Computer Science & Technology(IJCSIT) Vol 4, No 2, April 2012.
- [4]. Micro-controller or micro processor Techie's digital points, June 2012.
- [5]. M.A.Mazidi, J.Mazidi and R.Mackinlay, the 8051 Microcontroller and embedded system(2<sup>nd</sup> edition),prentice hall 2006.
- [6]. Amol Dhumal, Amol Naikoji, Yutika Patwa, Prof M.K.Nighot, "Vehicle Tracking System using GPS and Android OS, April 2015.
- [7]. Pradip V Mistary, Real Time Vehicle Tracking system gggggBased GPS and GSM Technology.
- [8]. Pankaj Verma, J.S.Bhatia, "Design and Development of 3333GSM/GPS based tracking system Technology".
- [9]. Albert Alexe, "Cloud Computing Based on Vehicle nnnnTrackingInformation System".ISSN:2229-4333,IJCST vvvvVol.2, Issue 1, March 2011.
- [10]. Kai-Tai song,Chih-Chieh Yang, of National Chiao TungggggUniversity, Taiwan, "Vehicle Mechatronics and gggggAutomation 2005.

A.More" GSM & GPS Vehicle Antitheft Tracking System" International Journal of Engineering Research and Applications (IJERA), Vol. 09, No.06, 2019, pp. 22-24