

# IOT Based Vehicle security System Using GPS Monitoring

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**Abstract:** Recently vehicle tracking system is getting vast popularity because of the rising number of the stolen vehicles. Vehicle theft is happening on parking and sometimes driving in unsecured places. This research work explores how to avoid this kind of stealing and provides more security to the vehicles. The implemented system contains single-board embedded system which is equipped with global system for mobile (GSM) and global positioning system (GPS) along with a microcontroller installed in the vehicle. The use of GSM and GPS technologies allows the system to track the object and provides the most up-to date information about on-going trips. The implemented system is very simple with greater security for vehicle anti-theft protection and low cost technique compared to others.

**Keywords:** Theft, Protectio, Tracking.

## I. INTRODUCTION

A vehicle tracking system combines the installation of an electronic device in a vehicle or fleet of vehicle to enable the owner or third party to track the vehicle's location and collecting data in the process. Modern Vehicle Tracking system (VTS) is the technology used to determine the location of a vehicle using different methods like GSM and GPS module and other radio navigation systems operating through satellites and ground based stations. GSM and GPS based vehicle location and tracking system provides effective, real time mapping based vehicle location tracking. The system uses geographic position and time information from the Global Positioning Satellites.

A security system is essential for motorist as the number of motorcycle theft increases every year. Various security systems are available in the market with variety of functions, operating modes and features. Most of the systems are expensive which make security system that offers excellent protection to your vehicle using GPS and GSM is effective one. The main aim of the system is to design and develop an advanced bike locking system in the real time environment. The user will send a status message from his cell phone and it will check for the user's authentication when the GSM module gets the message, and if found to be valid, it will immediately forward the details of the locations like the latitude and the longitude using GPS device. So the user will know the exact location of the vehicle. At the same time message will be sent to a personal computer or mobile application where user can get the exact location of vehicle pointed out on the google maps.

## II. OBJECTIVE OF PROJECT

- Recently vehicle tracking system is getting vast popularity because of the rising number of the stolen vehicles.
- Vehicle theft is happening on parking and sometimes driving in unsecured places.
- This research work explores how to avoid this kind of stealing and provides more security to the vehicles.

## III. METHODOLOGY

The Internet of Things (IoT) is the physical network of things or objects devices, buildings, vehicles, and other items embedded with electronics, software, sensors, and network connectivity that enables these things or objects to collect and exchange data. An anti-theft system is any device or method used to prevent or deter the unauthorized appropriation of items considered valuable. Theft preemption based on IOT provides a system. Internet of Things is expected to produce high degree of human to machine communication along with machine to machine communication. This project proposes the security system using IOT, which prevents theft in home, bank etc. The primary objective of this project is to reduce human work. Automation has always been a prime factor for security system. We aimed in the project is to design and implement a security system. System that offers controllability through a hand held mobile phone by means of IOT. The commands from a mobile phone are used to switch ON and OFF the alerting system. This project is implanted as prototype model.

#### IV. EXPERIMENTAL SETUP

##### VEHICLE SIDE:

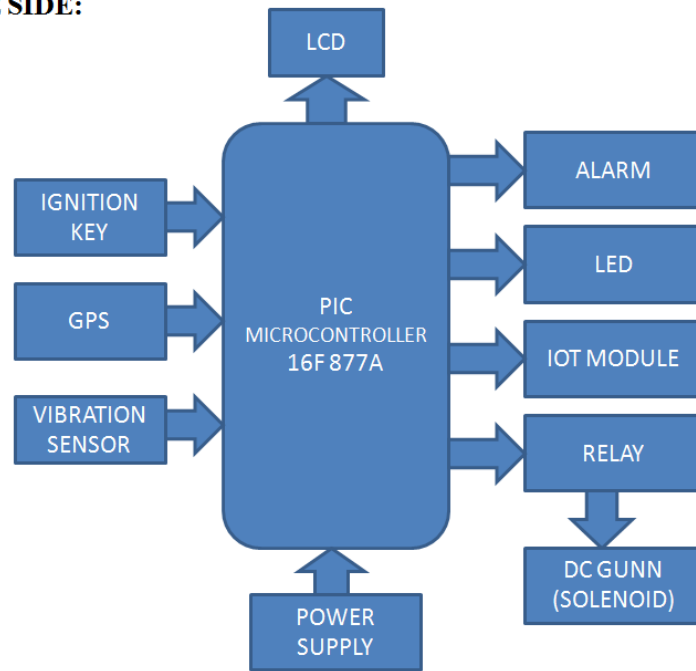


Fig.1. Block Diagram

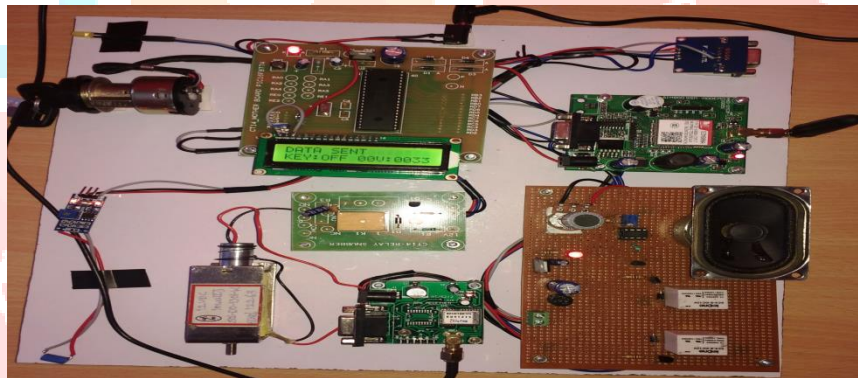


Fig.2. Experimental Setup

##### VIBRATION SENSOR

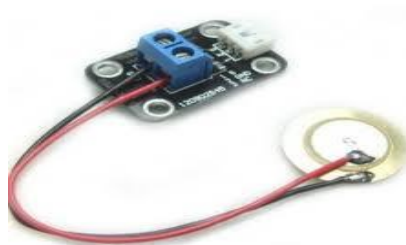


Fig.3. Vibration Sensor

This basic vibration sensor hosts a piezo element & is used for flex, touch, vibration and shock measurements. A small AC and large voltage is created when the piezo film moves back and forth. A simple resistor should get the voltage down to ADC levels. Can also be used for impact sensing or a flexible switch. The piezoelectric transducer is displaced from the neutral axis during vibration, it creates strain on piezo element which generates voltage. Operating voltage: 12v

**DC GUNN(SOLENOID)**

Fig.4.DcGunn (Solenoid)

Solenoids are classified based on the type of Voltage (DC), Action (Linear or Rotational) and Electrical Duty Cycle (EDC). The stroke length and force developed by the pulling or pushing action. In this supply voltage 12v

**SIM800A GSM WITH GPRS**

Fig.5.GSM Module

SIM800 supports Quad-band 850/900/1800/1900MHz, it can transmit Voice, SMS and data information with low power consumption. Featuring Bluetooth and Embedded AT, it allows total cost savings and fast time-to-market for customer applications. SIM800 modules are upgraded version of its previous successful GSM/GPRS/GPRS module series SIM900. SIM900, SIM900A modules operate from 3.2V to 4.8V supply range.

**LCD DISPLAY**

Fig.6.LCD Display

Liquid crystal cell displays (LCDs) are used in similar applications where LEDs are used. These applications are display of display of numeric and alphanumeric characters in dot matrix and segmental displays. LCD consists of two glass panels, with the liquid crystal materials sandwiched in between them. It used to display the pollution level in PPM

**V. RESULT**

Our proposed Two Wheeler Vehicle Security System is the advanced, reliable and robust version of security mechanism for two wheeler vehicles. The proposed security system also gives space, in terms of hardware and software, to add up custom applications to make the product even more user-friendly. Proposed TWVSS can be installed on two wheeler vehicle of any class or company, thereby creating

a huge market for the product. Stress was laid in designing a cost efficient system so that it could also be even bought by the owners of the low end bikes. Small size of the module allows it to be placed under

## VI. CONCLUSION

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 bike locked. the engine authorized person needs to enter the commend release the dc gunn then vehicle will be moment. In this method, easily to used in vehicle security.

## VII. FUTURE WORK

Hopping code algorithm could be used in Remote Keyless System (RKS) for added security. Presently only SMS feature is available, we can include the Call feature for ease of operation. Like for example giving miscall would lockdown the vehicle. SIM 300 even supports GPRS coding schemes hence data network could be used to send alerts and receive control messages. Hall Effect sensor could be used to find the position of gear, which could be displayed with a single seven segment display.

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