# Super Secured Bike

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## Abstract

A super secure bike is very useful for tracking the movement of a bike from any location at any time. In this work, real time Google map and Arduino based super secure bike is implemented with Global Positioning System (GPS) and Global system for mobile communication (GSM) technology. The GPS send the location of the bike. Then GSM module transmits the location of bike to mobile phone of owner/user in terms of latitude and longitude. At the same time, location is displayed on LCD. Finally, Google map displays the location and name of the place on mobile phone. Thus, owner/user will be able to continuously monitor a moving bike using the mobile phone. In order to show the feasibility and effectiveness of the system, this work presents experimental result of the bike tracking system. The proposed system is user friendly and ensures safety and surveillance at low maintenance cost.
**Keywords: GPS; GSM; Cell Phone; Google Map; Arduino**

## I. INTRODUCTION

The main aim of the system is to construct a control system that enables the complete control of the interface it is based on. Our main motive is to get the co-ordinates of the vehicle through Short Message Service (SMS), to effectively receive and transmit data via SMS, to eliminate the need of being physically present in any placed for security of the bike.

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 mobile handset 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 to the user. Also if it is detected that the bike is stolen SMS will be sent to the user/owner in an interval of 10 minutes with location so as to track the bike and subsequently the theft.

General objectives of the project are defined as:-

a) To identified co-ordinate vehicle through Short Message Service (SMS).
b) To effectively receive and transmit data via SMS.
c) To eliminate the need of being physically present in any location for security of the bike.

Accident notification system by using GSM and GPS, the main purpose of this project is to find the site of the accident in any place and send message through GSM and GPS. Global System for Mobiles (GSM) technology is used to establish a mobile phone connection .GPS is used to trace the position of the vehicle. At present accidents are increasing significantly, this system facilitates to find accident place in remote areas and makes a hope in survival through the availability of ambulance or hospital as soon as possible. Circuit is designed using Proteus after completing the software implementation the hardware is to be implemented. There are many applications that can be used, such as in the detection of alcohol and in the car theft.

We can add vibration sensor to the car or bike. In case when the bike locked and somebody is try to open the bike lock then vibration will be produced and vibration sensor can sense this vibrations and turn on the buzzer.

## II. OBJECTIVES

The objective of this project is to provide the high security for bike from robbery and also help to police for caught attacker easily. By using this project we can overcome the robbery of bike.

## III. SCOPE OF THE PROJECT

### *A. Limiting the Speed*

Young bikers have habit to ride the bike with high speed. Due to which cases of accidents are increasing. We can develop a system such that if biker increases the speed over a predefined limit the bike or the system will send a SMS to his/her parents, police and bike will stop for some time.

### *B. Instruction to Change the Gear*

While riding a bike, it is often that the rider has to change the gear according to the road condition, traffic conditions etc. But sometimes rider neglects to change the gear due to which bike may get damaged. So we can develop the system such that if there is a need to change the gear the system will show a message on the digital display to change the gear (increase or decrease.

## IV. WORKING OF THE MODULE

### *A. Condition to Start the Bike*

We are interfacing an RFID card Reader which can read RFID Tags to Arduino. RFID is Radio Frequency Identification. An RFID reader is used to read RFID tags (which contain certain unique data stored in a chip). An RFID card reader and an RFID tag, both have coil surrounding them. When an RFID tag is shown near an RFID Reader, it collects the unique tag data (a combination of digits and characters) from the RFID tag. RFID reader read the tag motor is on OR bike is Start.

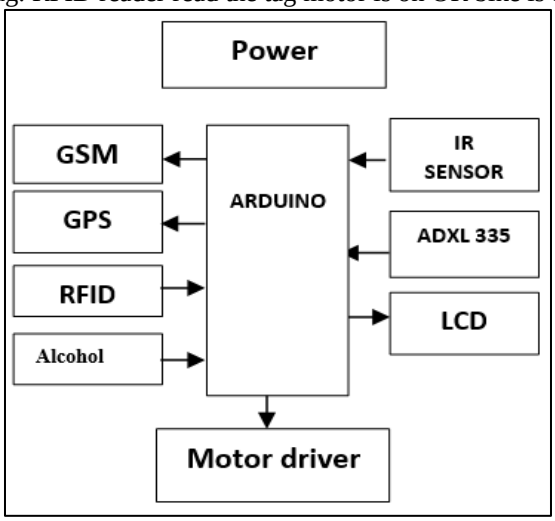


Fig. 1: Block Diagram of Super Secure Bike

### *B. For Helmet Detection*

If IR sends signal to Photo transistor then bike will start.

### *C. Facility to Stop Bike*

When the bike gets theft, the user sends SMS to the bike and bike will stop instantly. We are placing IR sensors on the bottontip of front suspension. At the time when the bike is in off state, if IR signal gets cut due to forcible pushing of the bike the Controller detects this action as theft and send the SMS to the owner saying that the bike is being stolen and continuously sends the location of the bike to the owner at an interval of 10 minutes. If user wants to stop his bike then he has to send only a STOP SMS to the bike and the bike will stop.

### *D. Theft Control*

If stolen, bike owner gets message after every 10 min with the location of the bike (that is possible because of GSM and GPS kit).

### *E. Facility in App*

Owner and other users of the bike have to register using the mobile app. Only after the Registration, user can start the bike. Owner has a facility that he/she can see the location of his bike anytime.

### *F. Accident Detection*

The ADXL 335 IC is used for accident detection. When the bike is collapse with Z axis and Y-axis then it Send specific analog voltage to the arduino and arduino is detected this is accident.

## V. SOFTWARE DESIGN

### *A. Algorithm*

1) Start
2) Press RFID CARD to RFID reader. If card is authenticated start bike else card is not authenticate bike stop.
3) If check helmet is wearing is wearing bike start else stop.
4) Obstacle detected in front of bike will stop.
5) Accident on bike send location to the person through SMS service.
6) If bike is stolen you send message through GSM & stop the bike or switch off the bike &location sending on your mobile phone.
7) Stop.

## VI. CONCLUSION

We develop a system that secures the bike from thefts. An accident is a specific, unexpected and unintended external action which may occur at any time and place with no apparent and deliberate cause. So we develop a system that detects whether the rider has worn the helmet using helmet detection technique and also if he/she is non-alcoholic using alcohol detection technique for his/her safety. To secure the bike from the thieves. This paper proposes the security system in the campus against asset theft especially motorcycle with the RFID technology. The system consists of circuits and security functions such as the circuit which shut the motorcycle engine off when the fault occurs, the CCTV and the monitoring systems. The security system is examined and the system parameters are adjusted for the optimum performance of the system with the applied technology. Moreover, some suggestions and solutions obtained from the system testing are included in order to gain higher efficiency and reliability in developing system before implementing the system in practical uses. The possibility of applying RFID technology into securing program against asset theft. The testing results show that the system performance and efficiency is acceptable in the defined environments.

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## REFERENCES

[1] N.Jinaporn, S. Wisadsud, P.Nakonrat and A.Suriya "Security System against Asset Theft by using Radio Frequency Identification technology", Proceeding of ECTI-CON, 2008, pp.761-764.
[2] B.G.Nagraja, R.Rayappa, M Mahaesh, M.Patil and T.C Manjunath, "Design and development of a GSM Based Vehicle Theft Control System", Proceeding of IEEE on Advanced Computer Control, 2009, pp.148-152.
[3] L.Wan and T.chen, "Automobile Anti-theft Sytem Design Based on GSM", Proceeding of IEEE on Advanced Computer Control, 2009, pp.551-554.
[4] Prawada P. Wankhede and Prof. S.O. Dahad, "Real Time Vehicle Locking and Tracking System using GSM and GPS technology", Proceeding of International journal of Technology and Engineering System(IJTES), 2011, pp.272-275. EEE on Advanced Computer Control, 2009, pp.148-152
[5] Muhammad Ali Mazidi, Janice Gillispie, Rolin McKinlay, The 8051 Microcontroller and Embedded systems, Pearson Publications, 2nd Edition, 2006. [7] Steven F. Barett, Daniel J.Pack, Atmel AVR Microcontroller Primer: Programming and Interfacing, Morgan & Claypool Publishers, 2nd Edition, 2008.
[6] "Alcohol detection using smart helmet system" Sudharsana vijayan, Simna Surendran, Mohammed Sabah International journal of Emerging Technology in computer science and Electronics ISSN: 0976-1353 Volume 8 Issue 1-April 2014