

Smart Helmet

Vivek Shrishail Ambi¹, Manish Satish Kale², Shivtej Shital Kamte³,
Channbasva Virendra Ulange⁴, Mr. S. R. Shirdhone⁵

Students, Department of Electrical Engineering^{1,2,3,4}

Guide, Department of Electrical Engineering⁵

Sharad Institute of Technology, Yadrav, Ichalkaranji, Maharashtra, India

ambivivek56@gmail.com¹, kalemanish472@gmail.com², shivtejkamate3@gmail.com³

ulangec@gmail.com⁴, sammeds6262@gmail.com⁵

Abstract: *The main cause of death in two-wheeler drivers is over-speeding, drunken driving and careless driving. Numerous lives could have been saved if emergency medical service could get accident information and reach in time to the scene. To resolve these current issues we are developing a helmet which gives best solution. The se main issues motivates us for developing this project. The objective of our project is to design a low-cost intelligent helmet that is capable of identifying alcohol consumption and preventing road accidents. The main purpose of this smart helmet to provide safety for rider. This is implemented by using advance features like alcohol detection, accident identification, location tracking, used as a hands free device. In our project. If rider is drink or if accident test place.*

Keywords: Smart Helmet, IoT, GSM, GPS, Sensors, Accidents Prevention, Alcohol, Message, Bikers

I. INTRODUCTION

In today's fast paced life most of accidents happen due to drinking and driving. Most of the countries are forcing the motorists to wear a helmet, however rules are being violated by uncivilized citizens. Thus the objective of this project is to make sure people wear helmets and then ride bikes. Another objective is to make sure the rider isn't drunk. The rider won't be able to ride the bike if he is drunk. One more objective is to reduce the fatality of the accidents by sending a message to the riders relative about the accident. This is implemented by using advance features like alcohol detection, accident identification, location tracking, and use as a hands free device, Its compulsory to wear helmet, without helmet ignition switch cannot ON.

II. OBJECTIVE

Smart helmet comprises of Arduino Pro mini 328, Piezo electric sensors, MQ3 alcohol sensor, RF transmitter, RFID tag and a rechargeable battery. Here the Smart box is integrated with Smart helmet in such a way that the rider can start his vehicle only when he wears helmet and also if he is sober.

III. CONCEPT

Smart helmet for safe rider is designed with radio frequency link. , as user wear helmet a rf signal radiate from transmitter and these RF signal get sensed and synchronized with the help of address matching by the receiver section placed in the ignition switch of the bike and bike get started and bike stopped working as helmet keep out from head.

IV. BLOCK DIAGRAM

Scope of Improvement: Any system always has a scope for improvements and more advancement. All the systems studied under the literature survey have their own different features. All the systems proposed till date are used only for sending message in case of accident. There could be such a system where only alcohol detection is present. Here in this system many advanced features are added and also the previous features are clubbed in a single system. It will send message automatically when rider met an accident with helmet on. RF transmitter and receiver are used for starting the two wheeler, if rider not wearing the helmet the bike will not get start. The alcohol sensor will sense the alcohol and it will lock the ignition if drunk. The solar sense is generating power for the system. It can tracked easily with location when bike is stolen. It can also use to receive call while driving through wireless Bluetooth Speakers.

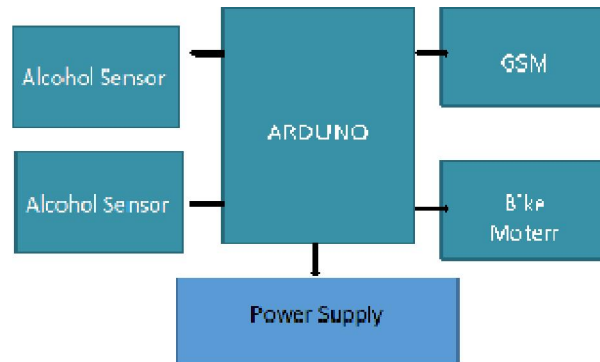


Figure 1: Block Diagram

V. COMPONENT

5.1 GSM Modem SIM800

GSM abbreviates as Global System for Mobile communication. It is used to establish connection between a computer and GSM system. It includes standard interfaces like RS232, USB, etc. It is used to send messages through the SIGPS Technology. The Global Positioning System (GPS) is a satellite-based navigation system which is used to detect the location where the accident will be taken place. It detects the Longitude and Latitude values of particular place and sends it to GSM module.



5.2 Vibration Sensor

Vibration sensors are sensors for measuring, display, and analyzing linear velocity, displacement and proximity or acceleration.



5.3. Gas Sensor (MQ3)

This sensor is used to detect alcohol content in biker's breath. It runs on voltage supply of 2- 3.3V. If the sensitivity of MQ-3 is more than 0.04mg/L in breathe then the driver can't drive the bike.



VI. ADVANTAGE

The system of smart helmet is utilized to avoid motor bikes accidents and to recognize them at real time in order to maintain safety of human being. The IoT based-technology of smart helmet is a crucial issue, which improves safety of two-wheeler driving than, exist one.

VII. CONCLUSION AND FUTURE SCOPE

Thus this system is very effective for the safety purpose of the user. User has to wear helmet to ride a bike and hence traffic rules will be followed by the rider. This system is under pocket control i.e. riding the two wheeler vehicle having safety in hand and in budget. This system has easy functionalities. It provides a better security to the biker.

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