



# SMART INTELLIGENCE HELMET



**Project Report**

*submitted by*

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*for*

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**BONAFIDE CERTIFICATE**

Certified that this project report titled “**SMART INTELLIGENCE HELMET**” is the bonafide work of **SUBHASH SUTHAR B (1921199)**, who carried out the project under my supervision. Certified further, that to the best of my knowledge the work reported herein does not form part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

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## **Abstract**

The most common cause of death for two-wheelers is drunk driving and carelessness. Numerous lives could have been saved had emergency medical services been notified of the accident and reached the scene in time. In order to resolve these current issues, we are developing a helmet that provides the best solution. These main factors motivate us in developing this project. Our project intends to design a low-cost intelligent helmet that will detect alcohol consumption and prevent road accidents. This smart helmet's primary purpose is to enhance rider safety. It is a smart IoT-based device that controls and warns the rider to slowdown. A helmet comes with some particular features that make it more convenient and productive for riders. It includes an inbuilt microphone and speaker with interpreter Google voice assistance, so we can make calls; a voice navigation system; and it also includes a sensor to detect alcohol and warn riders. A number of advanced features are utilized such as detection of alcohol, accident identification, and tracking of location. The sensors are attached with helmet module and vibration sensor, GPS and GSM are connected with Helmet Module.

**Keywords:** IoT, Microphone, Sensors, Polycarbonate, Google Assistant, Message, GSM.

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## CHAPTER 1

## INTRODUCTION

Helmets have recently become a legal requirement both the riders. Survey conducted by government of India, Traffic accidents our country increased year by year. As per Section 129 of Motor Vehicles Act, 1988 it is compulsory that the rider should wear a helmet which is of ISI standard. In India drunken driving cases are a criminal offense according to Motor Vehicle act 1939. Which states that the bike rider will get punished. In spite of this, bike riders easily escape from law. In recent years, information and communication technology have played a significant role in advancing health and safety technologies. There are several reasons why helmets are not worn, such as cost-effectiveness, quality, and compromising attitudes. A smart wearable gadget has become an integral part of modern life. The wearable device, "Ausko" operates on an Internet of Things basis of sensors and communicates with smartphones via Bluetooth. The aim of this project is to make a protection system in a helmet for the safety of bike riders. Around every second people die due to late medical help or the accident place is not known. A pressure sensor is used to detect when an accident occurred. The smart helmet that we made is fixed with sensors which act as to detect whether we wear a helmet or not. The helmet has a smart motion detection system to detect falls while driving and synchronize with a SOS message. The outer layer is equipped with touch sensors. Where the Arduino functionals work to detect all features. In the subsequent sections, Literature survey, problem definition and motivation, block diagram, Application Integration cloud connectivity, Applications of smart helmet, Merits of the proposed helmet, futuristic goal and Conclusion of smart gadget based on IOT.

## **NECESSITY**

In India 2018, "India Today" reports, more than 48,746 two-wheeler riders died in road mishaps. Incidentally, 73.8% of them did not wear a helmet. People who drive and drunk or over speed in twowheeled vehicles have significantly increased the number of road accidents and deaths. The accident rate at which the number of two wheelers in India is rising is 20 times the rate at which the human population is growing. The risk of death is 2.5 times more among riders not wearing a helmet compared with those wearing a helmet. Aimed to reduce the growth of accidents which happen due to two-wheeler and make people safe and protect their life while in an accident

# CHAPTER 2

## METHODOLOGY

Understand the process and the working of `smart intelligence helmet built with the technology's stacks which identified the helmet wear or not with some frequency which alarm and notify the rider, The frequency detects in range of 5 Hz in inner side of helmet which helps to predict the user have not wear helmet. Thus, the application in phone predicts the helmet frequency and activate the sensor and connectivity established. The many features are defined more practical way to prevent rider more responsibility to save life. Thus, the sensor is predicted to sense the person whether drunk or not with the help of acholic sensor and it initiated after the establishment between helmet and application. A cause of an accident and SOS message send prior database and help the police to identify about the database related to cases of drunk and drive. In, additionally the feature is implemented in helmet which helps user to more sensation to attend call from the outer layer interrogate with smart inbuilt devices such as mike and speaker module which reduce the distraction of rider while driving two-wheeler. The GSM and GPS Feature implemented to activate location and track the accident zone of rider which enhance the communication through sos which helps induces the family to reach out the spot at time and emergency service to call which connected and transfer the location of rider and speed via phone connectivity alert while time of accident. A photonic crystal sensor is induced to make helmet more sensation and send sos while the pressure release which cause to prevent accident. The riders not to be just roductive they also need to smart as technology update. So, the inbuilt Alexa is interrogated to helmet and connectivity to phone to helps the rider to navigate voice assistance feature to locate the places and connect calls and more. The last feature which senses the helmet to prevent from accident and detect the fall of rider and quickly implement and establish the connection to nearby hospital and local ambulance service and send information and helps to save the life of rider.

### Acronyms Insight of Proposed Model

- 1.SOS- "Save Our Ship"
- 2.IoT- Internet of Things
- 3.GSM- Global System for Mobile communication
- 4.GPS- Global Positioning System
- 5.SMS - Short Message Service



## BLOCK DIAGRAM

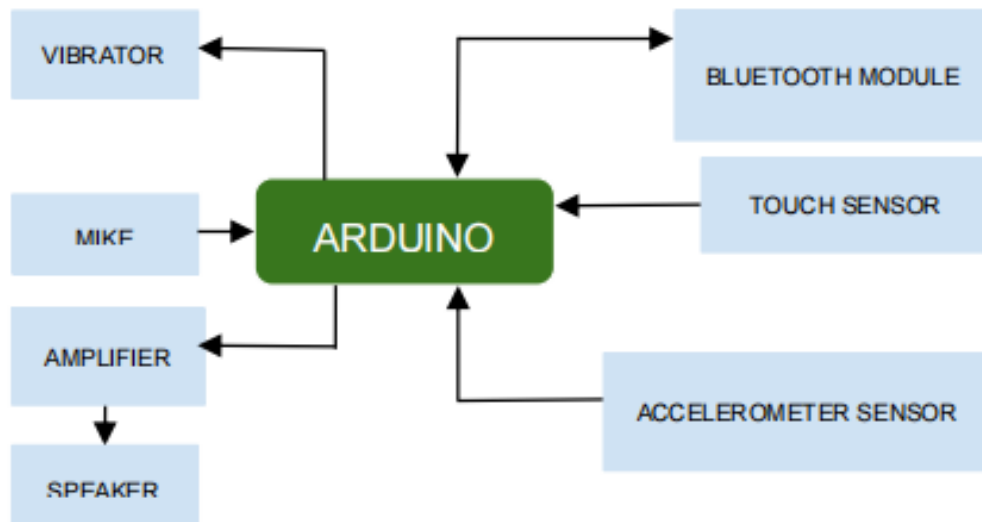


Figure 1.0: Representation of block diagram of the proposed model

## HARDWARE/ SOFTWARE

### Hardware Specifications

Microcontroller (AT mega 328)  
 Alcohol Sensor  
 Touch sensor  
 Amplifier  
 Vibrator  
 Gyroscope  
 Mike & Speaker

### Software Specifications

Arduino Compiler  
 MC Programming Language: C

## CHAPTER 3

### CLOUD CONNECTIVITY

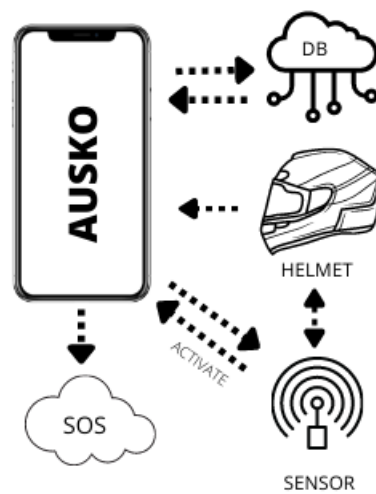


Figure: 1.1 - connectivity model and working of smart helmet.

### COMPONENT

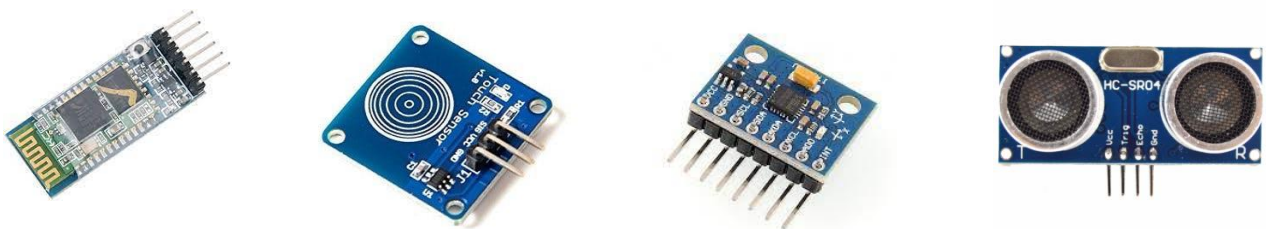


Figure: 1.2 - Represent the component Used for project



## **CHAPTER 4**

### **CONCLUSION**

A smart intelligence helmet with technology, which includes safety for riders, should be developed. A smart helmet for two-wheelers aims to reduce the accident rate. In addition, I developed the method of detecting accidents and notifying people via SMS and mobile applications. A GPS system is used by the system to quickly locate a rider's accident zone and help respond to emergencies. By using the mobile application to establish the connection between the helmet and database, the cost will be reduced and we will be able to improve the vehicle detection and reduce the processing time on the microcontroller. I cognize the helmet in real time may not be foolproof, but it is definitely a first line of connectivity model and working of smart helmet. defence for the rider during an accident and definitely the best defence from fatal injuries. In futures Machine learning for safety will be enhanced and embedded into helmet.

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