

IOT BASED SAFETY EQUIPMENT FOR ALCOHOL AND ACCIDENT SAFETY SYSTEM

Deepika¹, Indumathi², Vasumathi³

UG students, Department of Information Technology, Vivekanandha College Of Technology For Women Thiruchengode, Tamilnadu

Sateesh kumar⁴

Assistant professor, Department of Information Technology, Vivekanandha College Of Technology For Women, Thiruchengode, Tamilnadu

Abstract – The Main objective of this project to provide a means and apparatus for detecting and reporting accidents. With the rapid increase in number of 2-wheelers, frequency of accidents is increased rapidly. A major cause of the fatalities occur because either the person was not wearing a helmet, or driving a vehicle using alcohol or his accident was not reported in time, and he could not be saved because of the delayed admittance to a hospital. So efforts should be made to avoid accidents and to minimize their consequences. Today we are living in a world where the conditions of the road have no importance for people and they are regularly violated. In addition, its human nature to resist what is imposed on them. So there is a need to make smart device using IOT.

1. INTRODUCTION

Technology is the word where we hear every corner of the world, mainly in the fields of education, manufacturing of the products, transportation, communication and health. In the field of transportation industry was always an essential part of the economy, and a tool used by the government. We have different ways of transportation for moving around the world, but motorcycles are the craziest vehicle in the young generation and as well as to the world. Motorcycle safety related to different features of the vehicle such as equipment model, design of the vehicle and as well as operator skill is special for motorcycle rider has towards the motorbikes. But 1

even the slightest careless can have serious injuries or may lead to the death of the rider. Not only because of the careless, but the death of the people may occur due to over speed, rash driving, over consumption of alcohol and violation of traffic rules. But the main reason for brain damage and this leads to immediate death, was the absence of helmet on the person. If the rider wears the helmet, 80% chances for avoiding head injuries and we can save a life from accidents.

1.1 OBJECTIVE

The main objective of this system is to design a helmet that provides safety to bike riders and to prevent over a drink and drive cases. It detects whether the rider met with an accident if he meets, then it alerts the guardian about the accident and sends information as notification.

1.2 EXISTING SYSTEM

The existing system based on RF based communication and it will detect the particular range of traffic the driver wear a helmet or not. The manual key is pressed and to detect the drunken and drive. Our project ensures that the driver has worn the helmet and at the same time s/he is not drunk. For this we are using Arduino and RF module for programming and for wireless transmission.

2. SYSTEM DESCRIPTION

2.1 PROPOSED SYSTEM

We are developing a smart device using the internet of things (IoT) technology, in which we ensure the safety of the 160

- The system detects whether the rider is wearing a helmet or not if he wears then only the vehicle will start.
- It detects the amount of alcohol consumed by the rider, if the rider has over drunk, the bike engine will not start.
- When the bike rider meets with an accident it detects it and gives the notification to the registered contact with a location.
- While we are travelling time almost we went fast. On that time if any one of the object will suddenly crossed that time we get anxiety. In that situation we are using ultrasonic sensor. It will sense and to be reduce the speed of the bike before 2 to 3 meters itself. So, we avoid the accident.

For the safety of the bike rider, we are using the latest technology IoT, this technology provides the advance techniques for alerting the rider and ensures that rider follows the rules and regulations. For two-wheeler rider, Helmet is the most basic protection device and it is necessary for every bicycle or motorbike riders. But it does not ensure the safety of the rider and the rider won't follow the traffic rules. Most of the people use ordinary helmet just to avoid giving challan to the traffic police, these helmets do not ensure the safety of the driver. So, to over come these problems we need to use the smart device.

2.1.1 Proposed System Advantages

- This system reduce the number of accident
- Increased productivity
- Effective workforce monitoring
- Safety of workers
- Health monitoring
- Cost avoidance

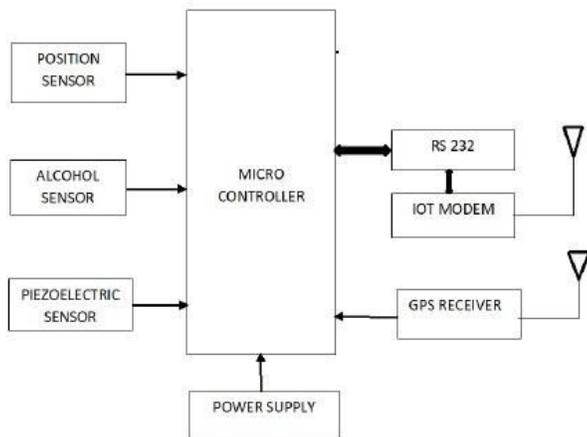


Fig1 : Block Diagram of the System

3 . MODULE DISCRPTION

3.1 Alcohol Detection Module

This module is made using Alcohol Gas Sensor MQ3. It is a low cost semiconductor sensor which can detect the presence of alcohol gases at concentrations from 0.05 mg/L to 10 mg/L. The sensitive material used for this sensor is SnO₂, whose conductivity is lower in clean air. It's conductivity increases as the concentration of alcohol gases increases. It has high sensitivity to alcohol and has a good resistance to disturbances due to smoke, vapor and gasoline. This module provides both digital and analog outputs. MQ3 alcohol sensor module can be easily interfaced with Microcontrollers, Arduino Boards, Raspberry Pi etc.

This alcohol sensor is suitable for detecting alcohol concentration on your breath, just like your common breathalyzer. It has a high sensitivity and fast response time. Sensor provides an analog resistive output based on alcohol concentration. The drive circuit is very simple, all it needs is one resistor. A simple interface could be a 0-3.3V ADC.

3.2 GPS Module

GPS module is Global Positioning System it will point out or track the location if any riders are during the accident. **NEO-6M GPS Receiver Module.** Global Positioning System (GPS) makes use of signals sent by satellites in space and ground stations on Earth to accurately determine its position on Earth. The NEO-6M **GPS receiver module** uses USART communication to communicate with microcontroller or PC terminal

3.3 Rider's Safety Module

Riders safety is very important because he will met an accident helmet is very safest one because it will avoid the fatality problems.

3.4 Reporting System Module

In that the reporting system the rider met an accident the using the accident detection sensor sence and reporting to the nearby ambulance or their family members through the GPSmodule. So, the rider will save the life.

4. INTERNET OF THINGS (IOT)

The Internet of things (IoT) is the network of physical devices, vehicles, home appliances, and other items embedded with electronics, software, sensors, actuators, and connectivity

which enables these things to connect, collect and exchange data.

IoT involves extending Internet connectivity beyond standard devices, such as desktops, laptops, smartphones and tablets, to any range of traditionally *dumb* or non-internet-enabled physical devices and everyday objects. Embedded with technology, these devices can communicate and interact over the Internet, and they can be remotely monitored and controlled. With the arrival of driverless vehicles, a branch of IoT, i.e. the Internet of Vehicle starts to gain more attention.

5. CONCLUSION

In this effective way we are designed a smart helmet for identifying a drunk and drive people. In this project is used to save a human life in effective way. The main feature of this project is to detect the location of accident and it will be sent through nearby hospital IOT Server. Most of the accident occurs because of drunk and drive. Even accident occurs for normal person the dead count is increased, because they not wearing a helmet. Even though the normal people is affected by this drunk and drive vehicle driver. For that reason we are designed that project. In this way are project is helpful society to save human life to travel a vehicle with safety.

5.1 Future Enhancement

Future works will focus on upgrading the training model and increasing the number of samples used to train the model, which may increase the recognition accuracy. In addition, the sensor thresholds that indicate collisions are difficult to determine for high-speed head-on and single-vehicle collisions based solely on acceleration. Therefore, future work will also focus on adjusting these thresholds and improving the methods for sensing traffic accidents.

REFERENCES

REFERENCES

[1]. Safety measures for “Two wheelers by Smart Helmet and Four wheelers by Vehicular Communication” Manjesh N 1, Prof. Sudarshan raju C H 2 M Tech, ECEDSCE, JNTUA, Hindupur Email: manjesh405@gmail.com HOD & Asst. Prof. BIT-IT, Hindupur International Journal of Engineering Research and Applications (IJERA) ISSN:2248-9622 NATIONAL CONFERENCE on Developments, Advances & Trends in Engineering Sciences (NCDATES-09th & 10th January 2015).

[2]. Smart Helmet with Sensors for Accident Prevention Mohd Khairul Afiq Mohd Rasli, Nina Korlina Madzhi, Juliana Johari Faculty of Electrical Engineering University Technology MARA40450 Shah Alam Selangor, MALAYSIA julia893@salam.uitm.edu.my)

[3]. A Solar Powered Smart Helmet With Multi features Mr.P.Dileep Kumar¹, Dr.G.N.Kodanda Ramaiah² Mr.A.Subramanyam³, Mrs.M.Dharani⁴ International Journal of Engineering Inventions e-ISSN: 2278-7461, pISSN: 2319-6491 Volume 4, Issue 10 [June 2015] PP:06-11)

[4]. A Smart Safety Helmet using IMU and EEG sensors for worker fatigue detection Ping Li, Ramy Meziane, Martin J.-D. Otis, Hassan Ezzaidi, REPARTI Center, University of Quebec at Chicoutimi Chicoutimi, Canada Email: Martin_Otis@uqac.ca Philippe Cardou REPARTI Center, Laval University Quebec, Canada Email: pcardou@gmc.ulaval.ca)

[5]. ISSN 2319 – 2518 www.ijeetc.com Vol. 4, No. 2, April 2015 © 2015 IJEETC.

[6]. Sudarsan K and Kumaraguru Diderot P (2014), “Helmet for Road Hazard Warning with Wireless Bike Authentication and Traffic Adaptive Mp3 Playback”, International Journal of Science and Research (IJSR), Vol. 3, No. 3, ISSN (Online): 2319-7064.

[7]. Vijay J, Saritha B, Priyadharshini B, Deepeka S and Laxmi R (2011), “Drunken Drive Protection System”, International Journal of Scientific & Engineering Research, Vol. 2, No. 12, ISSN: 2229-5518.

[8]. Harish Chandra Mohanta, Rajat Kumar Mahapatra and Jyotirmayee Muduli (2014), “Anti-Theft Mechanism System with Accidental Avoidance and Cabin Safety System for Automobiles”, International Refereed Journal of Engineering and Science (IRJES), Vol. 3, No. 4, pp. 56-62.

[9] Manasi Penta, BIKE RIDERS SAFETY USING HELMET, Department of Electronics and Telecommunication, IJEETC, Vol. 4, April 2015

[10] Amitava Das, Priti Das, Soumitra Goswami, Smart Helmet For Indian Bike Riders, Eleventh IRF International Conference, ISBN: 978-93-84209-47-6, 17th August 2014, Chennai, India.