IOT: EMPOWERED ALCOHOL SENSING SYSTEM FOR SAFETY DRIVING IN TWO WHEELERS

[1]Abhinava Dhanush T M, [2]Premsagar, [3]Karankumar, [4]Narasimhamurthy H N , [5]Chaithra M H

[1234]School of C&IT, REVA University, Bengaluru , Karnataka, India

[5]Assistant Professor, School of C&IT, REVA University, Bengaluru , Karnataka, India

abhinavadhanushtm@gmail.com , sonmaleprem@gmail.com, barabhaikaran@gmail.com ,narasitarak9999@gmail.com

Corresponding author : chaithra.mh@reva.edu.in

Abstract - Driving under the influence is starting at now a certified general clinical issue, which is presumably going to rise as one of the most noteworthy issues now. The framework targets decreasing the traffic mishap in the near future due to inebriated and drive. The advancement in utilizing the liquor detector ,a gadget that detects an adjustment in the alcoholic pollen gas substance of the encompassing air these gadget is all the more ordinarily alluded to as a breath investigation, as it examination the liquor content from individual's breath. The framework recognizes the nearness of liquor in the rider and promptly bolts the motor of the vehicle.

Keywords - Internet of Things, Arduino, Accident detection, Sensor, Alcohol sensor, vibration sensor, android app.

I. INTRODUCTION

IoT: Empowered Alcohol detecting framework for Safety Driving in bikes venture intends to give absolute wellbeing to vehicle riders. Street mishaps are a significant issue. A large portion of the mishaps are because of inebriated driving, and not wearing helmet while driving vehicle. Regardless of the way that breath analyzers are used to perceive whether the rider has used alcohol or not by the traffic rules, it is difficult to look at each and every rider and about. To defeat the previously mentioned dangerous issue, our group is structuring a keen framework that forestalls street mishap and recognizes liquor utilization and furthermore distinguishes wearing of head protector Able to identify crash and will have the option to inform rapidly the mishap to predefined number. As of late head protectors have been made necessary, yet at the same time individual's drive without caps our framework is planned for making vehicle driving more

secure than beforehand. We are executing with Helmet utilizing Arduino. We have inferred the driver's condition progressively condition and we propose the acknowledgment of alcohol using alcohol marker related with Arduino to such a degree, that when the level of alcohol crosses a tolerable cutoff, the vehicle start framework will kill. Right now are two modules to be specific protective cap and vehicle module, head protector will have command over the vehicle start and stop. An alcohol detection system is used to measure the alcohol content present in a body. High liquor levels lead to a decline in breathing, which may make alcoholic drivers inclined to mishaps. The measure of liquor in the blood is known as the blood liquor level[1]. In Helmet the sensor module is collected using sensors like alcohol sensor, vibration sensor, and IR-sensor, all the above sensors are associated with RF transmitter by means of Comparator. Sensor module will be put in the head protector to distinguish climate an individual worn cap are not, when the individual wears the cap the signs gets transmitted. The module in the bicycle permits the rider to begin the vehicle when the modules get signals from protective cap unit. The status of protective cap will be decoded by the RF decoder in vehicle model.

Alcohol sensor was utilized to continuously check the existence of liquor, while the Worldwide Positioning System and Global System for Mobile correspondence units send the place where the vehicle is situated via SMS[3].

Traffic rules violation	Number of accidents	Persons Killed	Persons injured
Drunken driving/consumption of alcohol & drug	14,071 (3.0)	4,776 (3.2)	11,776 (2.5)
Use of mobile phone	8,526 (1.8)	3,172 (2.1)	7,830 (1.7)

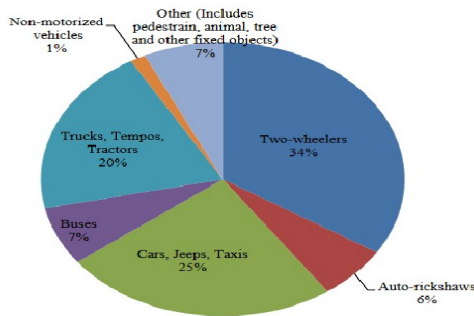Table 1: Road accidents by type of traffic rules violations – 2017

Table 2: Share of different vehicle types in road accident-2017

II. RELATED WORK

The effect when a biker includes street mishap by expending liquor and without wearing a cap is exceptionally risky and can cause casualty. Wearing head protector can diminish stun from the impact of accident and may save a genuine presence. As the bikers in our country are growing, the road debacles are also extending bit by bit, due to which various passing's occur. A large portion of them are caused because of liquor utilization and most normal lack of regard of not wearing the head defenders, in like manner various passing's happen due to nonappearance of brief clinical thought required by the hurt person. Car crash in Malaysia has been expanding at the normal pace of 9.7% per annum throughout the most recent couple of decades. The expansion of street mishaps is in interface with the quick development in populace, monetary being developed, industrialization and mechanization experienced by the nation. [2] The drivers may get into an accident or the driver may be driving above the allowed limit of drinking, the company would not be notified of these activities of the drivers which leads to inefficient transportation and delays in transportation[4] and all leads to loss of life and good and all this incurs extra cost to the company.

III. OBJECTIVES

1. To structure a minimal effort smart head protector that is fit for recognizing liquor utilization and forestalling street mishaps for security and wellbeing.
2. Design a circuit, that the bicycle won't start without wearing protective cap and if the rider is tanked.

What's more, if there should be an occurrence of mishap, GSM framework will all inclusive find the biker and prompt message will be sent to the relatives about the area of mishap.

3. Our framework is additionally able to get the call, decide and listen a sound music and FM utilizing remote inbuilt Bluetooth earphones.

IV. PROPOSED SYSTEM

Liquor discovery framework is ceaselessly developing over years which could resolve intoxicated driving mishaps around the world. IoT: Empowered Alcohol detecting framework for Safety Driving it is a practical assistive innovation to give security and wellbeing of the bikers against street mishaps. We are planning a framework which checks the two conditions before start of the motor. The primary condition is whether the rider is wearing head protector or not and it is recognized by a position sensor. The subsequent condition is identification of liquor content in rider's breath with the assistance of a liquor sensor. On the off chance that any of the two or both the conditions are disregarded, at that point the bicycle won't start. In the event that the rider is wearing helmet and the liquor content isn't recognized then start of motor turns over.
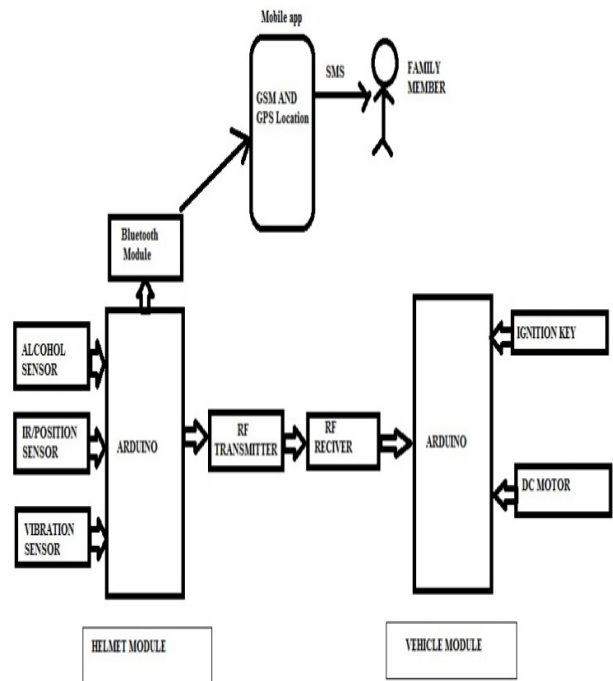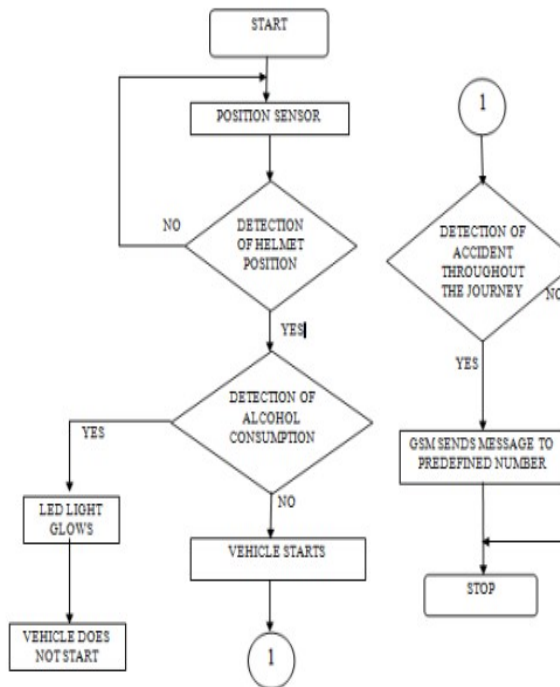

Fig 1. Architecture of proposed system

2ⁿᵈ International Conference on
Advances in Computing & Information Technology (IACIT-2020)
Date: 29-30 April 2020
Organized by School of Computing and Information Technology
Reva University, Bengaluru, India

190

Fig 2: Flow Chart Helmet module

V. MODULES- IMPLEMENTATION RESULTS

1. Ardiuno uno board

The Arduino Uno is an open-source microcontroller board reliant on the Microchip ATmega328P microcontroller and made by Arduino.cc. The board is equipped with sets of modernized and basic data/yield (I/O) sticks that may be interfaced to various expansion sheets (shields) and various circuits..

2. Alcohol sensor (MQ3)

This alcohol sensor is fitting for recognizing alcohol center around your breath, much equivalent to your fundamental breathalyzer. It has a high affectability and snappy response time. Sensor gives a straightforward resistive yield subject to alcohol center. The drive circuit is incredibly fundamental, all it needs is one resistor. A fundamental interface could be a 0-3.3V ADC.

3. LCD Display

We go over LCD shows any place around us. PCs, calculators, TVs, mobile phones, automated watches use a grandstand to show the time. A LCD is an electronic feature module which uses liquid diamond to make a recognizable picture. The 16×2 LCD show is an amazingly fundamental module consistently used in DIYs and circuits. The 16×2 decodes o an exhibit 16 characters for each line in 2 such lines. At this moment character is appeared in a 5×7 pixel organize.

4. Bluetooth module HC-05
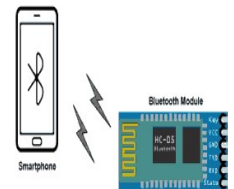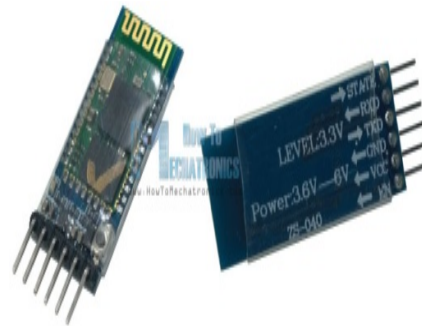
HC-05 is a Bluetooth module which is planned for remote correspondence. This module can be used in a pro or slave game plan. HC-05 has red LED which shows affiliation status, whether or not the Bluetooth is related or not. Before partner with HC-05 module this red LED gleams tenaciously in a discontinuous manner.

2nd International Conference on
Advances in Computing & Information Technology (IACIT-2020)
Date: 29-30 April 2020
Organized by School of Computing and Information Technology
Reva University, Bengaluru, India

191

Right when it gets related with some other Bluetooth device, its squinting moves down to two seconds.

5. IR Sensor
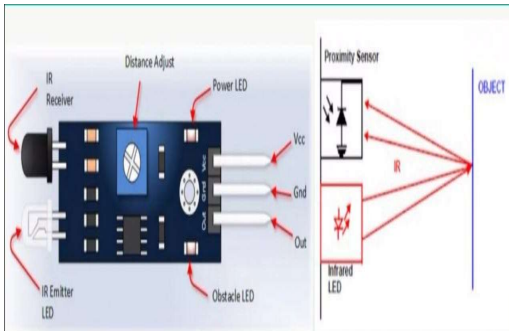
An infrared sensor is an electronic device, which radiates in order to distinguish a couple of parts of the earth. An IR sensor can measure the glow of a thing similarly as perceives the development. These sorts of sensors evaluates simply infrared radiation, rather than transmitting it that is called as an idle IR sensor. Can an IR sensor perceive individuals - The Passive Infrared (PIR) sensor is used to recognize the proximity of human. The Grid-EYE sensor perceives the human using the infrared radiation transmitted by the human body. Every human exudes the infrared essentialness of unequivocal recurrence go. The held event radiation changes the temperature of a material. IR sensors 2.8V at 15cm to 0.4V at 150cm with a stock voltage some place in the scope of 4.5 and 5.5 VDC.

6. Vibration sensor

Vibration sensor can gauge and break down dislodging, straight speed. The contact that carries the mass to rest is characterized by the damping.

7. R F module
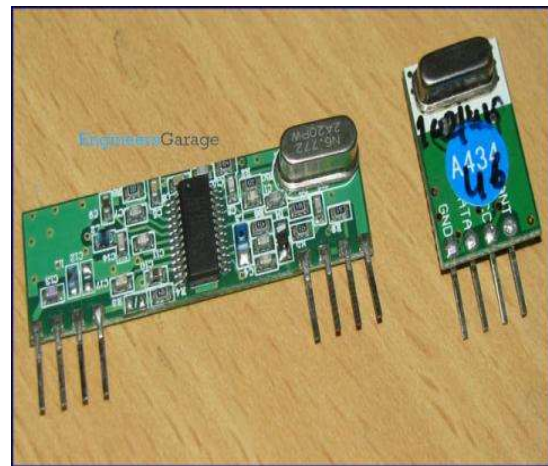
A RF module (short for radio-repeat module) is a (typically) minimal electronic device used to transmit just as get radio signals between two devices. In an embedded system it is routinely alluring to talk with another device remotely. RF correspondences intertwine a transmitter and a recipient.

8. Mobile application (Android/IOS)
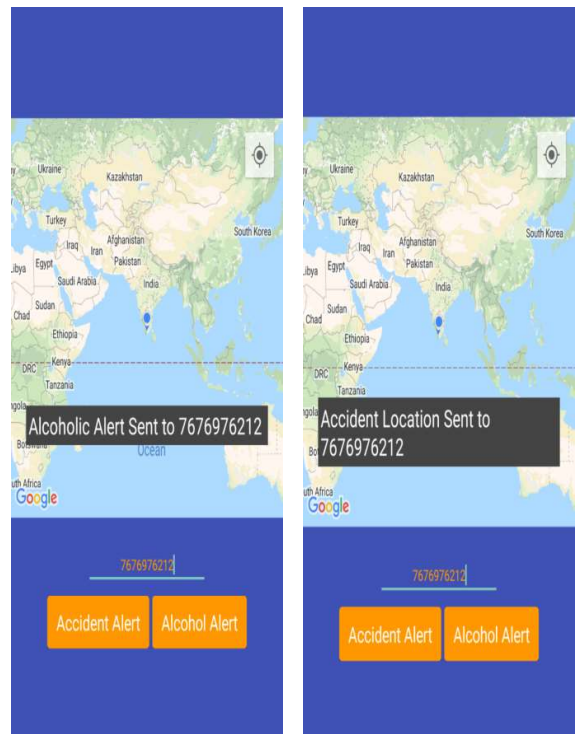
Android Application name is safety driving For GPS & GSM Location
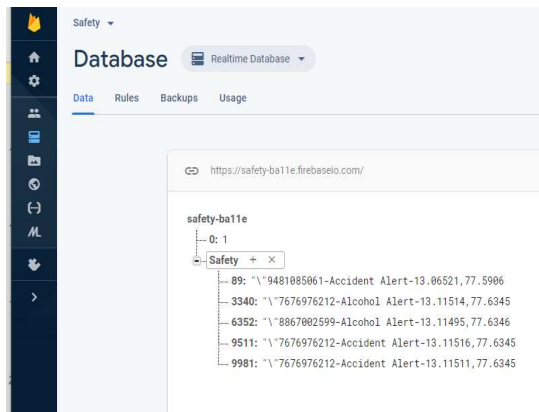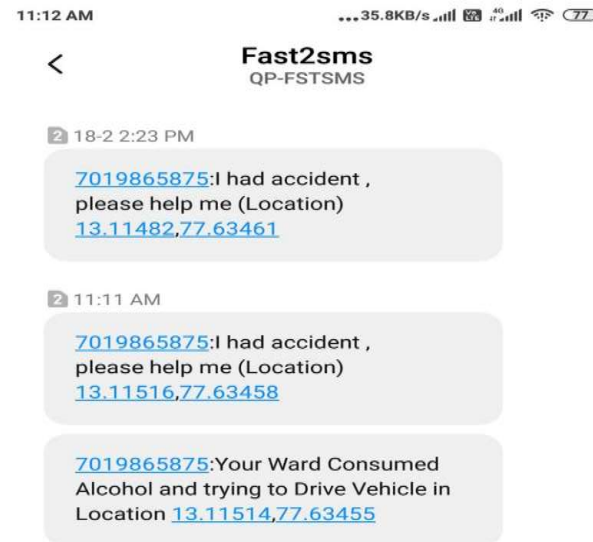
Wellbeing driving portable application is utilized as opposed to utilizing GSM and GPS we are utilizing the versatile GPS for following area of bicycle rider. A portable application will take the signs from the Arduino Bluetooth model it is liable for all the signs like liquor utilization and mishap discovery send the message through application to enroll number, message comprises of scope and longitude..

VI. CONCLUSION

These days, most instances of mishaps territory unit by engine bicycles. The severities of those mishaps are expanded in view of the nonattendance of protective cap or by the utilization of mixed beverages. In our task we tend to build up a minimal effort head protector, which effectively checks the wearing of cap and plastered driving. By executing our thoughts in the proposed framework a sheltered 2 wheeler venture is conceivable which would diminish the head wounds all through mishaps.

VII. FUTURE SCOPE

This model can be outfitted with a camera mounted to the head protector where whole video will be recorded and it will be put away in the information stockpiling of the cap, recordings can be gotten to remotely so cap will act like a data compartment that containing all information. Biometric gadget can be installed into the head protector to make it progressively make sure about and keep away from burglary.

VIII. REFERENCES

[1] Dhivya M and Kathiravan S, Dept. of ECE, Kalaignar Karunanidhi Institute of Technology-Driver Authentication and Accident Avoidance System for Vehicles[Smart Computing Review, vol. 5, no. 1, February 2015]

[2] Pranjali Ingalepatil, Priyanka Barhate, Bhagyashri Nemade, Vijay D. Chaudhari "Alcohol Detection System in Vehicle Using Arduino", International Research Journal of Engineering and Technology (IRJET), Volume: 04 Issue: 06, June - 2017

[3] Dada Emmanuel Gbenga, Hamit Isseini Hamed, Adebimpe Adekunle Lateef ,Ajibuwa Emmanuel Opeyemi "Alcohol Detection of Drunk Drivers with Automatic Car Engine Locking System" Nova Journal of Engineering and applied sciences, DOI: 10.20286/nova-jeas-060104, Vol.6 (1) 2017:1-15, Sept 2017.

[4] Babor, AUDIT: The alcohol use disorders identification Test: Guidelines for use in primary health care. 1992, Geneva, Switzerland: World Health, Organization.