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WiFi Controller Based Smart Helmet and Alert System

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ABSTRACT: In this current modern world the no of road accidents are increasing heavily. So, in the project the solution for this is achieved by the smart helmet is that it detects, weather the driver is wearing the helmet, and the ignition remains off. And once the driver wears the helmet, it switches on the ignition. The helmet also sends its location, whenever the driver meets with an accident to predefined contacts. The project is based on Iot which is emerging technology. So, by use of Wi-Fi enabled processor, location can be sent to the emergency contacts quickly. Thus by, this smart helmet many injuries and deaths due to motor cycle can be reduced, which is a serious issue nowadays.

KEYWORDS: IOT, Wi-Fi enabled processor, sensor, accident detection, accelerometer.

I. INTRODUCTION

A motor headgear is a type of safe guarding and preowned by the bikers usually used for the safety of the bikers to be from accidents. Major reason for the mishap not wearing headgear as it is proven in order the speed of bike increases therefore no of road mishap increases in the India most commonly used motors cycle for transportation.

A smart helmet is a protective equipment to make protected than before by implementing gsm and gps. In the current modern world no of road mishap became common and solution is the smart helmet use unique concept of gsm and gps and also by wifi controller.

Today motorcycle has become a very common mode of transport for individual riders motorcycle gives the freedom and flexibility for the riders to move anywhere they want and at any time riders do not have to be dependent on the public transportation services which in many cities and countries are extremely unreliable however motorcycle riding has its own risks involved especially when the rider does not follow the rules and do not take the necessary precautions to avoid unfortunate situations which can lead to accidents which are sometimes fatal although there are laws related to safe operation of motorcycles most of the times.

The rules are not followed the traffic police which is responsible for enforcing the laws on the riders find it very challenging due to rapid increase in the number of motorcycle riders and not having adequate manpower to monitor the situation in march 2015 there were 154 million registered two wheelers operating on Indian roads in such circumstances technological innovations can significantly assist the traffic police in maintaining the rules on the road there are many novel ideas proposed to tackle this problem cameras can be installed at important traffic junctions to monitor the traffic as well as to identify the traffic violators and issue appropriate fines to such riders apart from jumping of traffic junctions or similar violations of the traffic laws one major issue with riders is not wearing thehelmet while operating amotorcycle and another major problem is of drunk driving especially during night

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II. LITERATURE SURVEY

WangWeiFanHanboproposed a study entitled "Traffic Accident Automatic Detection and Remote Alarm Device" published in International Conference on Electric Information and Control Engineering. In this paper, it detects the accident and remote alarm devices.[1]

Jennife Willam, Kaustubh Padwal, Nexon Samuel, and Akshay Bawkar carried out a study entitled "Intelligent Helmet "published in international journal of Scientific and engineering research.In this paper, the author proposed it used alarming purpose and the deriver consumed alcohol or not.[2]

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Nitin Agarwal Anshun Kumar Singh proposed study entitled "Helmet detector for driver's safety" published in international research journal of engineering and technology (IRJET).In this paper, the author proposed it only detects the presence of helmet.[3]

Abhinav Anandproposed entitled"Alcohol Detection"published in international research journal of engineering and technology(IRJET).In this paper, the author proposed it only detects if the driver has consumed alcohol or not.[4]

Manjesh N, Professor Sudarshan proposed entitled "Smart Helmet using GSM module"published in international research journal of engineering and technology (IRJET). In this paper, the author proposed the Smart helmet only sends the location to emergency contacts when meet with accidents.[5]

Rasli Mohd a study entitled Accident Prevention helmet published in international research journal of engineering and technology (IRJET).In this paper, the author proposed it does not send any message to predefined contacts, but gives alarming buzzer when driver exceeds certain speed 80km/hr in this case.[6]

M. Fogue, P. Garrido, F. Martinez, J. Cano, C. Calafate and P. Manzoni, "Automatic Accident Detection: Assistance Through Communication Technologies and Vehicles", IEEE Veh. Technol. Mag., vol. 7, no. 3, pp. 90-100, 2012.

M. Fogue, P. Garrido, F. Martinez, J. Cano, C. Calafate and P. Manzoni, "Automatic Accident Detection: Assistance Through Communication Technologies and Vehicles", IEEE Veh. Technol. Mag., vol. 7, no. 3, pp. 90-100, 2012.

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M. Fogue, P. Garrido, F. Martinez, J. Cano, C. Calafate and P. Manzoni, "Automatic Accident Detection: Assistance Through Communication

M.fogue and P.Garrido a study entitled "Automatic Accident detection through communication technologies".In this paper, the author proposed that it gives sms and notification and it does not on if we are not wearing helmet.[7]

III.PROPOSED SYSTEM

In this project the proposed system is Smart helmet is used to send sms and location to predefined contacts when a person meet with an accident. The Bike ignition control on or off. The Bike will on only if we wear helmet only.In this it gives notification and send mails. The Smart helmet is a protective head gear.In this project we have gsm used for sms purpose and gps for location purpose. By implementing this we can reduce accidents.

In this project by using blynk app we can get notification and mail when a person meet with an accident. We can also get the gps location. In this smart helmet we get notification and mails when a person meet with an accidents that adxl sensor will operate.

IV. BLOCK DIAGRAM

In this proposed system, the smart helmet using gsm module sends the sms and location to predefined contacts when a person meet with an accident.

In smart helmet consists of Accelerometer, Power suppy, limit switch, Helmet, GSM , GPS, Nodemcu, ADXL Sensor.

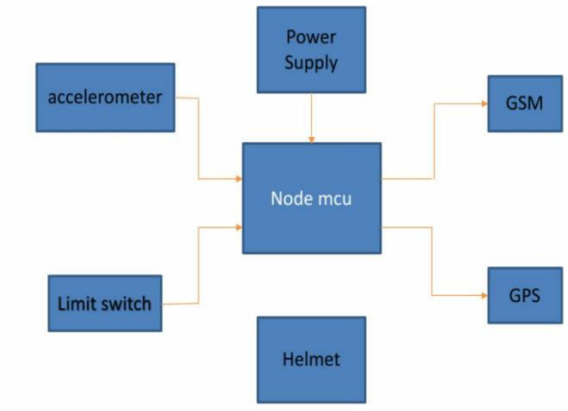

Figure 1: Block Diagram of wifI Controller based Smart helmet and alert system

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V.FLOWCHART

The flowchart shows a short idea how this project works. In this flow chart it sends notification and alert mails in email when a person meet with an accident.The smart helmet using gsm module it used to send sms and location to predefined contacts when a person meet with an accident

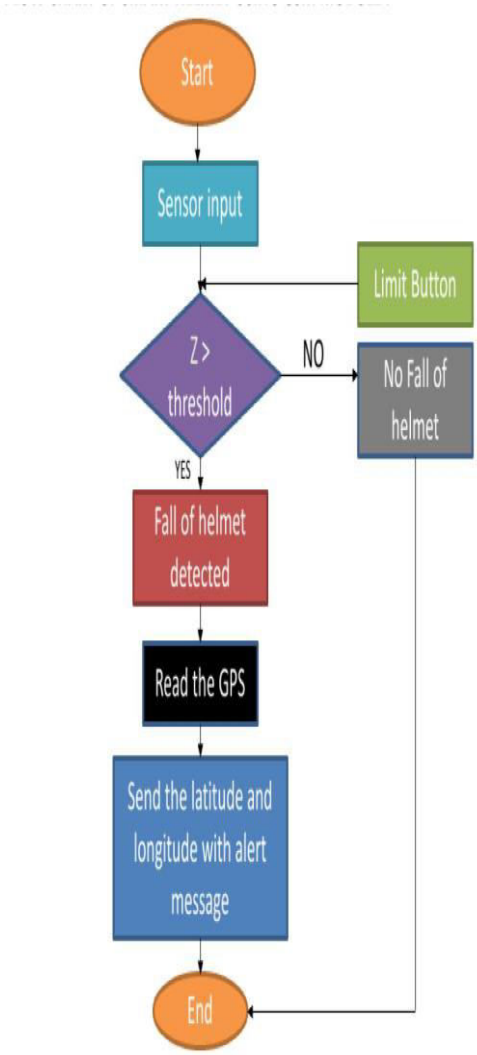

Figure 2: Flow chart of Wifi controller based smart helmet and alert system.

The smart helmet using gsm module it used to send sms and location to predefined contacts when a person meet with an accident. When a bike start and sensor input if z > threshold if it is yes fall of helmet detected and if it is no no fall of helmet detected . fall of helmet detected it reads the gps and send the latitude and longitude with alert message to the predefined contacts . no fall of helmet it directly ends.

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VI. RESULTS

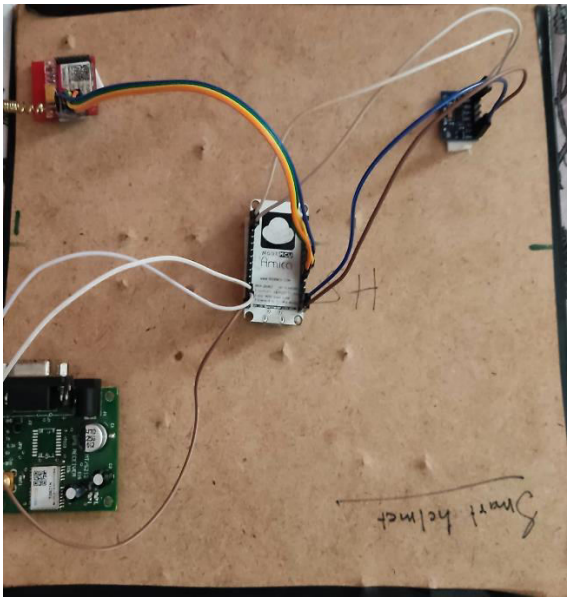

Figure 3: Prototype of Design

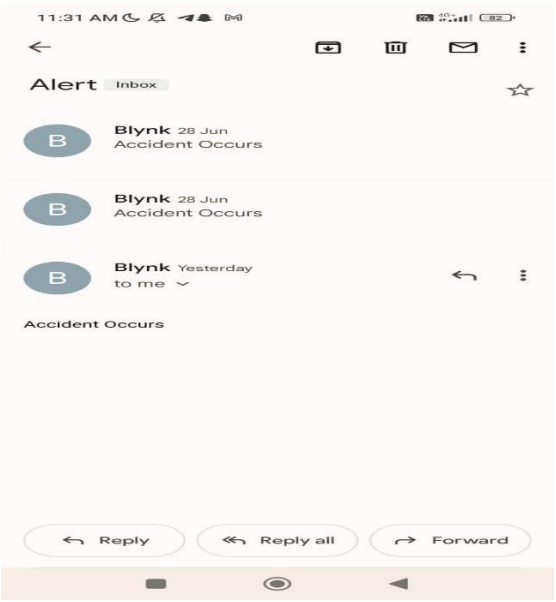

Figure 4: message notification through the Blynk app

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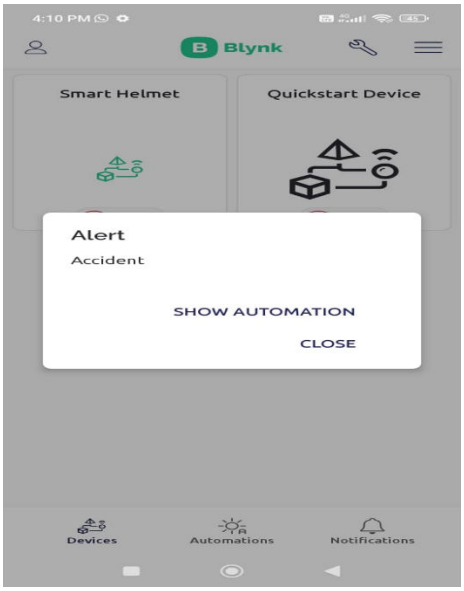

Figure 5: Alert message through the blynk app

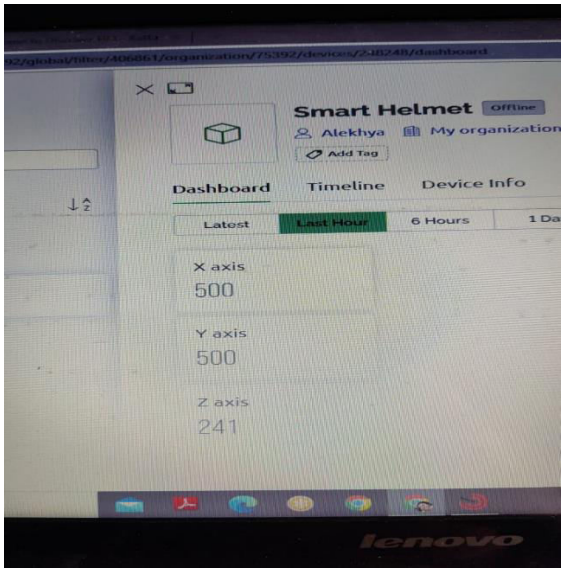

Figure 6: Accelerometer readings in Blynk app.

VII. CONCLUSION AND FUTURE SCOPE

This project aims at the benefits of the society by reducing the death rate caused due to not wearing the helmet and providing the information to family about the accident and location of the same a smart helmet system is developed which has embedded systems which will monitor whether the rider is wearing a helmet and if the rider has consumed alcohol in either of the cases the bike would not start and the rider would not be able to use it this is a preventive method to reduce accidents and fatalities on the road this system also has a gps and gsm unit which will send a message and the location of the bike to the family members of the bike rider in the unfortunate event of an accident this will help in providing timely help to the rider and reduce the fatalities currently we are in the process of finding an appropriate design for the helmet the proposed helmet should accommodate all the needed facilities in a compact manner in parallel the selection of NODEMCU and sensors are being taken care the proposed design will give a solution in terms of cost effective and updated technology front for all kinds of helmets the aim is to target the two wheelers segment and then

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bi cycle users with lighter version this cost effective solution can be integrated with engine start and other needed safety aspects.

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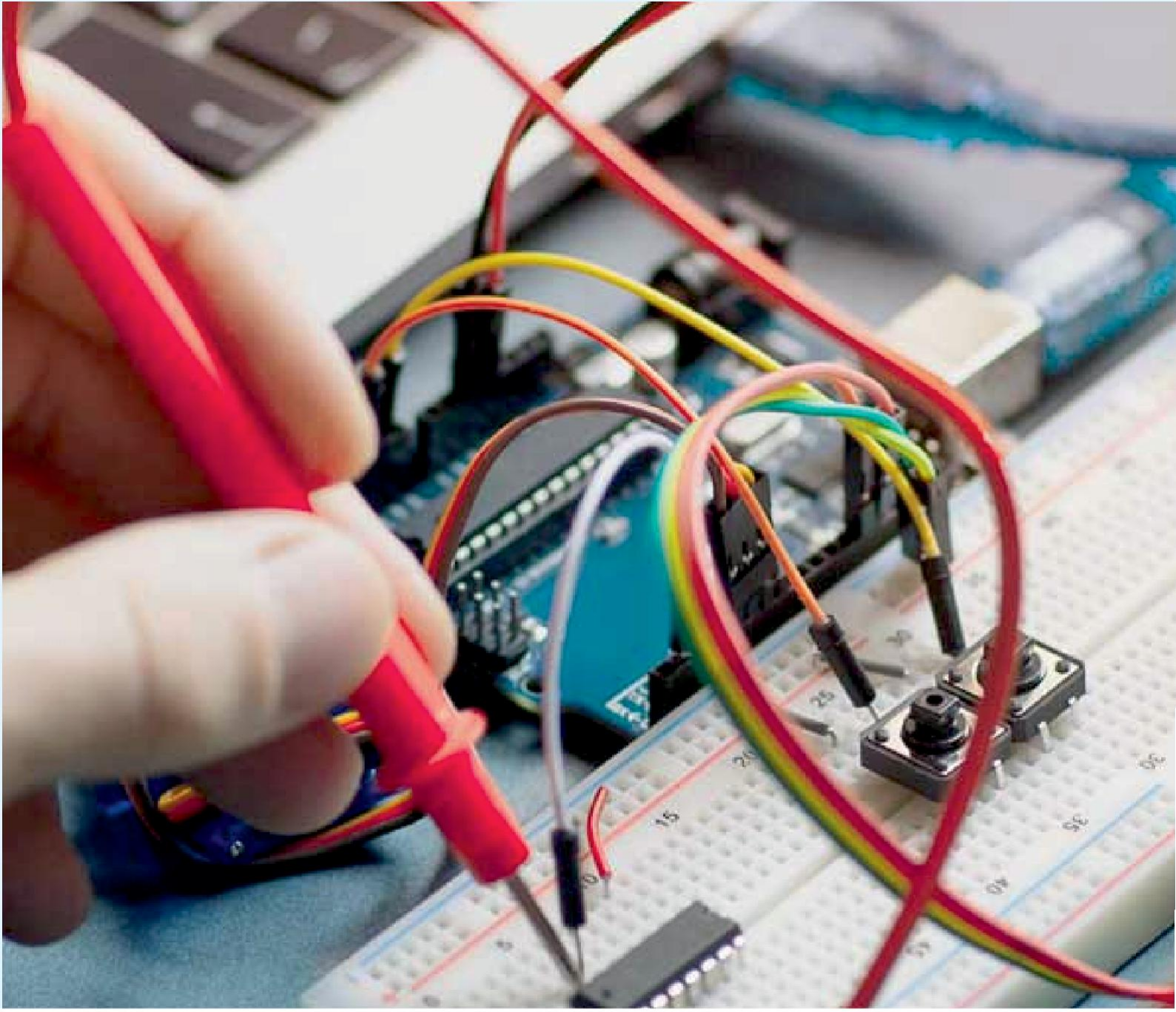

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