SMART HELMET TO DETECT ALCOHOL CONSUMPTION &VEHICLE CONTROLLING

[1]Mr R Vinoth kumar, [2]Mrs M Indumathy, [3]A Kavipriya, [4]A Sowndarya

[1]Head of department, [2]Assistant professor, [3]Student, [4]Student
[1]Department of information technology,
[1]Rajiv Gandhi college of engineering and technology, Puducherry, India
[2]Department of information technology,
[2]Rajiv Gandhi college of engineering and technology, Puducherry, India

*Abstract :*As we know India is the second most populated country and has a large youth population, nowadays youth are fond of bikes and because of fashion, they neglect wearing helmets. Because of these, bike accidents are increasing day by day which causes deaths. Major deaths are due to head injuries which can be prevented by wearing a helmet. Drunk and drive cases are becoming more, which causes accidents and due to lack of negligence where an accident occurs and people are dying. These incidents made us develop a smart helmet using internet of things which reduce the accidents and risk of deaths, which has following features, the bike starts only if the rider wears a helmet if the rider is over drunken then the ignition will be automatically offed and if any accident occurs then through GPS it will share their location through esp8266 to the website, which is maintained by project team.

IndexTerms - **Arduino UNO, raspberry pi 3b[+], GPS tracker, avoid accident, wear helmet, pulse detection, fall detection, helmet detection**

I. INTRODUCTION

The internet of things, or IoT, is a system of interrelated computing devices, mechanical and digital machines, objects, animals or people that are provided with unique identifiers (UIDs) and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction. a thing in the internet of things can be a person with a heart monitor implant, a farm animal with a biochip transponder, an automobile that has built-in sensors to alert the driver when tire pressure is low or any other natural or man-made object that can be assigned an Internet Protocol (IP) address and is able to transfer data over a network. Increasingly, organizations in a variety of industries are using IoT to operate more efficiently, better understand customers to deliver enhanced customer service, improve decision-making. and increase the value of the business.

II. ABOUT THE PROJECT

Technology is that the word wherever we have a tendency to hear each corner of the globe, chiefly within the fields of education, producing of the product, transportation, communication and health. However they're the foremost unsafe road users, while not a protecting body, even the slightest careless will have serious injuries or might result in the death of the rider. Not solely attributable to the careless, however the death of the individuals might occur thanks to over speed, rash driving, over consumption of alcohol and violation of traffic rules. However the most reason for brain injury and this results in immediate death, was the absence of helmet on the person. If the rider wears the helmet, eightieth possibilities for avoiding head injuries and that we will save a life from accidents. With the assistance of recent technologies like IoT, dangerous traffic things won't occur.

And modelling the motorcycles with the sensors, alert system to the rider and surroundings by a causation message, and to form it obligatory for the bike rider to wear a helmet throughout his/her ride. In an exceedingly recent survey, each hour four individuals die in road accidents, seventieth thanks to not sporting a helmet. Supported statistics from round the world, increasing safety laws and by mistreatment the innovative technology, being developed to avoid such instances, and to make sure the security of riders

III. LITERATURE SURVEY

The existing system based has a wireless telecommunication and is connected to a smart phone. This prototype uses sensors to detect a crash or accidents and communication hardware is used to automatically dial a predefined emergency contact number. The other existing system is to control the speed in which the biker is going in. the helmet is fixed with all the components and sensors that read the speed of the bike and accordingly instruct the rider to reduce or increase the speed based on the obstacles ahead the bike.

IV. PROPOSED SYSTEM

We are developing a smart helmet using the internet of things technology . by avoiding road accidents of the bikers . The system detects whether the rider wearing the helmet or not , user should choose long drive or short drive option. the system detects the amount of alcohol consumed by the rider ,if the rider has drunk then the vehicle will not start. When the rider meets with an accident ,it detects and the same time the heart beat sensor will sense their heart beat if it sense low rate of threshold value it will send the message to our website through gps, the website is maintained by the product seller they will call the ambulance to nearby accident

3.1 Smart Helmet Supported IOT Technology

IOT has enabled US to attach our day to day devices in an exceedingly network for a sole purpose of exchange knowledge. these days variety of nations has created it obligatory to wear helmet whereas riding. During this paper, I describe a helmet that is created sensible mistreatment latest IOT technologies. This helmet for the comfort of riders give numerous functions like taking note of the music on the go, causation SOS messages   just in case of emergency, use navigation services.

3.2 Smart Helmets for Automatic Management of Headlamps

Intelligent Safety Helmet for traveller could be a project undertaken to extend the speed of road safety among motorcyclists. There square measure several countries imposing laws to wear a helmet whereas riding. India is AN example. the thought is obtained when knowing that the increasing range of fatal road accidents over the years is cause for concern among motorcyclists.

This project is intended to introduce automatic autonomous light source technology for the security of traveller. Here, we have a tendency to specialize in intelligent headlamps that react in line with the rider's facial movement.It makes use of measuring system and different sensors to direct little electrical motors designed into the light source casing to show the headlights consequently.

3.3 Implementation and Analysis of Smart Helmet

Currently, accidents square measure a significant drawback for everybody. Accidents square measure increasing day by day, thus efforts square measure created to avoid them to attenuate their consequences. we tend to sleep in a world wherever the principles of the road haven't any importance for individuals and that they square measure frequently profaned. additionally, its attribute to resist what's obligatory on them. Thus, employing a totally different perspective, we offer safety with luxurious and intelligent options employing a sensible helmet. 2 modules one on the helmet and bike every can add synchronization, to make sure that the biker is carrying the helmet .A frequence module is chargeable for the wireless communication between the helmet and therefore the bike circuit.The Piezo electrical buzzer is employed to observe dashing and this feature is extended by limiting the speed of the user.

The ALCHO-LOCK perform is employed to stop drink and drive situations measuring device detects accidents, and this can be extended by using GSM module in our circuit, that is meant to mechanically send one message to at least one personal contact associate degreed one involved authority that the person has been into an accident and a fog sensing element for increasing visibility just in case of fog or air pollution also are used. Another feature called E- HELMET permits for automatic deduction of the desired quantity from the users virtual notecase wirelessly preventing the rider to prevent and obtain it.

3.4 Konnect

An Internet of Things(IoT) primarily based sensible Helmet For Accident Detection and Notification .The objective of the sensible helmet is to produce a method and equipment for police work and news accidents.Sensors, Wi-Fi enabled processor, and cloud computing infrastructures square measure used for building the system.The accident detection system communicates the measuring device values to the processor that incessantly monitors for erratic variations. Once associate degree accident happens, the connected details square measure sent to the emergency contacts by utilizing a cloud primarily based service. The vehicle location is obtained by creating use of the worldwide positioning system.The system guarantees a reliable and fast delivery of knowledge with reference to the accident in real time and is fittingly named Konnect. Thus, by creating use of the ever present property that could be a salient feature for the sensible cities, a sensible helmet for accident detection is constructed.

3.5 The High Security Sensible Helmet Exploitation Web of Things

The major goal of our project is accident detection, notification and bar. This helmet makes rider to feel snug as swell like high protection and security.This sensible helmet works on Arduino ide controller that is WiFi primarily based, acts as a station for the networking system. Bluetooth associate degree Arduino ide was interfaced with cloud primarily based services.The helmet is interfaced with each vehicle and therefore the cloud during which image are often accessed and send to the receiver. Sensors can send command to Arduino ide. so the command are going to be send to the receiver.

A software system application has been created such it locates the precise position in terms of Google map. Cloud primarily based services can send messages to receiver contacts during which info square measure recorded .Most of the accidents square measure thanks to rash driving, drunk and drive, exploitation mobile phones whereas driving,violating traffic rules and laws. many of us lose their lives due to the late news of accident (ie) they may powerless to trace correct GPS location of the accident space. typically we tend to cannot unable to tell regarding accident at the correct time.The first reason why many of us get head injury is due to not carrying helmet.

V MODULES

- Alcohol detection
- Helmet detection
- Fall detection
- Heart beat sensor

VI SYSTEM REQUIREMENTS

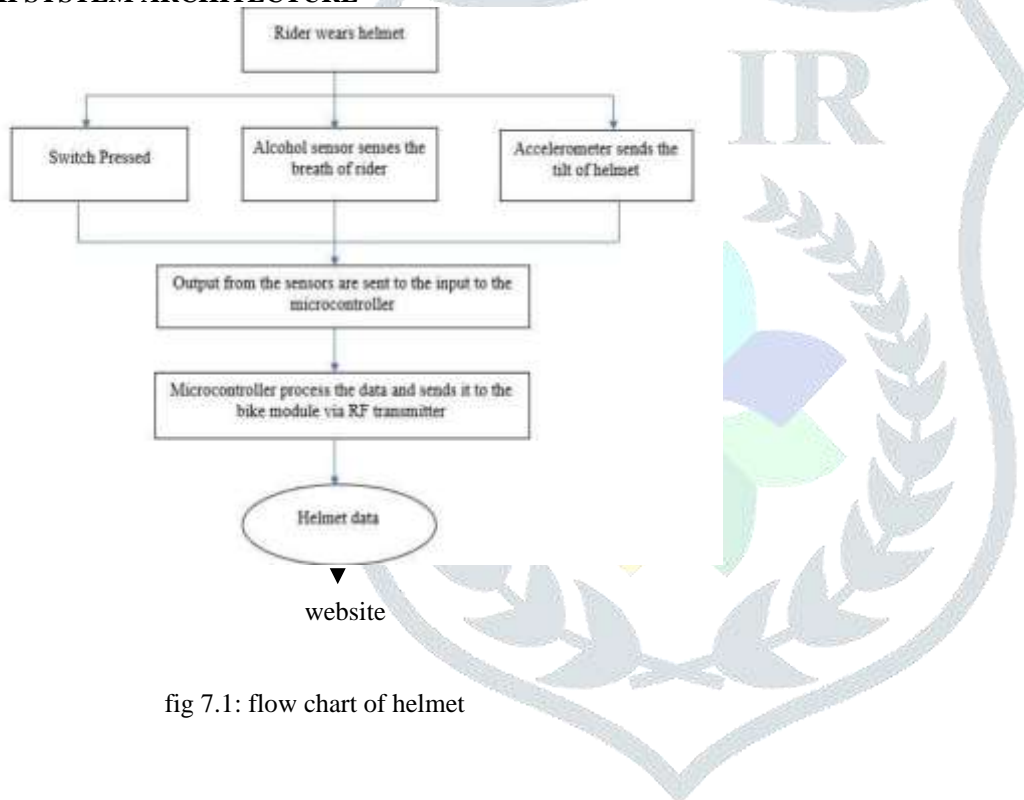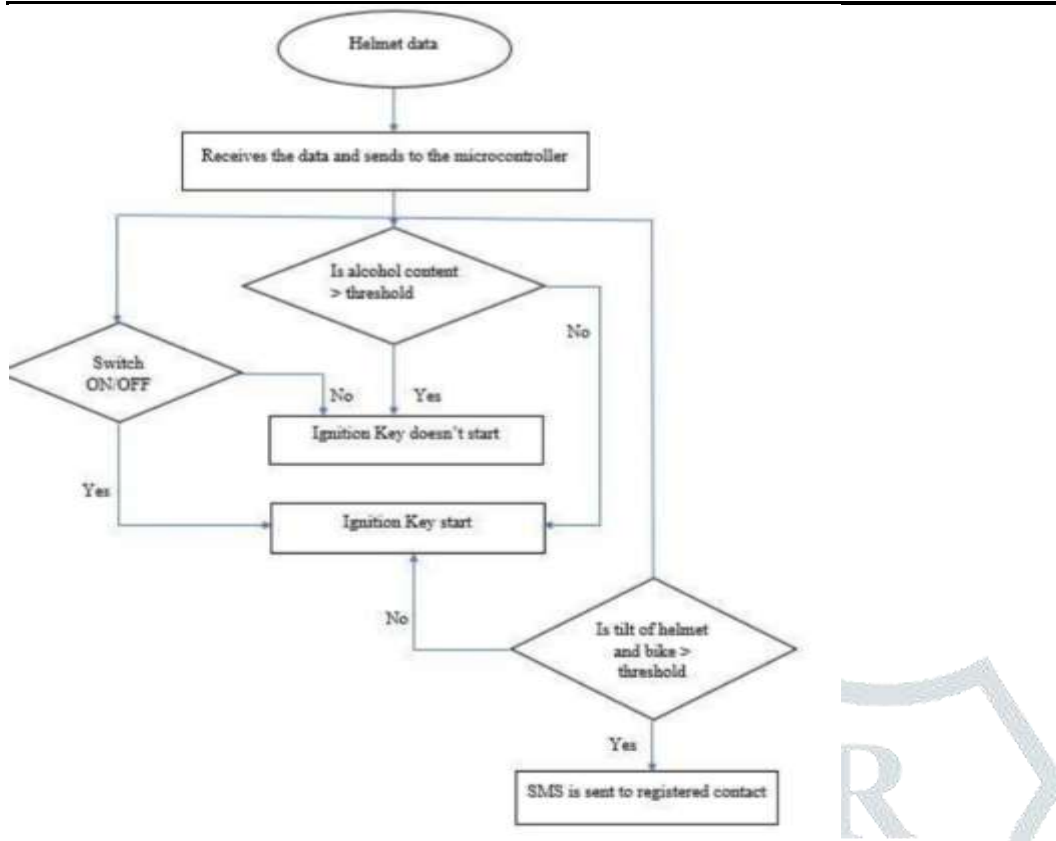| HARDWARE	SOFTWARE
• Raspberry pi 4 , Arduino ide • Hall sensor , heart beat sensor • Alcohol sensor , fall sensor • 12v battery • DC motor • GPS • Relay signal • LED	• REACT REST API • HTML • CSS • EMBEDDED C

VII SYSTEM ARCHITECTURE

fig 7.1: flow chart of helmet

Fig 7.2: flow chart of bike

VIII. RESULTS AND DISCUSSION

8.1 Results

The smart helmet is developed and tested for various conditions to find out how effectively it operates. There are mainly 3 different conditions the smart helmet is tested for. When the user is drunk and he is not wearing any helmet, the bike will start with 155 rpm range in the motor. When the user is wearing a helmet the reed magnetic sensor will give positive signal but since the user is drunk the MQ-3 sensor will give negative reading and as a result the bike will not be able to start. When Driver is drunk, the led will be triggered.

Table 1 DIFFERENT USER CONDITION DUE TO MQ-3

SENSOR READING

User condition	MQ 3 sensor reading	Condition of bike
Drunk	HIGH	LOW
Sober and wear helmet	LOW	HIGH – RPM range is 255
Sober and not wear helmet	LOW	HIGH – RPM range is 155

REFERENCES

[1]Bindu Sebastian Priyanka kp, Hridhya Kuttikrishanan, Smart Helmet International Journal of Technology & Advanced Engineering, Volume5, Issue:12, december 2015.

[2]Professor Chitte P.P., Salunke Akshay S., Thorat Aniruddha, N Bhosale, Smart Helmet & Intelligent Bike System, International Research Journal of Engineering and Technology (IRJET) Volume: 03 Issue: 05, May2016.

[3]Jianyun Ni; Jing Luo; "Microcontroller-based engineering education innovation, " Educational and Information Technology (ICEIT), 2010 International Conference on, vol.3, no., pp. V3-109-V3-112, 17-19 Sept. 2010.

[4]S. Chandran, S. Chandrashekhar, E. Elizabeth N, Konnect: An Internet of Things (IoT) based Smart Helmet for Accident Detection and Notification, India Conference (INDICON), 2016 IEEE Annual.

[5]Jennifer William, Kaustubh Padwal, Nexon Samuel, Akshay Bawkar, Smita Rukhande intelligent Helmet International Journals of Scientific& Engineering Research, volume 7, issue 3, March-2016.

[6]Shoeb Ahmed Shabbeer, Merin Melleet Smart helmet for accident detection and notification 2nd IEEE international conference on computational systems and information technology 2017

[7]Professor Chitte, Mr. Salunke, Akshay S., Mr. Bhosale Nilesh T., "Smart helmet and intelligent bike system", International Research Journal of Engineering and Technology(IRJET), Vol 5,Issue 5, May-2016.

[8]Vijay J, Saritha B, Priyadharshini and Laxmi R, "Drunken Drive Protection System", International Journal of Scientific & Engineering Research(IJSER), Vol. 2, No. 12,December2011, ISSN: 2229-5518.

[9]Harish Chandra Mohanta, Rajat Kumar Mahapatra and Jyotirmayee Muduli, "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, April-2014, pp. 56-62.

[10]R. Prudhvi Raj, Ch. Srikrishna Kanth, A. Bhargav, K. Bharath, "Smart-tec helmet", Advance in Electronic and Electric engineering, Vol 4, No 5,2014.