International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 06 Issue: 04 | Apr 2019 www.irjet.net p-ISSN: 2395-0072

The Intercom Enabled Helmet

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Abstract – Smart helmet is a device that provides the features to the riders necessary to get the riders in their comfort zone while travelling on their bike and also provide ample amount of safety to protect them in the case of accidents. The main feature of the smart helmet is the custom built intercom set that helps in getting the riders connected with their cell phones without interrupting their journey and get fast access to the features like calling , navigation and GOOGLE engine to surf music. The Smart Helmet also provides a feature to give the riders adequate amount of visibility during their ride at night .Also provides safety feature of getting the alcohol detection unit to detect the alcohol content in the rider.

1 INTRODUCTION

The use of technology is indulged everywhere nowadays in the world to ease the way of living our lives. The use of technology in different sectors of department has already started revolutionizing the world, so why not to use the technology to enhance the world of motorcyclists. According to the Global Status report, one fourth of the people dying every year are motorcyclists. One of the major reasons of this is the lack of visibility of the riders on the road and due to the usage of mobile phone while riding.

The IOT has already made the communication between the devices very easy and robust. The IOT has already taken part in changing the world of home ecosystem, Grid systems, and even changing the whole scenario of the cities by building a smart city eco system. The IOT helps in gathering the large amount of data in real time and helps in establishing the connection between the devices in hassle free manner with wireless communication methodology.

1.1 LITERATURE SURVEY

A lot of companies are there that are working on the smart helmet system. Smart helmets are very much user friendly in nature along with being autonomous that helps in coordination of rider with the devices in a friendly manner. The inner shell of the smart helmets becomes tough and rigid during the accidental situations and hence there is need to send the emergency message to the parents, friends and close ones to the rider. The smart helmet also provides various features like monitoring the live traffic , analyzing the rider 's health situation, monitoring the heart rate and many other.

Now to increase the use of smart helmet in the future there is need of increasing the production quality and reduce the per helmet cost of the system.

1.2 DEVICES USED FOR SMART HELMET:

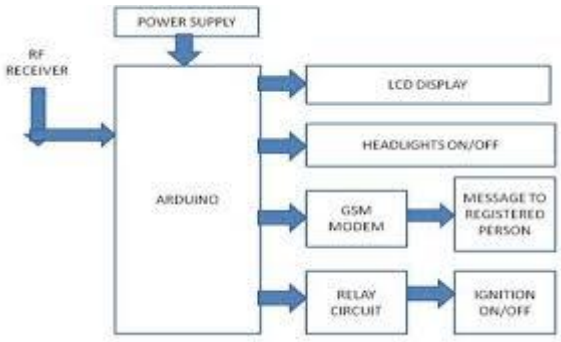
Arduino Microcontroller ,16*2 LCD HT12E Encoder, HT12D Decoder, RF Transmitter & receiver, L293D Motor Driver, MQ-12 Alcohol Sensor, Limit switch, DC Gear Motor, 5V Regulated Power Supply ,12V Adapter, Bluetooth HC06 module.

Table -1: Companies offering smart helmets

COMPANY	FEATURES	PRICE
BABAALI	MODERATE	HIGH
BELL HELMETS	GOOD	VERY HIGH
DAQRI	LOW	MODERATE
STEELBIRD	LOW	MODERATE

1.3 WORKING OF THE SMART HELMET

The way the smart helmet works is that firstly when the rider wears the helmet, he has to press a switch on the helmet that starts the Raspberry pie and Arduino module present in the bike and on the helmet and also activates the RF transmitter that ensures the safety of the system by checking where the rider is in the range of the helmet or not and if the range is OK then the 4 bit encoded bits are sent to the decoder that is later sent after decoding process to the MCU unit that controls the communicating devices. When rider starts breathing inside it, the air blown by the rider passes through the MQ-135 alcohol sensor which checks the threshold value of the alcohol limit in the air thrown out by the rider. The Data is sent to the Decoder HT12D decodes the data that decodes the data and sends it to the microcontroller. If the alcohol content in the rider is found to me more than the threshold then the senor activates the buzzer connect with the arduino and then cuts off the relay current supply of the bike by giving false as the wifi signal to the raspberry pie module connect to the ECU unit of the bike that restricts the rider to start the bike. Hence decreases the chances of drink and drive and increases the safety of the rider. Another functional unit present in the helmet is the Intercom set for communication. The rider has to press a button present on the mic of the intercom that supplies the power to the Bluetooth module of the intercom that can be connected to the mobile using the id and the password of the module and then the headset helps in providing the features like on the go GOOGLE MAP navigation, Music player and one tap receivable call system without any interruption. Whole system is supplied with the source of energy from the 12 V battery unit of the bike and also by the dry cell for the DC motor. The visibility of the biker is enhanced by providing a light bar on the back panel of the helmet that helps in providing red light along with the indicator directions of the biker. This whole system works together in a synchronized manner to accommodate the features to be provided in the helmet.



3. CONCLUSIONS

This system is extremely effective for the protection purpose of the user. User has got to wear helmet to ride wheeler vehicle and hence traffic rules can be followed with this system. This system is under pocket control that is Ride two wheeler vehicle having safety in hand and in budget also. Easy functioning to operate this system. It provides a better security to the biker.

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