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Smart Helmet Safety Using- ATMEGA 32

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ABSTRACT: The purpose of this project is to provide safety against accidents.The objective of our project is to design a low-cost intelligent helmet that is capable of identifying alcohol communication and preventing road accident. Smart helmet safety system is the idea that has been developed for the social responsibility towards the society**.**

KEYWORDS*:* Safety, Sensor, Helmet Unit, Bike Unit, Helmet Authentication, Fall Detection.

I.INTRODUCTION

The main purpose of this is to protect the peoples from the accidents which are occurring day by day. If the accident takes place, there are more possibility of having no ambulance on time and also we know that in emergency case there is no vehicle available. Due to this, information of the particular person will not get to their family and he or she will die. In order to avoid this situation, we have designed a system where the no accidents will reduce to half. That's why we are discussing about to make this digital helmet to protect the lives of the peoples. With Smart Helmet we can give information about the accident as soon as possible or at a time with the help of this concept we can minimize the death rate in bike accident. Behind of this concept 'Smart helmet' there are some features in it such as Bluetooth, calling features, music, SOS emergency alert systems, accident detection. The main advantage of this features, we can easily detect any accidental issue which is most important day to day life.

II. LITERATURE REVIEW

According to the raceme Research paper in 2016 titled 2 Helmet using GSM and GPS technology for accident detection and reporting system. The author specially developed this project to improve the safety of the bikers. The objective of this project is to study and understand the concept of RF transmitter and RF receiver circuit. The project uses ARM7, GSM and GPS module. The project also uses buzzer for indication purpose. Whenever the accident will occur then accident spot will be note down and information will send out on the registered mobile number.

According to the Research paper in 2015 titled "Microcontroller based smart wear for driver safety. In this paper author has discussed on the speed of the vehicle. In this application the project will be monitoring the areas in which the vehicle will be passing On entering any cautionary areas like schools, hospitals, ete the speed of the vehicle will be controlled to a predefined limit, LCD is used for showing the various types of messages after wearing the helmet. The author has worked only on the phenomenon of accident which is generally happens due to drunk and drive. But as we know that the accident in the area is not happens only due to consuming alcohol but also other parameters like speed are also responsible.

III. WORKING

This smart helmet has two sections i.e. Helmet section and bike section. In helmet section we have 3 input devices that are attached to it which are push button, alcohol sensor and tilt sensor. Alcohol sensor is used to detect either the rider is drunk or nor and push button is mounted on the top inner part of the helmet that is used to detect either rider is wearing helmet or not. When the rider is not drunk and he is wearing the helmet then only the bike will start otherwise ignition of the bike won't start in the first place.

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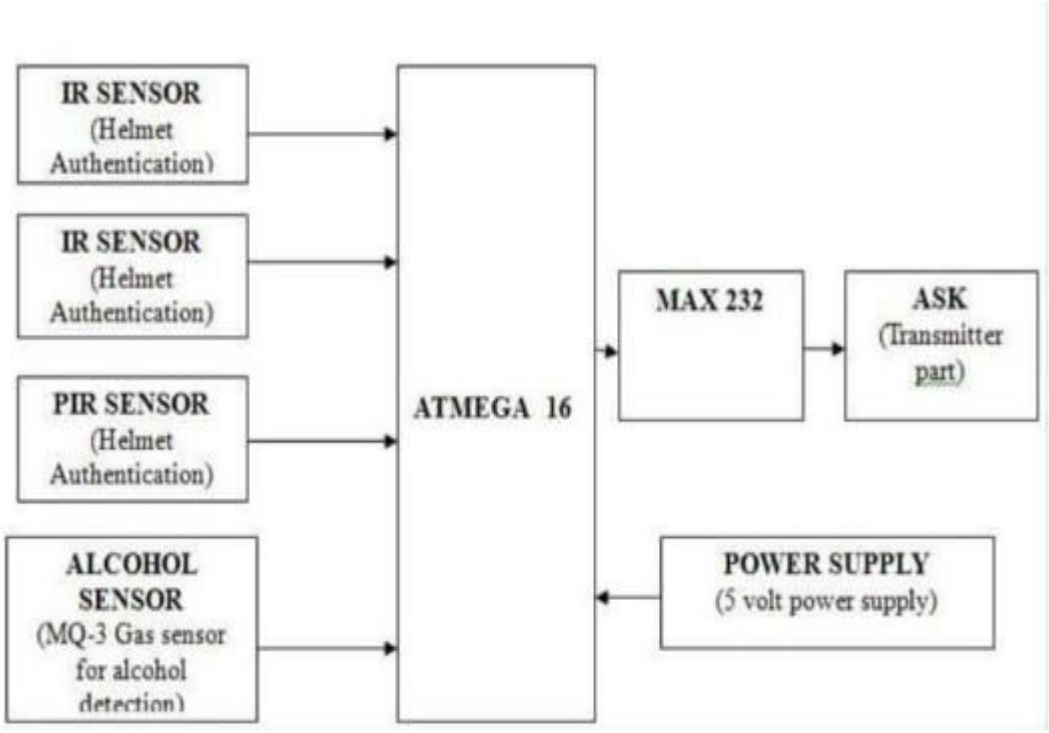

Fig.1 Block diagram of model

All these information are being transmitted between bike section and helmet section using 2 radio frequency transmitters, one on each side. If in any cases of accidents the tilt sensor is used in correspondent with helmet as well as bike section to deter the occurrence of accident. When the accident will happen then with the help of GPS we can record the GPS location of the place where accident has happened. Then with the help of Wi-Fi module mounted on the bike section we can send information like GPS location, condition off bike, rider health condition to the could.From there we can use all those information to seek for the immediate needed medical attention in any cases of accidents and minimize the risk of facilities to the riders.

IV. WORKING MODEL

DPDT switch is has the transmitter and the receiver, this is attached with the helmet to get signal. The receiver end connected with the LCD light to check the rider wearing helmet or not and whether he/she had consumed alcohol. When the DRDT switch gets on it started to identify the details, when the person wear the helmet the switch gets ON while the knob touches the head. In the LCD display it shows whether the helmet wearing or not, near to the helmet another one switch to check alcohol consumed or not, by checking on LCD display it show as YES or NO.

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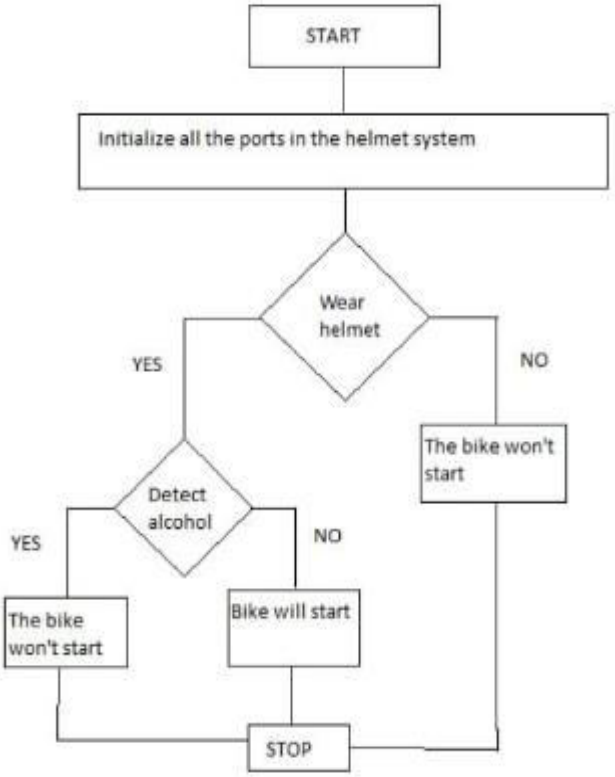

Fig.2 Algorithm diagram of model

V. OBJECTIVES

- Objectives of our project is to provide low cost helmet.
- It has a capacity of identify whether person is drunk and providing security to people against road accident.
- If rider is drunk or start bike without wearing helmet then bike won't start.
- Our project is designed that if person helmet hits the ground GSM system find location of rider and send message to the family member.

VI. FEATURES

- Whenever we want to start the bike or vehicle the system must firstly detect the person then the system will start.
- The system will warn the person to avoid the use of mobile phones.
- Without helmet the vehicles cannot be start your key power is nothing but the helmet.
- In short time medicals services is easily provided and in remote area detection of accident is easily detected.
- We can reduce the probability of accidents by alcohol detector and simply avoiding the drunk person.
- It provides the safety for bike drivers.

VII. LIMITATIONS

- If person using alcohol based perfume the bike will not start because of the sense detector.
- Bikers do not wear helmet in the region where traffic checking is not done.
- GSM network is must available for helmet.

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- If helmet is stolen then bike will not start.

VIII. CONCLUSION

In this paper we have discussed about developing a "Smart Helmet". The design of this project shows the satisfaction result and works. An emergency and accident alert system works well to combat the worst situations. It ensures the safety of the rider by making it necessary to wear helmet and also ensure that the rider hasn't consumed alcohol more than the permissible limit.

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