TO DESIGN AND DEVELOP AN IOT BASED SMART HELMET

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Abstract - This paper implements and develops the Smart helmet for bike riders. In this paper, we have reviewed the recent trends in developing smart helmet system. Most of the people lost their lives in road accidents, due to severe head injuries, it is also important to those who survived faced injuries. An attempt to reduce the probability of bike rider accidents, drunk and drive cases. The smart helmet system is used to prevent the motor bikes and to identify the bike accidents on time for wellness of human being. Also, the smart helmet system analyzed in this project is used in mining industry to alert the miners from hazardous events in the mine. The research also helps to understand the smart helmet system evolved over the period and currently by using emerging technology like Internet of Things (IOT). The user can get the flexible riding, using this system. The proposed system is user-friendly and ensures safety and surveillance at a low maintenance cost.

Key Words: Internet of Things, WI-FI module, Alcohol Sensor, Micro-Electro Mechanical System (MEMS) Sensor, etc.

INTRODUCTION

This paper discuss about the Smart helmet systemto prevent and detect the accidents of bike rider using MEMS sensor. Safety is one of the most important aspect in everyone's life. Every person hopes to reach home safely. Despite of having all the safety rules while riding, many of the riders fail to follow them and this leads to road accidents and there are very less chances of survival. The accidents are fatal due to the common negligence of not wearing the helmet and lack of medical attention needed by the injured person in time. Another major cause for the accidents is the drunk and drive. Despite of Safety is one of the most important aspect in everyone's life. Every person hopes to reach home safely, having all the safety rules while riding, many of the riders fail to follow them and this leads to road accidents and there are very less chances of survival. Hence our objective is to develop a bike rider safety system which aims for accident prevention, detection and to reduce the probability of bike accidents. In this paper, we propose a very low-cost personal use system using the IOT platform. This system has following features: Vehicle accident is detected using Arduino connected to MEMS sensor, wi-fi

module, the alert message is sent to our mobile phone by short message service on wi-fi through Blynk application.

LITERATURE SURVEY

Main motto of the proposed project is to decrease the chances of casualties in such accident. Most fatal accidents in 2017 were those of bike riders on Indian roads. 91 percent cases of bike accidents due to non-helmet rider and more than 48,746 bike users died in road mishaps. Incidentally, 73.8 percent of them did not wear a helmet. Accidents involving two-wheelers are more dangerous due to the absence of protective guards like air bags and the direct interaction of the user with the environment. Fatal injuries to the brain are an important reason behind deaths due to the road accidents.

METHODOLOGY AND DISCUSSION

We design a system which always checks two conditions before rider starts the ignition of bike. The first condition is whether the rider wearing a helmet or not and it is detected by push button. The second condition is detection of alcohol content in riders breath with the help of alcohol sensor. Arduino micro controller unit in helmet section collects and process the data by using radio frequency transmitter to bike section. Radio frequency receiver in bike section will receive the data and a relay is placed in bike section to control the engine ON-OFF based on received data. If either of these conditions mentioned above are not met then bike engine will not start and this will be indicated by beep sound and as well as by alert messages. Once the rider starts the bike, during the ride if any accident occur then mems sensor detects the crash and a attached wi-fi module will send alert messages to mobile through blynk application and also to near by friends using these application. In proposed system push button represents the helmet, if push button is in released condition it represents helmet not weared, if push button is in hold condition it represents the helmet weared, Led lights represents the bike head lights, which are in OFF condition during day time and in ON condition during night time and DC motor represents the ignition of bike, DC motor runs when relay is closed. Relay operates when above two conditions are satisfied and ignition bike starts.

RESULT

CONCLUSION:

The developed project efficiently ensures:

- Rider is wearing helmet throughout the ride.
- Rider should not be under the influence of alcohol.
- Accident detection.

Our proposed approach makes it mandatory for the rider to use this protective guard in order to drive a two-wheeler vehicle. This system ensures the safety of human brain. Therefore it is extremely vital for the people on a two- wheeler. In this way of process we can prevent more number of deaths due to accidents.

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