



SMART HELMET FOR MOTORCYCLIST

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ABSTRACT

A smart helmet is a kind of defensive headgear utilized by the rider which makes motor cycle driving more secure than previously. The principle reason for this smart helmet is to give safety to rider. This actualize by utilizing advance element alcohol detection, accident identification, location tracking, and use as a hands free device, solar powered, fall detection. This makes not only smart helmet but also some important feature of smart bike. It is necessary to wear helmet, without helmet the ignition switch cannot be ON. A RF Module is used as wireless link which enables to communicate between transmitter and receiver. If rider is drunk the ignition will not ON So when accident occurs, it will send message by GSM to register numbers with their current location by GPS module adding RFID card reader makes the helmet more protective against stealing of helmet. The distinctive utility of project is fall detection, if the bike rider fall from bike it will send message automatically.

KEYWORDS: ARDUINO, microcontroller, Sensors, LCD display and servo motor, RF transmitter and receiver, RFID card reader, GSM and GPS.

I. INTRODUCTION

In the present quick paced life the vast majority of mishaps occur because of drink and drive. Most of the countries are forcing the motor cycle riders to wear the helmet. Along these lines the target of this project is to make sure people wear helmets and then ride bikes. Another goal is to ensure the rider isn't drunk. The rider won't have the option to ride the bicycle if he or she is drunk. One more objective is to reduce the fatality of the accidents by sending a message to the rider's relative about the accident. This idea can be implemented by using advance features like alcohol detection, accident identification, location tracking, and use as a hands free

device, solar powered. Its compulsory to wear helmet, without helmet ignition switch cannot be ON.

II. LITERATURE SURVEY

As indicated by the ongoing Research paper in 2016. 'Helmet using GSM and GPS technology for accident detection and reporting system', the author uniquely built up this project to improve the safety of the motor cyclist. The main aim of this project is to study working of RF transmitter and receiver. In this project components like ATMEGA 32A, GSM and GPS module, alcohol sensor, vibration sensor, RFID card reader and buzzer is also used for indication purpose. 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, etc. 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 drink 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.

According to the Research paper in 2016 titled 'Smart Helmet', the main objective of author is to force the rider to wear the helmet. In this competitive world one of the survey says that the death trolls due to motor bike accidents are increasing day by day out of which most of these casualties occurs because of the absence of helmet. Traffic police cannot cover remote roads of city. That's why over primary objective is to make the usage of the helmet for two wheelers "compulsory". Thus, no one other than the owner himself, who doesn't have "password" which would have been created by the owner, can use the bike. In this author has proposed the feature that the bike will not start unless the bike rider does not wear the helmet. The other this module basically deals with the checksum of rider if he is wearing the helmet or not on first place to achieve this ultrasonic sensor is been used. based on this the signal are been sent to the next module voice recognition module use for authentication purpose. ARDUINO is also used in this project which is an open source tool for making computer that can sense.

According to the Research paper in 2015 titled 'Smart Helmet', the author has proposed the smart helmet because of growing bike accident. People get injured or might be dead because of not wearing helmet. Continuously no one follows road rules. So to overcome these problem this helmet is been designed. Most of the people prefer to buy motor bike over four wheelers, because of the low prices, various variety available in the market.

III. LIMITATIONS AND CHALLENGES IN EXISTING SYSTEMS

1. Bikers don't wear helmet in the district where traffic checking isn't done.
2. There is a propensity of the driver to wear helmet just where the envision checking may happens, they don't wear helmet where no checking is not done.
3. Testing alcohol content present in blood in each individual rider in big countries like India is almost impossible.

IV. SYSTEM ARCHITECTURE

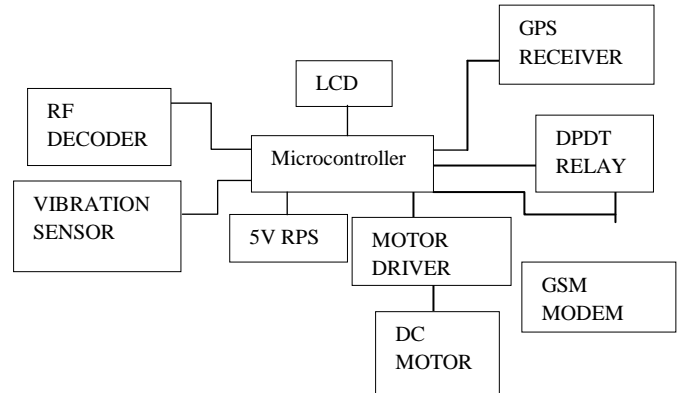


Fig. 1 Block diagram of vehicle Unit

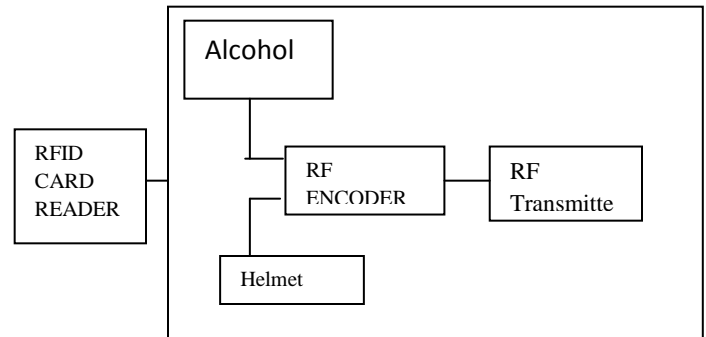


Fig. 2 Block diagram of helmet Unit

V. SCOPE OF IMPROVEMENT

Any system always has a scope for improvements and more advancement. All the systems studied under the literature survey have their own different features. All the systems proposed till date are used only for sending message in case of accident. There could be such a system where only alcohol detection is present. Here in this system many advanced features are added and also the previous features are clubbed in a single system. It will send message automatically when rider met an accident with helmet on. RF transmitter and receiver are used for starting the two wheeler, if rider not wearing the helmet the bike will not get start. The alcohol sensor will sense the alcohol and it will lock the ignition if drunk. The solar sense is generating power for the system. The helmet is added with RFID card reader to provide protection against theft.

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