

Smart Helmet

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Abstract - *The main cause of death in two-wheeler drivers is over-speeding, drunken driving and careless driving. Numerous lives could have been saved if emergency medical service could get accident information and reach in time to the scene. To resolve these current issues we are developing a helmet which gives best solution. These main issues motivates us for developing this project. The objective of our project is to design a intelligent helmet that is capable of identifying alcohol consumption and preventing road accidents. The main purpose of this smart helmet to provide safety for rider. This is implemented by using advance features like alcohol detection, accident identification, location tracking, fall detection. In our project, its compulsory to wear helmet, without helmet ignition switch cannot ON. If rider is drunk or if accident takes place, then automatically ignition switch is locked, and a message will be send automatically to their registered number with their current location*

Key Words :Smart helmet

1.INTRODUCTION

A smart helmet is a type of protective headgear used by the rider which makes bike driving safer than before. The main purpose of this smart helmet to provide safety for rider. This implement by using advance feature like traffic sign board detection, alcohol detection, accident identification, location tracking. This makes not only smart helmet but also feature of smart bike. Its compulsory to wear helmet, without helmet ignition switch cannot ON. The traffic sign boards with RF transmitter will transmit a unique code for each sign. The helmet is equipped with RF receiver which detects that unique code and play voice message for that sign board. If rider getting drunk it gets automatically ignition switch is locked, and send message automatically to their register number with their current location. So when accident occurs, it will send message by GSM to register numbers with their current location by GPS module. The distinctive utility of project is fall detection, if the bike rider fall from bike it will send message automatically.

1.1. OBJECTIVES

Following are the major objectives of the proposed system.

To minimize the manual intervention in responding to queries of parents or guardians about their ward

To develop low cost and easily implementable system

To design and develop a system which is easily accessible and easily maintainable

SYSTEM DESIGN AND IMPLEMENTATION

SYSTEM ARCHITECTURE:

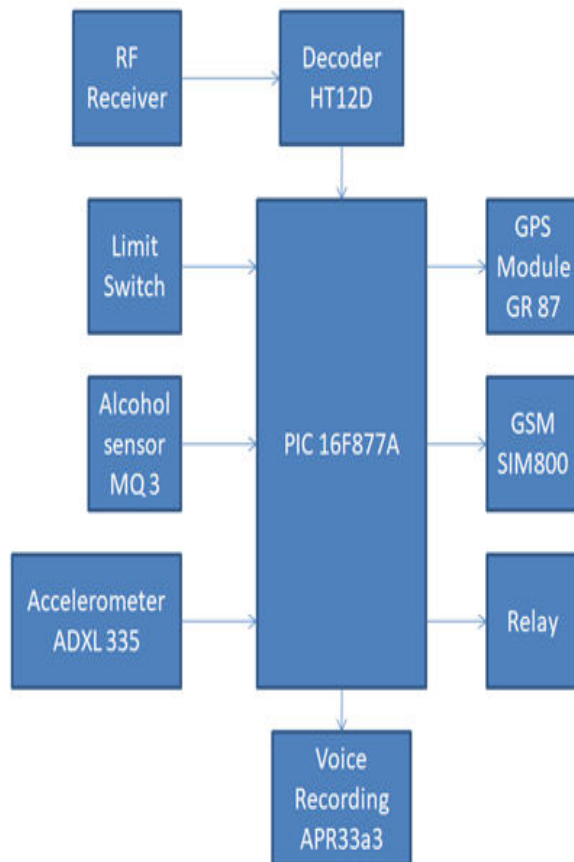


Fig 1. System Architecture

2.2 HARDWARE IMPLEMENTATION

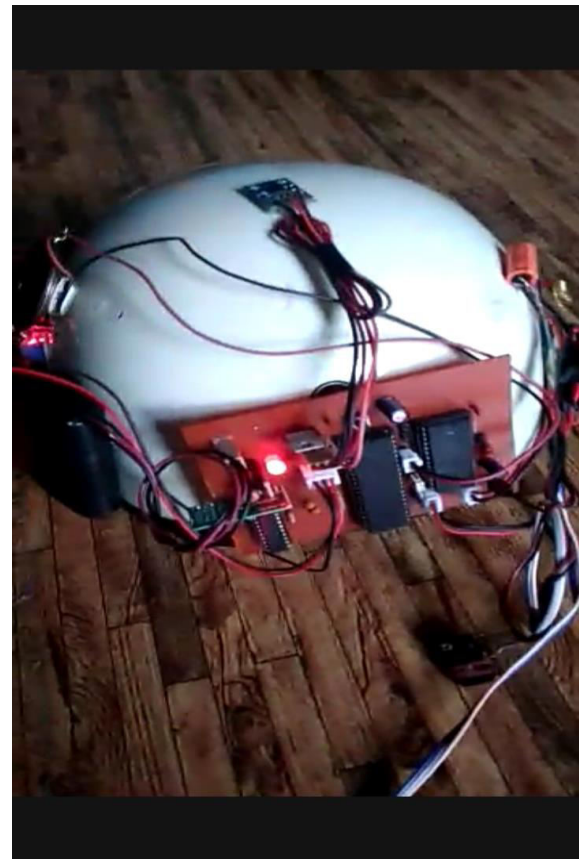


Fig 2. Hardware Implementation

Fig.2 illustrates the pictorial representation of the implemented system.

2.3. METHODOLOGY

The first step is to identify the helmet is wear or not. If helmet is wear then ignition will start otherwise it will remains off till helmet is not wear. For these we use limit switches to detect helmet is wear or not and relay is used to operate ignition. The second step is alcohol detection. Alcohol sensor is use as breath analyzer which detect the presence of alcohol in rider breathe if it is exceeds permissible range ignition cannot start. It will send the alert message to register number. The third main issue is accident detection. We are using accelerometer sensor for fall detection. If the accident occurs and person is falling on road the system detects and send emergency message with its GPS location. The fourth step is to detect sign boards. The sign boards are equipped with RF transmitter which transmits a unique code for each sign board. The

RF receiver is used to receive the unique code of sign boards. Whenever rider comes in range of sign board its transmitted code receives the RF receiver in helmet and plays a voice message for that sign board. So rider automatically informed about sign board without giving attention on

2.4. RESULTS

The designed Smart helmet ensures the safety of the rider by making it necessary to wear helmet, and also ensures that the rider hasn't consumed alcohol more than the permissible limit. If any of these prime safety rules are violated, the proposed system will prevent the biker from starting the bike. The system also helps in efficient handling of the aftermath of accidents by sending a SMS with the location of the biker to the police station. This ensures that the victims get proper and prompt medical attention, if he/she met with an accident.

CONCLUSION

Thus this system is very effective for the safety purpose of the user. User has to wear helmet to ride a bike and hence traffic rules will be followed by the rider. This system is under pocket control i.e. Riding the two wheeler vehicle having safety in hand and in budget. This system has easy functionalities. It provides a better security to the biker.

FUTURE WORK

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. It can tracked easily with location when bike is stolen. It can also use to receive call while driving through wireless Bluetooth Speakers

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