

RIDER SAFETY PERCEPTRON



ABSTRACT.

The usage of a smart helmet, a sort of protective headgear, increases the rider's level of safety when operating a motorcycle. This helmet's primary function is to keep the rider safe. Advanced features like fall detection, accident identification, location monitoring, and alcohol detection can be used to accomplish this. As a result, it doubles as a smart bike feature in addition to being a smart helmet. The ignition switch cannot turn ON without the helmet being worn, hence it is required. An RF Module can be used as a wireless link for transmission and reception. When a rider is intoxicated, the ignition locks itself and sends a message with his location to the registered phone number. In the event of an accident, it will send a message over GSM and provide its location using a GPS module. Fall detection is the project's standout feature; if the rider falls off the bike, a notice is sent.

INTRODUCTION

In recent years, Telangana State has made helmet use mandatory. India has seen an annual increase in traffic accidents. Every single person operating a two-wheeled vehicle is required to wear protective headgear that complies with BIS requirements, according to Section 129 of the Motor Vehicles Act of 1988. (Bureau of Indian Standards). The Motor Vehicle Act of 1939 declares that drunken driving under the influence (DUI) is a crime and carries a prison sentence for the bike rider. Bikers can currently easily avoid the law. These three key concerns are what drives us to create this project. Determine whether or not the helmet is being worn as the first step. If a helmet is on, the ignition will turn on; otherwise, it won't. The Force Sensing Sensor (FSR) sensor is utilised for this. Alcohol detection is done in the next stage. Alcohol sensors are used as breath analyzers to identify the presence of alcohol in the rider's breath and prevent the ignition from starting if it exceeds the allowed limit. "Rider is drunk and is trying to ride the bike," it would state in the message sent to the phone number. This is accomplished using the MQ-3 sensor. Only when these two requirements are met does ignition begin. Accidents and delayed medical care make up the third major problem. One of the biggest causes of death when a rider has an accident is that he may not receive medical attention right away. Every second, someone dies because medical assistance was delayed or there was no one on duty at the scene of the accident. We install an accelerometer in the bike unit to detect falls. This device allows for the detection of accidents.

WORKING

The project's first stage is to initialise every port, and the next is accident detection using an accelerometer.

The third step will be taken if there is no accident.

The next phase involves continuously listening to the RF module for data and interpreting it using if statements.

Checking whether the helmet is on or off is the fourth step.

The message "Please wear the helmet" will be displayed if the helmet is not being worn. The next phase is to determine whether the rider is intoxicated. If so, the message "You are Drunk" will be shown, and a message asking for the password will be sent to a stored number with the rider's location.

The bike will start if the password is right.

If an accident is discovered in the sixth stage, everything will stop and a notice with a location will be sent.

DESIGN AND REALIZATIONS

Arduino is used to create a smart helmet with a transmitter. If there is alcohol in the human breath, the device shows a message on the LCD and sends an SMS to a registered number with the user's current location. If an accident occurs and the bike falls, the message is shown on the LCD and an SMS with the current location is sent to the registered phone number. Conferences on the E3S Web,

(a) Helmet with transmitter and receiver,

(b) identification of Arduino and GSM part from Display of messages send to the registered mobile number 6 Advantages, applications and future scope

APPLICATIONS

1. It can be used in real time safety system.
2. We can implement the whole circuit into small VLSI chip that can be embedded into the helmet and bike unit.
3. It can be designed for less power consuming safety system.
4. This safety system technology can further be enhanced in car or other vehicle by replacing the helmet with seat belt.



FUTURE SCOPE

1. We can implement various bioelectric sensors on the helmet to measure various activities.
2. We can use small camera for the recording the drivers activity. It can be used for passing message from the one vehicle to another vehicle by using wireless transmitter.

CONCLUSION

The Smart helmet's design makes wearing a helmet a requirement for the rider's safety and confirms that they haven't taken more alcohol than is legal. The proposed technology will prevent the biker from starting the bike if any of these important safety guidelines are broken. By sending an SMS with the location of the cyclist to the police station, the device also aids in the effective management of accident aftermath. This guarantees that the victim, in the event of an accident, receives appropriate and fast medical assistance.

Thank
You

