

# Smart Helmet Using IOT

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## ABSTRACT

Now a day's road accidents are increasing in our country due to the violations of traffic rules like drink and drive, not wearing helmet, over speeding which may leads to severe head injuries and death. By considering all these issues the idea of smart helmet came into our mind which will ensure the safety of biker. The main idea behind this is to provide protective headgear for the riders to make their driving safer than before. This can be implemented by using advanced features like alcohol detection, accident identification, location tracking, and fall detection. This makes it not only a smart helmet but also a feature of smart bike.

**Keywords :** Headgear, Alcohol Detection, Location Tracking, Fall Detection.

## I. INTRODUCTION

As per the WHO Global Report on road safety 2018, India accounts for almost 11% of the accident related deaths in the world. A total 4, 67,044 road accidents have been reported by States and Union Territories in the calendar year 2018. To reduce the road accidents ratio, Government of India made every biker compulsory to wear a helmet as per Section 129 of Motor Vehicle Act, 1988. Also drink and drive under the influence (DUI) is a criminal offence according to a motor vehicle act 1939 as mentioned by author in [1].

To ensure that the bikers should follow the traffic rules we propose "Smart Helmet Using IOT" for supporting the policies of the Government. The main motive behind our work is to make it mandatory for biker to wear a helmet during ride and prevent drink and drive scenario. One more feature of this system is to notify the concerned people about the accident of biker along with the location. This system comprises of two sections helmet section and bike section as

proposed by author in [2]. Helmet section consists of push button, alcohol sensor, accelerometer and Arduino. Bike section consists of Wi-Fi module, GPS tracking.

The system will start the bike ignition on two conditions:

- 1] Push button should be pressed.
- 2] Biker should not consume alcohol.

## II. LITERATURE REVIEW

1. "Smart Helmet for safe drive", system proposed by Keesari Shravya et al. in which they have used Force Sensing Resistors (FSR) which is placed inside the helmet which is used to recognize whether the helmet is worn or not before the bike is start. FSR are strong polymer thick film devices whose resistance is inversely proportional to force apply to the face of sensor.

2. Akshatha et al. had developed a system consists of microcontroller which makes the system hardware based; we are replacing it with Arduino to make it IoT.
3. For accident detection K Venkata Rao et al. presented a smart helmet in which there is no storing of biker's location data due to which they cannot be able to keep the track of their location history.
4. Bluetooth speaker with microphone is one of the features added by Ainapurapu Manoj et al. in their system which are used to play the songs which leads to the safety issue and can caused the accidents.

As FSR increases the cost of system, so to overcome this we are replacing FSR with push button. GPS module used for transferring the location message is comparatively slower than Wi-Fi module which we are using in our system. We are using cloud storage to store the location history which will be act as a surveillance feature. We removed Bluetooth speaker with microphone feature from our system for safety reasons.

### III. PROPOSED SYSTEM

This project is aimed at building a system which will detect the consumption of alcohol by a suspect and display a digital reading indicating the level of alcoholic consumption and also will check whether the push button inside the helmet is pressed or not which will indicate that helmet is worn by the biker.

The MQ-3 sensor is used to detect alcohol level. The sensor detects the alcohol consumption by the smell of the breath. If driver is drunk then bike ignition will not start. The vibration sensor is used to detect the accident and SMS containing location of biker

will generated through cloud server which will send to the family members.

### IV. CONCLUSION

The "Smart Helmet using IoT" system will overcome above mentioned issues and will provide the safety to the biker and reduces the after effects of the accident, notifying about the accident. Our system is cheaper than previously existing systems. The surveillance feature in the system is helpful for parents for keeping the track of their children's location. As we are using Wi-Fi module it will send the SMS faster than GPS module.

### V. REFERENCES

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