

# Safety helmet

Ms. Nishi Singh, Dept. of Electrical & Electronics Engineering  
Rabindranath Tagore University, Bhopal

***ABSTRACT: A helmet is a safety gear for a driver's head during accident. The main role of the helmet is to provide safety to driver's head. This helmet can detect location, detect alcohol, alert family member etc. This smart helmet comprising a communication module, switching module, gas sensor, microcontroller and rechargeable battery for the safety of driver. If the driver got drunk than the gas sensor will detect the condition and it will stop the vehicle ignition through switching module and controller. It will also send alert message to the family members about driver's location and alcohol condition.***

***Keywords: Microcontroller, Gas sensor, Switching module, Communication module, Rechargeable battery.***

## INTRODUCTION

The craze of motorcycles is truly noteworthy at this time, particularly in the younger generation. Due to their small rates, multiple variants on the market are accessible for the middle class households, because of the harsh contests between 2-wheelers and durability, they prefer to purchase motors for over 4-wheelers. Due to a growing number of motorcyclists, the road malfunctions in our nation are growing daily, caused mostly by negligence in the absence of helmets, and also by the absence of immediate health care required by the wounded individual. There are numerous fatalities.

## WORKING

In ancient time helmet are made compulsory for the driver for safety purpose but most of the people lose their life due to drunk & drive case [1]. Therefore a smart helmet designed to detect the driver condition like drunk or not and operated the ignition of the vehicle [2]. It's also alert driver family member about driver's location and alcohol condition [3]. Smart helmet comprises a gas sensor for detecting driver drunk or not [4], switching module for operating ignition of the vehicle [5] and communication module for alerting family members of the driver by sending driver location [6]. Smart helmet function control and process by a microcontroller and power supply is given by rechargeable battery[7].

The following components comprise by the smart helmet are [8]:-

- Gas sensor [9]

A gas sensor is attached to the helmet for detecting driver breathe for determining alcohol condition.

- Microcontroller [10]

A microcontroller used in the smart helmet for receiving and processing the data from the gas sensor and operate the vehicle ignition.

- Communication module [11]

A communication module is used to send alert message to driver family members phones about driver location and communication between microcontroller and switching module.

- Switching module

A switching module is used to turn ON/OFF the ignition of the vehicle accordingly the command send by the microcontroller.

## RESULT & CONCLUSION

This smart helmet is design to protect the drunk driver to avoid accident by turning OFF the vehicle ignition after detecting alcohol condition from a driver and also send alert message to driver's family member about driver location and alcohol condition.

## REFERENCES

- [1] D. A. Preetham, M. S. Rohit, A. G. Ghontale, and M. J. P. Priyadarsini, "Safety helmet with alcohol detection and theft control for bikers," in *Proceedings of the International Conference on Intelligent Sustainable Systems, ICISS 2017*, 2018.
- [2] P. M. Dhulavvagol, R. Shet, P. Nashipudi, A. S. Meti, and R. Ganiger, "Smart helmet with cloud GPS GSM technology for accident and alcohol detection," in *Communications in Computer and Information Science*, 2018.
- [3] R. G. Sushma and J. P. Himanshu, "ARMOR Smart Helmet for Alcohol Detection , Accident Detection and Notification using Internet of Things ( IoT )," *Asian J. Appl. Sci. Technol.*, 2017.
- [4] M. Magno, A. D'Aloia, T. Polonelli, L. Spadaro, and L. Benini, "SHelmet: An intelligent self-sustaining multi sensors smart helmet for bikers," in *Lecture Notes of the Institute for Computer Sciences, Social-Informatics and*

- Telecommunications Engineering, LNICST, 2017.*
- [5] A. Daimary, M. Goswami, and R. K. Baruah, "A low power intelligent helmet system," in *2018 International Symposium on Devices, Circuits and Systems, ISDCS 2018*, 2018.
- [6] A. Mohamed Syed Ali, "Helmet deduction using image processing," *Indones. J. Electr. Eng. Comput. Sci.*, 2018.
- [7] A. Srikrishnan and K. Sudhaman, "An intelligent helmet system for detection of alcohol," *Int. J. Control Theory Appl.*, 2016.
- [8] *et al.*, "SMART HELMET: SMART SOLUTION FOR BIKE RIDERS AND ALCOHOL DETECTION.," *Int. J. Adv. Res.*, 2016.
- [9] V. Pentyala, P. Davydovskaya, M. Ade, R. Pohle, and G. Urban, "Metal-organic frameworks for alcohol gas sensor," *Sensors Actuators, B Chem.*, 2016.
- [10] T. S. Ng, "Microcontroller," in *Studies in Systems, Decision and Control*, 2016.
- [11] A. W. Rives and T. Galitski, "Modular organization of cellular networks," *Proc. Natl. Acad. Sci. U. S. A.*, 2003.