

# SAFE DRIVING USING IOT SENSOR

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## ABSTRACT

**All over the world, most of the road accidents are occurred by drunk and driving and rash driving. The main concept of this paper is to prevent the road accident so to prevent the road accident we are using alcohol detection sensor, eye blink sensor, over speed control sensor. The alcohol sensors are used to detect the driver is drunk or not. The eye blink sensors are used to check the driver is sleepy or not with the help of the eyeball movement of the driver, if the driver is sleepy means it will trigger the alarm to conscious the driver. The over speed controller sensors is used to check the car is over speed or not and if the car is over speed means it will reduce the speed of the car & maintain the car speed into normal speed. In this process, the message or SMS will send to the relative of the driver if the driver is consuming alcohol & driving and the message will also send to the local police to prevent the accident**

**Keywords** - Safe Driving, IOT Sensors, alcohol, accidents.

## I. INTRODUCTION

Everyday road accidents are happening all over the world according to the statistics (20 – 40) percentage of road accidents are happening due to drunk & driving and rash driving. If the driver drunk means he/she will be unconscious they will not able to control themselves in that situation if they drive the car means it can affect them and others also. Some of the drivers will be over speed after they drunk. There are different modules to prevent these

road accidents, in this paper we are using eye blink sensors, alcohol detection sensors and over speed sensors. The eye blink sensors are used in the steering wheel of the car it will check the eyeball movement of the driver while he/she driving the car whether a driver is sleepy or not. The alcohol detecting sensors are also fixed in the steering of the car so that it can detect the driver is consuming alcohol or not, if the driver consumes the alcohol means car will not start itself if the driver consumes the alcohol while driving means it will detect by using alcohol detection sensor and it will slow down the car and it will also send the SMS to the relatives of the driver and it will also send the SMS to the local police. The over speed controller is used to check the driver whether he/she is driving over the speed limit & it will reduce the speed of the car and maintain the normal speed limits. This all process is happening through the IOT sensors

## II. RELATED WORKS

According to Thyagaraju G.S et al [1] major of the accident happens due to the drowsiness of the driver This use to check abnormal driving of other surrounding vehicles by using the embedded sensor. In this paper S.V.Altaf et al [2] the drunken & drive can be identified by the alcohol sensor but it can't identify the drowsiness & over speeding. According to the author T.Venkat et al [3] in this process, they are using dc motors, GSM modules, GPS modules, MQ3 alcohol sensor to prevent an accident but it can't identify the over speeding & they are not using the eye blink sensors. The Digital certificates can be used by the client to produce its identity to the server. The author proposes a certificated-based authentication scheme which is faster and secured

than many other existing schemes [4]. EAM security model protects against five different types of security attacks. Hardware dependency is eradicated and provides minimum number of steps for getting authenticated [5]. In this paper, unregistered vehicle cannot obtain the traffic information as it is not registered with primary key and network provides the priority for the emergency vehicle [6]. In VANET, sensor hubs have battery power constraints which leads to decreased life time of sensor hub. To resolve these issues, primary key is maintained for every registered vehicle and also relay node checks the speed of every vehicle [7].

In this paper Rajesh Kumar et al [8] in this paper they are using breath sensors to identify the driver whether he is drunk or not they will also send the SMS to the particular persons they are also using GPS & GSM modules but they are not using eye blink sensor for the drowsiness detection. According to the author Lea Angelica Navarro et al [9] this paper consists of CCD camera and analog to digital converter which helps to capture the image of the driver this image is used to identify the driver is consumes alcohol or not but they not using any sensors for detecting drunk & drive. The author conveys that Tanish Sehgal et al [10] in this process they are using self-powered IRIS scanner to detect the drowsiness of the driver & if the driver gets sleepy the alarm will be triggered so that the driver will be conscious will driving. According to the author Vijay Savania et al [11] in this paper they are using alcohol detecting sensor to detect the driver is drunk or not and if the driver is drunk it will send the SMS to the relatives in every five minutes but it will not stop the car or it will not trigger the alarm also. In this paper author conveys Prashanth KP et al [12] The author conveys Tanmoy D et al [13] in these paper they are using android app to detecting the driver is drunk & rash driving it will also send the information to the relatives & it will also send the current location of the driver but in these paper they are not using the reduce the speed for rash driving using over speed controller. According to author M. Kousikan1 et al [14] in these paper, the author is using IR rays & IR sensor to detect the alcohol with the help of the ethanol & this IR rays & IR sensor used to cut off the fuel supply to the engine. The author conveys Ralph Oyini Mbouna et al [15] in this paper they are using eye index & pupil activity by this they will check the eye is closed or open and it will check whether the driver is sleepy or not & it also gives alert to wake the driver from sleep it will also check head position of the driver whether driver is sleepy or not. According to

the author Hang-Bong Kang [16] in this paper author use eye related measurements, yawning detection and facial expression by this process they will identify whether the driver is sleepy or not. The author conveys Minoru Sakairi et al [17] in this paper author used breath sensors to check the driver is drunk or not the author is also using water cluster detecting behind the steering wheel to identify the driver is consumes alcohol or not. According to the author T. Shyam Ramanath et al [18] in this paper the author is using alcohol sensor in the steering wheel so that the sensor can identify whether the driver is drunk is not if the driver is drunk means it will stop the fuel supply to the engine it will also send the message to the relative of the driver current location

#### IV. MOTIVATION

The main aim & the motivation of this project is used to prevent from drunk and drive accident so that we are using alcohol sensors Apart from alcohol sensors, we also include eye blink sensors and over speed controller sensors. These alcohol sensors will identify the driver is drunk or not and the over speed controller sensor will check the car speed & if the car crosses the speed limit(40km/h) the over speed controller sensors will reduce the speed of the vehicle. It will also send the SMS to the police in case of drunk & drive.

#### V. PROPOSED SYSTEM

The major cause of road accidents is happening due to the drunken drive & rash driving. To overcome these problems we go for efficient method

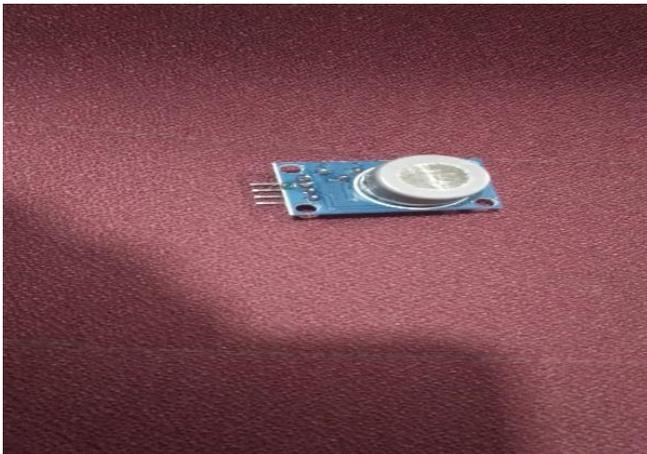
In this process, we are using different modules based on IOT sensors. We are also using eye blink sensors, alcohol detection sensors and over speed controller sensors, all these sensors are connected with the mobile app to send the SMS or message to driver relative and the local police using IOT.

The eye blink sensors are connected to the steering of the car. It will check the eyeball movement of the driver & clarify whether the driver is sleeping or not. If the eye blinks two seconds it knows the driver is not sleepy if the eyes of the driver are closed for 5 seconds the eye blink sensors will identify that the driver is sleeping and then the sensors will trigger the alarm to make the driver conscious and the alarm will not stop until the driver became conscious



**Fig 1: eye blink sensor**

The alcohol detection sensors are also connected to the steering of the car these sensor will identify whether the driver is drunk or not. The uniqueness of these sensors is it will identify only the driver is drunk or not it will not check the rest of the persons in the car, because the sensor will be fixed in the steering of the car so the capacity of the sensor is up to 5-10 cm to identify the alcohol consumption of the driver alone it will also send the SMS to their driver relatives and the local police



**Fig 2: alcohol detecting sensors**

The over speed sensors are used detect the speed of the car this sensor will check the speed limit and if the driver cross the speed limit it will reduce the speed and comes to the normal speed limit this sensors will be cutoff the fuel to the engine when the driver cross the speed limit

and it will reduce the speed of the car these sensors will also send the SMS and message to the driver’s relative and it will also send the local police



**Fig 3: Over speed controller**

The eye blink sensor, over speed controller sensor and alcohol detection sensors are connected to the mobile app using IoT. This app connect with the device and monitor the driver and the car. Using GPS(Global Positioning System) the app sends the information to the registered mobile number with the latitude and longitude detail of the particular vehicle. These emergency numbers are registered in the app. The SMS will be sent to the number using server connected to the system.

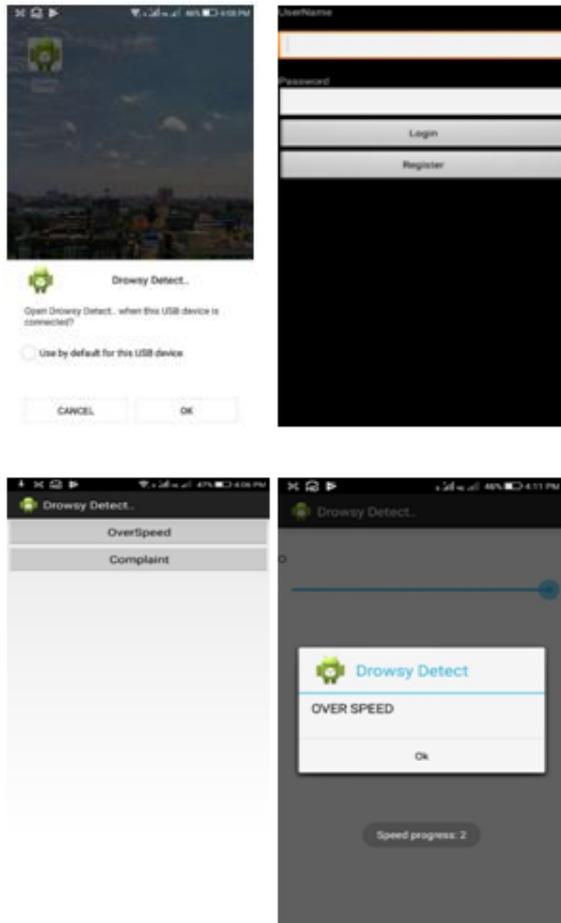


Fig 4: Application for over speed controller

VI. IMPLEMENTATION

The user/driver will be connected to the server of IoT sensors which has the different modules like over speed controller, alcohol detector & eye blink sensors. This can identify the drunken driving & prevent the accident

Step 1: initiate the application and check for the liquor consumption limit by the driver.

Step a: Set the maximum speed of the car to 40KMPH.

Step b: If the car cross the speed limit it will reduce the speed of the car by using over speed controller sensors & it will maintain the speed limit of the car

Step c: It will also check the driver is consumes alcohol or not by using alcohol sensors & eye blink sensors

VII. CONCLUSION

In this work, it clearly shows how to prevent the drunk & drive accident & it is also prevented from the rash driving accident. This method will prevent from the lots of accident because it will check the driver is drunk or not by using alcohol sensors it will also check whether the driver is getting sleepy or not by using eye blink sensor but this can be applied or proceed only when the car windows are closed. In future system & sensor will be developed & it can also use in open glass of the car

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