

## Detection of Driver Drowsiness Using Eye Blink sensor

Apurva Mirge<sup>1</sup>, Priya Sharma<sup>2</sup>, Kashmir Shendge<sup>3</sup>, Savita Thakre<sup>4</sup>, Prof. Ajit Pagar<sup>5</sup>

<sup>1,2,3,4</sup> Student, Department of Computer Engineering, Dr. D. Y. Patil School of Engineering, Lohegoan, Savitribai Phule Pune University, Pune, Maharashtra, India

<sup>5</sup> Professor, Department of Computer Engineering, Dr. D. Y. Patil School of Engineering, Lohegoan, Savitribai Phule Pune University, Pune, Maharashtra, India

### ABSTRACT

Nowadays, drowsy driving has become a leading cause of accidents. The mechanism for detecting fatigue and sleepiness while driving has been categorized into three broad approaches, including vehicle-based, physiological-based, and behavior-based approaches. By the study of these measurement methodologies and comparing them, we came up with some new ideas to measure the drowsiness of a person on the road using more advanced techniques, more reliability, low complexity, etc. This system is developed using various sensors like eye blink sensor, alcohol sensor, fire sensor and raspberry pi microcontroller. If the driver is found drowsy he will be alerted by buzzing alarm. Driver gets distract when an object or event draws a person's attention away from the driving task. Alcohol consumption also results in the same effects. The paper leads to the solution for preventing the accidents happening due to these effects of alcohol consumption and drowsiness.

**Keywords:** Drowsiness, Eye blink sensor, Driving, Vibrator, Buzzing Alarm.

### I. INTRODUCTION

The increased usage of vehicles has led to increased chaos on the roads. Increased chaos has led to increased number of accidents. According to WHO report of 180 countries, shows that the total number of deaths occurring in accidents are 1.25 million per year. For any vehicle accidents driver's faults are the most accountable aspect to cause dangerous problems to the society. Many drivers cannot control the vehicles due to different reasons it may cause severe accidents and sometimes death. Various reasons for these accidents are alcohol consumption, over speeding and many distractions like talking while driving and texting. One of the important factor is

sleeping on the wheel. Nowadays, drowsy driving has become a leading cause of accidents.

The primary purpose of the system is to develop a system that can reduce the number of accidents happening due to driver drowsiness. The primary purpose of the system is to develop a system that can reduce the number of accidents happening due to driver drowsiness. With our three monitoring steps we can provide a more accurate detection .The first application is to detect the eye blink of the driver, eye blink sensor is continuously monitor the eye blink movement. Then next we will detect the alcohol content. And this paper also deals with temperature sensor, in case of any fire inside the vehicle.

## II. LITERATURE SURVEY

Paper	Author name	Method	Achievement
Detection of driver drowsiness using eye blink sensor	Kusuma Kumari B.M Sampada Sethi Nishant Kumar	In this system if the driver becomes drowsy the eye blink sensors frame vibrates attached to the vehicle and also the LCD displays the warning messages. The wheel is slowed or stopped depending on the condition.	The LCD displays the warning messages.
Vehicle accident prevention using sensors	G.Keerthi Bhavani ,Shailaja Reddy	This project monitors and detects accident and minimizes the number of accidents. The device prototype support quality, low cost, flexibility and user safety. The work presence design of a lower power embedded system and its combination with different sensors	The device prototype support quality, low cost, flexibility and user safety.
Pragyaditya Das, S. Pragadeesh,	Microcontroller based car safety system :implementing drowsiness detection and vehicle –vehicle distance detection in parallel	This project involves measure and control eye blink using IR sensor. We can automatically park the vehicle by first using automatic braking system which will slow down the vehicle and simultaneously.	Automatic parking system for the vehicle by first using automatic braking system

<p>Suparana Sahabiwas , Sourav saha</p>	<p>Drunken driving detection and prevention models using Internet of Things.</p>	<p>This paper proposed a system to safeguard drunken drivers especially at night. It includes analysis of alcohol concentration and hence undertake protective measures such as speed reduction , triggering an alarm ,informing the traffic control ,activation of auto pilot</p>	<p>Speed reduction when the drivers are drunken.</p>
<p>M Hemamalini Sathis Kumar</p>	<p>M</p>	<p>Accident prevention using eye blink sensor</p>	<p>This project has proposed a design and implementation of accident prevention using eye blink sensor with PIC16F77A microcontroller successfully</p>
<p>Shashidhara M,C Shruthi</p>	<p>N</p>	<p>Smart alert</p>	<p>Car</p>

Prashant Sharma ,Tanu priya	Road accident prevention and control	The system works when the driver closes the eyes for around 30sec and also there is a vibrator present at the back of the seat, the vibrator vibrates and the brake is also applied gradually after 50sec.	Automatic brakes are applied when the driver's eyes are found automatically closed for about 30sec.
Jyotsna Gabhane , Dhanashree Dixit	Drowsiness detection and alert system: A review	This project provides a cost effective way to alert the truck driver as well as the owner of the company.	Cost effective way to alert the truck driver.
Suhas Katkar ,Mahesh Manik Kumbhar	Accident prevention system using eye blink sensor	In this system obstacle detecting sensor is used to detect the objects and obstacle's in front of sensor in a narrow angle useful in robotics application.	Robotics application.
Sonali Shankar Chalwad, Snehal Gaikwad	Accident prevention using eye blink sensor	This project is developed to keep the vehicle secure and protect it by the occupation of the intruders. It uses eye blink sensor,8051 microcontroller, LCD and buzzer	To keep the vehicle secure and protect it by the occupation of the intruders

Prashant Sharma ,Tanu priya	Road accident prevention and control	The system works when the driver closes the eyes for around 30sec and also there is a vibrator present at the back of the seat, the vibrator vibrates and the brake is also applied gradually after 50sec.	Automatic brakes are applied when the driver's eyes are found automatically closed for about 30sec.
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### III. METHODS AND MATERIAL

#### A. Raspberry pi

Raspberry Pi is an ARM based single board computer created by raspberry pi foundation. Raspberry pi runs Debian based Linux based Operating System. Modules are interfaced with Raspberry pi. The processed output is given to the output modules. Raspberry pi requires 5V power supply.

#### B. Eye Blink Sensor

Eye Blink module is made up of the frames. The frame is fitted with the IR sensor. The frame consists of IR transmitter which transmit the IR rays towards the driver's eyes and IR receiver which receives the reflected rays when the eyes are closed.

#### C. Alcohol Sensor

Alcohol Sensor is used to analyze the check driver's blood alcohol level. If alcohol presence is detected then the vehicle stops automatically from further driving. Then it gives the result on LCD screen.

#### D. Temperature Sensor

Temperature sensor measures the temperature accurately. In this system temperature sensor is used to check engines temperature, if it is over heated, it generates through an alarm.

#### E. Vibrator Sensor

Vibrator sensor is used to sense any jerk given to the vehicle which is the emulation of the accident

occurrence in real time. Output of this is that it suddenly stops the motor.

#### F. LCD

LCD is a display device. It displays the warning message, if the driver falls asleep. All the modules are connected to it so that the particular signals can be received and hence message could be displayed. It also provide 5V module to other module.

#### G. GSM Module

Global System for Mobile Communication (GSM) sends the message from one place to another. In this system, we are using GSM module to end message to the owner of the vehicle automatically if driver drowsiness or alcohol consumption is detected.

#### H. Buzzer

This device will buzz an alarm when the driver's eyes are closed for more than the referenced value.

### IV. CONCLUSION

We have studied the Detection of driver drowsiness with the different type of sensors. We have focused detecting the drowsiness using eye blink sensor .The purpose of such model is to advance a security in transport system by detecting the drivers eye blinks and also alert the driver by buzzing alarm to avoid accidents. This project involves certain measures and

controls drowsiness using IR sensor. It will also detect the alcohol presence and temperature inside the vehicle.

## V. REFERENCES

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