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# EYE BLINK SENSOR

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**ABSTRACT:** Road accidents became a matter of concern because of the massive increase in traffic. The first explanation for accidents is because of the sleepiness of drivers at night time. Sleeping and drowsiness are a number of the leading causes of major accidents on Highways. The solution to the current problem is detecting the sleepiness and alerting the driver.

So, during this project, we've thought of building sleepiness detection and alerting system for drivers using Arduino Nano, an eye blink sensor, motor, battery, buzzer, and relay. The fundamental purpose of this system is to trace the driver's eye movements using an eye blink sensor and if the driver is feeling drowsy, then the system can trigger a warning message employing a loud buzzer alert.

**KEYWORDS:** Eye blink sensor, Sleepiness detection, and alerting system

## I. INTRODUCTION

Accidents occur in numerous ways. The unending history of traffic and accidents everywhere on the planet is due to the deterioration of drivers' vigilance levels. Drivers with a lack of concentration level suffer from a marked decline in their perception, recognition, and vehicle manageable ability, which cause a heavy danger to their own lives and the lives of others. One among the causes is that drowsiness or a tendency to sleep during long drives. In India, the Ministry of Road Transport and highway released a report in 2015, daily around 1,374 accidents could happen and nearly four hundred individual deaths occur. Every hour because of vehicle accidents about fifty-seven road accidents and seventeen individuals die. That 54.1 % of individuals within the age group of 15 to 34 years are killed in vehicle accidents. The main motive of this project is to prevent accidents because of sleepiness while driving and to supply higher safety to drivers and passengers while driving.

The main purpose of this project is to develop a sleepiness detection system. This method works by analyzing the eye movement of the driver and alerting the driver by activating the buzzer once the driver is sleepy. One of the most ways for detecting the eye blinking of the driver is by the creating use of an Infrared sensor. The IR sensor is employed to detect the blinking of the eyes of the driver. If the eyes are closed for a certain period, it'll sense by the IR sensor. The data of physiological reaction is sent to Arduino Board from IR sensor and makes the device work. Therefore, sleepiness of the driver is prevented and therefore reduces the percentage of accidents.

## II. RELATED WORK

In [1], the paper proposes the safety system for four Wheeler's which measures the eye blinking of the driver by using an IR sensor. This helps to know the eye's closing or opening Position as the driver gets drowsy during long

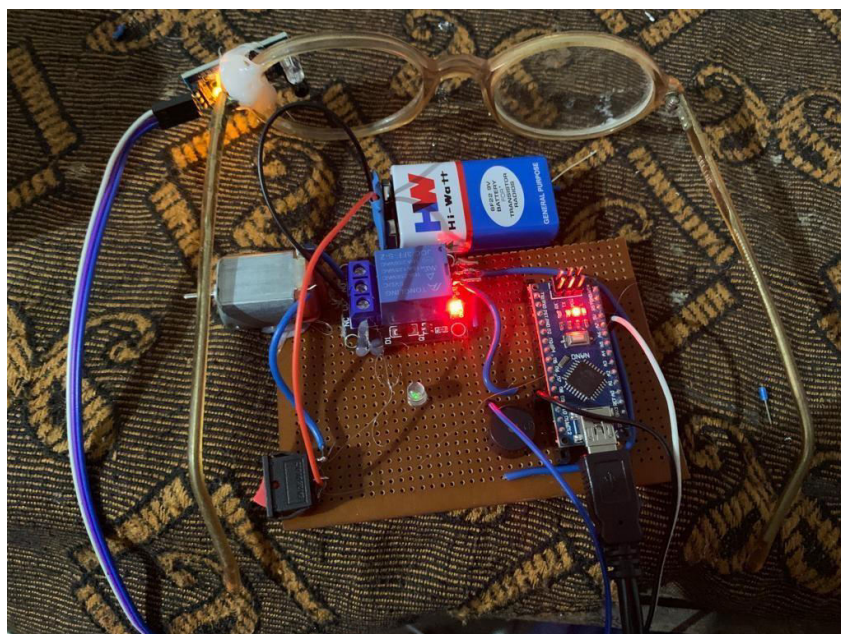
journeys or overnight trips. This system works by analysing the eye movement of the driver and alerting the motive force by activating the buzzer once the driver is drowsy. In [2] accidents because of driver sleepiness may be prevented using eye blink sensors. The driver is supposed to wear the eye blink detector frame throughout the course of driving and blink needs before a couple of seconds to discover drowsiness. The threshold of the vibration sensor can be varied and accordingly, action may be taken. The outcome is that the vibrator connected to the eye blink sensor's frame vibrates if the driver falls asleep and additionally the liquid crystal display displays the warning messages. In [3] the paper is to develop a real-time self-adaptation eye blink system. The proposed system can be utilized in several computer vision applications like eye typing, driver blink rate monitoring, and lie detection by measuring blink detection patterns, eye-gaze input for human-computer interaction, etc. The chosen method of doing this within the proposed system is to use only the Laptop Webcam. Comparing the proposed approach with the state-of-art eye tracking methods based on IR- light shows that our proposed system is a very simple and very low-cost system.

### III.METHODOLOGY

This paper proposes a protection system for four Wheelers that measure the eye blinking of driver by using an IR sensor. This helps to understand the eye's closing or opening Position as the driver gets sleepy during long journeys or overnight journeys. Eye blinking sensor transfers signals to the microcontroller that gives activating signal to the relay that controls the speed by applying a brake. The main aim is to construct a control technique that is helpful for the long-run transportation system. This technique works by analyzing the eye movement of the driver and alerting the driver by activating the buzzer once the driver is sleepy. One of the most ways for detecting the eye blinking of the driver is by making use of an Infrared sensor. The IR sensor is employed to observe the blinking of the eyes of the driver. If the eyes are closed for a particular period, it'll sense by the IR sensor. The information of eye blink is sent to the microcontroller Board from the IR sensor and makes the device work. Therefore sleepiness of the driver is prevented and therefore reduces the percentage of accidents.

### IV.EXPERIMENTAL RESULTS

The picture shows the view of the eye blink sensor. The information of the eye blink is send to Microcontroller Board from the IR sensor and makes the device work. Hence drowsiness of the driver is prevented and hence a reduction in the percentage of accidents





## V. CONCLUSION

People are progressively exposed to dangers nowadays. Therefore, we need to take action against this as an engineer and have the answer we want. Any automation is designed to guard an individual. Such a model is tasked with developing a system for identification and controlling the speed of vehicles to prevent accidents. To some extent, trendy technology offers some hope of stopping these. This paper includes monitoring the blink of an eye with the assistance of an IR sensor. On this device, the output of the detector is provided for comparison with ARDUINO. once the value reaches the set level, the buzzer automatically vibrates, the LED glows, and also the automobile stops automatically once the eye blink sensor receives a signal from the transmission component.

## REFERENCES

- [1] Ajay Machhi, Bhramik Patel, Sanket Patel, Siddharth Rathod, S. Kannan, "An Efficient Accident Prevention System For Motor Vehicles With Eye Blinking Detection And Automatic Breaking System With Steering Control," in IJRAR March 2019, Volume 6, Issue 1.
- [2] Kusuma Kumari B.M, Sampada Sethi, Ramakanth Kumar P, Nishant Kumar, Atulit Shankar, "Detection of Driver Drowsiness using Eye Blink Sensor," in International Journal of Engineering Technology, 7 (3.12) (2018)Networking (ICSCAN), 2020.
- [3] Mark.Galab, H.M.Abdalkader, Hala H. Zayed, "Adaptive Real-Time Eye Blink Detection System," in International Journal of Computer Applications (0975 – 8887) (2013).
- [4] Siti Rosma Azizan, "Drivers Fatigue Accident Prevention Using Eye Blink Sensor," in Universiti Teknologi PETRONAS Bandar Seri Iskandar 31750 Tronoh Perak Darul Ridzuan,2013
- [5] Jayamala K. Patil and Lego G. Mathew "Eye Blinking Monitoring System for Vehicle Accident Prevention," in International Journal of Electronic and Electrical Engineering. ISSN 0974-2174 Volume 3, Number 3 (2010), pp. 133–138
- [6] Indrachapa Buwaneka Bandra, "Driver Drowsiness Detection Based On Eye Blink", Buckinghamshire New University Brunel University March 2009
- [7] Suhas Katkart, Mahesh Manik Kumbhar, Priti Navanath Kadam. "Accident Prevention System By Using Eye Blink Sensor", International Research Journal of the Engineering and Technology, May 16, Vol.3, Issue: 05.



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