e-ISSN:2582-5208
International Research Journal of Modernization in Engineering Technology and Science
Volume:03/Issue:06/June-2021 Impact Factor- 5.354 www.irjmets.com

DRIVER DROWSINESS DETECTION SYSTEM USING PYTHON

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ABSTRACT

Major road accidents are caused by drowsiness while driving. Drowsiness caused by tiredness driving is becoming more common these days. If the driver's eyes are drowsy for more than 5 seconds, the eye blink sensor detects the blink rate. If the eyes are found to be closed, the car's speed is reduced. Along with sleepiness detection, the CNY70 sensor is used in our suggested system. If the driver's eyes show signs of weariness, the alarm system is activated. These sensors are linked to an Arduino UNO, and a buzzer sounds to inform the user if sleepiness is detected.

Keywords: Eye Blink, Drowsiness, Fatigue, Buzzer, Arduino, CNY70.

I. INTRODUCTION

Drivers who are drowsy are one of the leading causes of traffic accidents. The danger, risk, and other grave consequences of sleepy driving are frightening. Drowsy driving is a dangerous mixture of drowsiness, weariness, and prolonged driving. This commonly occurs when a driver has not slept enough, but it can also occur due to a lack of focus, medicines, a sleep problem, consuming alcohol, or shift work. They cannot foresee when sleep will enter their body. Although falling asleep behind the wheel is harmful, being drowsy impairs a person's ability to drive safely even if they are not asleep. It is believed that one out of every twenty drivers has dozed off while driving. Truck drivers and bus drivers who have a lengthy 10-12 hour commute are the most vulnerable to sleepy driving. These individuals endanger other drivers more than they endanger themselves. This is because bigger vehicles may inflict greater damage to tiny vehicles such as cars, bicycles, and bikes. There are also a few drivers who suffer from sleep apnea, which causes breathing to stop and start. Drivers who take prescription drugs may also feel drowsy, and persons who sleep fewer than 6 hours each night are more prone to fall asleep behind the wheel.

Figure 1: Drowsiness situation while driving car

A. Existing System

The majority of existing systems consist of a camera mounted in front of the driver. It scans the driver's face and eyes to determine whether or not he is asleep. However, while facing in front of the driver, it obstructs the driver's frontal view. As a result, it may present further issues when driving. As a result, this System is not recommended. Furthermore, it displays varied findings depending on the location of the eye. When the eye is in the uplink position, the result is 80 percent accurate, while in the downlink position, the result is 55 percent accurate.

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II. METHODOLOGY

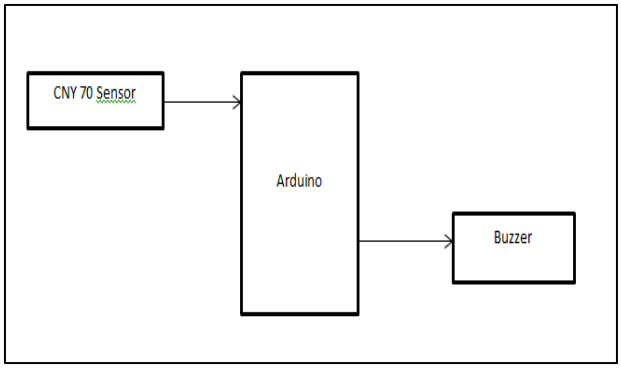

Figure 2: System Design

The majority of existing systems consist of a camera mounted in front of the driver. It scans the driver's face and eyes to determine whether or not he is asleep. However, while facing in front of the driver, it obstructs the driver's frontal view. As a result, it may present further issues when driving. As a result, this System is not recommended. Furthermore, it displays varied findings depending on the location of the eye. When the eye is in the uplink position, the result is 80 percent accurate, while in the downlink position, the result is 55 percent accurate. It is stated that the CV identifies just 40% of the driver's face and fails in oblique position. Furthermore, the current system is insufficient for heavy and huge trucks. To solve this conundrum, we have developed a novel detecting technique for this project. Block diagram of system shown in figure 1.

III. MODELING AND ANALYSIS

In 2018, there were 1,643 traffic incidents due by fatigued drivers. As a result, adopting the eye blink sensor can help to prevent accidents caused by tiredness. The eye-blink sensor functions by lighting the eye and eyelid regions with infrared light and then detecting variations in the reflected light with a phototransistor and differentiator circuit. The precise functioning is highly dependent on the location and targeting of the emitter and detector in relation to the eye. The sensor is linked to an Arduino UNO. On one side, we have an Arduino linked to the optical glass and a buzzer chip attached to the battery. The ground wire that connects the Buzzer to the Arduino's D2 Pin. The cable from the eye Blink Sensor is linked to the A2 Pin. After connecting the devices, a code is formed in the system, and when we blink, the sensor detects the signal from the transmitter-receiver. As a result, sensor sleepiness can be detected.

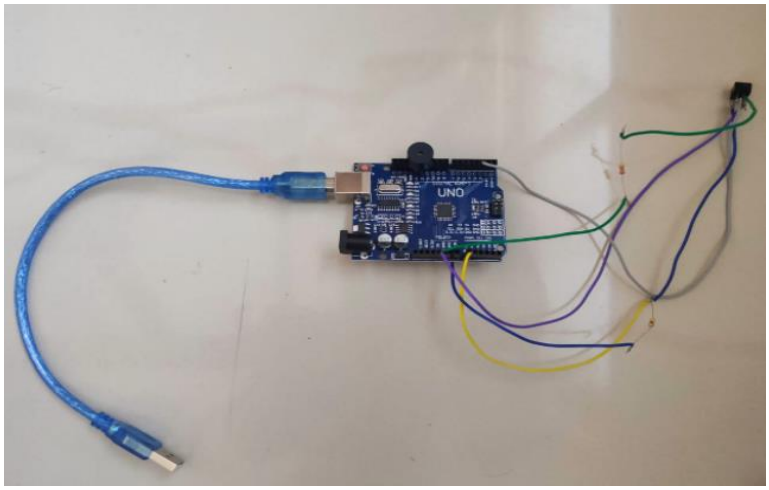

Figure 3: Designed Proposed System

IV. RESULTS AND DISCUSSION

In this study, we demonstrated an application of sensor-based embedded systems aimed at minimising road accidents caused by driver sleepiness. Because road accidents occur, it is critical to monitor and identify the driver's behavior to maintain road safety. As a result, it is critical to monitor driver behaviour in order to

reduce accidents caused by drunk driving. The suggested system uses sensors to detect alcohol and drowsiness, and safeguards are taken as a result.

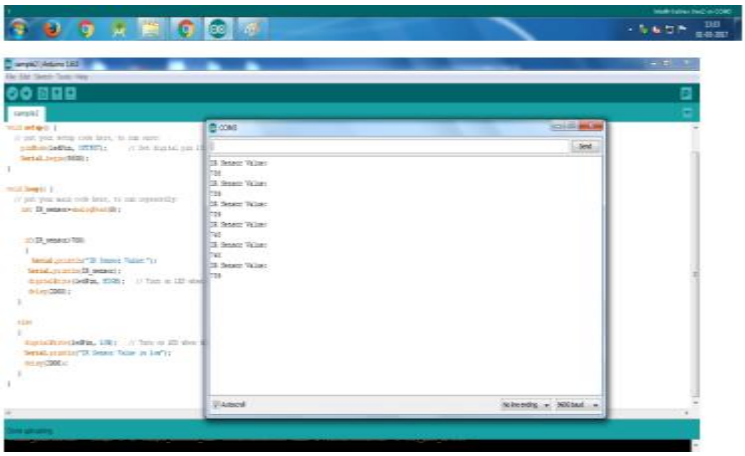

Figure 4: Output on Arduino IDE

V. CONCLUSION

The sleepiness detection is used to identify tiredness quickly. This technology keeps the driver from falling asleep while driving. The buzzer informs the driver if the driver's eyes are closed for a period of time that may be set in the code. This article is intended to protect drivers from drowsiness-related accidents. It may be used in a variety of automobiles. As a follow-up project, this technology might be modified to determine whether or not coma patients have recovered. This technique may also be used in automobiles. It may concentrate on the use of additional external elements for tiredness measures, such as sleeping hours, vehicle status, weather conditions, and mechanical data.

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