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# ARTIFICIAL INTELLIGENCE BASED DRIVER DROWSINESS DETECTION

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**Abstract:** Driver intoxication and driver tiredness are two of the most common causes of human-centered accidents, which are gradually on the rise. In order to assure safety and lower accidents brought on by drowsiness and alcohol consumption, researchers have recently revealed approaches that can identify fatigue by examining facial expressions. On the other hand, modern gadgets can only inform the driver when they sense sleepiness. The detection technique is typically divided into two parts, such as identifying the driver's facial expressions for indicators of fatigue and educating them further. The existing models are therefore unable to perform any further safety measures to ensure greater safety if the driver is still unable to control the vehicle after sounding an alarm.

**Keywords:** Drowsiness Detection, Haar Classifier, Hypo-vigilance.

## I. INTRODUCTION

In order to offer interactive services for safe driving, it is helpful to analyze a driver's intrinsic features and condition. For instance, a warning light on a car's instrument panel or an auditory alarm can alert an elderly driver who feels fatigued after a lengthy drive to stop. The state of the driver can also affect how the air conditioning in cars is adjusted, as seen in When a driver becomes fatigued, a vehicle's air conditioner can be set to run automatically, or a window can be opened to let in fresh air.To reflect driving behavior, perception and cognitive traits, judgmental abilities, and psychological features, a model of driver perception and psychological behavior must be developed. We can use a camera to track the movement of a car, driving habits, vital symptoms of a driver, and the face of a motorist in order to assess a driver's health. Various expert algorithms are continually being introduced along with the current machine-learning competent data that is being provided. Additionally, image analysis is gaining attention in various domains as training speed increases as a result of the use of graphics processing units (GPU). As a result, utilizing picture feature extraction analyses, potential driver condition estimate strategies will be described in this work. To the best of our knowledge, the model we've presented in this project will manage the functionalities in cases where the driver is still unable to drive after sounding the alert. All of the currently available works simply concentrate on identifying driver tiredness and offer no additional advice on how to prevent an accident while the driver is still drowsy. The suggested model then makes a judgement regarding whether to enable autonomous functionality or to continue warning the driver after examining the retrieved features. To make sure the driver is completely awake and capable of operating a vehicle, the system will continue to warn him or her.

## II. OBJECTIVES OF THE PROPOSED SYSTEM

- The speed of vehicle is reduced or stopped when the person is drowsy or drunk.
- As soon as an accident occurs, notify the closest hospital.
- Drowsiness Detection Using Camera.
- Accident detection using Tilt Sensor.
- If the driver is still sleepy after the alert, the car is parked in the closest parking space.
- This method's primary objective is to identify driver drowsiness and warn the driver via buzzer.

## III. LITERATURE SURVEY

**Title: A 2020 Algorithmic Method for Detecting Driver Drowsiness to Ensure Safety in an Autonomous Vehicle**

Authors: Dwipjoy Sarkar and Atanu Chowdhury
In this article, they have put forth a proposed algorithm that can be integrated into an autonomous vehicle's system to increase safety by taking control of the vehicle. If the driver doesn't return to a normal state, the algorithm assists in locating the closest safe parking space and notifying authorities.

  

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**Advantages**: This research presents a novel method for detecting driver drowsiness in real time. Frequent road accidents are brought on by fatigue and drowsiness.
**Disadvantages**: Only detects drowsiness; does not check the blood alcohol level of the driver.

**Title: IOT-based smart system for preventing and detecting accidents.**

Author: Varsha.E.dahiphale and Prof.sathyanarayanaR
Year:2019
Accidents are becoming more commonplace today. Every hour, about 17 accidents occur. Because two-wheelers lack many of the safety features seen in four-wheelers, bike accidents make up a significant portion of all accidents.

**Advantages:** Detects accident happened and Intimates with Location.
**Disadvantages:** Eye Blink Sensor Should be wore all the Time If Sensor Fails whole System doesn't work.

**Title: An Embedded System Application for Real-Time Intoxication and Drowsiness Detection in Drivers**

Author: Mejdi Ben Dkhil
Year:2018

This research presents a fresh approach to real-time alcohol intoxication detection and sleepiness in drivers of motor vehicles. Numerous car accidents occur on the road as a result of driver intoxication or weariness.

**Advantages:** Easy to implement Detect alcohol levels of driver
**Disadvantages:** Wearable based implementation, Only alcohol and drowsiness based accident can be avoided.

**Title: Drowsy driver detection by ECG analysis using Fast Fourier Transform.**

Author: Sayanee Nanda
Year:2018
In this essay, we attempt to analyse drowsiness, which is a significant contributing element in many traffic accidents due to a pronounced loss in attention and the ability to identify drivers who pose a hazard. The goal of this effort is to create an automated system for recording and analysing ECG data in order to assess the sleepiness stage.

**Advantages:** Easy to implement High Accuracy
**Disadvantages:** Driver Needs

## IV. POSSIBLE OUTCOME

- Using a camera, drowsiness is detected.
- When a driver is intoxicated or drowsy, the speed of the vehicle is lowered or stopped.
- As soon as an accident occurs, notify the closest hospital.
- The vehicle is parked in the closest parking space if the driver is still asleep following the alarm.
- The major objective of this technique is to identify driving drowsiness and to buzzer-alert the driver.

## V. CONCLUSION

On the basis of real-time fatigue detection, a system for detecting driver alertness was suggested. The suggested method accurately picks up on both eye blinking and sleepiness. Image processing algorithms were used to collect information about the position of the eyes. Drowsiness can be detected without any inconvenience or disturbance using image processing.

There was a face recognition algorithm in use. It was discovered that this technique produced a reliable measurement of blink rate. Regardless of gender or age, the recommended algorithm could detect eyeballs at medium and nonetheless; highlight for the best detection the camera needs to be placed as close to the subject as possible. Due to its ease of integration into cars and extensive testing, this paper provides much more contemporary convenience in today's society and aids in the reduction of accidents caused by drunk driving. This type of detector will be crucial in the future as we employ IOT since it can reduce the amount of drunk driving incidents on the highways. We show how to physically set up an IOT device to work. In this study, a technique to identify handheld cell phone use while driving was proposed. The system looks for this behavior using a ring indication.

 

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## REFERENCES

[1] An Algorithmic Approach to Driver Drowsiness Detection for Ensuring Safety in an Autonomous Car Author: Dwipjoy Sarkar and Atanu Chowdhury Year: 2020
[2] An IOT Based Smart System for Accident Prevention and Detection Author: Varsha.E.dahiphale and Prof.sathyanarayanaR Year:2019
[3] A Real Time Embedded System Application for Driver Drowsiness and Alcoholic Intoxication Detection Author: Mejdi Ben Dkhil year:2018
[4] Drowsy driver detection by ECG analysis using Fast Fourier Transform.Author: Sayanee Nanda Year:2018
[5] Lorraine Saju, ChristeenaJestine, FarhanaYasmin, and Surekha Mariam Varghese, "Drowsiness Detection System for Drivers using Haartraining and Template Matching", International Journal of Engineering Applied Sciences and Technology, Vol. 1, Issue 6, pp. 106-110, 2016.
[6] Varsha.E.dahiphale and Prof.sathyanarayanaR,"Computer Vision System for Driver Fatigue Detection", International Journal of Advanced Rsearch in Electronics and communication Engineering(IJARECE), volume 04,Issue-9, pp-2331-2334,2015
[7] Naveen M. and Sudarvizhi S., "Finger Vein Recognition Based Driver Authentication and Alertness System Using GSM", International Journal of Research in Engineering & Advanced Technology (IJREAT), Volume 3, Issue 1, pp.211-216,2015
[8] SrinivasuBatchu and S. Praveen Kumar, "Driver Drowsiness Detection to Reduce the Major Road Accidents in Automotive Vehicles", International Research Journal ofEngineering and Technology (IRJET), Volume 02, Issue 01, pp. 345-349,2015
[9] L.Nikitha,J.Kiranmai,B.Vidhyalakshmi,"Driver Behaviour Analysis Using Non- Invasive sensors", International Journal of Advance in Engineering and Science(IJATES),Volume 03,Issue 01,pp 707-714,2015
[10] DhavalPimplaskar,Dr.M.S.Nagmode,AtulBorkar,"Real Time Eye Blinking Detection and Tracking Using OpenCV",International Journal of Engineering Research and Application,Vol.03,Issue 05, PP-1780-1787,2013
[11] T.D Prasanthi,K.Rajasekhar,T.V.Janardhanarao,and B.V.V.satyanarayana,"Design of ARM based face Recognition system using Open CV library", International Journal of Advanced Research in Computer & Technology(IJARCET),Volume 01,Issue-9, pp-233- 240, 2012
[12] Saeid.fazli and Parisa .Esfehani,"Tracking Eye State for Fatigue Detection", InternationalConference on advanced in Computer and Electrical Engineering (ICACEE'2012), 2012 Python website. Python versions [online]. Available :https://www.python.org/download