IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.301
Volume 3, Issue 5, May 2023

Dozing Alert System

Priya R[1], Murugavasan J[2], Rohith B[3] , Sakthivel S[4]
Associate Professor, Department of Information Technology [1]
Students, B.Tech. ,Final year ,Department of Information Technology[2 3 4]
Anjalai Ammal Mahalingam Engineering College ,Thiruvarur , India

Abstract: Driving while drowsy is a major cause of road accidents and can have severe consequences. This project aims to develop a drowsy alert system that will help prevent such incidents by alerting drivers when they show signs of drowsiness he system uses a combination of computer vision and machine learning techniques to detect drowsiness. The camera mounted on the dashboard will capture video of the driver and analyze their face for signs of drowsiness such as eye closure and head nodding. The machine learning algorithm will then use this information to predict if the driver is drowsy. The system alerts the user with sound and kept them awake. This drowsy alert system has the potential to save lives by reducing the number of road accidents caused by drowsy driving. The system can be integrated into vehicles and be made available to all drivers, helping to create a safer road environment..

Keywords: Driver Drowsiness ,Eye detection ,Fatigue

I. INTRODUCTION

Driver drowsiness is a significant cause of road accidents, which can lead to injuries, fatalities, and property damage. According to the National Highway Traffic Safety Administration (NHTSA), around 100,000 police-reported crashes are caused by drowsy driving every year in the India alone. This highlights the need for an effective drowsy alert system that can detect driver fatigue and alert the driver to take a break or rest.

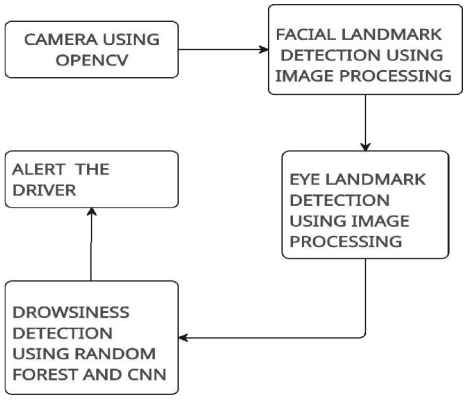
To address this issue, we propose a drozing alert system that uses machine learning and web application development. The system will analyze various parameters such as the driver's eye movements, facial expressions, to determine if the driver is drowsy. The system will then trigger an alarm or alert to wake up the driver or suggest taking a break.

The machine learning model will be trained on a dataset of driver behavior, including parameters such as eye closure rate, head pose. We will use TensorFlow and Keras to build and train the model, which will provide a predictive analysis of the driver's drowsiness levels.

The web application will provide an interface for the driver to interact with the system. The application will display real-time analytics of the driver's drowsiness levels, offer insights into the driver's driving habits. The application will be built using Flask, HTML, CSS.

Overall, this project aims to develop an effective and user-friendly drowsy alert system that can help prevent road accidents caused by driver fatigue

II. SYSTEM ARCHITECTURE



IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.301
Volume 3, Issue 5, May 2023

This OpenCV is a popular computer vision library that can be used to capture video frames from a camera. You can use OpenCV to set up a video feed that will be used as input for your drowsy alert system. Face landmark detection is a technique that involves detecting specific points on a face, such as the corners of the eyes or the tip of the nose. This can be done using machine learning algorithms, such as support vector machines or neural networks, or using traditional computer vision techniques like Haar cascades. Once you've detected the landmarks on the face, you can use them to track the driver's eye movements and detect drowsiness. Similar to face landmark detection, eye landmark detection involves detecting specific points on the eye, such as the corners and the iris. This can be done using machine learning or computer vision techniques. Once you've detected the eye landmarks, you can track the movement of the eyes and detect drowsiness. Random forest and convolutional neural networks (CNNs) are machine learning algorithms that can be used to detect drowsiness based on input from the camera, face landmark detection, and eye landmark detection. Random forest is a supervised learning algorithm that can be trained on labeled data to classify whether a driver is drowsy or alert based on certain features (such as eye closure rate). CNNs are deep learning algorithms that can learn to detect features automatically from input images. You can use a combination of these algorithms to improve the accuracy of drowsy detection. Once the drowsy alert system detects that the driver is becoming drowsy, it needs to alert the driver to take a break or stop driving. This can be done using visual or auditory alerts, such as flashing lights or an alarm sound.

III. LIST OF MODULE

Face Detection: A face detection module is a computer program that is designed to identify and locate human faces in digital images or videos. It is an essential component of many computer vision applications, including facial recognition,surveillance systems, and social media platforms.

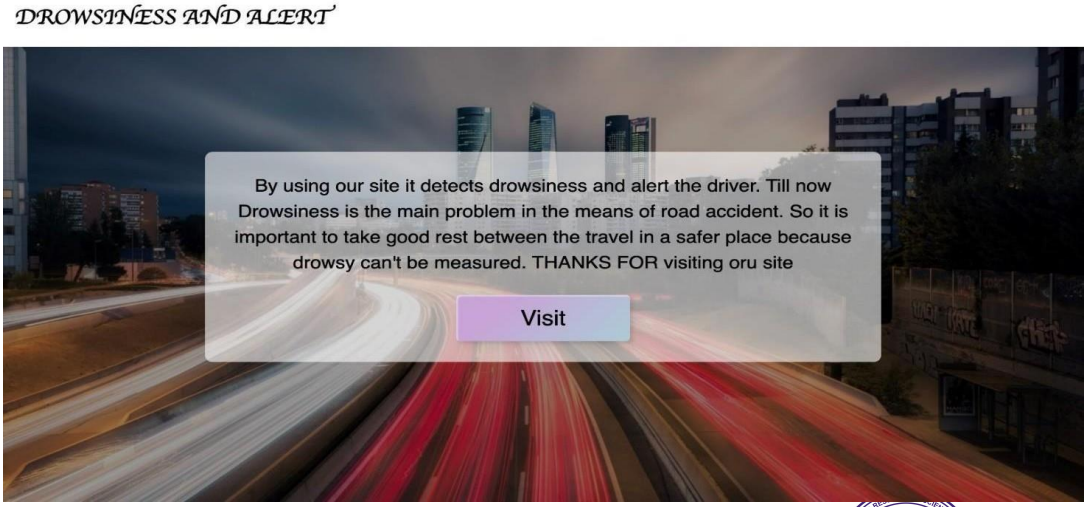
Face Tracking: A face tracking module is a computer program that is designed to track and follow human faces in real-time video streams. It is commonly used in applications such as video conferencing, surveillance systems, and augmented reality.

Eye Detection: An eye detection module is a computer program that is designed to identify a locate human eyes in digital images or videos. It is an important component of many computer vision applications, including facial recognition, gaze tracking.

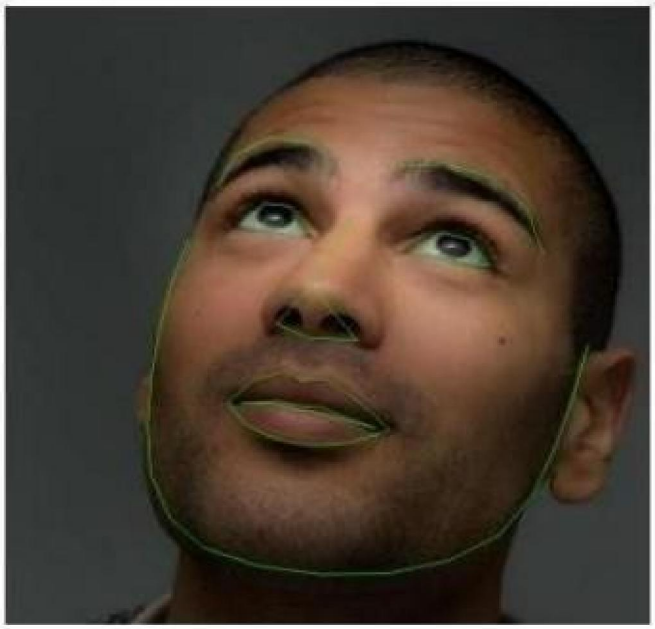
Eye Tracking: An eye tracking module is a computer program that is designed to track and analyze the movement of a person's eyes in real-time. It is commonly used in applications such as market research, usability testing, and medical diagnosis.

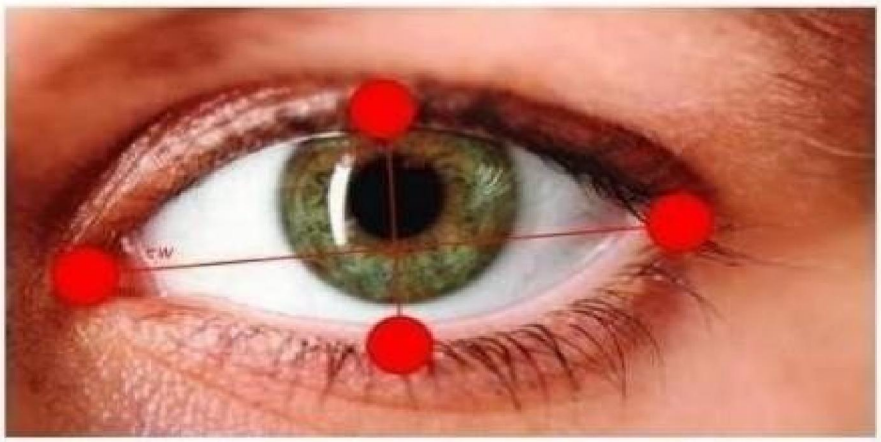
Drowsiness Detection: The purpose of the drowsiness detection system is to aid in the prevention of accidents passenger and commercial vehicles. The system will detect the early symptoms of drowsiness before the driver has fully lost all attentiveness and warn the driver

IV. SCREEN SHOT



IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.301
Volume 3, Issue 5, May 2023





V. FUTURE ENHANCEMENT

Real-time feedback and coaching: in addition to detecting drowsiness, the system could provide real-time feedback and coaching to the driver, such as suggesting exercises or stretches to help combat fatigue.

Personalized settings: The system could be customized based on individual driver preferences, such as sensitivity levels, alarm type, and break recommendations.

Integration with navigation systems: The system could be integrated with navigation systems to suggest rest stops or provide alerts for hazardous driving conditions such as sharp turns, steep inclines, or winding roads.

Emergency setting: the system detect fatigue, is takes a picture of driver and store it in cloud and sends a emergency message with location to the provided number.

VI. CONCLUSION

This drozing alert system project presents an effective and user-friendly solution to address the issue of driver drowsiness, which is a significant cause of road accidents. The system uses machine learning and web application development to analyze various parameters such as the driver's eye movements, facial expressions to detect drowsiness and alert the driver to take a break or rest, keep them awake.

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.301
Volume 3, Issue 5, May 2023

Through the use of machine learning algorithms and web application development, we have demonstrated the feasibility of developing a drozing alert system that can help prevent road accidents caused by driver fatigue. Our system provides real-time analytics and recommendations to the driver, which can help improve their safety and reduce the risk of accidents.

Future enhancements to the system, such as integration with real-time feedback and coaching, and personalized settings, can further improve the accuracy and effectiveness of the system. The integration of Emergency settings can provide alert message to there house, which can be used for research and policy-making purposes.

Overall, the drozing alert system has the potential to save lives and reduce the economic and social costs of road accidents caused by driver fatigue. We hope that our project can inspire further research and development in this area, and contribute to the improvement of road safety

REFERENCES

[1]. Fatigue State Detection for Tired Persons in Presence of Driving Periods by RIAD ALHARBEY, MOHAMED M.DESSOUKY , AHMED SEDIK , ALI I. SIAM ,AND MOHAMED A. ELASKILY ,June 2022.

[2]. Entropy-based Drowsiness Detection using Adaptive Variational Mode Decomposition by Smith K.Khare ,Varun Bajaj ,March 2021.

[3]. Internet of things based Intelligent Drowsiness Alert System by Ceerthi bala U.K, Sarath T.V ,2020.

[4]. Real Time Driver Fatigue Detection and Smart Rescue System by Dr A Ravi ,T Raga Phanigna,Y Lenina,P ramcharan,P Subrahmanya Teja,2020.

[5]. Driver Drowsiness Detection Based on Respiratory Signal Analysis by Federico Guede-Fernandez , Mireya Fernandez-Chimeno , June 2019.

[6]. Alert System for driver's drowsiness using image processing by Ratna Kaavya M, Ramya V, Ramya G Franklin ,2019.

[7]. Enhanced Drowsiness Detection Using Deep Learning by Asjid M ,Jawad Khan M, Jahangir Qureshi M ,Aug 2019.

[8]. Drowsy Driver alert System by Sanya Gupta ,Prerit Jain ,Elizabeth Rufus ,2018.

[9]. Drunk Driving and Drowsiness Detection by Vivek R.Nair ,Nadir N.Charniya ,2017.

[10]. Fuzzy Fusion of Eyelid Activity Indicators for Hypovigilance-Related Accident prediction by loannis G Damousis ,Dimitrios Tzovaras ,2008

BIOGRAPHY

- Mrs.R.Priya M.E., Associate Professor, Department of Information Technology, 18 Years of Experience , Anjalai Ammal Mahalingam Engineering College, Kovilvenni, Thiruvarur-614 403
- Mr.J.Murugavsan, Pursuing B.Tech – Information Technology (IT) Final Year in Anjalai Ammal Mahalingam Engineering College, Kovilvenni, Thiruvarur-614 403
- Mr.B.Rohith, Pursuing B.Tech – Information Technology (IT) Final Year in Anjalai Ammal Mahalingam Engineering College, Kovilvenni, Thiruvarur-614 403
- Mr.S.Sakthivel, Pursuing B.Tech – Information Technology (IT) Final Year in Anjalai Ammal Mahalingam Engineering College, Kovilvenni, Thiruvarur-614 403