

A Survey on “Drowsiness Alert Using Machine Learning Algorithms and Deep Learning Algorithms”

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Abstract: *We advocated using this strategy to minimize the frequency of accidents caused by driver fatigue and thereby improve road safety. This gadget detects driver sleepiness using visual data and artificial intelligence. SoftMax is used to detect, monitor, and study the neural transfer function. In order to quantify PERCLOS, the driver's face and eyes must be examined (percent of eye closure). It will also make use of alcohol. Pulse monitoring is used to assess whether or not the person is healthy. Due to extended durations of drive and boredom, Driver weariness is one of the leading causes of traffic accidents, particularly in congested areas. Huge vehicle drivers (such as buses and heavy trucks).*

Keywords: Drowsiness in Drivers, Machine Learning, Image Processing, and Deep Learning

I. INTRODUCTION

Behavior-based techniques and eye and neck angle-based approaches are the two sorts of methodology for identifying driver sleepiness. According to recent studies, algorithms that assess the distance between the driver's open and closed eyelids are more accurate and reliable than previous approaches for detecting driver sleepiness. The suggested system makes use of the following parameters:

- The personality parameter includes eye blinking, yawning, eye openness, jaw angle, and other behavior factors.
- Live footage is captured by a camera mounted on the bus.
- After separating the movie into frames, the photographs are chosen from the frames.
- Image noise is decreased by capturing individual images.

II. MOTIVATION

In terms of enhancing driving safety, monitoring the driver's activities while driving by assessing the vehicle's maneuverability may be a critical duty. The capacity to discriminate between inadvertent and deliberate automotive steering wheel inputs, such as a sudden major steering input, may indicate the driver's degree of attention, will be the most important aspect to be determined. In terms of enhancing driving safety, monitoring the driver's activities while driving by assessing the vehicle's maneuverability may be a critical duty. The capacity to discriminate between inadvertent and deliberate automotive steering wheel inputs, such as a sudden large steering input, will be the most important aspect to be determined.

III. LITERATURE SURVEY

Paper Name: Towards Detection of Bus Driver Fatigue Based on Robust Visual Analysis of Eye State

Author: Bappaditya Mandal, Liyuan Li, Gang Sam Wang, and Jie Lin

Abstract: Because of extended driving times and boredom in the workplace, driver weariness is one of the leading causes of traffic accidents, especially among big vehicle drivers (such as buses and heavy trucks). We present a vision-based tiredness detection system for bus driver monitoring in this study, which is simple and adaptable enough to be used in buses and big vehicles. Head-shoulder detection, face detection, eye detection, eye openness estimation, fusion, sleepiness measure percentage of eyelid closure (PERCLOS) estimation, and tiredness level classification are among the modules included in the system. The following are the most important innovative techniques: 1) a method based on spectral regression for estimating the continuous amount of eye opening.



Paper Name: Safe driving by detecting lane discipline and driver drowsiness

Author: Yashika Katyal; Suhas Alur; Shipra Dwivedi

Abstract: In today's modern world, road accidents have become all too prevalent. They inflict property damage as well as putting people's lives at danger while travelling. Road safety is a national concern because of its scope and the consequent negative impacts on the economy, global health, safety, and the general welfare of the people.

Paper Name: Portable Prevention and Monitoring of Driver's Drowsiness Focuses to Eyelid Movement Using Internet of Things

Author: Menchie Miranda, Alonic a Villanueva; Mark Jomar Buo; Reynald

Abstract: Since the number of vehicular accidents in the Philippines has lately increased, this article offers a sleepiness prevention device. To raise driver awareness, current safety measures are used, such as the usage of standard rumble strips on roadways, GPS installation, and speed limiters

3.1 Algorithm

A. Neural Network using Convolution (CNN):

CNN is a Deep Learning algorithm that can take an image as input and give priority to various aspects/objects in the picture, as well as discriminate between them. A CNN, or convolutional neural network, is a deep learning neural network that examines organized arrays of data, including representations.

B. Haar Cascade:

This is an Object Detection Algorithm for recognising faces in photos and real-time movies. The algorithm use edge or line. A Haar-like feature sums the pixel intensities in adjacent rectangular parts of a detection window and calculates the difference between them. This differentiation is then used to group picture subsections together.

VI. CONCLUSION

Our suggested technique may distinguish between simulated tired and sleepy states and the normal condition of driving using varying resolution photographs of faces and eyes obtained from an oblique viewing position. As a consequence, without the need of extra cameras, our system may be able to properly monitor the attention level of bus drivers. Our technique might help existing vision-based solutions for identifying driver weariness increase their capabilities and application.

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