

DRIVER DROWSINESS MONITORING SYSTEM

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Abstract

Drowsiness and Fatigue of drivers are amongst the significant causes of road accidents. Every year, they increase the amounts of deaths and fatalities injuries globally. In this project, a module for Advanced Driver Assistance System is presented to reduce the number of accidents due to drivers fatigue and hence increase the transportation safety. This system deals with automatic driver drowsiness detection and accident prevention based on visual information and Artificial Intelligence. In this project we propose an Artificial intelligence based driver drowsiness detection using Arduino controller. This project developed a prototype integrated system that combines machine vision-based drowsy driver monitoring technology and accident prevention system analysis of operator/vehicle performance to reliably assess driver drowsiness. The purpose of this system will be reliably quantify commercial motor vehicle driver drowsiness and provide a real-time .

Keywords : *Drowsiness, Driver, Accidents*

INTRODUCTION

Most of the road accidents are caused because of drowsiness and drunk driving and also working environments, reduced sleep and time factor. Driver drowsiness and fatigue drunk driving reduces the driver decision making capability and perception level.

These two situations affect the ability to control the vehicle. There are some techniques which are used to detect drowsiness in drivers like by sensing of driver operation or physiological characteristics of driver like or vehicle movement etc. Advanced Driver Assistance Systems (ADAS) are aimed to simplify and aid the driver in monitoring, warning, braking, and steering tasks through a variety of assisting technologies.

Primary goal of these systems is to provide safety for a driver and help to prevent road accidents. ADAS systems are undeniably one of the fastest growing areas in the automotive industry. When designed with a safe human-machine interface, they offer increased car and road safety by offering technologies that alert the driver to potential problems, helping to avoid collisions and accidents. In this eye blinking rate and eye closure duration is measured to detect driver's drowsiness. Because when driver felt sleepy at that time his/her eye blinking and gaze between eyelids are different from normal situations so they easily detect drowsiness.

In this system the position of irises and eye states are monitored through time to estimate eye blinking frequency and eye close duration. And in this type of system uses a remotely placed camera to acquire video and computer vision methods are then applied to sequentially localize face, eyes and eyelids positions to measure ratio of closure. Using these eyes closer and blinking ration one can detect drowsiness of driver. Such a system, mounted in a discreet corner of the car, could monitor for any signs of the eyes drooping. Images are used to train the model. It is trained by performing feature extraction on the image to obtain the required pattern in the image.

NEED OF THE STUDY

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 that they are no longer capable of operating the vehicle safely.

Driver monitoring systems help drivers to be more alert and aware while behind the wheel. By reducing driver distraction and increasing attention on the road, this technology makes roads safer for everyone.

STATEMENT OF THE PROBLEM

The National Highway Traffic Safety Administration estimates that every year about 100,000 police -

reported, drowsy -driving crashes result in nearly 800 fatalities and about 50,000 injuries.

OBJECTIVE OF THE STUDY

1. TO Monitor and Alert the Driver Drowsiness.
2. TO Avoid Road Accident Due to Driver Drowsiness.

MATERIALS & METHODS

A few ways to deal with fostering a model for recognizing driver tiredness that can be utilized really have been examined. To distinguish the best strategy and survey the flow headways in the space of DDDS, 68 examination distributions from different sources, including IEEE, Google Researcher, ScienceDirect and ResearchGate, have been chosen. 31 papers have been shortlisted out of 68 examinations that examine face identification strategies, half and half measures and profound learning calculations. A sum of 26,344 articles have been distributed that help the examination local area to construct an effective driver tiredness location framework, of which 12,395 articles depend on half breed models, e.g., DDDS. Figure 5 shows the distribution patterns from 2012 to 2021 in DDDS and half breed model-based driver sluggishness discovery frameworks (HMDDDS).

RESULT

Driver drowsiness is monitored to alert the driver a alarm bazar and vibration is set in vehicles .

CONCLUSION

According to the report 2020 based on the road accidents in India presented by Ministry of Road Transport & Highway, disclose that 4, 77,044 accidents took place in states as well as in Union Territories. The proposed method predict Drowsiness based on machine learning and cascade objection detection. This proposed deep learning model trains different features of a driver from the dataset which comprises images of driver in different states to detect the drowsiness and non-drowsiness state. The Proposed method, achieves higher accuracy along with low operation time.

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