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## DROWSINESS DETECTON SYSTEM

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### ABSTRACT:

Drowsiness of the driver's is main cause of accidents in the world. Due to lack of sleep and tiredness, drowsiness can occur while driving. The best way to avoid accidents caused by driver's drowsiness is to detect drowsiness of the driver and warn him before fall into sleep. For this we proposed this "**Drowsiness Detection System**" in this we find out whenever the driver feels sleepy and alert him/her with an alarm. To detect drowsiness we used facial feature recognition technique using Machine Learning and Deep Learning. Here we have a score card to understand how sleepy the driver got. Initially the score is in zero(0) position. If the driver got unconscious/close his eyes the score increases and alert him with an alarm. When he open his eyes score decreases automatically. Therefore, we rapidly decrease the rate of accidents with the help of our project.

### 1. INTRODUCTION

While Driving during night times or may on drunk and drive and in some other instances there are high chances to met with an accident. We can also find that the main cause of accidents was due to driver's fatigue. The driver's drowsiness may put the life of driver and sometimes other's life in risk. Hence to avoid this we found a way to identify the state of driver and we can warn him to take some rest. And hence can reduce the rate of accidents as well as deaths. Our 'Drowsiness Detection System' will find the driver's state so can help to reduce the accidents that cause mostly due to drowsiness of the driver due to overtime, lack of sleep, tiredness if the driver.

We can find the Drowsiness of a driver in various ways by eye blinking rate, eye's open/close status, yawning, tiredness of driver from drivers face, facial features.

Here we take eye's open/close status to find the drowsiness of driver.

Here in our project we find the eye's open or close statuses of the driver by monitoring his face with cam. And if he closes eye's our score increases and open's decreases the score. When ever the score reaches some point we can find the driver's active status.

While monitoring the driver we track the eyes from the region of interest and find the position of them with the help of our model.

Hence we connect our model to a system which monitors the driver and find face and eyes of the driver and our model predicts the status of the eyes and reports to system and if they are close our system warns the driver and alerts him. If they are open it continuous to take input. And our model and our system both combined to form the drowsiness detection system.

### 2. REATED WORK

## **Existing System**

Vehicle accidents happen on most factors if the driver is drowsy or if he is alcoholic. Driver drowsiness is recognized as an important factor in the vehicle accidents. It was demonstrated that driving performance deteriorates with increased drowsiness with resulting crashes constituting more than 20% of all vehicle accidents. But the life lost we cannot be rewinded. Hence, Driver fatigue often becomes a direct cause of many accidents.

## **Proposed System**

To overcome this drawback we proposed this "Drowsiness Detection". Our proposed method detects eye blinks will identify the driver's drowsiness and immediately wakes him with an alarm. Here we add some features for the system such as time display and saving and the latest captured picture by the device before it set to off. Therefore, this system could significantly reduce the number of fatigue-related accidents.

## **3. METHODOLOGY**

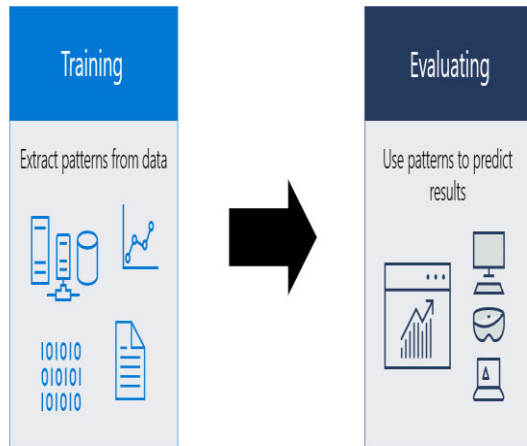
As we all know most non-covid deaths per day all around the globe due to the road accidents many of the people lost their lives and many were badly injured in accidents and lost their happy lives. And as per survey it was stated most of the accidents are taking place due to the driver's fault such as sleeping or drunken e.t.c. and in cases like a drivers who work as a part time or full time drivers they work excess of time and more time than they were actually allowed and due to lack of sleepiness they may risk their own lives and precious lives of passengers too. Accident cases were increasing rapidly day by day and death also climbs up day by

day. How ever the accidents take place there is a high chance of effecting happy lives of many people. By considering all these aspects we found that the major cause is driver's sleepiness/fatigue. On the other side it might not be always blaming the driver there are also some cases such as the driver lost his/her consciousness due to some unforeseen conditions the accidents happen.

To account all these we found a solution that finding the driver's unconsciousness before he met with an accident and risk his life and alert him with an alarm which rings until he get consciousness and save some lives not only of the driver's but also many peoples they may be the passengers and other victims of such accidents.

A module is a collection of source files and build settings that allow you to divide your project into discrete units of functionality. Your project can have one or many modules and one module may use another module as a dependency. Each module can be independently built, tested, and debugge .

Additional modules are often useful when creating code libraries within your own project or when you want to create different sets of code and resources for different device types, such as phones and wearables, but keep all the files scoped within the same project and share some code.



A machine learning model is a file that has been trained to recognize certain types of patterns. You train a model over a set of data, providing it an algorithm that it can use to reason over and learn from those data. Once you have trained the model, you can use it to reason over data that it hasn't seen before, and make predictions about those data. For example, let's say you want to build an application that can recognize a user's drowsiness based on their facial expressions. You can train a model by providing it with images of faces that are each tagged with a certain status, and then you can use that model in an application that can recognize any user's drowsiness.

## Input Design

The input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system.

The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. The input is designed in such a way so that it provides security and ease of use with retaining the privacy. Input Design considered the following things: What data should be given as input? How the data should be arranged or coded? The dialog to guide the operating personnel in providing input. Methods for preparing input validations and steps to follow when error occur.

1. Input Design is the process of converting a user-oriented description of the input into a computer-based system. This design is important to avoid errors in the data input process and show the correct direction to the management for getting correct information from the computerized system.

2. It is achieved by creating user-friendly screens for the data entry to handle large volume of data. The goal of designing input is to make data entry easier and to be free from errors. The data entry screen is designed in such a way that all the data manipulates can be performed. It also provides record viewing facilities.

3. When the data is entered it will check for its validity. Data can be entered with the help of screens. Appropriate messages are provided as when needed so that the user will not be in maize of instant.

## Output Design

A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the users and to other system through



outputs. In output design it is determined how the information is to be displaced for immediate need and also the hard copy output. It is the most important and direct source information to the user. Efficient and intelligent output design improves the system's relationship to help user decision-making. 1. Designing computer output should proceed in an organized, well thought out manner; the right output must be developed while ensuring that each output element is designed so that people will find the system can use easily and effectively. When analysis design computer output, they should Identify the specific output that is needed to meet the requirements. 2.Select methods for presenting information. 3.Create document, report, or other formats that contain information produced by the system. The output form of an information system should accomplish one or more of the following objectives. Convey information about past activities, current status or projections of the Future. Signal important events, opportunities, problems, or warnings. Trigger an action. Confirm an action.

#### 4. STUDY OF RESULTS:



Figure 1 :Output Screen for Console

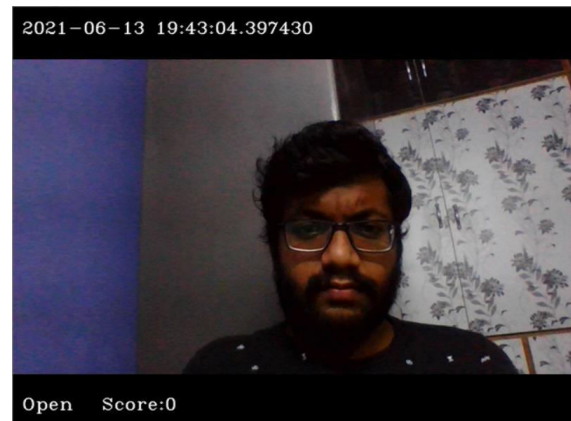


Figure 2:Output Screen for Frontend



**Figure 3: Output Screen for Open Eyes**



**Figure 4: Output Screen for Closed Eyes**

## 5.CONCLUSION :

The drowsiness detection system is capable of detecting drowsiness in a rapid manner. The system which can differentiate normal eye blink and drowsiness which can prevent the driver from entering the state of sleepiness while driving. By doing this project many accidents will be reduced and provides safe life to the driver and vehicle safety. A system for driver safety and car security is presented only in the luxurious costly cars. Using drowsiness detection system, driver safety can be implemented in normal cars also.

In future we can implement drowsiness detection system in aircraft in order to alert pilot. The alcoholic sensor is also used for drunk drivers.

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