EYE BLINKING MONITORING SYSTEM FOR VEHICLE ACCIDENT PREVENTION

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Abstract - *Vehicle accidents are one of the most unfortunate things that happen in our country in the present era. The number of vehicles has been increasing along with the population and hence the number of accidents increase as well. According to the survey, the most common reason for the accidents was related to the driver's mental condition and physical conditions. Out of all those conditions, it is currently possible to figure out whether the driver is an alcoholic or if he is drowsy. Henceforth, we have decided to work on eye detection of the driver to detect drowsiness to avoid the unfortunate accidents and damages. Eye Blinking Monitoring System can be a very creative and useful method to detect the driver's drowsiness to avoid every possible unfortunate situation. This project is completely automatic and hence needs no human efforts to keep it going. It will continuously monitor the driver's eye 24x7 during the whole journey. Henceforth, it will decrease the number of accidents, damages, casualties, etc. And it will keep the driver awake and it will also be informing the respective authorities about the driver's activity during if it crosses a certain limit. It will make the roads safer and will avoid possible casualties and damages.*

Key Words: Drowsiness, Buzzer, Fatigue, Detection and Python & Deep learning
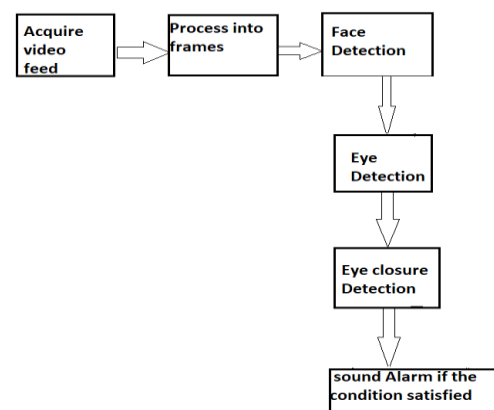
1. INTRODUCTION

According to the latest report of the National Crime Records Bureau (NCRB) data, registered 4,37,396 road accidents were over India in 2019. Driver fatigue is one of the most common causes of an accident. The problem of driver sleepiness moves far away just road vehicles to all the mode of transportation like rail, sea and air accident as well. It is commonly known that drowsiness and driving are not the right combinations. To be a good driver, it is necessary to be wise, alert and focused on the task, and it isn't easy to combine these qualities with drowsiness.

First, we input the facial image using a webcam. Pre-processing was first performed by binarizing the image. Then the detection of the face is done using dataset. The face detector returns a bounding box of an area that contains a face. The program then analyses this region of interest for eyes using similar detection tools. The program places a bounding box on any regions of interest. If eyes are closed when the alert system is activated.

1.1 Problem Statement

A Huge Amount Of Transportation Takes Place Through Road Transport This Transportation Consists Of Both Goods And Public Transportation. But Unfortunately Due To Heavy Schedules And Disturbing Environment, The Drivers Tend To Lose Their Control.

Hence This Results In Sleepiness, Drowsiness, Headaches, Etc. A Huge Amount Of Accidents Take Place Due To The Sleep-deprived Drivers. And Hence It Is Necessary To Make Sure That They Don't Sleep While Driving. So To Avoid This Problem We Are Designing "Eye Blinking Monitoring System For Vehicle Accident Prevention."

1.2 BLOCK DIAGRAM

Fig.1: System Block diagram

Description

So the first stage will acquire the video feed from the camera. Then in the next step the video will be processed into frames. And further with the help of the pre-installed modules, face detection will take place. Once the face is detected, the eye will also be detected and through that, the system will determine the eye closure period. If the eye closure period is abnormal then the condition will be satisfied and the driver will be alerted with the help of buzzer... If the condition is natural then the process will keep working until it observes any abnormalities.

All this description can be designed in the flow of operation
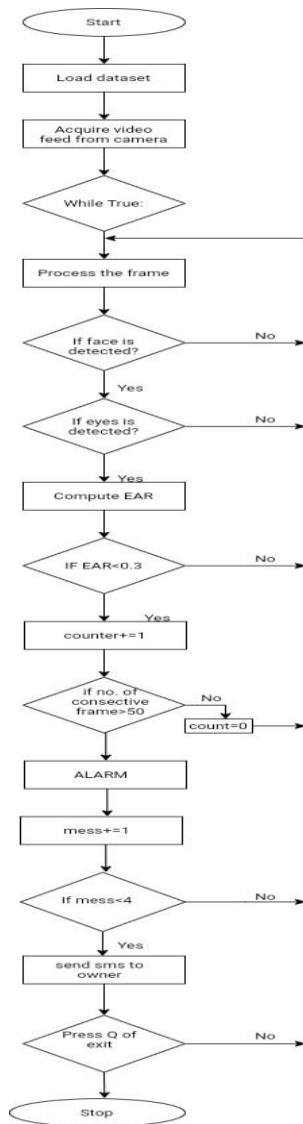

Fig -2: Flow of Working

2. Result

Eye Blinking Monitoring System In That We are using Wireless System for alerting the subject. This system is used for preventing accidents which are happening more in today's life.
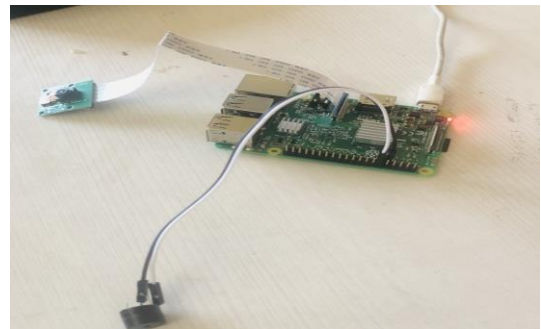

Fig -3: Hardware Implementation

Fig -4: Open Eyes Detected
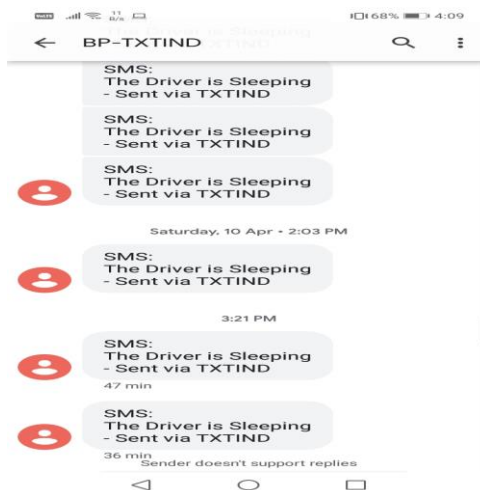

Fig -5: Close Eyes Detected

Fig -6: **SMS received to respective authority**

3. CONCLUSIONS

The driver abnormality monitoring system developed is capable of detecting drowsiness, drunken and reckless behaviours of the driver in a short time. The Drowsiness Detection System developed based on eye closure of the driver can differentiate normal eye blink and drowsiness and detect the drowsiness while driving. The proposed system can prevent accidents due to sleepiness while driving. The system works well even in case of drivers wearing spectacles and even under low light conditions if the camera delivers better output. Information about the head and eyes position is obtained through various self-developed image processing algorithms. During the monitoring, the system is able to decide if the eyes are opened or closed. When the eyes have been closed for too long, a warning signal is issued. Processing judges the driver's alertness level on the basis of continuous eye closures. And as mentioned in the results if the buzzer buzzes continuously then it will automatically inform his owner or the respective authority in order to inform them in prior. This will not only help and avoid the driver from sleeping but will also inform the owner about the driver's current conditions. We have used Fast2SMS Service to send SMS through Python. We use It because of low restrictions and high speed so we decided to go ahead with Fast2SMS Service. Also with the help of API Authorisation key, we will design our SMS system which we

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