Project Title:- Face Recognition and Drowsiness Detection

Github Link:-samarthgangurde01/Face-Recognition-and-Drowsiness-Detection (github.com)

In recent years, driver drowsiness has been one of the major causes of road accidents and can lead to severe physical injuries, deaths and significant economic losses. Statistics indicate the need of a reliable driver drowsiness detection system which could alert the driver before a mishap happens. Researchers have attempted to determine driver drowsiness using the following measures: vehicle-based measures; behavioral measures and physiological measures. A detailed review on these measures will provide insight on the present systems, issues associated with them and the enhancements that need to be done to make a robust system. In this project, we are going to review. The way through which drowsiness has been experimentally manipulated. We conclude that designing a CNN model for drowsiness detection system would accurately determine the drowsiness level of a driver. A number of road accidents might then be avoided if an alert is sent to a driver that is deemed drowsy.

Drowsy driving is a major contributor to motor vehicle collisions. According to the National Highway Traffic Safety Administration (NHTSA), in 2017 drowsy driving led to at least 91,000 crashes, resulting in roughly 50,000 injuries and 800 deaths3.This data likely underestimates the impact of drowsy driving because it's often impossible to definitively determine whether drowsy driving caused an accident, especially after fatal crashes.In light of this, other studies calculate that drowsy driving causes up to 6,000 deadly crashes every year. Researchers estimate that around 21% of fatal car crashes involve a person driving while drowsy

To avoid such circumstances we started working on a drowsiness detection system. The first step in our project was to gather the information about drowsiness detection and ways to detect drowsiness. Deep learning helped us tackle the problem by using the CNN model. As we started working we started gathering eye images from the MRL data set. These images are in low and high resolution, all captured in various lighting conditions and by different devices.After importing dataset we Splitted the whole dataset in two folders as closed_eyes and open_eyes further we we changed the shape of all the images we had 86-*86pixels to 224*-224pixels.then further we assigned all the features in X variable and all the labels in Y variable. then we normalized the X-variable by dividing it 255 so we can scale down it to 0-1 values further we moved to model training where we used mobile net as our algorithm with adam optimiser and sigmoid function which us lowest as accuracy 57% and highest accuracy as 88% we used model with high accuracy for prediction. By feeding external images we predicted the eye's condition whether it is opened and closed. Our model gave us a positive value that means our image was an open eye image. In last step by using open cv we started capturing image and with the use of haar cascade file detected the shape of face and eyes and after preprocessing image our model predicted us the values positive and negative for opend_eyes and Closed_eyes

Contributerts Roles:

1.Lalit Ahirrao:
1.Information gathering
2.Dataset collection
3.Image preprocessing
4.Image normalizing
5.model training

2.Aniket Gajmal:
1.Information gathering
2.Dataset collection
3.Image preprocessing et
4.model training

3.Rushikesh Pawar:
1.Information gathering
3.Image normalizing
3.model training
4.Prediction system
5.Model Deployment

4.Prasad Ghegade:
1.Information gathering
2.Understanding patterns of dataset
3.Image preprocessing
4.Image Resizing
5.model training

5.Samarth Gangurde:
1.Information gathering
2.Dataset collection
3.Image normalizing
4.Image Resizing
5.model training
6.Prediction system
7.Model Deployment