ISSN: 2278-4632
Vol-12 Issue-01 No.01: 2022

Driver Drowsiness Detection based on Eye Aspect Ratio

N. Ranga Sree[1] , Y. KumaraSai[2] , P. Geethika[3] , N. Srihari[4] , B. Poojitha[5] ,

[1]Asst.Professor, [2,3,4,5] Students
Department of Computer Science And Engineering
Sri Vasavi Institute Of Engineering and Technology, Pedana, A.P, India

ABSTRACT:

The main idea behind this project is to develop a non-instructive system which can detect fatigue of any person and can issue timely warnings. People who do not take regular breaks during a long travel can face this fatigue situation and thus can lead to accidents, according to some expert's studies around 25% and above accidents are due to this sleepy driving. Thus to avoid such accidents we proposed this project which gives timely warnings as an alarm sound when one is fatigue, this will monitor the driver eyes using a camera and by developing an algorithm we can detect the symptoms of driver fatigue early enough to avoid sleeping. The camera keeps on observing the drivers eyes and thus gives warning alarm when a person is fatigue and automatically stops giving warning alert when the driver is in normal state.

INTRODUCTION

The main intention behind this project is to provide a public safety measure for avoiding involuntary accidents and unexpected deaths. In view with some daily news, and to control the rate of such accidents which are being constantly happening daily. This project is helpful for the people who does late night driving and long driving for all the private, public and own transport.

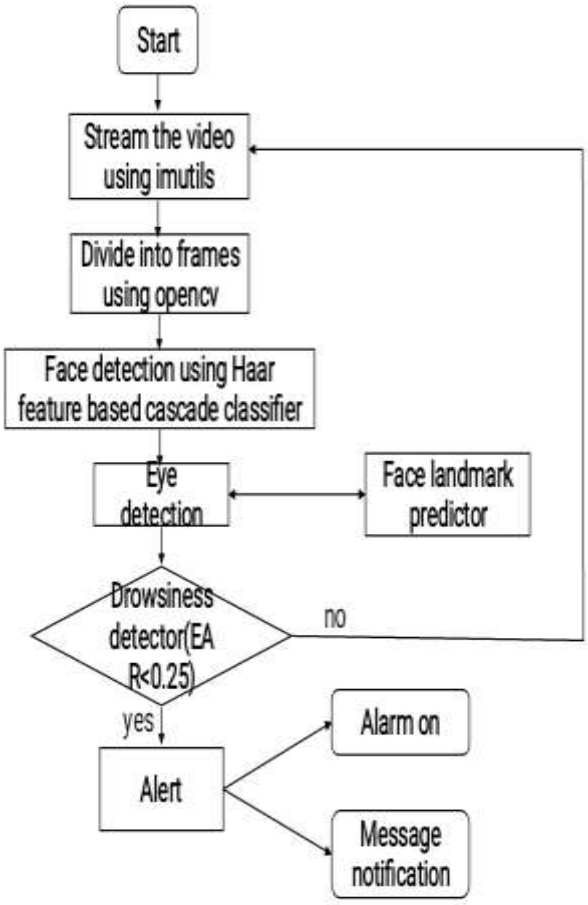
PROPOSED SYSTEM

In this project we wiThe main intention behind this project is to provide a public safety measure for avoiding involuntary accidents and unexpected deaths.
In view with some daily news, and to control the rate of such accidents which are being constantly happening daily. This project is helpful for the people who does late night driving and long driving for all the private, public and own transport. position and scale within the original image. Due to the difference of facial features, haar-like feature is efficient for real time face detection. These can be calculated according to the difference of sum of pixel values within the rectangular area and during the process this algorithm will allow the face samples and it will discard the non-face samples of the images.

DOI : 10.36893.JK.2022.V12I01N01.874-878

ISSN: 2278-4632
Vol-12 Issue-01 No.01: 2022

ARCHITECTURE



LIBRARIES USED

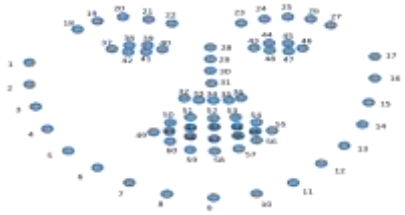
1. Dlib(Dynamic Library): This is the library used for detecting facial landmarks of a persons face. This feature enables the persons face parts into co-ordinates and we take only the eyes coordinates.
2. Imutils: The purpose of this library is to have a live video stream for accepting the object face. OpenCV: This library is used to work on real world objects, we have taken this library because in this we have in-built haar feature-based algorithm which only accepts

DOI : 10.36893.JK.2022.V12I01N01.874-878

ISSN: 2278-4632
Vol-12 Issue-01 No.01: 2022

positive images (images of faces). Numpy: This library is used to work on multi-dimensional objects, that means it works for manipulations on coordinates.

For Eye aspect ratio we use Euclidean distance, thus the EAR value says the output.



EXPERIMENTAL RESULTS

The output is generated in two ways

1) EYE ASPECT RATIO greater than 0.25 then normal.

2) EYE ASPECT RATIO less than 0.25 drowsiness.

IMPLEMENTATION

Eye Aspect Ratio: Computational an is Matching Dashboard mounted camera is used to monitor the eyes of the driver in real time to detect drowsiness III. DROWSINESS DETECTION DESIGN a camera is setup that looks for faces in the input video stream and monitors frames of faces. In the event that a face is identified, facial milestone identification is connected and the eye district is removed from the edges of the video stream. Fig: Practical design of the System Based on the work by Soukupova and Cech in the year 2016 paper, Real-Time Eye Blink Detection using Facial Landmarks, we can then derive an equation that reflects this relation called the eye aspect ratio (EAR):

Fig: Practical design of the System

$$EAR = \frac{||p2-p6|| + ||p3-p5||}{2||p1-p4||}$$

DOI : 10.36893.JK.2022.V12I01N01.874-878

ISSN: 2278-4632
Vol-12 Issue-01 No.01: 2022

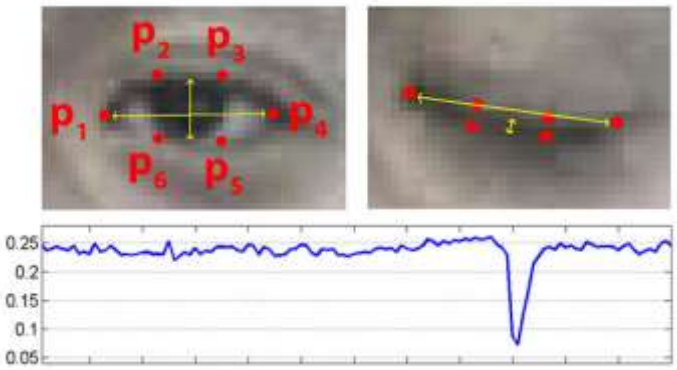
EYE ASPECT RATIO > 0.25 & EYE ASPECT RATIO < 0.25

CONCLUSION

Thought you may be responsible all the time but due to some involuntary conditions you may feel sleepy and there may be a chance of getting accidents, to avoid such things and for our self-safety we developed this project.

This project works on real world objects(humans) and gives 100% accurate results which can help someone who is drowsy and can help him not to meet with an accident.

- A SPLIT OF SECOND, YOU COULD RUIN YOUR FUTURE, INJURE OR KILL OTHERS.
- YOUR ATMOST ATTENTION IS YOURS AND OTHERS SAFETY.



REFERENCES

[1]Association for Safe International Road Travel (ASIRT) , RoadCrash Statistics. http: / / asirt. org/ initiatives/ informingroadusers/road-safety- facts/road-crash-statistics, 2016.

[2]Bangkok Post. (2015, October 20) , Thailand's roads seconddeadliestin world, UN Agency finds.http: / / www. bangkokpost. com/ archive/ Thailand-roads- seconddeadliestin-world-un-agency-finds/736748, 2016.

[3]Jan, T. , Karnahl, Seifert, K. , Hilgenstock, J. , & Zobel, R. Don’tsleep and drive– detection technology. http://wwwnrd.nhtsa.dot.gov/pdf/esv/esv19/05-0037- O.pdf,2016 .

[4]Drowsy Driving, Facts and Stats: Drowsy Driving – Stay Alert,Arrive Alive. http: / / drowsydriving.org/about/ facts- and-stats/,2016.

[5]J. Qiang and X. Yang, “Real-time eye, gaze, and face posetracking for monitoring driver vigilance,” International Journalof Real-Time Imaging, vol. 8, 2002, pp. 357– 377,doi:10.1006/rtim.2002.0279.

DOI : 10.36893.JK.2022.V12I01N01.874-878

ISSN: 2278-4632
Vol-12 Issue-01 No.01: 2022

[6]Hong, Tianyi, Huabiao Qin, and Qianshu Sun. "An improved realtime eye state identification system in driver drowsinessdetection," in Proc. IEEE Int. Conf. onControl and Automation,IEEE, 2007, pp. 1449-1453.

DOI : 10.36893.JK.2022.V12I01N01.874-878