DRIVER DROWSINESS DETECTION USING SELECTED BIOMETRIC INFORMATION

VIDANA ARACHCHIGE SHIWANTHA SANDAMAL

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Department of Computing

Informatics Institute of Technology, Sri Lanka

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Abstract

In past years, drowsiness of drivers has been one of the major reasons for road accidents. These accidents can lead to deaths, major physical injuries and considerable financial losses.People are becoming more and more busy nowadays. So most of the time they cannot take enough rest before starting the driving. For example most of the time people drive after work without enough rest. So it is hard to completely prevent these kinds of situations. Best practical solution we can give is to build an efficient cost effective system which can identify the drowsiness of the driver as soon as possible.

In this research I have implemented a system which uses only visual inputs to identify drowsiness situations. Because one purpose of this research is to give a cost effective solution. Using expensive human based sensors or vehicle based sensors will make that purpose invalid.

In this research I have used multiple convolution neural networks to identify drowsiness factors like blinking, yawning and fatigue expressions. This research system will continuously process video input and decide whether this person is yawning, blinking or having fatigue expressions. After detecting those factors the system will give a score for each factor. Based on these scores, the system will decide whether a driver should be alerted or not.

Keywords - Convolution Neural Network (CNN), OpenCV, Keras, Colab, DLIB face detector, Eye Aspect Ratio (EAR), Point calculator