Automatic Driver Drowsiness Detection System

Mahammed Jameer Ghori ⓘ
Alvas Institute of Engineering and Technology, Mijar, Computer Science and Engineering, Student, VTU Belagavi, India

Yeshaswini R ⓘ
Alvas Institute of Engineering and Technology, Mijar, Computer Science and Engineering, Student, VTU Belagavi, India

Prashanth K ⓘ
Alvas Institute of Engineering and Technology, Mijar, Computer Science and Engineering, Student, VTU Belagavi, India

Nandini Madne ⓘ
Alvas Institute of Engineering and Technology, Mijar, Computer Science and Engineering, Student, VTU Belagavi, India

Prashanth Kumar ⓘ
Alvas Institute of Engineering and Technology, Mijar, Computer Science and Engineering, Asst Prof, VTU Belagavi, India

Abstract:

The proposed system aims to lessen the number of accidents that occur due to drivers' drowsiness and fatigue, which will in turn increase transportation safety. This has become a common reason for accidents in recent times. Several facial and body gestures are considered signs of drowsiness and fatigue in drivers, including tiredness in the eyes and yawning. These features are an indication that the driver's condition is improper. EAR (Eye Aspect Ratio) computes the ratio of distances between the horizontal and vertical eye landmarks, which is required for the detection of drowsiness. For the purpose of yawn detection, a YAWN value is calculated using the distance between the lower lip and the upper lip, and the distance will be compared against a threshold value. We have deployed an eSpeak module (text-to-speech synthesiser), which is used for giving appropriate voice alerts when the driver is feeling drowsy or is yawning. The proposed system is designed to decrease the rate of accidents and contribute to technology with the goal of preventing fatalities caused by road accidents. Over the past ten years, advances in artificial intelligence and computing technologies have improved driver monitoring systems. Several experimental studies have gathered data on actual driver fatigue using different artificial intelligence systems. In order to dramatically improve these systems' real-time performance, feature combinations are used. An updated evaluation of the driver sleepiness detection technologies put in place during the previous ten years is presented in this research. The paper discusses and displays current systems that track and identify drowsiness using various metrics. Based on the information used, each system can be categorised into one of four groups. Each system in this paper comes with a thorough discussion of the features, classification rules, and datasets it employs.

Head of the Department
Dept. of Computer Science
Alva's Institute of Engineering and Technology
Mijar, Moodubidire - 574 225, D.K. Karnataka, India