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Title:
Development of a Speed Control System Using Face Recognition

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Abstract:
Driving when being drowsy is one of the leading causes of automobile accidents on the road. Insomnia, some types of drugs, and boredom, such as driving for lengthy periods of time, can all cause drowsiness and exhaustion while driving. Many novel devices to prevent sleepy driving have been developed in recent years. One of them is to use biological indicator techniques by measuring the heart rate, brain waves or pulse rate. This technique can detect the parameters well and accurately but requires a physical contact that needs to be attached to the driver's body. This will make it uncomfortable while driving and in addition the device cannot connect directly with the vehicle being driven. Therefore, the development of a speed control system using face recognition is proposed in this paper. Using the facial recognition method equipped with several devices such as HD web camera and LabVIEW to process facial recognition in real-time monitoring, the device will monitor the driver's eyes in real time to see if they are awake or asleep. If the driver is found to be drowsy or sleeping, the system will identify it promptly and display it on the human–machine interface (HMI) to alert the other passengers. In this study, the facial recognition system is connected with a simple prototype to show how the system operates and the overall effectiveness of the system is evaluated. The alarm buzzer will be activated to get the driver's attention back on the road, and if the condition persists, the system will send a signal to the motor driver to stop the vehicle automatically. Based on the findings of the experiments, a notification will be displayed in the graphical user interface (GUI) anytime the driver's eyes are discovered to be drowsy or closed, an alarm buzzer will be sounded, and the motor speed will be precisely controlled until it becomes slow using the PWM control method.