

ABSTRACT

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DESIGN AND IMPLEMENTATION OF MICROSLEEP DETECTION SYSTEM BASED ON FACE DETECTION WITH TELEGRAM NOTIFICATION

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(xiii + 80 + Attachments)

Traffic accidents are often caused by driver fatigue or drowsiness, posing a threat to the safety of drivers and other road users. In order to enhance driving safety, the development of early detection systems for driver fatigue or drowsiness becomes crucial. This research aims to design and implement a microsleep detection system based on face detection with Telegram notifications. The system utilizes a camera to detect eye and facial movements of the driver to identify signs of drowsiness or fatigue. Through integration with IoT platforms and Telegram, the system can provide instant notifications to the driver or relevant parties to take preventive actions. The study focuses on the development of an early detection system for driver fatigue or drowsiness based on face detection with Telegram notifications. The system consists of several key components, including the use of a camera to detect eye and facial movements of the driver, integration with IoT platforms, and instant notification delivery via Telegram. Testing was conducted focusing on the distance of the face to the camera and the direction of facial movements of the driver. The test results indicate that the system has an 87.5% success rate in microsleep detection in the first test, with one failure case, as well as variations in detection time and the number of notifications depending on the direction of facial movements in the second test. Out of the 5 respondents tested, 80% successfully received Telegram notifications at least once, reflecting the success of microsleep detection. The conclusion of this research is that the microsleep detection system has been able to provide effective and reliable responses under the given test conditions. These quantitative values provide a strong indication of the system's effectiveness in test conditions and demonstrate significant potential for improving driving safety through this early detection approach.

Bibliography (2014 – 2022)