

## Implementation of an on-board embedded system for monitoring drowsiness in automobile drivers

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### Abstrak

The development of technologies for detecting or preventing drowsiness at the wheel has been a major challenge in the area of accident avoidance systems. Due to the hazard that drowsiness presents on the road, methods need to be developed for its early detection. This study implements a Haar cascade technique on a Raspberry Pi module and evaluates the performance of the developed system. The results obtained from the evaluation of the standalone embedded system show that a precision of 80.11% and recall (sensitivity) of 99.81% were achieved. The results of the system usability test (based on an administered questionnaire) reveal that the mean System Usability Scale (SUS) score for the 20 participants is 77.38, with a standard deviation of 9.40. The minimum and maximum score are 57.50 and 92.50, respectively. The mean SUS score of 77.38 indicates that user satisfaction is adequate.