Abstract

There is much attentional impairment while driving that affect driver's reaction. Among which driving while drowsy is one of the major causes behind road accidents, and exposes the driver to a much higher crash risk compared to driving while alert. Therefore, the use of an assistive system that monitor a driver's level of vigilance and alert the driver in case of drowsiness can be significant in the prevention of accidents. This paper introduces a new approach towards detection of driver's drowsiness based on yawning measurement and head movement. This involves several steps including the real time detection and tracking of driver's face, detection and tracking of the mouth contour, the detection of yawning based on measuring both the rate and the amount of changes in the mouth contour area and head movement tracking. Test results demonstrate that the proposed system can efficiently measure the aforementioned parameters and detect driver's drowsiness.

References


15. X. Liu, G. Geng and X. Wang, "Automatically face detection based on BP neural network and Bayesian decision," in Sixth International Conference on Natural Computation (ICNC), Yantai, Shandong, 2010.


Index Terms

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Keywords

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