

Driver Drowsiness Detection Methods

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Road accidents are increasing day by day and among many other factors, and driver drowsiness has become a major problem throughout the whole day and night as well. The objective of this paper is to survey a reliable, well controlled and non-intrusive drowsiness detection method that includes the subsequent aspects. The study discusses various driver drowsiness detection approaches. Primarily there are three main methods namely vehicle-based, behaviour-based and physiological-based methods. Vehicle-based approach is measured using steering angle sensor and it is a widely used measure for detecting driver drowsiness. The behaviour-based approach uses image processing techniques and can categorize three application areas. First application is the measurement of eye blinking rate and eye closure period. Next application is Yawning. Using face following and mouth following one can find yawn. In the third application, if driver closes eye/s for a few specific times then system can generate the alarm. Physiological-based approach focuses on physiological changes of drivers, like eye activity measures, heart beat rate, skin potential, and medical instrument (EEG) activities according that the attention blink length and blink rate generally square measure sensitive to fatigue effects. The study concludes that if we tend to strive with a combination of 2 or a lot of approaches specified, one would cut back the limitations of alternative approach and therefore help in providing best result and to get rid of the intrusive nature of physiological measures.

Keywords: Drowsiness, Image Processing, EEG, Artificial Neural Networks