Development of a drowsiness warning system based on the fuzzy logic images analysis

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ABSTRACT

This paper describes the development of a vehicle driver drowsiness warning system using fuzzy logic image processing technique. Typically after long hours of driving or in a less than alert kind of mental state, a driver ’ s eyelids will become heavy because of fatigue. His attention starts to lose focus. His reflex will be slower. His attention cannot be focused. He will yawn continuously and therefore shake his vehicle from time to time. He will also not being able to read the meters correctly, and that creates risks for accidents. The principle of the proposed system is based on facial images analysis for warning the driver of drowsiness or inattention to prevent traffic accidents. Facial images of the driver are taken by a CCD camera which is installed on the dashboard in front of the driver. A fuzzy logic algorithm is proposed to determine the level of physical state by measuring the blinding duration and its frequency, and warn the driver accordingly.

Keywords : drowsiness warning system ; vehicle safety ; image processing ; fuzzy logic

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