Safe Road with Losing Consciousness

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Each year nearly 1.2 million people die as a result of road crashes. Driving while fatigued, falling asleep and losing of consciousness cause many car accidents. Approximately 3-10% of patients with syncope experience episodes while driving. In a Danish study to assess how syncope influenced the car crashes, researchers examined data on 4.3 million adults including about 41,000 with a syncope diagnosis. They followed half of the syncope patients for two years and found about 9% of them had a motor crash. The proposed project aims to decrease the incidence of road traffic accidents related to losing of consciousness of the driver. The loss of consciousness of the driver is detected by three ways: a camera fixed to the front window of the vehicle to monitor eye opening by detecting the eye pupils, a pressure sensor fixed to the steering wheel to detect driver's hands and a pressure sensor in the vehicle pedals to detect driver's foot. A positive test result is considered when the camera cannot detect the pupils plus one or two of the sensors cannot detect the pressure of the driver's hands or feet. On testing the whole system we found that the vehicle warns the cars around it through a certain pattern of lights and sounds. After testing the parking system on a scaled vehicle, we found that it could successfully slow down automatically and safely through ultrasonic sensors fixed to the vehicle’s sides which detect the space and obstacles. The vehicle also sends a message through GSM module to the ambulance centre containing the vehicle location and its number. In the case of the driver is sleeping the vehicle produces buzz sounds and vibration in the steering wheel to wake the driver up.

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