Summary 1:

Driver activity recognition in virtual reality driving simulation

More technologies such as TV and GPS are built in or mounted in cars in today's world. Studies have shown that such activities can increase the threat to the safety of the driver and other cars on the road as a result. According to such studies, the drivers posture while driving could serve as an indicator of the driver's current activity. Two force sensor mats were built into the fabric of the seat to detect the posture of the driver through the DAR (Driver Activity Recognition), which has to be calibrated for each user due to the difference in weight and height on the force exerted on the sensors. The seat is able to vibrate to warn drivers during the VR simulation for potentially dangerous postures. The VR simulation also displayed the interior of the car to provide a more realistic feel. Results from the study showed high accuracy for all of the ten postures tested for non-VR simulation. Accuracy of normal, lean left forward, stretch up, and sleeping were 100%. Accuracy of lean right forward, lean right backwards, lean left were 95%. Accuracy of accelerate, brake, and lean right were 88%. This accuracy improved with the VR simulations.

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