



Laboratoire d'ingénierie des systèmes de Versailles

PROJET14 - MASTER2 CSER 2015

Project for the creation of a sensor capable of detecting correct or incorrect driving posture

The goal of this project is to monitor the driving posture - at any time - of the driver. One of the outputs is to help person with disabilities to be aware of their most fitting posture while driving a vehicle. This will be done in association with the BECAPE project: www.lisv.uvsq.fr/lisv-laboratoire-d-ingenierie-des-systemes-de-versailles/langue-fr/recherche/robotique-interactive-ri-/ri-assistance-et-interaction-projet-de-recherche-becape-340909.kjsp

Moreover, in the near future autonomous cars will be present in large quantity on the roads. One of the issue will be the transition - for the driver - from him driving to the car driving by itself. To have safe transitions we would need to know that the driver is ready to take over the car to drive. Thus a device allowing the internal computer of the vehicle knowing whether or not it is safe to let the person take back the driving will be necessary.



Fig. 1: Detection of head movements

That's why our goal is to use infrared and camera sensors. On one hand the infrared will give us the distance at which the driver will be. On the other hand the camera sensor will detect the face of the driver. With these two devices we will have complete information on the driver state at any time. Moreover we'll also be aware of the movement of the driver, which means his posture will be analyzed at every frame. Then we could tell the driver which posture is the most adequate at certain time of his driving session. In the end we will monitor the driver's posture and give him the most fitting advice so he can adopt the best driving posture.

In conclusion the creation of a sensor that will monitor drivers' posture is necessary for the many applications it'll have in the future. It is in this scope that all the above-mentioned work is being done.

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