

HMI Integration in a Prototype Vehicle for a Lane Change Assistance System

Relevance to the Automotive Industry:	In the past, great efforts were made in collision mitigation. Therefore, the number of casualties decreased. A further progress can only be made by developments in the area of collision avoidance. Advanced Driver Assistance Systems like Adaptive Cruise Control and autonomous braking systems assist the driver to avoid rear-impact crashes. Furthermore, lane change warning systems, which help to avoid crashes in the lateral motion of vehicles, are also available on the market.	
Research Location:	TUD Fachgebiet Fachzeugtechnik (FZD) (Chair of Automotive Engineering)	
Homepage (Engl.):	www.fzd.tu-darmstadt.de	
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Project Description:	<p>A project at the Department of Automotive Engineering FZD funded by industry deals with the development of a system to avoid crashes in lane change situations. The design of a Human-Machine-Interface (HMI) is of essential relevance for the success of the system.</p> <p>Jun 1 - Jul 29, 2009; (8 weeks, 40h/week)</p> <p>A prototype vehicle with a measurement system for surrounding obstacles and for vehicle dynamics is already available at FZD. Basing on the measured data, the collision risk is estimated. Finally, the driver has to be informed about the danger. This is done by using specific HMIs, such as head-up displays and auditory icons.</p> <p>The student will integrate selected HMIs in the prototype vehicle. FZD's own workshop will assist the student. Afterwards, the HMIs will be evaluated by accomplishing test drives in road traffic.</p>	
Necessary Skills/ Knowledge:	<ul style="list-style-type: none"> • ability to work methodically and independently 	
Desirable Skills/ Knowledge:	<ul style="list-style-type: none"> • 	
Additional Online Resource(s):		

NSF REU Students must have completed at least two semesters of engineering studies prior to the proposed summer research, and they must have at least one semester remaining before they can earn their BS in Engineering.