

# Design & Implementation of a Trip Recorder

## Assessing the fuel consumption against the driving style

Relevance to the Automotive Industry:	<p>At all times, experiences from “state of the art” vehicles are integrated in the development process of manufacturers. Competitive developments are often available for just a short time because they get loan by other manufacturers or car dealers. Irreversible modifications are also not permitted.</p> <p>Nowadays, the fuel consumption is in the spotlight of media. Therefore, a characterization of the driving style is necessary to assess consumption against driving style. A method to achieve a prediction in a short time outranks the need for high precision of measurement data causing laborious implementations.</p>	
Research Location:	TUD Department of Mechanical Engineering, Automotive Engineering	
Homepage (Engl.):	<a href="http://www.fahrzeugtechnik-darmstadt.de">www.fahrzeugtechnik-darmstadt.de</a>	
Faculty Mentor:	Prof. Dr. rer. nat. H. Winner	
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Project Description:	<p>The Department of Automotive Engineering “<i>Fahrzeugtechnik Darmstadt</i>” (FZD) researches mainly on advanced driver assistance systems, vehicle dynamics, brake technology and motorcycles. However, we are also interested in other considerations like sustainable values and teaching them in lectures.</p> <p>One important aspect during an engineer’s education is the ability to evaluate overall systems such as cars. FZD and many automakers cooperate in a project to assess cars.</p> <p>The NSF REU students’ main task will be the generation of a conclusion relating driving style and fuel consumption. Hence driving style has a big influence on consumption, increased by German traffic with sinuous roads and highways without speed limit, this parameter needs to be determined.</p> <p>First, the student is expected to design a strategy for generating conclusions about the driving style from the recorder. Subsequently, a requirements list for the trip recorder will be developed and a prototype will be built. The validation will be carried out by application in a FZD car or an external test car during a track test on TUD’s testing ground and on public roads. I’m looking forward to a suspenseful and challenging project. Besides the demanding project the NSF REU student will get impressions of the German way of life and the sights of the country.</p>	
Jun 1 - Jul 29, 2009; (8 weeks, 40h/week)		
Necessary Skills/ Knowledge:	<ul style="list-style-type: none"> <li>• High motivation to manage a project independently</li> <li>• Basic knowledge of dynamics</li> <li>• Interest in sustainable values</li> </ul>	
Desirable Skills/ Knowledge:	<ul style="list-style-type: none"> <li>• Knowledge of methods for product design</li> <li>• Driver’s license for passenger cars</li> </ul>	
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.