

The value of driver assistance systems - results of an expert evaluation

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Introduction

The steadily increasing number of driver assistance systems raises the question whether these systems are helpful to the driver, or not, to perform his most important task: safe driving in the framework of increasing traffic density. The information, provided by assistance systems, also could be irrelevant or at least detrimental for traffic safety.

Methodology

In the research project kosifa, initiated by bundesanstalt für straßenwesen, information and communication systems in cars, which were under development, test or implementation, were analysed (Färber & Färber, 1999). Twenty groups of telematic systems were detailed. Systems ranged from: 'autonomous driving', 'car dynamics', 'distance keeping', 'collision avoidance', 'reversing aids', 'driver alertness monitoring' and 'navigation systems' to 'telephone' and 'television in cars'.

Each group of systems was evaluated by 23 experts, working on traffic safety. Experts rated:

1. The functionality of each system for the driving task and for different driver populations,
2. The safety implications due to better information, the effects of mental or sensory load on the driver caused by additional cues, and, the influence of the assistance system on the traffic situation as a whole.

In a further step the likelihood of the activation of a set of telematic systems was analysed in six traffic scenarios. The experts' evaluation and the supposed occurrence of the telematic systems result in an output logic. This logic takes into account the time instant and modality of presentation, as well as the activation mode (driver paced or system paced) and makes proposals for an hierarchy of information presentation on the basis of simply measurable parameters.

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