

Prevention of accidents on rural roads by acoustic and visual warning in the navigation system

Acceptance and feasibility study

PROPOSAL

By Christian Busen

Most life-menacing and deadly accidents take place in comparison to the urban streets and the highways on the German rural roads. A special problem is, on this occasion, the places of the streets which cause with a geometrical discontinuity or by a wrong optical guidance in drivers a wrong driving behaviour.

My idea is based on a warning-system which is of a different kind than the existing sign-posting system. The warning in the new system is assumed by the navigation system which is more and more often obstructed in the car. This way it should warn the driver on the high risk sites about these. It also could transmit, for the better observance of the speed limitation and for the rise of the attention, information about deadly or life-menacing accidents happened before. The transmission of the information should take place acoustically over the loudspeakers as well as visually in the screen of the navigation system. High risk sites can be defined by data from the German "Unfallsteckkarten", which contain data about accidents of the last three up to five years. Most of these maps in Germany are led meanwhile electronically and the data of accidents with all information can be read out. The data include the associated GPS data. The complete data set can be transformed into a Layer for the navigation systems.

At first task of this project a study is undertaken in which the feasibility of the data set transformation in navigation systems is tested. Regarding this, the efficiency of such systems should be tested as well.

The test of the efficiency can take place in the driving simulator of the institute of road engineering of the RWTH Aachen University. The test person has the assignment to drive a defined track with a high risk site twice. The first time the test person will drive the track with the common sign-posting. The second time he will be warned

additionally by the new warning system. All actions and reactions of the test person are electronically recorded by a computer-program. Afterwards the test persons are questioned additionally about their impressions.

A first conclusion can be taken of the questioning whether such a system is accepted.

The next task is to collect and interpret all data from the test and clearly represent them. The aim of this is to make clear the breakpoints and the velocities in the high risk sites and compare both cases, with and without warning.

Now by a successful end of this project a prototype must be developed. Therefore it becomes necessary to communicate with business partners to ensure the practicability of the new warning system in navigation systems.