

VDI NACHRICHTEN

Haptic help reduces the risk of accidents when surfing while driving

by H.W. Mayer, Düsseldorf, 22 November 2013

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AUTOMOTIVE ELECTRONICS: *Multi-media and communications technology leads to ever more distraction in the automobile. A new kind of touchpad should reduce the source of disturbances for the driver.*



Attention-killer Internet: Test from Conti show that new touchpads minimize driver distraction.

Driving while surfing on the Internet: for accident researchers a horror-vision, but already for a long time an everyday occurrence on our streets. According to a study by Ford Germany, 47% of German drivers make calls using their hands and 21% send and receive SMSs while driving. That's reason enough for Ford to put the automated reading of messages in the middle point of its "Sync" system.

With mobile Internet access built into ever more new cars, driver distraction achieves an entirely new dimension. At the same time many automobile manufacturers are nonchalantly ignoring a new recommendation of the EU Commission. It had already recommended in 2008: "Surfing the Internet while driving, because of its distracting effect, should be automatically disabled."

Through driver distraction one in every ten accidents occur, according to an investigation by the Allianz Technical Center (ATC). This represents alone in Germany 200,000 accidents per year. According to the

German Traffic Safety Commission, inattentiveness plays a role in one out of every four serious accidents that cause personal injury.

“The active use of the Internet while driving, even with assistance from voice commands, is grossly negligent and distracting on the large scale in traffic safety,” says Jörg Ahlgrimm, leader of the Dekra’s accident analysis group. “By glancing at a display and being mentally distracted, a driver cannot properly, in real time, react to sudden changes in the traffic situation. A strict ban and intensive oversight are therefore necessary.”

Since the traffic rules are apparently useless, the HMI (Human-Machine Interface) experts at Continental, an automotive supplier, are working on technical solutions. They have developed a touchpad with active, haptic feedback. This is part of the Infotainment system located in the middle console. This input device produces tactile feedback for the driver at every single action, just like a push button.

This innovation was tested at the University of Kassel. There 32 test subjects in a driving simulator had to perform a lane-changing manoeuvre according to ISO-Norm 26022 and simultaneously call up and execute on a touchpad functions from a screen menu. The touchpad was within reach of the right hand and controlled a screen in the middle console.

This separation of touchpad and screen avoids the need for hand-eye coordination required to push buttons on a screen with an outstretched arm. Instead the hand, supported by a wrist support glides blind over the touchpad. On the screen the fields are then optically presented.

If the driver pushes a chosen menu field on the touchpad with a pre-defined force, this is confirmed with an active impulse. “An accidental selection is virtually excluded by such a procedure,” says Andreas Brüninghaus, leader of haptic concept development for operating components at Continental.

The tests at Kassel proved the advantages of the new system. With the haptics turned on, the driver’s glance distraction away from the traffic situation was reduced about 23%. The assigned operational tasks were performed on average about 33% faster than with no active haptics. “The touchpad with active haptic feedback exhibited a significant positive influence in our study,” asserted Professor Ludger Schmidt, technical leader in human-machine system engineering in Mechanical Engineering at Kassel University.

The upshot: In spite of the fact that distracting activities like phoning, texting, or googling all are forbidden, they will in the future dramatically increase. Technical improvements from heads-up displays with voice recognition to haptic touchpads reduce a little at least the massive attention deficit of the driver.