

Overtaking assistant could help prevent many traffic-related deaths

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Overtaking on two-lane roads is easier if drivers use what is known as an overtaking assistant, a system which indicates when it is safe to overtake. This system prevents reckless drivers overtaking when it is not safe and can also aid cautious drivers in overtaking slower vehicles. This is the proposition of researcher ir. Geertje Hegeman, who will receive her PhD on this subject from TU Delft in the Netherlands on Thursday 28 February.

Each year in the Netherlands at least 25 deaths are caused by overtaking manoeuvres that go wrong. In many other countries, the statistics are much higher. Researcher Geertje Hegeman has designed a warning system (the overtaking assistant) which displays a green light when it is safe to overtake another vehicle. If it is not safe, a red light is displayed. She has tested this in a driving simulator on a two-lane road.

Her conclusion is that the overtaking assistant increases the driver's sense of ease and can have a positive effect on safety and efficiency.

Men and women

Hegeman charted current overtaking behaviour by observing traffic on the N305 between Almere and Zeewolde in the Netherlands. The observed overtaking manoeuvres take an average of about eight seconds. Ten percent of the overtakers have fewer than three seconds between them and the oncoming vehicle. She used these observations to design

the overtaking assistant, which has been tested in a driving simulator as well as using other methods.

One interesting aspect of the study conducted by Hegeman in the driving simulator is the differences in behaviour between men and women. Of the participating 12 men and 12 women, the women overtook more when driving using the assistant, while men in fact overtook less. This reduced the differences in driving behaviour between men and women. Furthermore, when using the assistant, men were less inclined to swerve to one side (they often do this to see whether there is any oncoming traffic), which is also beneficial to traffic safety.

Inter-vehicle communication

Hegeman's overtaking assistant is not yet commercially available. Hegeman: 'The required technology is still being developed. BMW's top-range cars do carry a kind of inverted overtaking assistant which indicates when it is not safe to overtake. This is done with the aid of GPS; the system knows reasonably precisely when bends or hills are coming up. Chiefly due to a fear of claims, however, BMW does not yet dare to actively display a green light for overtaking.'

In addition to GPS, inter-vehicle communication between all vehicles is in Hegeman's view needed in order to give correct overtaking advice. This is already the subject of a great deal of study (e.g. with a view to anti-collision systems), but according to Hegeman it could be another ten years before the first overtaking assistants are commercially available.

One advantage of the overtaking assistant compared to other solutions aimed at making overtaking easier and safer (overtaking bans or special lanes) is that the assistant can be used anywhere in the world. The benefits of the overtaking assistant could be particularly great in, for instance, East European countries which have many two-lane roads and

relatively long, straight stretches of road.

Source: Delft University of Technology

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