

# The car wants a word with you

April 8 2005

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Cars are now able to speak by means of sensors attached to wheel rims and seats. With the new technology a car tells you if the tyre pressures are too low or the driver is falling asleep. Intelligent tyres and seats increase driving comfort.

The Technical Research Centre of Finland (VTT), Nokian Tyres and Emfit Oy are merging information technology solutions, some of which are already known while others are still being developed, and turning them into something that is an everyday feature of traffic safety.

## Radio messages from the tyre

Tyre pressure has a significant effect on how the tyres drive and on their safety. Nokian Tyres' RoadSnoop Pressure Watch is one of the results of the development of new-generation intelligent tyres.

"Sensors attached to wheel rims measure the pressure and temperature and send radio messages as the wheels revolve to a receiver that the driver has. A mobile phone is not necessary, because RoadScoop includes its own receiver. The equipment, which is easily installed on the car, gives a warning by means of an indicator light and sound if the tyres are leaking," says Jukka Hakanen, the head of development.

Hakanen says that in the United States it has been calculated that monitoring tyre pressure would prevent some 80 traffic deaths and 10,000 injuries a year, if all cars had a pressure watch. The system will become compulsory in the USA in the next few years. According to consumer research, tyre pressure monitoring has for many years been

among the three most sought-after properties in a new car.

The idea for a "tyre that phones a mobile phone" originated in Nokian Tyres' product development at the end of the 1990s. "Now we're focusing on developing the next generation of RoadSnoop products that are designed for factory installation in a car," Hakanen says.

Nokian Tyres is doing research work on intelligent tyres with VTT in the EU's Apollo project, in which several other co-partners are participating.

## **Seat monitors driver's alertness**

A sensor located in the car's seat measures the driver's posture, pulse and breathing. The aim is to follow the driver's fatigue and stress state and so reduce dangerous situations in traffic.

A pressure sensor developed by VTT and the sensor manufacturer Emfit Oyj is a thin, spongy but strong plastic film in which a permanent electric charge has been stored. The film measures the compression force, which is seen in the form of the electric charge of opposite surfaces.

The first prototype of the seat sensor has already been installed in a test car. The next version will be leaving for tests by EU partners during the first part of the year. Testing of the sensor will be done in 2006 and 2007, after which productization can start.

Source: Tekes (National Technology Agency)

Citation: The car wants a word with you (2005, April 8) retrieved 1 May 2024 from <https://phys.org/news/2005-04-car-word.html>

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