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## 5G enables precision road weather services and provides robot cars with the ability to hear

**VTT Technical Research Centre of Finland is coordinating the 5G-Safe project, which aims to reduce traffic accidents. This involves the development of new vehicular network solutions and the local road weather and safety services they enable, in support of drivers, road operators and autonomous vehicle management systems. The new services will require no action from motorists while driving – data will be gathered and warnings will be sent to users automatically.**

“The wide introduction of real-time services, based on sensor and video data collected from vehicles, is being made possible by next-generation 5G mobile network technology and new solutions supporting optimal data collection and exchange,” says **Tiia Ojanperä**, a project manager from VTT.

“5G will form the cornerstone of interaction between robot cars, for example. Finnish ICT firms have major export potential in this area. Contemporary driver support systems are mainly vision-based, relying on signals generated by the vehicle’s sensors. 5G and short-range radios will also bring the power of speech and hearing to vehicles, taking their capabilities to a new level,” states Ojanperä.

The services currently being developed require no action during driving in order to send data or warnings. Instead, the prevailing local weather and road conditions are automatically identified based on data collected from vehicles. Warnings and other useful information are sent in real-time to road users, road operators and autonomous vehicle control systems. The new network and cloud computing technologies being researched under the project will reduce delays in data exchange and be more scalable than current services.

The 5G-Safe project, which is part of Tekes’ Challenge Finland competition, is focused on the identification of local weather and road conditions on the basis of data collected from vehicles, and

the sending of warnings to road users. In addition, real-time video and radar data will be exchanged between passing vehicles. Other issues being investigated include the use of data on local road weather conditions to improve the situational awareness of autonomous vehicles and the enhancement of autonomous operation in harsh weather.

New business is being sought for the participating companies via this project, which began recently and will end in 2018. The private-sector partners have been actively involved in defining the project's content from the beginning, which improves the prospects of commercialising the results.

In addition to VTT, the research partners include Destia, the Finnish Meteorological Institute and its commercial services, Kaltio Technologies Oy, SITO, Tieto and Unike. Nokia, Sunit and VR Transpoint are participating as sponsors. Support is also being provided by a technical expert group including Bittium, Dynniq (the Netherlands), the Finnish Transport Agency, Telia and the Finnish Transport Safety Agency (Trafi).

