

Data exchange between vehicles and the road network increases traffic safety

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The just-completed international Celtic Plus CoMoSeF project involved the development of data exchange between vehicles and infrastructure. The resulting communication system provides drivers with real time information on road weather, road conditions and incidents.

During the project a cooperative roadside weather monitoring station which communicates with vehicles was developed in Finland. This can be used to warn drivers of dangerous [road conditions](#) ahead. Also other methods of capturing, storing, relaying and displaying [traffic](#) and weather data were developed under the CoMoSeF project. The tools developed ease the implementation of an ITS communications system.

"As it proliferates, cooperative driving based on communication and [data exchange](#) between vehicles and [road](#) network systems will noticeably improve traffic safety," says Johan Scholliers Principal Scientist at VTT.

Cooperative traffic systems will extend the electronic horizon of vehicles, so that drivers can prepare in advance for hazards which they know are lurking behind corners. This will help drivers and vehicles to anticipate traffic more effectively and to decide accordingly on issues such as the right speed and choice of route.

These solutions represent a step towards automated, smart traffic. It is predicted that cooperative driving will be part of everyday life by the 2020s. One goal likely to accelerate uptake lies in markedly lowering the price of the required [vehicle](#) infrastructure.

Roadside weather monitoring station tested in Sodankylä and Tampere

A cooperative roadside weather monitoring station run by the Finnish Meteorological Institute relays the latest reports - and weather updates covering larger road areas - to vehicles in the vicinity, using short-range WLAN-based ITS-G5 technology and the [mobile phone network](#). This data is received by a vehicle system developed by VTT Technical Research Centre of Finland Ltd. The system can receive multichannel data either via ITS-G5 mediating between vehicles, or the mobile phone network. The switch from one signal reception technology to another is so fast that there are no breaks in contact with the station. Data transfer techniques of this kind, which seamlessly combine several radio systems, have recently emerged as a potential model for the ITS solutions of the future.

One of the project's test sites has been the Hervanta feeder road and E63 exit ramp close to Tampere. A cooperative road side unit with camera and laser scanner has been installed on the ramp for fog surveillance purposes. Another station relaying [weather data](#) to vehicles has been installed along the E75 road south of Sodankylä town centre.

As well as in Finland, intelligent traffic solutions and services have been developed and tested under the CoMoSeF project in France, Luxembourg, Romania, Spain, Turkey and South Korea, where road traffic faces different challenges compared to Finland.

Provided by VTT Technical Research Centre of Finland

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