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TALKING CARS FOR LESS CONGESTION – THE FUTURE OF TELEMATICS

Munich, September 25, 2003 ... BMW's ConnectedDrive research vehicles can communicate to one another exchanging information on traffic, weather and road conditions directly from car to car by means of WirelessLAN communication technology. Traffic information of this kind will supplement telematics services in the future, connecting cars with one another in ad-hoc networks.

BMW ConnectedDrive is a concept that networks the driver, the vehicle, and the surroundings by means of telematic, online and driver assistance systems. The vision for the future is to provide congestion-free motoring.

In promoting the development of this technology and integrating other manufacturers in the process, BMW is looking to develop a uniform standard for the exchange of information. "If only 10 percent of all vehicles in Germany were able to communicate directly with one another, we would have the benefit of nationwide traffic information", stated Dr. Burkhard Göschel, Board Member Development of BMW AG. "Talking cars will reduce traffic congestion and optimize the flow of traffic in the future", he added, while addressing the 1st German Telematics Forum in Berlin.

Cars Acting As Sensors In Road Traffic

BMW's research vehicles exchange such sensor data directly with one another. An intelligent computer system decides whether or not a vehicle should transmit a congestion warning to other cars. Through its calculated speed and local coordinates determined by the navigation system, the car acts as a sensor registering and monitoring the flow of traffic. Whenever such a vehicle runs into congested traffic, it recognizes the

situation immediately and can transmit a local traffic report by WirelessLAN to other vehicles in the surrounding area, requiring no driver intervention. All other vehicles approaching the congested roadway are therefore able to choose another route in good time, using dynamic navigation to redirect them onto less-congested routes.

This can optimize the flow of traffic not only on the highways, but also on side roads and through small towns. The objective of BMW Group engineers is to build up a comprehensive network of cars of all makes that are able to communicate with one another in the manner described.

The advantage of ConnectedDrive is the use of ad-hoc networks, as it would not require any kind of communications infrastructure. The vehicles themselves will make up the network and provide the "multi-hopping" of data, allowing unlimited range. Each vehicle, depending on the situation, effectively takes on the role of the sender, receiver, and/or router of information.

Local hazard warning provided by vehicle-to-vehicle communication

Aside from transmitting its location and speed, the ConnectedDrive cars can also send a wide range of additional information. This includes the current status of the low and high beams, the foglamps and hazard warning flashers, as well as the brake lights. More complicated data provided by the anti-lock brake system (ABS), Dynamic Stability Control (DSC), as well as the ambient temperature can also be sent. This data provides a clear reference to local road or weather conditions that would suggest slippery road surfaces, dense fog, wet conditions or a sudden change in traffic patterns.

A specific example: If ABS is activated at slow speeds, the brake pedal is depressed down only slightly, and the outside temperature is low, it may indicate a slippery surface. In that case, just like a traffic message system, BMW's research cars transmit a local hazard warning quickly and directly by WirelessLAN to all vehicles in the area. Vehicles approaching the potentially-dangerous area are therefore able to warn and prepare the driver in good time with an acoustic and/or optical signal on the on-board monitor. Local hazard warnings therefore can offer an enormous potential in enhancing active safety on the road.

BMW Group In America

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