

PRESS RELEASE

VM2010 Presentation in Munich, June 24, 2004

Traffic management relieves congestion

The research project Traffic Management 2010 demonstrates first solutions.

Munich, June 24, 2004 – Today, in the BMW Research and Innovation Center in Munich, the industry and scientific partners of the publicly supported research initiative INVENT (Intelligent traffic and user-oriented technology) are demonstrating their vision for the future of automobile traffic. Clogged roadways and mile-long traffic jams could soon be a thing of the past. For the last three years in the INVENT project Traffic Management 2010 (VM2010), leading traffic and transport researchers have been developing intelligent traffic solutions to redistribute and "equalize" traffic flow in urban roadway networks, avoid congestion, and guide drivers as promptly as possible to their destinations.

During the presentation, the project partners are demonstrating novel ways of using driver assistance systems to implement the latest scientific insights of traffic flow research. The excellent theoretical understanding of how small flow irregularities grow into traffic jams can now be exploited to help prevent them: The assistance systems dynamically optimize speeds, headways, and lane changes, thereby smoothing the flow of traffic, dissipating congestion, or preventing its formation entirely. The assistance systems coordinate and organize their actions intelligently by inter-vehicle communication. Using a technology known as Extended Floating Car Data (XFCD), a vehicle can detect and localize tail-backs or other hazards and report the information to other vehicles or to traffic centers.

The best way of avoiding congestion is to prevent excessive traffic demand at bottlenecks by pro-actively re-routing traffic streams more efficiently within the existing roadway network: Two-thirds of all traffic jams are caused by demand peaks or construction zones. For this reason, the research partners are developing a new generation of dynamic navigation devices that compute routes on the basis of current and forecasted travel times, taking into account such factors as sporting events, environmental data, fog, construction zones, traffic signal coordination or defects.

Management strategies defined by public authorities as well as traffic safety are also taken into account, thus avoiding unwanted traffic in quiet residential areas.

The vehicles themselves generate a large proportion of the data and information basis required for these calculations: "Floating" cars act as sensors or probes in the flow of traffic, measuring speed and traffic density and reporting this information to a traffic center. By data fusion -- i.e., combination of these reports with data from traffic signals, road induction loops, video monitoring, and information from public authorities -- the INVENT researchers are deriving improved dynamic traffic state estimates and forecasts. This knowledge base will support intelligent route guidance capable of adapting to a dynamically evolving traffic situation.

Tested in Practice

During the first half of the project, the research partners tested vehicle prototypes in the city of Magdeburg, Germany, performed user acceptance studies, and investigated the traffic flow impacts of these new technologies, in order to ensure their feasibility and applicability in practice. In the Munich test area of INVENT, intelligent vehicles are underway, acquiring and evaluating traffic and environmental data, and demonstrating how the visions of the VM2010 project can be realized.

Using synergies

VM2010 is one of three projects of the INVENT research initiative supported by the Federal Ministry for Research and Education (BMBF) in Germany. Results obtained in the two other INVENT projects constitute an important resource utilized by the VM2010 partners. In the project **Traffic Management in Transport and Logistics**, for example, researchers have designed solutions for improved planning of courier service delivery routes that take into account the current traffic situation. These solutions will help reduce the traffic load in urban areas, much of which is generated by commercial pick-ups and deliveries.

The third INVENT project **Driver Assistance / Active Safety** is developing driver assistance systems to support the driver and reduce the driving burden, especially in critical situations. The vision: vehicles that detect dangerous situations autonomously and react appropriately via a human-machine interface. They acquire data and

reconstruct a “picture” of the vehicle driving environment by special sensor designs, inform the driver of road conditions and preceding vehicles, and, in an emergency, are capable of intervening in drive train, braking, and steering.

INVENT

INVENT (Intelligent traffic and user-oriented technology) is a research initiative with the goal of making future traffic safer and more efficient. To this end, the partners are cooperating to develop novel driver assistance systems, information technologies, and solutions for efficient traffic management. The four-year research initiative will continue until 2005 and is being supported by the Federal Ministry for Research and Education (BMBF) in Germany. The 24 partners participating in the research initiative INVENT include Audi, BMW, Bosch, DaimlerChrysler Research and Technology, DLR, Ericsson, fka, Ford, Hella, Hermes, IBM, IFAK, MAN, Navigation Technologies, Opel, PTV, Siemens Inc., Siemens Restraint Systems, Siemens VDO, Transver, “TueV, Cologne University, the law firm Vogt & Co., and Volkswagen. In addition to these partners, many university institutes and a large number of small and middle-sized enterprises are also contributing as subcontractors to INVENT. This continuing research in the area of traffic management and safety will strengthen the competitiveness of industry in Germany. Further information is available at www.invent-online.de.

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