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REMON

Project Fact Sheet

Real Time Monitoring of Urban Transport - Solutions for Traffic Management and Urban Development in Hanoi

Summary

- German-Vietnamese research project on urban transport in Hanoi (2012-2015)
- Reduction of traffic related emissions and energy consumption as key objectives
- Real-time traffic information system based on Floating Car Data (FCD) and Floating Phone Data (FPD) approaches
- Traffic information system as monitoring tool for traffic management, transport planning and urban planning
- Funded by German Federal Ministry of Education and Science (BMBF) and Vietnamese Ministry of Science and Technology (MOST)

Objectives

The key objectives of the REMON project are the reduction of air pollutants and emissions as well as the reduction of energy consumption in the urban transport sector in Hanoi, Vietnam. The consortium of German and Vietnamese partners will establish a real-time traffic information system in Hanoi, which helps to increase the efficiency of Hanoi's transport system and thus reduce environmental impacts of traffic, in particular traffic jams, traffic induced emissions and energy consumption.

Project Description

The basic idea of the REMON project is to track and detect traffic flows in real time via two methods: Floating Car Data (FCD) and Floating Phone Data (FPD). This raw data will be turned into information for various applications: from informing road users of the current traffic situation on each street to controlling and managing traffic as well as long-term planning efforts and measures to solve traffic problems.

FCD and FPD base on GPS technology and are geo-information based technologies. Vehicles (cars, buses, taxis, motorcycles) will be equipped with onboard units to transmit GPS data to a data center in regular time intervals. Thus, the FCD and FPD system equals a dynamic sensor respectively a "distributed network of sensors" (MESSELODI et al. 2009) for traffic flows, vehicular emissions and transport related issues like accessibility and travel patterns. The REMON project intends to develop the FCD and FPD system to be an effective tool to monitor and evaluate the effectiveness of urban planning measures for reduction of transport related emissions and energy consumption. Thus, the FCD and FPD system not only becomes an information tool and dynamic sensor of traffic flows, but also a monitoring tool for urban and transport planning.

Images: M. Ruiz Lorbacher / Figure: UAX

Outcomes and Benefits

One result of the REMON project will be the digitization and visualization of traffic flows. Local government, transport authorities, urban and transport planners thus will be able to measure and monitor traffic flows and transport infrastructure effectively. The possibilities to make use of the generated traffic data are ample:

(1) Information of current traffic situation to road users (Internet, phones, radio, television) and transport authorities

(2) Data analysis
- Identification of capacity overloads, bottlenecks and hot spots of traffic congestion
- Intersection Traffic Monitoring and Local Net Assessment
- Local network analysis (i.e. bus stops, street segments)
- Accessibility analysis

(3) Traffic management and traffic quality
- Managing and monitoring traffic flows in real-time
- Optimization of transport infrastructure by applying traffic management measures and monitoring their effectiveness with the FCD and FPD system
- Integration of the REMON traffic information system into existing traffic management and traffic information centers (e.g. Traffic Police, Radio Voice of Vietnam)

(4) Fleet management systems for taxi and bus companies
- Information of working time of drivers, occupation rate, generated income, fuel and energy consumption, operation coverage
- City information, i.e. travel times of at bus stops
- Analysis of public transport system (macro to micro level)

Project Partners

- AS&P – Albert Speer and Partner GmbH , Germany
- CPA Systems GmbH, Germany
- DELPHI IMM GmbH, Germany
- Freie Universität Berlin, Remote Sensing and Geoinformatics, Germany
- German Aerospace Center (DLR), Optical Information Systems at the Institute of Robotics and Mechatronics, Germany
- International Academy (INA) gGmbH at the Freie Universität Berlin, Institute for International Urban Research (InUrban), Germany
- Technische Universität Darmstadt, Institute of Transport, Chair of Transport Planning and Traffic Engineering (FGVV), Germany

- Transport Development and Strategy Institute (TDSI), Hanoi, Vietnam
- University of Transport and Communications, Hanoi, Vietnam
- Vietnamese-German Transport Research Centre (VGTRC), Vietnamese-German University, Ho Chi Minh City, Vietnam

Funding Bodies

- German Federal Ministry of Education and Science (BMBF)
- Vietnamese Ministry of Science and Technology (MOST)

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