SMART Future Urban Mobility (SMART FM)

Programme Leader

Prof Christopher Zegras, Massachusetts Institute of Technology

Prof Zegras is the Lead Principal Investigator of SMART FM IRG. His research interests include the influence of the built environment on individual travel behavior, transportation infrastructure and systems financing, developing transportation systems, and mitigating transportation greenhouse gas emissions.

Future Mobility (FM) IRG is one of the five IRGs in the Singapore-MIT Alliance for Research and Technology (SMART) Centre. FM IRG started in July 2010 and is a research programme funded by the National Research Foundation (NRF), under its Campus for Research Excellence and Technological Enterprise (CREATE) programme.

Research

SMART FM IRG aims to:

- Harness and enhance promising networked computing and control (NCC) technology-enabled innovations that may contribute to improved future urban mobility;
- Develop decision models that can be applied to support various novel mobility concepts, such as the pervasive use of real-time information, mobility-on-demand services and green logistics; Investigate the potential and impacts of these innovations and decision models; and
- Assess their implications for urban development and urban planning organisations and institutions.

FM IRG will adopt approaches that integrate information on human and commercial activities, land use, transportation, environmental impacts, and energy use

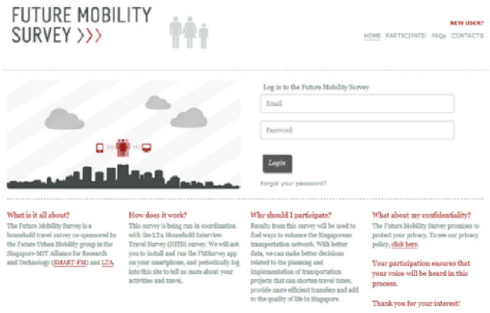
Researchers

There are over 200 research participants in SMART FM IRG, including post-doctoral fellows, research associates and PhD students. Leading the research teams are a total of 7 Principal Investigators (PIs) holding faculty appointments at MIT and over 15 collaborating faculty from local universities and research organisations.

Highlights

Future Mobility Sensing (FMS) Survey

The FMS is an innovative approach to travel survey, allowing activity and travel logging via smart-phone data and a web interface, thus overcoming many limitations of conventional (paper-based) travel survey methods.



Development of DynaMIT

DynaMIT is a real-time software system that predicts the state of the road network for the short-term future. It applies traffic simulation to model individual vehicle movement in the transport network. Behavioral models are used to determine individual traveller's decisions. DynaMIT is currently running in real-time for the Singapore Expressway Network, and was awarded the 2011 IEEE Outstanding ITS application award.

Singapore's First Autonomous Vehicle Designed for Operation on Public Roads

The low-cost vehicle is a prototype for a fleet of driverless shared cars offering innovative Mobility-on-Demand services, e.g. for first- and last-mile access to public transportation.

LIVE Singapore Platform for Data Analytics and Visualisation

This system employs the urban data recorded and captured by fixed sensors, users and operators throughout the urban environment, suggesting new ways to view, understand, and ultimately navigate the city.

For more information about the SMART FM IRG, please contact:
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