International Symposium on Intelligent Transport System Research

by Engr. Assistant Professor Dr Khoo Hooi Ling

HIGHWAY AND TRANSPORTATION ENGINEERING TECHNICAL DIVISION

THE Highway and Transportation Engineering Technical Division of Institution of Engineers, Malaysia (IEM) recently organised a one-day international symposium on Intelligent Transport System (ITS) at the Armada Hotel in Petaling Jaya. The symposium was attended by 70 participants.

The seminar was co-organised with ITS Centre, the University of Tokyo, Japan. It was supported by ITS Malaysia, ITS Japan, Transportation Science Society Malaysia (TSSM) and Universiti Tunku Abdul Rahman (UTAR). A total of 14 speakers from local universities and abroad presented papers on various research projects on ITS.

The symposium commenced with opening remarks from the President of the IEM, Ir. Vincent Chen Kim Kieong; the Director of ITS Centre, Institute of Industrial Science of the University of Tokyo, Japan, Professor Dr Yoshihiro Suda; the President of ITS Japan, Mr. Hajime Amano; and last but not least, the President of ITS Malaysia, Dato' Ir. Hj. Mohamad bin Husin.

IEM President,
Ir. Vincent Chen Kim Kieong

Director of ITS Centre,
Institute of Industrial Science of the University of Tokyo, Japan
Prof. Dr Yoshihiro Suda

President of ITS Japan,
Mr. Hajime Amano

President of ITS Malaysia,
Dato' Ir. Hj. Mohamad bin Husin

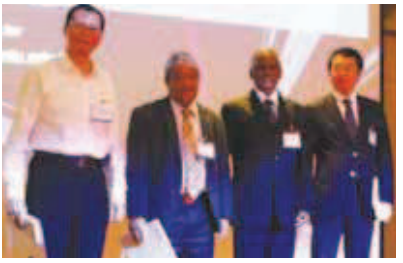
The seminar was divided into four sessions, delivering various topics on ITS, namely ITS innovation, ITS for traffic management, ITS in vehicle control as well as image processing and ITS sustainability.

Some of the participants of the symposium

In the ITS Innovation session, Prof. Mohamed Rehan bin Karim from University of Malaya presented his recent development of a weigh-in-motion (WIM) device for traffic data collection and monitoring. The benefits of the WIM include its simple installation feature, its ability to detect various classifications and parameters of vehicles, and its suitability for a wide range of road-related applications.

Meanwhile, Associate Professor Hiroshi Makino presented his research on infrastructure and vehicle co-operative system in Japan. He stressed that a well-integrated system is necessary for efficient traffic management to mitigate traffic congestion in cities. Prof. Jason Chang from Taiwan highlighted his innovative research in web and cloud taxi services. He demonstrated to the participants that smart taxi services could be provided to users through proper utilisation of internet technology. The proposed system could enhance security in the taxi industry as well as reducing the empty rate of taxi services.

In the ITS for Traffic Management session, Prof. Ahmad Farhan Mohd Sadullah from University Science Malaysia presented an overview of ITS development in Malaysia. He highlighted the practical issues and challenges in ITS implementation. He urged that there is an urgent need for the experts to learn from past lessons in determining the future strategies. Prof. Masao Kuwahara from Tohoku University presented the application of ITS sensing devices used for data collection. He showed that quality data is a pre-requisite for accurate analysis that allows efficient traffic management to be developed.



(l-r) Prof. Dr Jason Chang, Ir. Prof. Mohamed Rehan Bin karim, Ir. K.Gunasagaran and Assoc. Prof. Hiroshi Makino

(l-r) Ir. Richard Wong, Prof Dr Ahmad Farhan Mohd. Sadullah, Prof. Dr Toshio Yoshii, Prof. Dr Masao Kuwahara and Prof. Dr Edward Chung

Prof. Toshio Yoshii from Ehime University presented a development of an area metering control method using the macroscopic fundamental diagram. Its algorithm aims to keep the aggregated traffic density at the proper level which results in higher flow in the system to reflect the travel time more accurately. Prof. Edward Chung from Queensland University of Technology, Australia, demonstrated to the participants the utilisation of Bluetooth technology in a travel time study. The sensitivity analysis illustrated that the accuracy of the data collected is dependent on the relationship between travel time and duration (i.e. time for an active Bluetooth device to pass through the Bluetooth scanner detection zone).

In the Vehicle Control and Image Processing session, Associate Professor Dr Yong Haur Tay from UTAR presented the potential applications of Android in ITS. He depicted that Android can be used as the information dissemination and data acquisition device. Besides, it is a low-cost solution for various high-end ITS applications.

Subsequently, Prof. Katsushi Ikeuchi from the University of Tokyo presented an idea of a four-dimensional virtual city. Based on current setting, the system would allow one to render the past and predict the future development in a city. Prof. Riza Atiq Rahmat from National University of Malaysia (UKM) presented his findings on research in transport management system. He showed the participants the development of a responsive traffic signal system and the application of nanomaterials in weigh-in-motion devices. He mentioned that street lighting posts can be painted with nanomaterials to become efficient photovoltaic emitters. The session continued with Prof. Yoshihiro Suda from the University of Tokyo, who presented a paper on sustainable transport. Prof. Yoshihiro Suda also shared with the participants the various ITS strategies that could reduce energy consumption.

In the last session, on Sustainability in ITS, Prof. Takashi Oguchi from University of Tokyo highlighted challenges that involve electric vehicles. The critical issue in promoting electric vehicles is to ensure that the battery power is long enough to support the users' travel activities. As such, proper modeling of transport planning is needed to predict users' activities. Assistant Professor Dr Sungjoon Hong from University of Tokyo highlighted the framework developed to evaluate carbon dioxide reduction. The proposed framework consists of a micro-simulation model for carbon dioxide emission which has been calibrated and validated properly.

Finally, Prof. Sorawit Narupiti introduced the ITS research activities by Chulalongkorn University, Thailand. There are various on-going research initiatives in the university which involve multi-disciplinary experts.

The seminar had provided a platform for experts to discuss the emerging issues and challenges of ITS deployment. It is anticipated that further collaboration among local and international experts would be established. The seminar ended with the concluding remarks made by Engr. Assistant Professor Dr Hooi Ling Khoo (UTAR), who also took the opportunity to thank the secretariat, the co-organisers, and all the participants for their support. ■