

Research Trends and Results

Collaborative research with the U.S. and Europe on ITS

KANAZAWA Fumihiko, Head
SAKAI Koichi, Senior Researcher
MAWATARI Shingo, Senior Researcher
TSUKIJI Takahiro, Researcher

Intelligent Transport Systems Division, Research Center for Advanced Information Technology

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1. Introduction

The Intelligent Transport System Division is performing collaborative research in the ITS field with the U.S. and Europe under a Memorandum of Cooperation in the field of ITS (Intelligent Transport Systems) signed between the governments of Japan and the U.S. and the governments of Japan and the European Commission. This paper reports on the results of research conducted between Japan and the U.S. concerning probe data and evaluation tools and methods, which are two prioritized research areas identified with the U.S. and with Europe, and on the directions of future trilateral collaborative research between Japan, the U.S. and Europe.

2. Collaborative research on probe data

Japan and the U.S. have exchanged information about research on ITS at annual bilateral meetings since 1993 and at task force meetings held several times since 2009, and collaborative research on probe data was started in 2010 to promote research and development in the two countries. In the collaborative research, probe data was jointly defined, then probe data and probe data systems in Japan and the U.S. were compared, to specify 19 probe data enabled applications. Of these, seven high priority application bundles considering their feasibility, public sector application, usability on expressways, and international standards harmonization were developed, and from among these, three applications were jointly selected for further collaborative research (see the Table). The contents up to this time were summarized in the assessment report in November 2013. In the future, with the participation

of Europe, trilateral collaborative research will be undertaken concerning technological research on each application and cross-cutting issues including security, standardization, privacy, and data ownership.

3. Collaborative research on evaluation tools and methods

In order to promote research and development and the deployment of ITS, evaluation tools and methods to verify the effectiveness and benefits of ITS are needed. Although Japan and the U.S. have already developed their own methods of evaluating the effectiveness of ITS, no common methodology is applied consistently across evaluation efforts within Japan and within the U.S. Thus, Japan and the U.S. are conducting collaborative research on evaluation tools and methods in order to develop a consistent methodology to evaluate the performance and cost-benefits of ITS. The collaborative research has organized performance indicators and evaluation tools and methods which are used in Japan and the U.S., and in November 2013, prepared an interim report of the contents of the research completed up till that time. In the future, a common glossary of terms used in Japan and the U.S. will be developed, evaluation tools and methods used in the U.S. and in Japan respectively will be comparatively analyzed, and categorization and organization of evaluation methods will be developed.

4. Conclusions

In the future, Europe will join this activity to expand probe data collaboration from a bilateral to a trilateral effort, and a report on probe data will be prepared with October 2015 as the target. A report on evaluation tools and methods will be prepared by Japan and the U.S. with September 2014 as the target.

Table. Three Selected Applications

Application	Outline
[1] Application to clarify road traffic management indices (travel time, speed, etc.)	It will collect time, location, speed and other probe data to clarify times and sections congested for use in enacting road plans etc.
[2] Application to harmonize vehicle traveling speeds	It will collect time, location, speed and other probe data to clarify the state of traffic, aiming to maximize traffic volume and reduce accidents by supplying information such as recommended speed.
[3] Application to provide road management work support using weather information	In addition to time, location, speed, and acceleration, it will collect the state of operation of wipers, back lamps, head lamps, ABS and other aspects of state of operation obtainable from CAN data, and car mounted camera images as probe data for use in road maintenance work.

[Sources]

1) Probe data fact sheet

http://www.its.dot.gov/factsheets/us_japan_probedata.htm

2) Evaluation tools and methods fact sheet

http://www.its.dot.gov/factsheets/us_japan_evaluationtools.htm