



US-JAPAN PROBE DATA

INTRODUCTION

Cooperative systems based on Intelligent Transportation Systems (ITS) technologies can deliver significant benefits for all road users and the public, especially in terms of safer, more energy-efficient, and environmentally friendly surface transportation. Through a wireless communications network, a cooperative system enables cars, buses, trucks, and other vehicles to “talk” to each other and to roadside infrastructure, cell phones, and other devices, exchanging valuable safety, mobility, and environmental information. Recognizing the potential benefits of such cooperative systems, the US Department of Transportation (USDOT) has been conducting research into connected vehicles, as they are known in the United States, and the Ministry of Land, Infrastructure, Transport and Tourism of Japan (MLIT) has deployed the ITS Spot system nationwide. Together, the two agencies are working to foster research, development, and deployment of a system of communication between vehicles and the roadside environment in both countries.

BACKGROUND

The USDOT and MLIT have a long history of sharing information on ITS activities, including an annual US-Japan ITS Workshop held in conjunction with the ITS World Congress. Building on this relationship, the USDOT Research and Innovative Technology Administration and the Road Bureau of the MLIT signed a Memorandum of Cooperation in 2010 to promote bilateral collaboration in the field of ITS, especially cooperative systems. This Memorandum aims to enhance cooperation between both agencies and further the development and implementation of global ITS activities.

COLLABORATIVE RESEARCH

The agencies formed a US-Japan ITS Task Force to exchange information and identify the areas for collaborative research to foster the development and deployment of ITS in both the United States and Japan. The Task Force identified the following three high-priority areas:

1. International Standards
2. Evaluation Tools and Methods
3. Probe Data.

For more information on the collaborative US-Japan Probe Data Project, please visit http://www.its.dot.gov/connected_vehicle/international_research.htm.

The objectives of the US and Japan bilateral collaboration are to:

- Identify research and development areas that would benefit from joint development
- Share information on ongoing research and development projects, estimated benefits, research outcomes, and field demonstration results
- Inform stakeholders involved in the development of cooperative systems about continuing cooperation and progress between the countries and promote active participation and exchange among stakeholders by jointly organizing symposiums, seminars, and meetings
- Support development of global, open standards that ensure interoperability. Globally harmonized standards are essential to support and accelerate the deployment and adoption of cooperative systems based on ITS technologies.





PROBE DATA COLLABORATIVE RESEARCH

Probe data offers the potential to develop transformative applications that can improve roadway operations (e.g., overweight vehicle monitoring, traffic signal timing, queue warning, curve speed warning), planning, and maintenance based on traffic conditions (e.g., work zone planning and management) and inform travelers of travel conditions (e.g., public transit information, travel time information).

The private sector has already made significant strides in the capture and use of probe data, primarily for traveler information dissemination and fleet management. For example, in Japan, automobile manufacturers use vehicle telematics to generate road traffic information. The USDOT and MLIT aim to advance the public sector in this field by conceptualizing probe data systems. These systems capture and gather vehicle data and generate a wide range of information related to road traffic that the public sector can use for transportation systems management. In addition to probe data from vehicles, data may also be collected from mobile devices, such as smart phones, wherein travelers act as probes.

RESEARCH PURPOSE

As part of the collaborative efforts to promote research, development, and deployment of cooperative systems, the US-Japan ITS Task Force will:

- Jointly develop a high-level definition of probe data (from light, transit, and freight vehicles) to help identify the scope of the project and identify technologies and systems that deliver these data
- Share data and research findings, experiences, and lessons learned from the development and deployment of probe-data-enabled applications and probe data systems
- Jointly identify applications that may be developed using the probe data defined by the US-Japan ITS Task Force.

The result of this research effort will help identify the future direction of research, development, and deployment of cooperative systems in the United States and Japan.

For more information about this initiative, please contact:

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RESEARCH OUTCOMES

The MLIT has been conducting probe data research and development in Japan to enhance the efficiency of road administration, including traffic surveying, road management, and program/project evaluations, through the use of probe data. The USDOT has been conducting connected vehicle research to explore the potentially transformative capabilities of wireless technologies to make surface transportation safer, smarter, and greener, and enhance livability in the United States. Through their joint probe data collaborative research effort, the USDOT and MLIT envision significant benefits such as:

- Probe data research and development in both the United States and Japan through the mutual exchange of information on advanced approaches to probe data
- Reduced costs for research, development, and testing of applications through shared experiences and collaborative/coordinated research
- Expedited or immediate transferability of lessons learned from the Japanese experience in the United States and vice versa
- Increased understanding and quantification of the prospective benefits of deployments similar to Japan's ITS Spot for sharing with domestic public and private sector partners (e.g., original equipment manufacturers) in the United States
- Global marketability of products due to consistency and compatibility of data, probe systems, technology, and practices, and harmonization of data standards
- Sustained global competitiveness for auto manufacturers and device makers
- Available effective strategies that improve roadway operations, planning, and maintenance; provide better traveler information; and mitigate negative environmental impacts.

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