Gathering of the information with ETC 2.0 probe and use of the information

Road Division, Road Traffic Department Shinsuke Setoshita, Head
Intelligent Transport Systems Division, Road Traffic Department Hidenori Yoshida,Head

Keywords: ETC 2.0 probe information, data gathering and uses, productivity reform

1. Outline of ETC 2.0 system

In ETC 2.0, the information distribution service to avoid traffic jams and to support safe driving is added to the fee payment service of the conventional ETC. The gathering of ETC 2.0 probe information, such as the history of driving and movement, becomes possible. These services are enabled through mutual communication between ITS spots installed at about 1,700 locations along highways around Japan and route information gathering systems installed at about 1,900 locations along national roads by road administrators (figure 1).

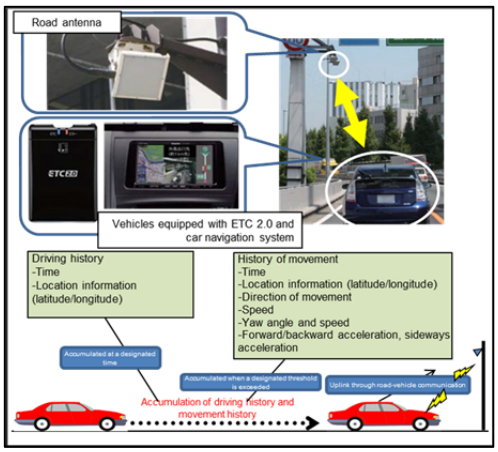

Figure 1: Gathering of ETC 2.0 probe information

2. ETC 2.0 probe information gathering and utilization system

Road administrators, such as the Regional Development Bureau, developed devices to gather and process ETC 2.0 probe information based on specifications prepared by the National Institute for Land and Infrastructure Management (NILIM) and started its uses in April 2011 (Figure 2). The NILIM has been conducting research to advance the gathering, analysis, and utilization of ETC 2.0 probe information. The outcomes are used to analyze traffic conditions and find high-risk areas while contributing to the improvement of the efficiency of road administration and smoothness and safety of road traffic.

The NILIM is reinforcing the information collection system and improving its functions to further promote the use of the system. The current arrangement of roadside devices still has areas with insufficient probe information due to geographical conditions. In addition, the current roadside devices may not be able to collect sufficient information in a natural disaster. Therefore, the NILIM is also developing new roadside devices, such as establishing specifications of portable roadside devices that can gather information with mobility in FY 2017.

Also, the system developed by regional development bureaus has limits to data storage capacity. Thus, the NILIM constructed a data server so that data from the past decade or more can be used online. The NILIM is going to use it for data analyses and the establishment of new data processing and analytical methods (algorithms).

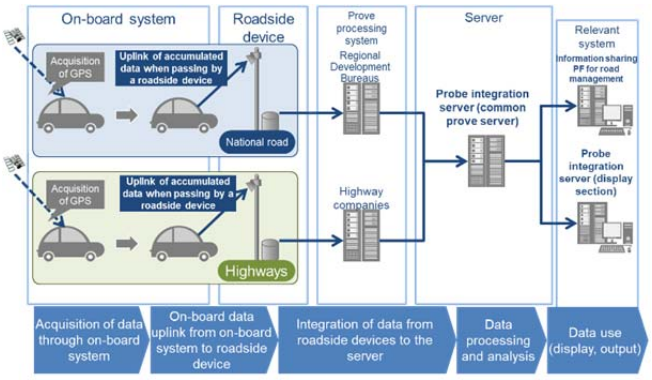

Figure 2: ETC 2.0 probe information gathering and utilization system

Furthermore, the NILIM established a system to collect probe information by specifying a vehicle upon a request from a business as a new attempt. The NILIM is now conducting a social experiment of an operation management support service that can be used to improve the efficiency of operation management and to ensure the safety of drivers by providing the ETC 2.0 data of a vehicle owned by a distribution company. The full use of this system is going to start in FY 2018.

3. Future outlook

The number of vehicles equipped with ETC 2.0 is now increasing; thus, the probe information that will become available is going to increase, and the possibility of using the data is expected to expand. The NILIM is going to conduct research to improve the system and data analysis.