

Research Trends and Results

Implementing a pilot program for ETC2.0 vehicle operation management support service

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1. Introduction

Today, distribution companies face many issues, including the high price of diesel fuel and the aging of drivers. To deal with these issues, it is desirable to have effective operations and management, support safe driving, improve fuel efficiency, and optimize labor management. In our laboratory, we conduct research and development for a distribution support service that utilizes ETC2.0 probe data collected from intelligent transport systems (ITS) spots and other sources. In this article, we introduce a pilot program for the ETC2.0 vehicle operation management support service, which has been conducted since fiscal year FY2015.

2. Overview of pilot program

As part of wise distribution management utilizing IT, which is promoted as the “effort to wisely use roads” by the Ministry of Land, Infrastructure, Transport and Tourism, this pilot program has the purpose of analyzing and evaluating the effectiveness, feasibility, and social benefits of services provided by companies for vehicle

operation management, including making the operation and management of vehicles more efficient and ensuring the safety of drivers. We are also attempting to smoothly develop measures (see Figure).

In ETC2.0, using high-speed and large-capacity communication between an ETC2.0 in-vehicle device and a roadside unit, we can collect ETC2.0 probe data, including the traveling history and activity log of each vehicle. In this pilot program, the ETC2.0 probe data collected from the vehicle of each participant, which can be used to identify an individual vehicle (in the following, we call these the identification probe data), are delivered to a system managed by the program participants. The program participants then process and analyze the delivered identification probe data, which are used to make the physical distribution more efficient such as by reducing the waiting time of freight and ensuring the safety of drivers.

The first-term participants in this pilot program were recruited and private companies were chosen in November 2015, and the program was started.

The following is an overview of the provided service and examples of the uses of the identification probe data by the program participants.

- The traveling history data are analyzed, and the congestion frequency is obtained, classified by the distribution routes, days and hours. Then, operation plans are reviewed based on these.

- The traffic line data are analyzed, such as the places where tourists using rental cars stop and the length of their stay, and sightseeing information is provided to tourists to make sightseeing by rental car more satisfying, based on the attributes of each tourist.

- Places with danger are identified, which assists with the safety education of drivers.

3. Concluding remarks

We plan to recruit the second-term participants for the pilot program. In addition, by evaluating and analyzing the service, and examining its system, we would like to use these for an actual operation.

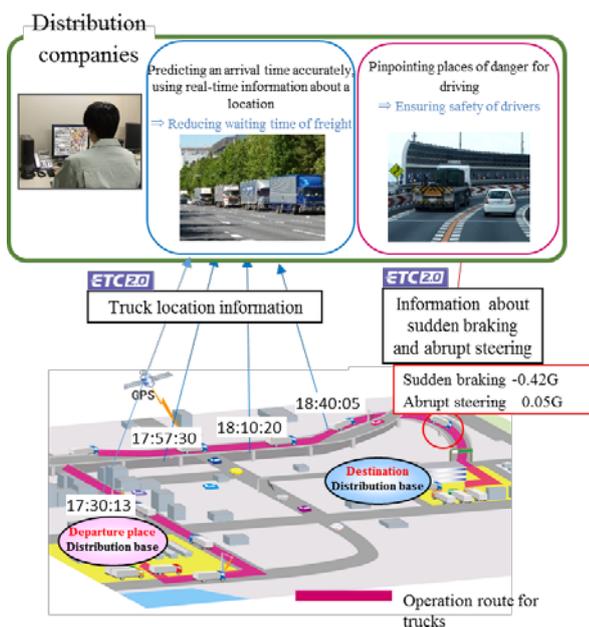


Figure Overview of pilot program