

Research Trends and Results

Collection and analysis of people and vehicle movement data using a smart-phone application

HASHIMOTO Hiroyoshi, Researcher
YAMAZAKI Takahiko, Guest Research Engineer
TAKAMIYA Susumu, Head (Phd.)
Traffic Engineering Division, Road Department

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1. Introduction

At the basic policy meeting of the Road Subcommittee of the Panel on Infrastructure Development held February 6, 2013, the importance of clarifying the movement of people using ICT was suggested, and the NILIM is conducting research on methods of collecting and analyzing people and vehicle movement data. This report introduces an outline of a method of collecting people and vehicle movement data using a smart phone application (below, “the App”) developed by the NILIM.

2. Outline of a survey using the App

The survey was done by having test subjects download the App, which they then used to enter information to be collected by the survey (purpose of movement, movement method, departure location/destination, and location information obtained by the smartphone’s GPS function, and so on.) Figure 1 shows operating screens of the App.

3. Survey in Tsukuba City

For one month in November 2013, a survey of people who lived or worked in Tsukuba City and was carried out using the App (Fig. 2). This survey was done by the Tsukuba Mobility Traffic Research Committee¹⁾ in cooperation with Tsukuba City.

As a result of the study, 138 people participated. Almost half of these people were aged from their forties to sixties, and a people in a wide range of ages took part (Fig.3). The typical movement method percentages were about 60% by car, followed by bicycles and train (Fig. 4). The average number of trips was about 2.7 per day (trip/persons), and collected data was similar to the nationwide FY2010 PT (weekdays: 2.84 (trips/persons), holidays: 2.91 (trip/persons)).

4. Conclusions

The survey done using the App is characterized by its ability to collect actual movement trends of the test subjects in detail, unlike a questionnaire survey. The survey in Tsukuba City attracted a wide range of participants, but to establish a data survey method, ensuring test subjects and unbalanced attributes are

problems. In the future, we will continue to study people and vehicle movement data study methods, as we research data analysis technologies based on the data which was collected.

Figure 1. Smart Phone Application Operating Screen

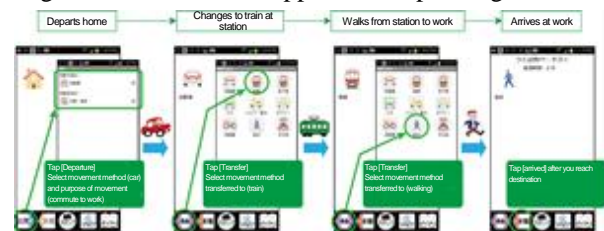


Figure 2. Movement History Collected by the Study (Example of NILIM employee)



Figure 3. Attributes of Study Participants

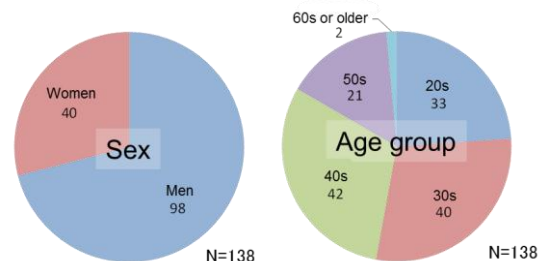
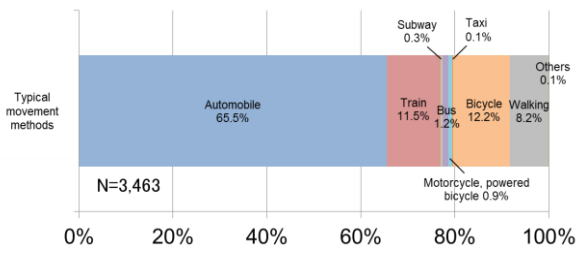


Figure 4. Typical movement Method Percentages



※Typical movement methods: of movement methods used for movement, typical movement methods

[Sources]

1) Tsukuba Mobility Traffic Research Committee

http://www.city.tsukuba.ibaraki.jp/dbps_data/materia1/files/000/000/015/445/No77.pdf