

Advanced road management using imagery probe information

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1. Introduction

In the past, studies to apply technologies for the analysis of images collected by cameras installed on road sides have been used to clarify anomalous phenomena and traffic conditions in order to manage roads more effectively and more efficiently. In recent years on the other hand, it is predicted that the number of vehicles equipped with on-board cameras to improve traffic safety will increase in number. And researches have been performed to develop technologies which will utilize imagery probe information that combines imagery information obtained by such in-vehicle cameras with positioning information to judge the dryness/wetness of the road ahead¹⁾, and research on the concept of drive recorder systems comprised of full-time-archived drive recorders in combination with smart phones²⁾. This report introduces an outline of a study in the ITS field which, by combining image processing technology and information communication technology, will be developed for advanced road management by letting road operators use imagery probe information.



Photo 1. Example of an In-vehicle Camera Installed on a Rear-view Mirror

2. Conceptual model for utilization of imagery probe information

Figure 1 shows a conceptual model for utilization of imagery probe information. The model is comprised of four functional units. The first is “Data collection” which means collecting images and positioning information; the second is “Phenomena detection” which uses the data collected to detect some phenomena; the third is “Data transmission” which is

transmitting collected data or the results of detection; and the fourth is “Data management” which is using transmitted data for advanced road management. Of these, “Phenomena detection” is performed either on the on-board unit side or the center side according to the adopted technologies and the functional requirements.

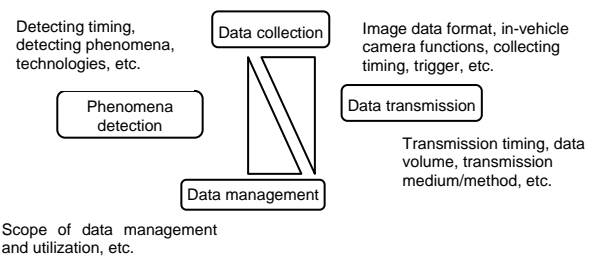


Figure 1. Schematic Figure of Conceptual Model and Examples of Technological Challenges

3. Future prospect

In order to use imagery probe information for advanced road management, we will clarify technological challenges in each unit of the conceptual model and carry out research and development to resolve them. Moreover, we will study how to treat security and privacy issues of imagery probe information, and a business model for using imagery probe information for advanced road management.

[Reference]

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