

Yamanote Line Train Net - Onboard Information Services for Individuals



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Summary

This paper introduces infoPiC which was designed and experimentally prototyped by JR East. The system was developed for the purpose of delivering real-time information to mobile devices of passengers onboard based on its location and direction. The demonstration experiment conducted on commercial commuting trains in the year 2011 and 2012 was highly appreciated by users both for overall system performance and information provided.

1. Introduction

East Japan Railway Company (JR East) has been continuing the research and development of providing information to railway users in an easy-to-understand way. This paper introduces Information Providing System for Individual Customers (infoPiC) which was designed and experimentally prototyped by JR East. The system was developed for the purpose of delivering real-time information to mobile devices of passengers onboard based on its location and direction.

2. Concept of the service

Figure 1 shows the concept of information service using infoPiC, which is based on the notion that “in-car space is a place where passengers should be restricted from moving or acting freely”. However, we believe that it might be possible to offer the following two new sets of values to the passengers onboard through ICT-based information services: (1) Improving customer satisfaction and (2) creating a new business.

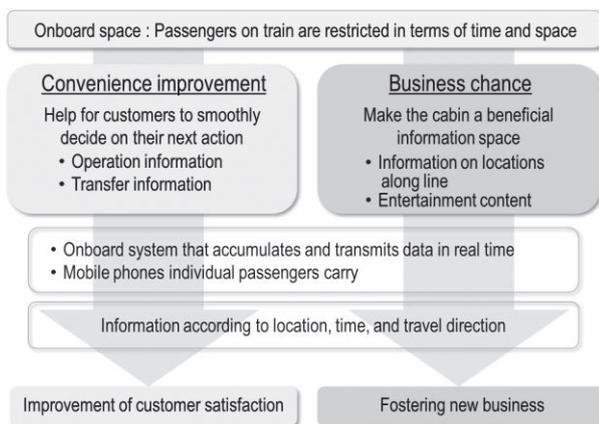


Fig.1 Concept of the service

3. System configuration

Figure 2 shows the overview of the onboard system configuration. InfoPiC is the collective term for components consisting of a personalized information supply controller, wireless LAN access points and WiMAX antennas. They are connected to the existing media terminal which is responsible for controlling onboard displays. This system has a function that passengers can benefit to see

contents stored on the device through wireless LAN by connecting to a personalized information supply controller using a smart phone (wireless LAN compliant).

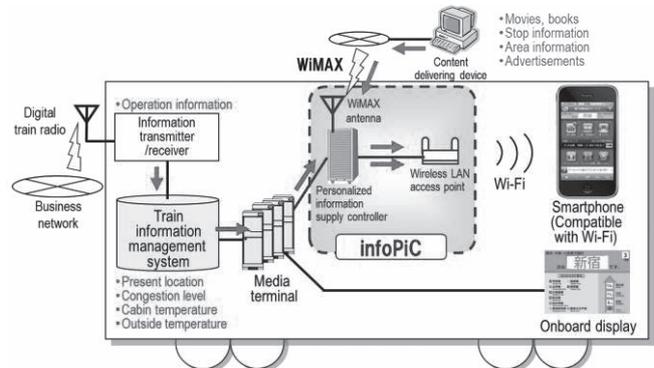


Fig.2 Configuration of infoPiC system

4. Overview of contents

This chapter describes both the design concept of contents delivered by infoPiC and its overview.

(1) Design concept

The current location is always shown in the top of each content page with two intentions: The first is to help users enjoy a variety of content without worrying any time about where they are; the second is to make them aware that the content is based on their location.

(2) Overview of each content (railway information)

(a) Operation information: Up-to-date information on operation delays or suspended service of the lines of the Metropolitan area, which has already been displayed on onboard monitors, can be obtained anytime by the system as they need it.

(b) Stations/transfers: Basic information for railway users, which includes stops on the line, estimated time to each station, platform facilities, interconnection and others, is gathered (Fig.4 left, center).

(c) Car information:

Real-time information such as congestion level and cabin temperature from train information management system (TIMS), as well as fixed information such as cars with spaces for wheelchairs and weak air-conditioned cars, is collected (Fig.4 right).



Fig.3 Top screen

(3) Overview of each content (marketing-related information)

The contents shown hereinafter were delivered in the field test conducted in October 2011.



Fig.4 Railway information screen

(a) News along the line: News and event information along the line were organized with each main area (Fig.5 left).

(b) Entertainment information: Contents such as E-books and movies were collected to keep passengers entertain onboard.

(c) Video advertisement linked with onboard advertisement: Commercial videos linked with the displays above doors and hanging advertisements were delivered in an effort to explore the possibilities for a new type advertisement (Fig.5 center).

(d) In-station coupon campaign information: Information on in-station shops along the line, coupons of shops and JR East group campaign information were delivered (Fig.5 right). To facilitate searching, information on shops at nearby stops was listed with priority.



Fig.5 Screen of marketing concern information

5. First field test of Yamanote Line Train Net

(1) Overview of the test

In order to evaluate and review the service the system provides, the first field test was conducted, installing infoPic on a train of the Yamanote line. The test named “Yamanote Line Train Net” was carried out by chartering all the advertisements inside the train and all over its exteriors for a period of about one month from October 4 through November 4, 2011 (Fig.6).



Fig.6 Field test

(2) Results of the test

During the field test about one month, the information was delivered without any system troubles. The access logs have shown that the

number of connection averaged more than 1,000 per day. The total downloads of the iPhone application (app) were approximately 12,000 with the Android app approximately 6,000.

During the test period, we also conducted a questionnaire survey of 100 male and female monitors in their ages of 20s through 40s.

More than 80% of the respondents answered “useful” about every rail-related content. As for marketing-related content, approximately 90% answered “good to have” on information of in-station shops and coupons of the shops. When it especially comes to the coupon information, 85% of respondents answered “necessary when the service is started”, which has proved to be highly appreciated.

To the question “what is your overall assessment on using Train Net?”, 85% of the respondents showed positive appreciation, answering “Good” or “Good to some extent”

6. Conclusion and future plan

It was confirmed by the first field test that the system could operate stably and there was a high demand for its information service. Following this, the second field test was carried out from September 2012 to January 2013 on the same line. This time, we have verified the stability of the improved system configuration enabling users to access Internet, which could not have been realized in the first test. Now we are working on the system configuration and contents with practical implementation in mind.

The system introduced here is intended only for onboard information service. In the future, however, we aim to develop an information delivery platform which can supply users with information relevant to the time and place on all flow lines not only onboard but also on platforms, in stations, in streets or at home, and so on (Fig.7).

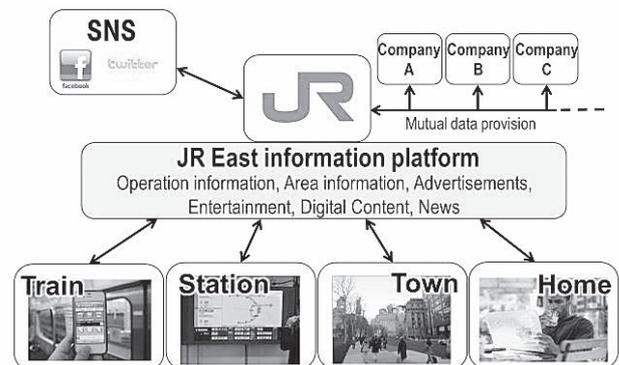


Fig.7 Information delivery platform plan

Reference

- 1) Takayuki MATSUMOTO, Takeshi NAKAGAWA, Satoshi FUJII; Development of onboard information services for individuals -“infoPic” and its trial run on the Yamanote line, JREA, Vol.55, No4, pp.22~25, April 2012
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