Development of a Multimedia Share System to Provide Spot-information for Tourists by Location-based Information

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ABSTRACT

In tourism, it is important to provide optimal information for tourists on the spot. Almost all of these information (Spot-information) are provided by the local government. However, the local government provides the similar information to all tourists without considering the individual characteristic, and it cannot match with tourists’ needs. To respect tourists’ needs, using word of mouth information in the internet is one of the most effective method according to related surveys.

We developed a multimedia share system to provide Spot-information for tourists by location-based information. The multimedia share system can recommend multimedia contents (tourism information) to tourists, using location information. In addition, tourists can upload multimedia contents to the tourism information library using the system. This paper describes the multimedia share system to provide Spot-information for tourists by location-based information.

KEYWORDS

Tourist-information, Spot-information, Location-based information, Multimedia, Word of mouth information

1 INTRODUCTION

The Japanese government implements the policies and measures described below in Tourism Nation Promotion Basic Plan[1] which was enacted in 2012. Tourism Nation Promotion Basic Plan describes the need to use information technology. Especially, it describes the promotion of exploitation of the internet, information devices, and IC card for provision of Tourist-information.

Yasumura[2] and Ichikawa[3] said Tourist-information was classified into three types, Pre-information, Spot-information, and Post-information. Pre-information provides some motivation for someone to go on a trip. Pre-information provides information of eating facility, means of transportation, information of accommodation, information of amusement facility, and so on. Spot-information is the information transmitted from a wide variety of media, guidebooks, websites, blog, tweet, and so on. Tourists who got Spot-information record these memories of the trip as Post-information. Spot-information is also transmitted from a wide variety of media, albums, websites, blog, tweet, and so on.

In tourism, many tourists travel to the unfamiliar place, and want to get Spot-information. Almost all of the information is provided by a local government. However, a local government provides similar and formal tourist-information to all tourists without considering the individual characteristic, and it cannot match with tourists needs. According to the result of Consumption Trend Survey for Foreigners Visiting Japan[4] that was conducted by Japan Tourism Agency, “search site” (29.8%) and “personal blog” (21.1%) have
been used as useful information. The survey[5] of Japan Travel and Tourism Association reported the most important information was the word of mouth information which is provided by other tourists, and the percentage is increasing year after year. The results of these surveys show that it is important to provide word of mouth information for tourists through multimedia in the tourist-information.

This paper describes development of a multimedia share system to provide spot-information for tourists by location-based information. Section 2 describes related works. Section 3 describes tourism information library. Section 4 describes multimedia share system. Section 5 describes conclusion.

2 RELATED WORK

There are some studies about Spot-information by location based-information. Noguera[6] had developed a mobile 3D-GIS hybrid recommender system for tourists. Chu [7] had developed a tour guiding information system for tourism service using GIS and GPS techniques. These systems can provide Spot-information to tourists using location information. However, these systems provide only formal information, and it does not include word of mouth information which is provided by tourists. We developed the system which can provide word of mouth information for tourists using multimedia and location-based information. Our system can provide tourists various kinds of contents generated by users, including pictures, movies, text and so on. Therefore, our system differs from these studies.

3 TOURISM INFORMATION LIBRARY

The tourism information library is a database that stores tourism information as a multimedia (video, picture). The tourism information library is constructed from a metadata and the tourism information. The metadata is data that describes the information related to the tourism information. Figure 1 shows the relationship between tourism information and metadata. In the tourism information library, there are many tourism information which have been granted by metadata. The metadata consists of 「Title」, 「Content」, 「Thumbnail」, 「Latitude」, 「Longitude」, 「Registration Date and time」 and 「Update Date and
time」. 「Title」 is title of tourism information. 「Content」 is contents of tourism information. 「Thumbnail」 is thumbnail of tourism information, 「Latitude」 is latitude where a multimedia content was taken. 「Longitude」 is the longitude where a multimedia content was taken. 「Registration Date and Time」 are date and time when tourism information was registered in the tourism information library. 「Update Date and Time」 are update date and time when you edit the tourism information.

The followings are shown the process to save multimedia contents(tourism information) and metadata to the tourism information library.
1. Taking a multimedia content using a smart phone or tablet devices which have GPS function.
2. Upload a multimedia contents which was taken in Step1 to the tourism information library.
3. Get location information from multimedia contents which have been uploaded in Step2.

4. Register multimedia contents with metadata to the tourism information library.

4 SUMMARY OF THE MULTIMEDIA SHARE SYSTEM

Section 4. describes the multimedia share system using tourism information library. Figure 2 shows an overview of the multimedia share system. The multimedia share system consists of the tourism information library, share support application and share support server. The tourism information library saves tourism information and metadata. The share support application has registration function, search function and viewing function. The share support server can send and receive tourism information between share support application and tourism information library. This system provides appropriate tourism information using the location information.
4.1 Share Support Application

The share support application has registration function, search function and viewing function. The registration function sends 「Tourism information」, 「Title」, 「Content」 and 「Thumbnail」 to the share support server. Figure 3 shows the tourism information registration screen. 「Title」 describes an information that can be uniquely identified information such as festival name and historical building name. 「Content」 describes a video explanation. 「Thumbnail」 selects impressive place in tourism spots. 「Tourism information」 selects a video which was taken in tourism spots. After entering an information in the form, click the "Send" button. The content is sent to the share support server.

The tourism information search function recommends tourism information to tourists using tourist's location information through a portable device with GPS function. Figure 4 shows tourism information search screen. The tourism information search screen displays a map and a search button. The map displays red pins which expresses all of tourism information in the tourism information library and blue dot which expresses learner's current position. The
red pins have information windows and it can be displayed by touching red pins. Each information window has 「Title」, 「Thumbnail」, 「Content」 and watch button. Figure 5 shows tourism information search screen when search button is pressed. When search button is pressed, current latitude and current longitude of a portable device are sent to the share support server. Then, define following 4 points. (current latitude-0.003000, current longitude-0.003000), (current latitude-0.003000, current longitude+0.003000), (current latitude+0.003000, current longitude-0.003000), (current latitude+0.003000, current longitude+0.003000). These points express a range within about 1km radius from current position. If tourism information exists in enclosed 4 points, a search result window is displayed. The search result window has 「Title」, 「Content」 and watch button. When the tourist presses the watch button, the tourism information search function transmits tourism information to the tourism information viewing function. The tourist can view tourism information using tourism information viewing function. Fig.6 shows tourism information viewing function. The tourism information viewing screen displays 「Thumbnail」 and 「Title」. It is possible to play the video by pressing the play button.

4.2 Share Support Server

The share support server has registration function, tourism information acquisition function and current location acquisition function. The tourism information registration function registers tourism information and metadata to the tourism information library (database). Table 1 shows an overview of the database. 「ID」 is uniquely identifies information of the tourism information. 「Title」, 「Content」, 「Video_path」 and 「Picture_path」 show an information that are inputted and selected in the tourism information registration screen. 「Latitude」 and 「Longitude」 are acquired from current location acquisition function. 「Registration Date and Time」 is date and time when you registered to the tourism information library. 「Update Date and Time」 is update date and time when you edit the tourism information. The tourism information acquisition function gets the tourism information and metadata in XML format from the tourism information library. Figure 6 shows metadata expressing in XML format that is registered in the tourism information library.

5 CONSLUSION

This paper described development of a multimedia share system to provide Spot-information for tourists by location-based information. Using our system, tourists can get
Spot-information through watching multimedia contents which are provided by other tourists.

REFERENCES

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