Collection of users' needs using Google Maps and mobile-phone for park management

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Introduction

In recent years, it seems that functionality requirements of city parks are changing with the background of the environmental problems besetting us, diversification of values among the people and recreational activities. Currently, managing staff of Kairakuen Park have an assignment of collecting and using users' needs of a City Park, and an assignment of using word-of-mouth information based on empirical information for a sightseeing area. Meanwhile, the concept of Web2.0 is gradually becoming popular; there is a structure that enables information gathering in real time and beyond the area. Therefore, in this study, we have created the word-of-mouth information sharing system in Kairakuen Park and considered its effectiveness. Moreover, we have implemented the system capable of being used from Mobile Phone with GPS, focused on real-time information sharing. This study investigates the technique of using a web system over existing the questionnaire survey as a means for collecting users' needs.

Study area

Kairakuen Park is a Japanese garden located in Mito city of Ibaraki Prefecture and one of the three most famous Japanese gardens across the country.
Now it has a total area of 300 hectare, and it is world's second largest park adjacent to the urban district, following Central Park in New York. Visitors can enjoy this vast area in a relaxed manner, and people of Mito city use it as a recreational place in their daily life without reservation.

Methods

We created the word-of-mouth information sharing system for collecting many users' needs. At first, we took word-of-mouth information sharing of positional information and the acquisition of photographic imagery of location posted to show the real-time spread of information. Therefore, we used Google Static Maps API and mobile-phone with GPS. This API enables us to get the acquisition of a map image using mobile-phone. Therefore, we created this system to make it possible to get user's comment, photographic imagery and positional information at the same time.
The content of the word-of-mouth information is many complaints and requests and fascination about the park by users' experience using mobile-phone. In this study, we tested the word-of-mouth information sharing system on other people at Kairakuen Park.

Structure of the system

This system is compounded over computer networks from portable terminal like mobile-phone and GPS service of docomo, Google map server and our own laboratory server with a database and this system.

Figure 1 shows structure of the word-of-mouth information sharing system. Figure 2 shows screen transitions for posting locational information using a mobile-phone.
1. Access to park information posted by park user in the past
2. Acquisition of positional information by GPS docomo survice
3. Post comments and photographic imagery
4. Access to photographic imagery posted

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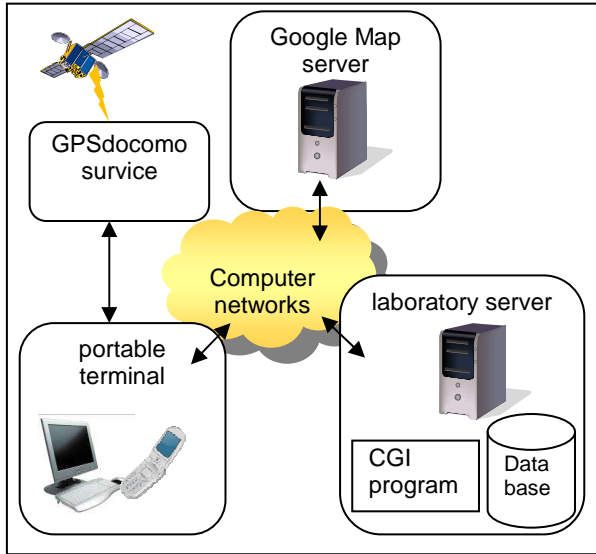
Figure 1 Structure of the system

Figure 2 Screen transitions using mobile-phone

Result

In the past, we conducted survey on utilization of Kairakuen Park using questionnaire survey in December 2006. The number of respondents was 106 peoples. This questionnaire survey got a lot of users'needs. Figure 3 shows scene of questionnaire survey with interview in Kairakuen Park. Table 1 shows a part of lists of users' needs. The traditional way like a questionnaire survey could only record park user's comments.

Figure 3 Scene of questionnaire survey

Table 1 A part of lists of users' needs using questionnaire survey

Survey in December 2006
Questionnaire method is Interview
Users' needs in Kairakuen Park
keeping things as they are
increase in toilet
increase in rest facilities
increase in trash bin
increase in spaces to play for children
increase in car parking space
increase in night lighting
understandable guideboard
cleaning of dog deposit
progress on the public manners
progress on water quality
device for PR activity
and so on

We tested the word-of-mouth information sharing system on other people at Kairakuen Park in January 2009. The number of respondents is was people. Figure 4 shows scene of survey and Table 2 shows a part of results collected information using this web system with mobile-phones in Kairakuen Park.
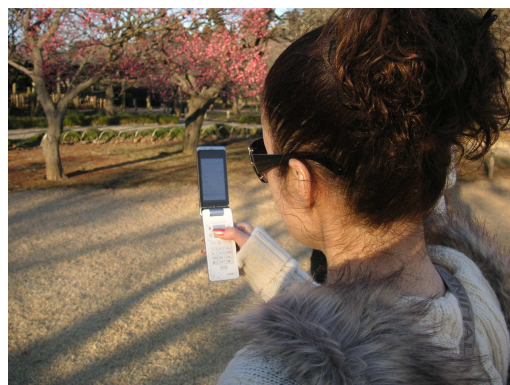

Figure 4 Scene of using this web system with mobile-phone

Table 2 A parts of lists of users' needs using web system with mobile-phone

Dates	Positional information	Photographic imagery	Comments
16-Jan			I want the vending machines here.
16-Jan			I want a door here because toilet can see in full view.
25-Jan			Plum trees aren't now in full bloom.

According to the results of table 2, this word-of-mouth information sharing web system can get user's comments, photographic imagery and positional information at the same time by computer networks and real time. It was just about the opposite to the traditional way of information collecting such as questionnaires according to table 1.

In the future, Mobile Phone with GPS will make various services available to for park management. I think we have to do all kinds of things to make a senior-friendly web system, for example considering, color shade and word size, number of times of clicking and so on.

Moreover, I think we have to cooperate with Kairakuen Park manager, Ibaraki Prefecture, to increase the availability of this web system.

Acknowledgement

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Google Static Maps API : Google

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