Implementation of information sharing on a Hazard Map Creation Support System in a Traditional Local Town

Shun Kozaki*, Yasuhisa Okazaki*, Hiroshi Wakuya*, Nobuo Mishima*, Yukuo Hayashida*, Byung-Won Min**
*Saga University, Japan, **Mokwon University, Korea

ABSTRACT

This paper describes Web-based information sharing mechanism in our hazard map creation support system. This system aims at collecting the unique information received from residents and raising resident's consciousness to disasters by recording hazardous locations where residents feel danger in case of disasters. We have implemented a mechanism to share and integrate data of each terminal through a Web server. We expect that this information sharing effects scalability and usefulness of our system by utilizing collected local hazard information of each district.

Keywords: disaster prevention, hazard map, traditional town, information sharing, risky location

1. Introduction

We are developing a hazard map creation support system in a traditional local town[1][2]. This system is an iOS application. Application development environment is Xcode and programming language is Objective-C. A database in iOS tablet-type device is SQLite.

This system shows information of location that residents feel danger in case of disasters. That information is recorded by residents. We have designed our system to collect the unique information because residents input information themselves. We expect that residents have higher knowledge of disasters and deeper awareness and disaster prevention.

Our system is composed of a user type screen, a map screen, a positional information screen and an information registration screen. The map screen displays risky locations stored in a database and the present location of the user acquired by GPS(Figure 1). The balloons point to the risky locations. The photograph of the location is included. A user can watch the information (a disaster type, a risk level, comments) of the location by tapping the balloon(Figure 2). On a positional information screen, users designate the location that users feel danger(Figure 3). When a user registers information, at first user drags a pin with a positional information registration screen and appoints a risky location. Then the position data that the pin points at is handed to the next information registration screen. On an information registration screen, this system saves information such as a disaster case, the photograph of the location and risk level in SQLite of tablet-type devices(Figure 4).

Saved information is displayed on a map screen.

Figure 1. Map screen
Figure 2. The balloon on Map screen
Figure 3. Positional information screen
Figure 4. Information registration screen
The information taken the tablet-type update information 5). Each tablet-type device gets that file. Received information is overwritten before saved information in SQLite of tablet-type device.

As a result, we have been able to control integrated information in the Web server and share same information among tablet-type devices.

3. Conclusions and future works

We have implemented a mechanism to share and integrate registered information among terminals through a Web server. As a result, we have been able to control information. We expect that the implemented mechanism effects scalability and usefulness of our system by utilizing collected local hazard information of each district.

The future work includes improvement of the quality of information by living the authority of modification, merging and deletion of information provided by the system. After implementing these functions, we are going to apply our system to demonstrate usability of our ICT-based modern approach of community-based disaster prevention and mitigation.

Acknowledgement

This study is supported by the funds of Japan Society for Promotion of Science (JSPS) and National Research Foundation of Korea’s (NRFK) bilateral Joint Research Projects during 2014 to 2016. We would like to thank all who understood and cooperated our on-site field work. We also wish to appreciate valuable discussions and comments with project members.

References
