

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

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## 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

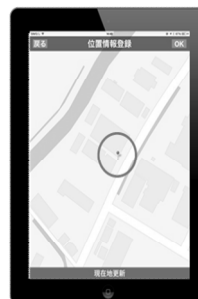


Figure 3. Positional information screen

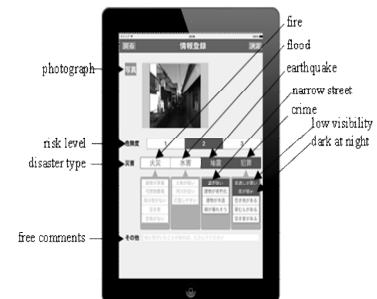


Figure 4. Information registration screen

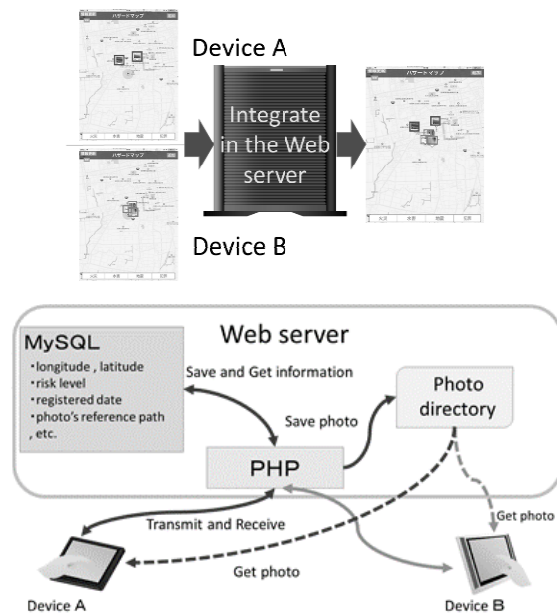


Figure 5. Integration of information Figure 6. Flow of information

This system is a standalone. We controlled the information of the each terminal separately because this system didn't have the mechanism that integrate and share information received from residents. We expect that we are easy to control information by integration of information in terminals. Also residents have deeper awareness of disaster prevention by sharing information among residents. From the above, we have implemented a mechanism that integrate data in a Web server and share information among each device.

## 2. Implementation of information sharing mechanism

In this paper, we have been able to share and integrate information of each device on a Web server. The device gets the latest data, after the information of each device was integrated in the Web server(Figure 5). As a result, our system have been able to share the information among devices.

This mechanism is available to tap the information update button on the map screen in this system. Then user tap the button, saved information in SQLite of tablet-type device is sent a designate PHP program on the Web server(Figure 6). This sent information is taken off the information sent before. This sent information is saved in MySQL in the Web server. The photo data is sent a directory in the Web server and the reference path of photo data is saved in

MySQL. Consequently, information is collected from each tablet-type device and integrated in the Web server. The integrated information is output as a JSON file. 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 fiving the authority of modification, merngence 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 modem approach of community-based disaster prevention and mitigation.

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## References

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