
An Application Design for Disaster Information Alert based on GIS using Iphone

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아이폰을 이용한 GIS 기반 방재 정보 어플리케이션

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ABSTRACT

In recently, we are utilizing the Smart phone in a lot of fields. Thus the personal developers and companies developed the smart phone application and utilize it for disaster information system and disaster alert service.

Utilization of Iphone applications as disaster information alert is currently not popular. And, the existing Iphone application only has very few features. So, a powerful iphone application of disaster information collection and service based on GIS is very necessary for users.

요 약

현대 사회에서는 많은 분야에 스마트 폰이 활용되고 있다. 따라서 개인 개발자 또는 회사에서 스마트폰 어플리케이션을 개발하고, 재난 정보 시스템과 재난 방지 서비스를 활용하고 있다.

재난 정보를 아이폰 어플리케이션을 통해 이용하는 것은 아직까지 드물다. 그리고 기존의 아이폰 어플리케이션은 단지 매우 제한된 양의 기능을 가지고 있다. 따라서 사용자들에게 강력한 재해 정보 수집이 가능한 아이폰 어플리케이션과 GIS 기반 서비스가 매우 필요하다.

Keywords

GIS, iPhone, Smart phone, Disaster

I . Introduction

In recently, our society suffered huge financial losses because of various disaster. So, Government or disaster organizations are endeavoring to establish more systematic disaster prevention to reduce[1].

If citizens are provided with information more

early, they will be able to prepare preemptive response to disaster. In addition, modern society is smart society. Most of peoples using smart phone. So, a application between smart phone and disaster information control system is necessary for users[2][3]. This paper presents a design for a iPhone application and supply the disaster informations service better and faster.

II. Related Work

For now, the first duty of the government is security and safety of all the citizens. Governments of many countries have set up disaster information service system on how to reduce the loss. Citizens can using internet web site and access disaster information and other early warning information. And, most of the information is served on a real-time map information application, geographical position can be identified more easily[4].

So, the application has been installed in mobile phones and received the early emergency warning information using location based service or cell broadcasting service.

For example, in the Republic of Korea, an iPhone application for disaster information service has been developed by Seoul disaster organization; In the United States, the Department of Homeland Security is trying to construct a disaster warning system using Social Network Service[5][6]. The Pacific Disaster Center develop an iPhone application for disaster alert, the application can provides a listing and an interactive map of Active Hazards occurring around the globe. Additional hazard information can be viewed and shared[7].

So far, a great deal of iPhone application is simplistic. So, this paper presents a design for an application based on GIS using iPhone, and, it can provide additional function such as disaster searching based on keyword or the location of latitude and longitude and so on[8][9][10].

III System Introduction

Figure 1 express the structure of the application system in this paper. This system is split in 4 groups: user, application modules, web service and database server. This system using modules of user interface and service to collection disaster information, and it also can added to disaster information from users and system administrator. This application can quickly transmit all kinds of disaster information to the proposed system.

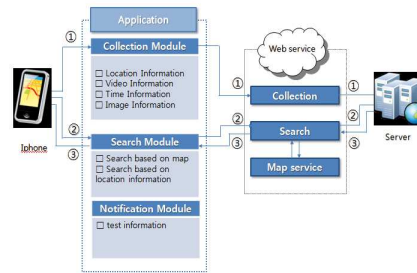


Figure 1. disaster system structure

- 1) Disaster information collection and transmission service
- 2) Disaster information search service
- 3) Disaster information alert service

The disaster information from the database is the most important element. The structure of disaster information transmission can be seen in Figure 2. Disaster information system and Google Map is done using Map API. The map show information such as location, time, date, and images. By using this application, users can see disaster marks on the map. If users touches the marks, more detailed disaster information will be displayed. Such as photos, date, location, time and so on. The application including two parts: the map application and user interface. In addition, applications are easy to link with other systems and services, because of the service transmission type is based on web. As previously stated, if users search disaster information, the service can provide more emergency disaster information to the users. Users also can transmits disaster information to the server system. And, the administrator will check on the information, creates new disaster information, and share the notification information to the iPhone users. In addition, the web server provides service based on GoogleMap API. Then, the application can find the current location of the user.

Generally speaking, the server receives emergency disaster information, and analyses the information for veracity. If the disaster information is verified, the server transmits a information in a message to the application of iPhone users.

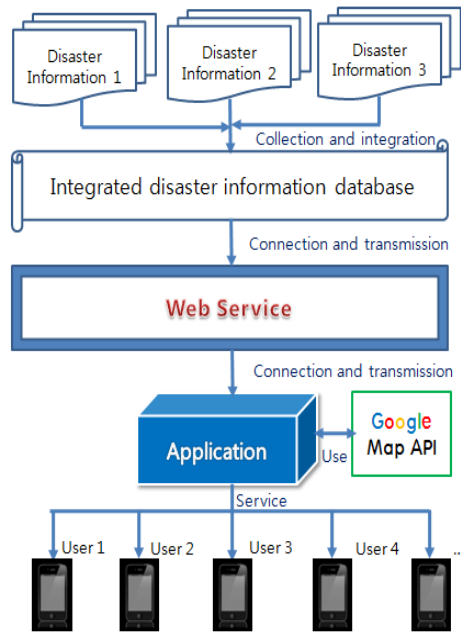


Figure 2. disaster information transmission structure

IV Conclusion and Further Research

This paper proposed a new way to inform citizens about disaster information. We considered an information system based on GIS for iPhones to be able to display all kinds of information on a iPhone screen.

Future research include using SNS technology to collect information about Twitter and Facebook, and a daily information on disaster history, and trying to find a better way of evacuation road

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