Advanced Science and Technology Letters
Vol.51 (CES-CUBE 2014), pp.56-59
http://dx.doi.org/10.14257/astl.2014.51.13

A Study on the Provide Method of Personalized Farming Information Using Public Data

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Abstract. It is possible to improve productivity by processing customized data by including the necessary tag elements and log information through personalizing public data such as climate data, crop cultivation related data, etc. This study developed a system to push customized data that combines cultivation information of selected crops with the local climate forecast by using LBS services of personal smart devices.

Keywords: Public data, RSS, XML parsing, Open data

1 Introduction

With the wide-distribution of smartphones, those contents worth being utilized in the field of personal information provision through location based services are emerging. Since the institutes producing public data or information are producing and passing data in real time suitable for each purpose, users can now extract, process and utilize necessary information in accordance with their use environment.

This study aimed to provide user-customized data by combining the climate information provided by the National Weather Service and various real time information on crop cultivation, disease and insect pest, etc., which are produced at the Rural Development Administration.

2 Related research

As for the existing information as to public infrastructure, it is being provided in the form of raw data through Internet so that citizens can process the information when necessary. Most notably, the weather forecast data of the National Weather Service is opened to general public so that it can be subscribed as special news and then transferred to individuals [1]. Such weather data can be connected with the localized data by forecast per time and region, and then the weather forecast required for the

ISSN: 2287-1233 ASTL

current location can be provided in real time [2]. In addition, if an individual or institute obtains a legitimate right, then the national knowledge portal search service, which is being served based on the national knowledge established through the cooperation with the national knowledge provision institutes, will allow them to utilize it freely using Open API [3] .

The Rural Development Administration is providing a variety of farming information services through Open API. Also, many government agencies such as Korea Information Center for Agriculture, Forestry & Fisheries are providing a lot of related information. This information is provided in the form of XML and this can be subscribed through RSS (Rich Site Summary). The data delivered from XML can express necessary information for users by parsing the result values after configuring and acquiring the pre-defined necessary tags [4].

3 Design of system

To select necessary tags through the production of public data in the form of XML and receive real time information through those tags, the server was configured by including the Open API of the National Weather Service, the Rural Development Administration, etc. The server was parsed and processed so that it could be expressed as a response type by HTML5 using the external API required for farming. The parsed data is to be provided after reading the crops of interest and GPS information suitable for users by using the pre-defined log information DM of users. Figure 1 represents the parsing and processing process of data.

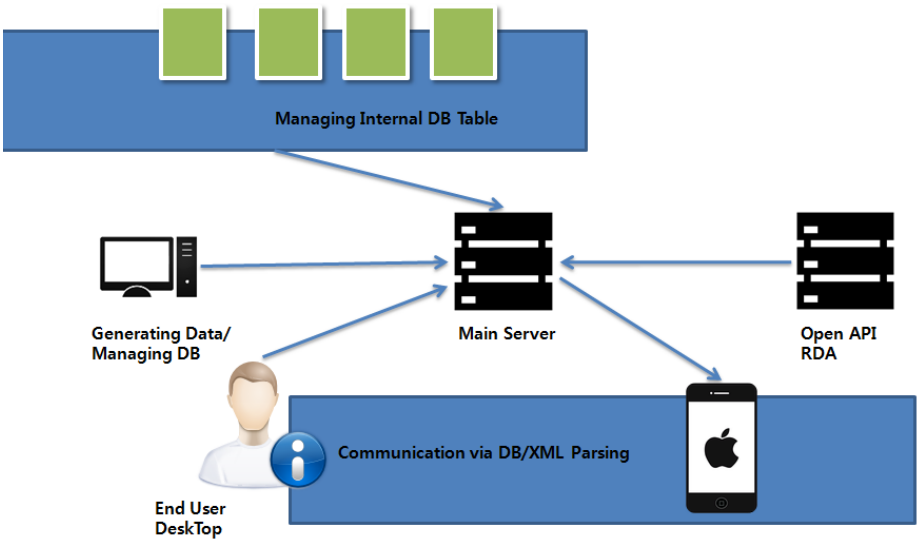

Fig. 1. The parsing and processing process of data

The below Figure 2 represents a diagram to provide the personalized custom data by combining each Open API information.

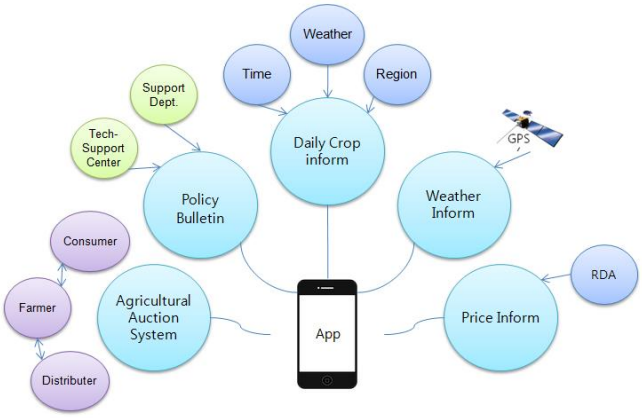

Fig. 2. Open API provided from the Rural Development Administration

Table 1 represents the Open API provided from the Rural Development Administration; the parsing is to be provided in conjunction with the character set after receiving the required API Key.

Table 1. API information of National Weather Service and Rural Development Administration

API functions	Contents
Daily work method information for each crop	Crop and product item information, classification of technology information for each crop, list of technologies for each crop, detailed information of technology per crop
Weather information	Providing of climate data
Disease and insect pest information	Open API for occurrence information of disease and insect pest provides occurrence information of disease and insect pest that is classified into forecast, caution and warning.
National production quantity and market price information per period/crop	Possible to adjust crops to be cultivated through the national production quantity and market price in accordance with the period per crop

The village forecast of the National Weather Service provides climate related data in the interval of three hours. Users set the current location of the location of cultivation region along with the crops of interest after confirming the log information. The personalized data was designed and implemented so that it can be displayed on screen or pushed as shown in Figure 3.

4 Conclusion

This study researched and implemented the personalized farming information provision method through RSS. Through utilizing the climate data and cultivation related information to be provided in real time as for the cultivation of agricultural crops of interest, the optimized farming information was produced and the system was designed and implemented to cope with a variety of climate situations.

It is planned to conduct a study on real time provision of information suitable for tourism, cultural events, outdoor activities, etc. in addition to farming information.

Acknowledgements. This work was supported by a grant from 2013 Joint-industry-academic Research Fund of SMBA, Korea.

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