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Chapter V

A Ubiquitous Agent-Based Campus Information Providing System for Cellular Phones

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Abstract

In this chapter, a campus information providing system (CIPS) for cellular phones is proposed. By using this system, the search time to find the necessary information in the campus is reduced. Users can access the system using the cellular phone terminal and by clicking the links or by inserting a keyword in the form they can get easily the campus information. The system has four agents, which deals with Web information required by users, Net News, the student's login state, campus navigation and the filtering of the received campus information for cellular phone terminal.

Therefore, the proposed system can provide different media information to a cellular phone. By using the proposed ubiquitous system, the users are able to get the information anywhere and anytime. The system performance was evaluated using a questionnaire. From the questionnaire results, we found that the system was able to show the required information.

Introduction

Presently, the number of cellular phone users is increasing at a very fast rate. They have Internet access from their phones and have access to many different kinds of information (ZDNet, 2001). By using the cellular phone, it is possible to get various services such as everyday life information, money exchange rates, databases, games, and music distribution. NTT DoCoMo has already started a service called IMT-2000, which is an international standard of the mobile communication systems and can be used all over the world (NTT DoCoMo, 2003). Therefore, a lot of information can be handled using the cellular phone.

Now, many universities have their own campus information on their homepages and the students by using homepage, e-mail, Net News, campus bulletin board can get a lot of information (Fujii & Sugiyama, 2000; Kubota, Maeda, & Kikuchi, 2001). However, the logging in a terminal, starting to work with a personal computer (PC), or going to see a bulletin board takes a lot of time. Also, getting information by starting a browser and typing a command such as "mnews" it will take time because two or more systems should be used. Therefore, getting the information by using only one system anywhere and anytime will decrease the number of operations and will save more time for users.

In order to solve these problems, we propose campus information providing system (CIPS). This system supports a user which acquires the campus information. By using the cellular phone, the user is able to get the information anywhere and anytime. The proposed system is implemented by the common gateway interface (CGI) and consists of four agents (Hattori, Sakama, & Morihara, 1998). The Web information agent (WIA) gets the information on Web databases, such as a timetable, examination schedule and syllabus information. The Net News agent (NNA) gets the information on Net News, such as newsgroups of the university. The Personal Information Agent (PIA) can search the information of a vacant terminal or the users who login. The navigation agent (NA) navigates a room in the campus. Using these agents, the proposed system can provide different media information for the cellular phone. When a user wants to get the information using the proposed system, the system gets the information and filters it in order to optimize the information for cellular phone.