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Before me

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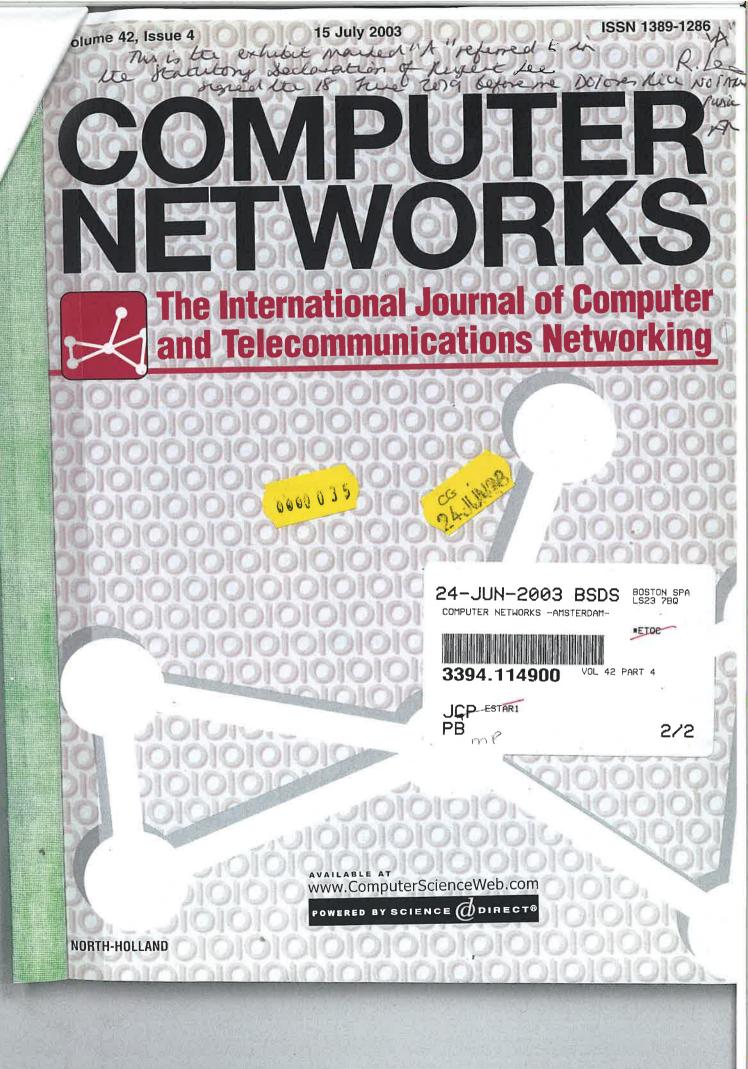


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# System integration of WAP and SMS for home network system

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Department of Computer and Information Science, National Chiao Tung University, 1001 Ta Hsueh Rd., Hsinchu 30050, Taiwan Received 12 October 2001; received in revised form 16 December 2002; accepted 1 February 2003

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#### Abstract

This paper proposes a Home Network System (HNS) architecture integrated with Wireless Application Protocol and Short Message Service to support the connectivity between home and Internet/Global System for Mobile Communication (GSM) networks. The HNS architecture includes an HNS gateway and three home network subsystems, i.e., home appliance, security and messaging subsystems. The main objective of the integrated system is to remotely monitor and control the devices in the HNS via laptop computer or a GSM mobile terminal. In addition to responding to remote queries, the managed devices (e.g., home appliances or burglar alarm system) can actively send alerting messages to a mobile terminal when an abnormal state occurs. Through the HNS gateway, the monitoring and control information is diffused to the Internet/GSM network. An implementation of the HNS system is described in this paper as an illustration of the feasibility of the proposed architecture.

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Keywords: Home networking; Wireless application protocol; Short message service

#### 1. Introduction

In recent years, interest in home networking has increased significantly due to technological innovations and market forces. Improvements in microprocessor computing power and memory capacity, associated with decreasing costs, have ensured their widespread use. In addition, the development of the Internet has engendered new ideas for living and working that utilize every facet of technology. Many of these ideas offer achievable means of in-

tegrating information, processing and control for every individual user and device.

In order to utilize appliances efficiently and effectively and to increase comfort in the home, a Home Network System (HNS) is proposed. HNS is a small network that allows the connection of computers, audio and video equipment, washing equipment and home automation subsystems (e.g., heating and air-conditioning systems, lighting systems, etc.) in an integrated, cooperative environment designed to increase comfort and ensure the sharing and management of home resources as well as the provision of new, enhanced services.

Several specifications used in home automation already exist, including Consumer Electronic Bus (CEBus) [1,2], European Home System (EHS) [3,4],

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