Design and Implementation of an Effective Mobile Healthcare System Using Mobile and RFID Technology

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Abstract - In preparation for the imminent opening of the health care market, hospitals are focusing on developing medical services that can differentiate themselves. In order to achieve such goals, we have designed and implemented a system that can provide next generation health care services by implementing RFID and web service technology, as well as mobile technology. This system will provide improved health care services such as 1 on 1 services to patients regardless of their location and time and it will also prevent the issuing of false prescriptions, which is a major systematic problem in Korean health care system.. The system suggested in this thesis will provided features that will allow easy implementation of the RFID technology in various health care tasks, while allowing existing health care systems to scale to a ubiquitous environment without having to change anything.
Index Terms – Health Care, Web Service, Mobile, Radio Frequency Identification (RFID), Wireless Internet Platform for Interoperability (WIPI), Short Message Service (SMS)

I. INTRODUCTION

Ubiquitous computing environment allows a user to connect to a network from anywhere, without any consideration for the network or computers[1]. Until now, health care services could only be provided within the physical space of a hospital. Ubiquitous computing environment will extend the reach of medical services to common environments.

Based on this, medical service providers can provide remote diagnostics services where patients can send their medical information through various communication channels[2]. But remote medical services require frequent check up on the clients' health and the information can only be provided in limited areas.

Also, the prescription system currently being used in Korea has a systematic problem because it allows for false prescriptions to be issued for the purpose of illegitimate billing.

In this thesis, mobile devices have been used to extend the connectivity to all ubiquitous environments, so that when there is an unusual symptom or when the patient visits the hospital, the RFID technology automatically recognizes the patient and provides direct 1 on 1 services in the form of SMS (short message service)[3].

Also, web technology has been applied so that pharmacists can use prescription codes stored in the RFID tag in order to solve the systematic problem of illegitimate billing for medical services. [4]

II. GOALS AND SCOPES

2.1 Goal and scope of the suggested system ·

This thesis proves an improved medical service based on the following goals.

● This is not a system designed for a specific disease. This system can use medial devices owned by most patients.
● This system can be used in all mobile phones using CDMA system.
● This system provides an intelligent, interactive medical service to the patients regardless of time and location.

Based on above goals, the system suggested here has been designed to provide remote medical services for a variety of diseases and by using RFID technology, the hospital system can automatically recognize the patient and initiate an interactive service. Also, Suggested system provides enhanced medical services for the Dept. of Medical Information System at Sahmyook Nursing and Health College, Seoul Adventist Hospital and remote medical service patients. The following diseases are covered.

● Diabetes
● High blood pressure