

Iot-Based Interactive Patient Identification and Safety Management System

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Abstract : We believe that it is possible to provide a solution to reduce patient safety accidents by displaying correct medical records and prescription information through interactive patient identification. Our system is based on the use of smart bands worn by patients and these bands communicate with the hybrid gateways which understand both BLE and Wifi communication protocols. Through the convergence of low-power Bluetooth (BLE) and hybrid gateway technology, which is one of short-range wireless communication technologies, we implement 'Intelligent Patient Identification and Location Tracking System' to prevent medical malfunction frequently occurring in medical institutions. Based on big data and IOT technology using MongoDB, smart band (BLE, NFC function) and hybrid gateway, we develop a system to enable two-way communication between medical staff and hospitalized patients as well as to store locational information of the patients in minutes. Based on the precise information provided using big data systems, such as location tracking and movement of in-hospital patients wearing smart bands, our findings include the fact that a patient-specific location tracking algorithm can more efficiently operate HIS (Hospital Information System) and other related systems. Through the system, we can always correctly identify patients using identification tags. In addition, the system automatically determines whether the patient is a scheduled for medical service by the system in use at the medical institution, and displays the appropriateness of the medical treatment and the medical information (medical record and prescription information) on the screen and voice. This work was supported in part by the Korea Technology and Information Promotion Agency for SMEs (TIPA) grant funded by the Korean Small and Medium Business Administration (No. S2410390).

Keywords : BLE, hybrid gateway, patient identification, IoT, safety management, smart band

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