Intelligent Packaging and Intelligent Medicine Box for Medication Management towards the Internet-of-Things

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Abstract—The medication noncompliance problem has caused serious threat to public health as well as huge financial waste would wide. The emerging pervasive healthcare enabled by the Internet-of-Things offers promising solutions. In addition, an in-home healthcare station (IHHS) is needed to meet the rapidly increasing demands for daily monitoring and on-site diagnosis and prognosis. In this paper, a pervasive and preventive medication management solution is proposed based on intelligent and interactive packaging (I2Pack) and intelligent medicine box (iMedBox). The intelligent pharmaceutical packaging is sealed by the Controlled Delamination Material (CDM) and controlled by wireless communication. Various vital parameters can also be collected by wearable biomedical sensors through the wireless link. On-site diagnosis and prognosis of these vital parameters are supported by the high performance architecture. Additionally, friendly user interface is emphasized to ease the operation for the elderly, disabled, and patients. A prototyping system of the I2Pack and iMedBox is implemented and verified by field trials.

Index Terms—Medication Management; Internet-of-Things (IoT); In-Home Healthcare Station (IHHS); Wireless Sensor Network (WSN); Controlled Delamination Material (CDM); Radio Frequency Identification (RFID);
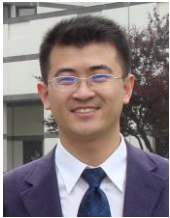
Zhibo Pang received B.Eng. degree in Electronic Engineering from Zhejiang University, Hangzhou, China, in 2002, MBA in Innovation and Growth from University of Turku, Turku, Finland, in 2012, and PhD in Electronic and Computer Systems from the Royal Institute of Technology (KTH), Stockholm, Sweden, in 2013.

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