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Internet of Things (IoT)-Based System for Secure Medicine Dispense

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Abstract. In this document we present an Internet of Things based system to dispense medications (pills or capsules) to authorized persons. It consists of a smart dispenser and a mobile application. The smart dispenser releases the medication after two requirements occur: (1) the time is indicated for the intake of the medications, and (2) authorized person (patient or caregiver) is identified. Identification of authorized persons in front of the dispenser is carried out using facial identification, and in the mobile application using the corresponding username and password. The system was developed following the Test Driven Development Methodology for Internet of Things Based Systems, and the evaluation of this methodology is presented. With this work we try to provide a solution to the unauthorized or incorrect intake of medications, since the system guarantees the release of the medication by the authorized person. In addition, the system has a module to remind the patient (elderly) about the intake of medications, and for the caregiver to find out whether or not the patient has withdrawn the medication from the dispenser. The results of the system evaluation are encouraging.

Keywords. Smart Dispenser Medicine, TDDM4IoTS, Internet of Things, Elderly

1. Introduction

This document provides instructions for style and layout and how to submit the final version. Although it was written for individual authors contributing to IOS Press books, it can also be used by the author/editor preparing a monograph or an edited volume.

Authors should realize that the manuscript submitted by the volume editor to IOS Press will be almost identical to the final, published version that appears in the book, except for the pagination and the insertion of running headlines. Proofreading as regards technical content and English usage is the responsibility of the author.

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Contributed chapter in a book:

Whiteside TL, Heberman RB. Effectors of immunity and rationale for immunotherapy. In: Kufe DW, Pollock RE, Weichselbaum RR, Bast RC Jr, Gansler TS, Holland JF, Frei E 3rd, editors. *Cancer medicine 6*. Hamilton (ON): BC Decker Inc; 2003. p. 221-8.

Book by author(s):

Jenkins PF. *Making sense of the chest x-ray: a hands-on guide*. New York: Oxford University Press; 2005. 194 p.

Edited book:

Izzo JL Jr, Black HR, editors. *Hypertension primer: the essentials of high blood pressure*. 3rd ed. Philadelphia: Lippincott Williams & Wilkins; c2003. 532 p.

Proceedings:

Ferreira de Oliveira MJ, editor. *Accessibility and quality of health services. Proceedings of the 28th Meeting of the European Working Group on Operational Research Applied to Health Services (ORAHs)*; 2002 Jul 28-Aug 2; Rio de Janeiro, Brazil. Frankfurt (Germany): Peter Lang; c2004. 287 p.

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References

- [1] Petitti DB, Crooks VC, Buckwalter JG, Chiu V. Blood pressure levels before dementia. Arch Neurol. 2005 Jan;62(1):112-6.
- [2] Rice AS, Farquhar-Smith WP, Bridges D, Brooks JW. Canabinoids and pain. In: Dostorovsky JO, Carr DB, Koltzenburg M, editors. Proceedings of the 10th World Congress on Pain; 2002 Aug 17-22; San Diego, CA. Seattle (WA): IASP Press; c2003. p. 437-68.