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A Smart RFId Device for Drugs Administration

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In this work is described a device that can be used in hospitals to lower the risk of Adverse Drug Events (ADE) due to the incorrect link between patients and drugs. The device is a container that can be handled by the patient himself of by the caregivers. It is provided with an internal lock that prevents any openings when there is a mismatch between the patient and the drugs inside the container. It is based on passive RFId (Radio Frequency Identification) technology and is designed to give a visual alert if a wrong drug (tagged with RFId) is accidentally inserted, also preventing its administration by locking the top aperture.

The internal RFId reader is designed to read both the patient's wristband and the drugs inserted into the device (provided that they are tagged with RFID): the device will not open if some un-prescribed drug is found inside the container, alerting the patient/operator using the on-board display.

Every single event is logged in an internal memory and can be transferred to a remote information system for analyses, statistics and risk management.

The device is also provided with two status LEDs, a green one and a red one, and with a text display that can show information about the patient's identity, and therapy.

We are now working on the mechanical design and on the development of a management software in order to link the device with CPOE (Computerized Physician Order Entry) systems and with automated drug storage systems.

Biography

Ernesto Iadanza received the M.Sc. degree in Electronics Engineering (biomedical curriculum) in University of Florence, Italy, in 2002. He has academic appointments with University of Florence where he is currently contract professor of "Clinical Engineering" and "Biomedical Instrumentation". He has authored over 70 refereed journals, conference proceedings, and book chapters. He is member of the managing committee for the Master in Clinical Engineering. He is a biomedical consultant in the field of healthcare informatics and medical devices certification. His main research fields are Health Care Engineering, Clinical Engineering, RFId in healthcare.