

Home Care and Domotic Zigbee Network for Telemedicine Applications

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Abstract

A wireless home care monitoring and domotic system for elderly and disable people has been developed. The architecture is based on a local measurement board, automatically acquiring data from commercial noninvasive home medical devices and environmental sensors, connected to a remote main server and updating a medical records' database. A web-based application allows medical doctors and caregivers to consult the records and interact with the system. The domotic subsystem consists of wireline sensors distributed in the patient's home for environmental checking. The biomedical measurement subsystem consists of a wireless zigbee network of electrocardiograph, blood pressure, spirometry, oxymetry, blood glu-

cose, and body composition medical devices. The system constantly identifies a current green/yellow/red patient's status, automatically forwarding related warnings via sms to doctors and caregivers. In the framework of the EU-funded research project Padiamond, a system prototype has been tested on case study of six moderate-to-severe Chronic Obstructive Pulmonary Disease (COPD) subjects with very interesting performance, flexibility and usability, close both to patients and physicians requirements, suggesting further applications to different medical fields.

Keywords

Telemedicine, remote monitoring, wireless sensor networks, ZigBee

Design and Implementation of a Telemedicine Service for the ECG Reporting in an University Hospital

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Abstract

In this work, we present a tele-electrocardiography remote system for ECG reporting that has been implemented at the Federico II University Hospital in Naples. The new telemedicine system has modified the organization of the ECG service avoiding the movement of professional staff among the hospital buildings. According to the new organization, the ECG data are now acquired directly in the hospital department where the patient is hospitalized and after the acquisition are sent, via intranet, to the Central Advisory Service of Cardiology for the report-

ing activities, it is not necessary an internal mail system for the ECG delivery. In order to demonstrate the goodness of the new service and organization, we established a set of indicators. The indicators reveal that the new organization guarantees economic advantages, an evident simplifications of the staff activities (communication and logistics) and the reduction of the speed of reporting.

Keywords

Telemedicine, ECG, medical reporting, HCTA