



***Workshop:
Telehomecare and Monitoring***

A Reference Architecture for Telemonitoring

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Abstract

The Telecare Interactive Continuous Monitoring System exploits GPRS to provide an ambulatory device that monitors selected vital signs on a continuous basis. Alarms are sent when parameters fall outside preset limits, and accompanying physiological data may also be transmitted. The always-connected property of GPRS allows continuous interactive control of the device and its sensors, permitting changes to monitoring parameters or even enabling continuous monitoring of a sensor in emergency.

A new personal area network (PAN) has been developed to support short-range wireless connection to sensors worn on the body including ECG and finger worn SpO₂. Most notable is use of ultra low radio frequency to reduce power to minimum. The system has been designed to use a hierarchical architecture for sensors and “derived” signals, such as HR from ECG, so that each can be independently controlled and managed. Sensors are treated as objects, and functions are defined to control aspects of behaviour. These are refined in order to define a generic set of abstract functions to handle the majority of functions, leaving a minimum of sensor specific commands. The intention is to define a reference architecture in order to research the functionality and system architecture of a telemonitoring system. The Telecare project is funded through a grant from the European Commission (IST programme).

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