Pervasive sensing and computing for wheelchairs users health assessment

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Abstract: Optimal cardiovascular, respiratory and motor activity assessment of wheelchair users using modern technologies of pervasive sensing and computing represents the main obj... **View more**

Metadata

Abstract:
Optimal cardiovascular, respiratory and motor activity assessment of wheelchair users using modern technologies of pervasive sensing and computing represents the main objective of the running project. In order to extract accurate information about physiological parameters provided by physical measurement channel and also to estimate additional parameters associated with virtual measurement channels advanced processing algorithms are implemented on embedded computing platform of the wheelchair. Will be implemented ballistocardiography, electrocardiography, plethysmography, skin conductance smart sensing devices that extract the health status information in unobtrusive way. The informations from the smart sensors, as from the localization units based on GPS technology (for outdoor localization) and RFID technology (for indoor localization) are processed on the embedded computing platform based on DSP that also assure the wireless data transmission to the human machine interface (HMI) expressed by a tablet that run mobile OS such as Android or Windows Mobile. A web based information system is used as part of the electronic health record that assure the remote health care assistance of the wheelchair users.

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Contents

I. Context

The socioeconomic burden of chronic diseases that reduces people mobility is considerable. Moreover, in many European countries, demographic developments, social changes and the rising costs of health and social care considering the elderly and population with chronic disease make necessary to rethink care delivery.