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BIOMEDICAL CONNECTED OBJECTS: REAL TIME COMPUTING

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ABSTRACT

In the field of biomedical devices, the main concerns were miniaturization, simulation technologies and implementation, the sensitivity and accuracy of the measurement in vivo conditions. However for better cost management of public health (reducing the time of hospitalization, development of outpatient solutions or home care), in recent years, biomedical connected devices start to be studied.
This involves the integration of biomedical device radio modules with power wireless energy and to connect directly or indirectly to the Internet for telemedicine. The Internet connection in order to transmit biomedical data need to assure data security. The wearable sensors has low power constraints but also low radiation.
In addition, the aging population and increased multi-pathological patients involve the use of multiple sensors interconnected. Data fusion and decision algorithms taking into account uncertainty and imprecision must be adapted to these new applications. The use of the internet connection allow that a part of the algorithm can be executed in the cloud in order to have more computation power.
The access to sensor data (low level or high level) can be done by different devices like PC, smartphones, tablets but the user's rights must be managed.

Between the targets applications of this session, are: biomechanics, medical monitoring of elderly people at home or in institutions, pregnant women with preterm risk monitoring, chronical diseases.