

## IM3

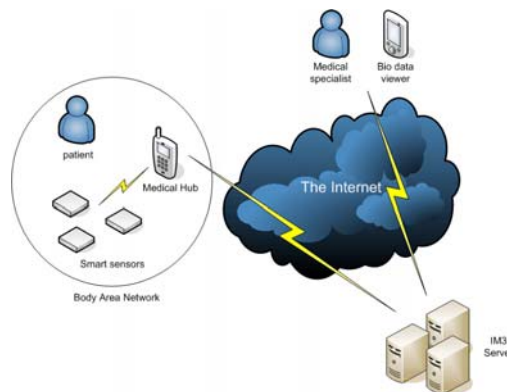
### Interactive Mobile Medical Monitoring

#### Objective

The objective of the IM3 project is the design, development and implementation of a proof-of-concept of a new type of telemedicine and telecare services. The new medical service entails wireless monitoring of vital signs at any time and any place: at home or on the move. This medical service is compliant with industry, legal and security requirements as well as medical standards.

The overall system configuration is illustrated in the figure below. We can distinguish four different areas:

- The *"Patient area"* where a number of wearable sensors are used to monitor the vital signs (e.g. ECG, heart rate, respiration).
- The *"Medical hub"* device (e.g. a cell phone or a PDA) acting as a mediator to collect and communicate the patient data to the 'outside' world.
- The *"IM3 back-end server"*, responsible for the safe storage and handling of all collected data. Appropriate algorithms and event managers will be able to handle a first level of data analysis and interpretation.
- The *"professional caregivers area"*. The caregivers will use a biodata viewer equipped with the necessary software tools to manage the remote follow-up of their patients.



#### Rationale

The medical service environment is currently subject of numerous changes. The future social security system is in the initial phase of restructuring and re-organization due to changing demographics and the related economic aspects. This should result in rationalizing and cost cutting efforts. The IM3 end-to-end services bring a clear added value to this new medical service environment, both to the patient, the medical/care team and to the continued improvement of the health care chain value. The mobile services should also support the patient in a better disease management, contributing to the patient empowerment concept. Additionally the services should address the need for improved care for an ageing population with a society under ever increasing budgetary constraints.

#### Organization

The project will research, implement, validate and bring to life the necessary initial building blocks selected on well-founded user needs and analysis, complying with the multidisciplinary requirements related to the implementation of (new) medical services. The project activities are to be situated in four domains:

- Medical domain
  - Medical application definition.
  - Use case and user interaction analysis.
  - Proof-of-concept definition and validation.

- Technical domain
  - Design, development and integration of all system parts (patient body area network, medical hub, IM3 server, medical back-end area).
  - Development/use of biomedical algorithms and/or intelligent decision software.
  - Development of a two-way communication path between the patient body area network and the medical backend area (interactivity).
  - Development of a distributed security architecture enforcing privacy and data protection.
  - Interface to the Belgian national (B)eHealth initiatives.
- Legal & Social-economic domain
  - Answering key questions related to the regulatory framework and the social-economical aspects of the medical monitoring proof-of-concept and services.
  - Addressing privacy, personal data protection and security policies.
- Health Economics domain
  - Exploring the complex medical service value chain by investigating the relations between the current healthcare stakeholder and the anticipated changes due to these new services.
  - Defining a profitable economic value chain for all stakeholders, including the government.

## Proof-of-concept

The medical client-server sensor data path will be converted into a medical ICT proof-of-concept activity during the second year of the project. For a well defined medical application and a small patient target group a proof-of-concept will be organized resulting in an overall system validation covering technical, legal and medical targets.

Project website

<http://projects.ibbt.be/im3>

In collaboration with



IBBT Research Groups

K.U.Leuven – COSIC	<a href="http://www.esat.kuleuven.be/cosic">http://www.esat.kuleuven.be/cosic</a>
K.U.Leuven – ICRI	<a href="http://www.law.kuleuven.be/icri">http://www.law.kuleuven.be/icri</a>
UAntwerpen – PATS	<a href="http://www.pats.ua.ac.be">http://www.pats.ua.ac.be</a>
UGent – IBCN	<a href="http://www.ibcn.intec.ugent.be">http://www.ibcn.intec.ugent.be</a>
UGent – Medisip-IPI	<a href="http://www.medisip.elis.ugent.be">http://www.medisip.elis.ugent.be</a>
UGent – WiCa	<a href="http://www.intec.ugent.be/wica">http://www.intec.ugent.be/wica</a>
VUB – SMIT	<a href="http://www.smit.vub.ac.be">http://www.smit.vub.ac.be</a>