Titolo (provvisorio): Design and development of a web platform for remotely monitoring and analyzing patient vital parameters via wireless devices.

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Motivazione e campo di applicazione

The IoT is increasingly changing every aspect of daily life. Healthcare, in particular, represents an interesting domain of application for IoT enabling new models of care. The proposed thesis is an attempt to exploit the recent advances in the IoT for Healthcare in order to integrate commercial wireless devices in an innovative project whose implementation requires heterogeneous computer science capabilities.

Obiettivi generali e principali attività

The goal of the thesis is the integration, in an existing web platform dedicated to tele-monitoring, of the specific functions allowing the continuous monitoring of a patient blood oxygen level (SpO2) through a wearable device.

• data acquisition from a wearable device via Bluetooth through a smartphone;
• real-time data transmission to a central server, relying on the platform existing services and implementing if necessary an ad-hoc protocol on top;
• visualization and analysis of the acquired data, including adaptive alerts for the users.

The following activities will be carried out:
• analysis and specification of the requirements, both business-side and technical;
• design and implementation of a solution satisfying all or part of the requirements;
• validation of the solution within a pilot study currently undergoing at Ospedale Galliera.

Obiettivi di apprendimento (strumenti tecnici e analitici, metodologie sperimentali)

The training objectives of the thesis are the following:
• To gain competences in IoT in particular with Bluetooth devices.
• To gain competence in mobile and web app development and user interface design.
• To gain experience with a structured Software Life Cycle Model such as the one used by Camelot, from input requirements to software test and validation.

Informazioni aggiuntive

Abilità e capacità richieste: Mobile & Web applications development Javascript, Java programming, RESTful APIs design, NoSQL database

Numero massimo di studenti: 1