

Student/Intern project**Unobtrusive monitoring of vital signs****Description of the research project**

Unobtrusive monitoring of vital signs is an increasing requirement from the medical community. Biomedical sensors have to be in operation 24/7 in institutions of long-term care (e.g., nursing homes) and in elderly people home.

We propose designing and developing a system for remotely collecting vital signs unobtrusively from patients. The topic of the project is on the analysis and validation of signals received from several IoT based body sensors to continuously monitoring heart rate and breathing rate. It will involve biomedical signal processing to remove noise and then to extract the characteristic points for determining the heart rate and breathing rate. The system will be tested in real-world environment, for example in nursing homes.

Keywords

Internet of Things, Vital signs, Health care, REST API, Android, Swift Sensors, Dynamic and adaptable systems, Real life deployment.

Required skills/background

- Strong motivation towards this challenging project
- Ease in programming (mainly C++, Python, Java, etc.)
- Ease in programming in Android and/or Swift
- Skills in Linux, embedded systems (Raspberry PI, Arduino, etc.)
- Skills in Web services

Role of the student/Intern

This student/intern will be involved in the following tasks:

- Design and implement sensory data acquisition algorithms.
- Development of signal processing algorithms to analyze data from biomedical sensors.
- Design and implementation of a reasoning engine to detect dangerous health situations.

Application

Interested applicants email a detailed CV, transcripts and motivation letter to the lab director. The successful candidate will be contacted shortly after processing the received applications.