

Wireless Body Area Networks for Rehabilitation and Sport

E³DA Unit @ ICT FBK

The E³DA Unit is a novel explorative unit. Our core expertise lies in **miniaturized energy efficient mobile and embedded electronics**, low power digital technology and platforms for **processing, sensing, actuation and communication**.

Research focus is on signal processing, sensor fusion, machine learning with emphasis on optimization on energy efficient **embedded platforms**. We capitalize on this expertise in designing wearable devices, body area networks and wireless sensor networks, smart objects to be applied in different application fields such as human-machine interaction, pervasive health, motor rehabilitation, sports and training.

Applications:

- Personal and personalized e-health
- Individual activity and context recognition
- Embedded systems for smart prosthetics
- motor monitoring and rehabilitation
- human machine interaction in smart spaces and 3D environments
- tangible and natural interaction



More information about the E³DA Unit will be soon available at <http://e3da.fbk.eu/>

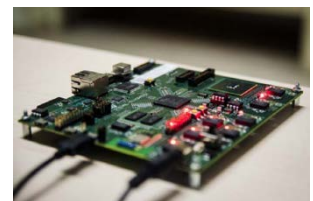


Projects / Thesis / Internship proposals

Several proposals for projects and thesis are available! The objectives of the activity will depend on the time of arrival of the application. The implementation of the project consists of several steps, iteratively checked with the tutors.

Example of skills that will be strengthened during the stage:

- a) Microcontroller programming (ARM)
- b) Body Area Networks with wireless nodes
- c) Ability to capture and interpret sensor signals (inertial and physiological signals)
- d) Android development for mobile and wearable platforms
- e) Study of signal processing algorithms for daily activity recognition, or the extraction of relevant parameters in walking



Requirements:

- to be a student in engineering or computer science
- good skills in programming in Java or C/C++
- previous knowledge of Matlab (or similar tools) for offline data analysis
- some experience in signal processing, use of platform such as Arduino, microcontrollers, sensors, RTOS can be beneficial and are highly appreciated

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