PROPOSAL OF THESIS TOPIC FOR INŻ. (BSE) PROGRAMME IN BIOMEDICAL ENGINEERING

Topic: An electronic system for monitoring physical activity of a person

Topic in Polish: Elektroniczny system do monitorowania aktywności fizycznej osoby

Supervisor: dr hab. inż. Paweł Strumiłło, prof. PŁ

Auxiliary supervisor: mgr inż. Przemysław Barański

Goals and scope of the work:
The aim of the project is to build a dedicated electronic system comprising an accelerometer and data analysis software for monitoring a physical activity of an elderly person. The data acquisition module should be connected through a packet-switched GSM channel to a server, send a daily report about the person’s physical activity and detect alarming events such as person fall (but differently interpret other body brisk movements). The electronic module should consist of:
- a microcontroller for controlling the GSM link and data acquisition from a sensor,
- GSM modem – established a link with the server
- accelerometer, rechargeable battery and a charging circuit

The printed circuit board should be designed with a view of an appropriate housing. To save the costs, the data should be processed by software in the electronic module. The server is a simple application that logs and visualizes data.

Evaluation boards for the modem, the accelerometer and associated documentation will be provided.

The project can be split into two separate BSc projects, one responsible for hardware part (design and troubleshooting) and the other for the software part, i.e. focusing on programming the server and data interpretation.

Prerequisites (e.g. experience in writing programs in a computer language or knowledge of a foreign language):

Basic experience in designing electronic circuitry and PCBs, programming in C, signal processing

Literature:

Shall be provided by the supervisors

Łódź, 2010-07-02 Supervisor’s signature

THESIS TOPIC SELECTION ACKNOWLEDGMENT

Student’s name: _______________________________ Student’s ID ____________

Faculty: ______________________________

Main subject/major/module: ________________________________

Date and student’s signature Supervisor’s signature