

Laboratory of Medical Electronics

A key to future personal monitoring is portability and adaptability. For that purpose it is desirable to record vital signs non-invasively and comfortably for a long period of time. Pulse Wave Velocity (PWV) and the morphology of the pulse wave are considered indicators of arterial stiffness and are also known as (prognostic) markers for cardiac and vascular diseases. In the past various methods and sites have been demonstrated for pulse wave measurements, mostly on carotid and femoral arteries through invasive and non-invasive methods.

The Laboratory of Medical Electronics of the Lübeck University of Applied Sciences has developed portable embedded electronic systems to determine the pulse wave velocity non-invasively. These systems are based on the measurement of pressure changes or bioimpedance changes over time. The electronic systems are a combination of analog circuits with digital hardware components (e. g. μC , DSP, FPGA, ADC, DAC) under aspects of medical safety.

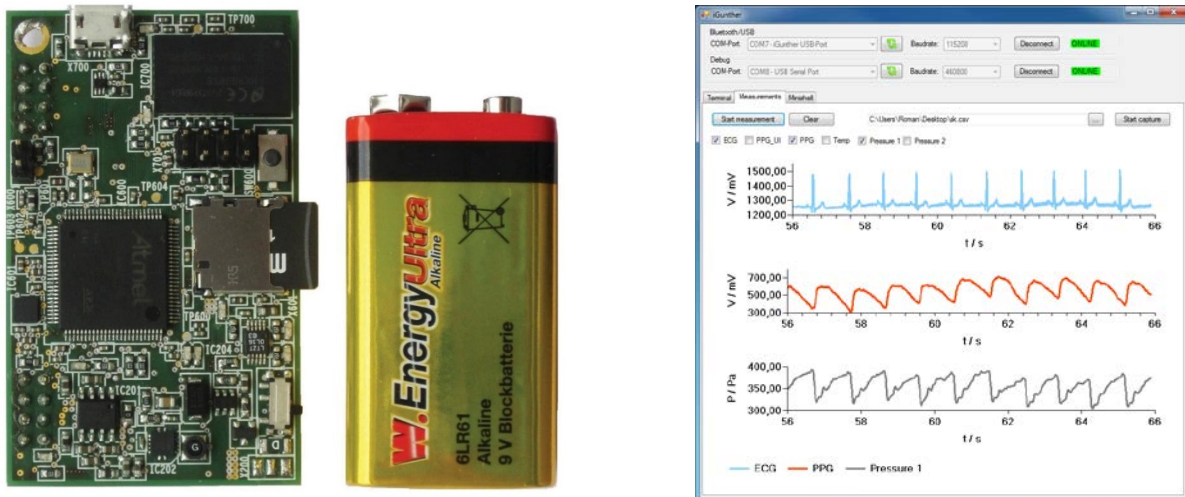


Figure 1. Embedded measurement hardware and screenshot of the GUI for signal analysis

Intern Project

The research internship will take place in the Laboratory for Medical Electronics at the Lübeck University of Applied Sciences. Possible tasks for interns are:

- Hardware development (digital / analog / mixed signal)
- (embedded) Programming (C/C++, VHDL, C#)
- Digital Signal Processing (DSP) with FPGA or MATLAB

Qualifications

- Skills in analog circuit design
- Skills in embedded programming (C/C++)
- Interest in biomedical engineering
- Self-motivated