

Project assignment

BAW 2014 (Brain Awareness Week) competition

Students can send an application to e-mail: bmit_contact@etf.rs before 31st December 2013. Students can work in groups of up to 3 students. Maximal number of competitors is 20.

The winners will have an opportunity to present their project at the BAW 2014 organized by the Laboratory for Biomedical Instrumentation and Technologies at the University of Belgrade - Faculty of Electrical Engineering. BAW 2014 will be held on 14th March 2014. National Instruments Inc. will provide awards for best student's project. The awards are Free Courses (<http://sine.ni.com/nips/cds/view/p/lang/sr/nid/10292>). All competitors will receive free student license for LabVIEW software from National Instruments.

Project:

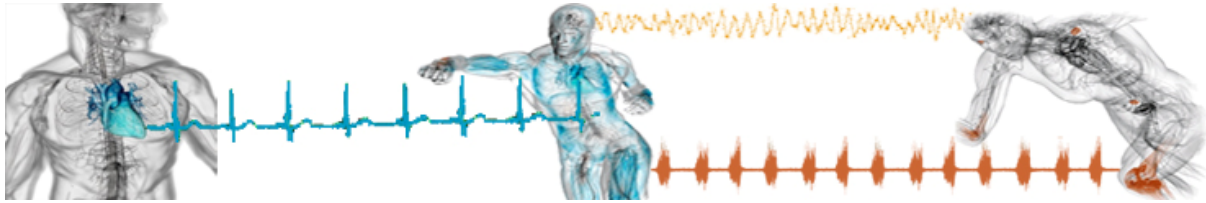
1. Install programs and Toolboxes for controlling NI Lego robot in LabVIEW (National Instruments Inc., Austin, USA).
2. Describe and test basic principles of chosen sensors.
3. Create LabVIEW program for controlling NI Lego robot with chosen sensor. Enable adequate online signal processing of recorded data from sensors.
4. Design protocols for sensor placement.
5. Enable that all relevant data (recorded signals, processed signals and control signals) are recorded in file.
6. **additional task:** Use Ultrasound sensor and LED on NI Lego robot in order to enable additional features:
 - a) when robot walks, the green light is on
 - b) when robot stands, the red light is on
 - c) robot walks if there is no barrier in front of robot
 - d) robot stops if the barrier is recognized
7. **fun task:** do all tasks for NI Lego Smart Vehicle instead for NI Lego robot (humanoid T-Rex).

Tasks 6 and 7 can bring extra points to students.

Students should chose sensors and signals to record from: EEG (electroencephalography), EMG (electromyography), accelerometers, goniometers, FSR sensors (Force Sensing Resistor), Microsoft Kinect and gyroscopes.

Students should write a report, record a movie demonstrating project achievements, prepare Power Point presentation (up to 10 slides), and demonstrate the project. The demonstration and project evaluation will be held in February 2014.

Brain Awareness Week 2014 at the Laboratory for Biomedical Instrumentation and Technologies, University of Belgrade - Faculty of Electrical Engineering



As a part of preparation for competition, dipl. eng. Dušan Vukašinić from National Instruments will hold a short course (LabVIEW programming: novelties and opportunities) to all interested students in Laboratory 69. Course will be held on Wednesday 25th December 2013. from 10 h.

Laboratory for Biomedical Instrumentation and Technologies
Signals and systems department
University of Belgrade - Faculty of Electrical Engineering



BAW 2014 at the BMIT is supported by



National Instruments Inc.



Project grant 175016
Ministry of education, science and
technological development



Tecnia Serbia Ltd.

Brain Awareness Week 2014 at the Laboratory for Biomedical Instrumentation and Technologies, University of Belgrade - Faculty of Electrical Engineering