Brno University of Technology - Faculty of Information Technology

Department of Computer Graphics and Multimedia — Academic year 2017/2018

Bachelor's Thesis Specification

For: **Ondruch Jan**

Branch of study: Information Technology

Title: **Application for Modern Sports Training Utilising the Sensory Data and Positional System**

Category: User Interfaces

Instructions for project work:

1. Get acquainted with the collecting, managing and pre-processing of sensory data. Focus on the positional, motion and biometric data. Get acquainted with the UI design process and Sewio system API.
2. Design an application, that effectively visualises Sewio sensory data for athletes and coaches. Design the UI and appropriate methods for real-time usage and also for offline statistics.
3. Create a dataset suitable for application development and testing.
4. Design the information structure, the data model and the computational mechanisms of the proposed tool and implement it as a web application.
5. Perform the user tests and evaluate the user experience. Discuss the results and propose improvements.
6. Create a poster and a short video presenting the key results of the project.

Basic references:

- Eric Elliott, Programming JavaScript Applications: Robust Web Architecture with Node, HTML5, and Modern JS Libraries, O'Reilly Media; July 20, 2014, ISBN-10: 1491950293
- Ian Oppermann, UWB: Theory and Applications, Wiley; October 15, 2004, ISBN-10: 0470869178.

Requirements for the first semester:
Items 1, 2, 3 and partly item 4.

Detailed formal specifications can be found at http://www.fit.vutbr.cz/info/szz/

The Bachelor's Thesis must define its purpose, describe a current state of the art, introduce the theoretical and technical background relevant to the problems solved, and specify what parts have been used from earlier projects or have been taken over from other sources.

Each student will hand-in printed as well as electronic versions of the technical report, an electronic version of the complete program documentation, program source files, and a functional hardware prototype sample if desired. The information in electronic form will be stored on a standard non-rewritable medium (CD-R, DVD-R, etc.) in formats common at the FIT. In order to allow regular handling, the medium will be securely attached to the printed report.

Supervisor: **Beran Vítězslav, Ing., Ph.D.**, DCGM FIT BUT

Beginning of work: November 1, 2017

Date of delivery: May 16, 2018

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