

Czech Technical University in Prague  
Faculty of Electrical Engineering  
Department of Computer Science

## DIPLOMA THESIS AGREEMENT

Student: Antonín Květoň

Study programme: Open Informatics  
Specialisation: Software Engineering

Title of Diploma Thesis: Remote user interface for the control system of the COMPASS experiment at CERN

### Guidelines:

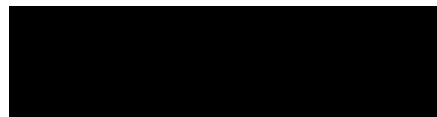
- 1) Survey the existing COMPASS Data Acquisition System (DAQ) control operated locally within the CERN internal network
- 2) Analyze the User Interface (UI) requirements for DAQ, and describe its functionality
- 3) Next, consider remote access to the control system, while considering CERN security restrictions requiring the use of an SSH tunnel through a CERN gateway. Evaluate available remote access solutions for such systém
- 4) Examine the design of data acquisition system of the COMPASS experiment and propose a suitable approach for remote access UI client with control features in high latency network environment
- 5) Implement and deploy such UI client and evaluate in the CERN environment.

### Bibliography/Sources:

- [1] ABBON, P, et al. The COMPASS Setup for Physics with Hadron Beams, Nuclear Instruments and Methods in Physics Research Section A Accelerators Spectrometers Detectors and Associated Equipment
- [2] VONDRA, J, Graphical user interface for control system of the COMPASS experiment at CERN. Bachelor thesis, FNSPE CTU
- [3] WROBLEWSKI, Piotr. Algoritmy: datove struktury a programovaci techniky. Vyd. 1. Preklad Marek Michalek, Bogdan Kiszka. Brno: Computer Press, 2004, 351 s. ISBN 80-251-0343-9.
- [4] BODLAK, M, V FROLOV, et al. FPGA based data acquisition system for COMPASS experiment. Journal of Physics: Conference Series. 2014-06-11, vol. 513, issue 1, s. 012029-.
- [5] ABBON, P, et al. The COMPASS experiment at CERN. Nucl.Instrum.Meth. A577 (2007) 455-518.
- [6] NOVY, Josef. COMPASS DAQ – Basic Control System. Diploma thesis, FNSPE CTU, 2012

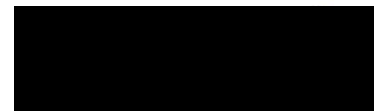
Diploma Thesis Supervisor: Ing. Tomáš Černý, Ph.D.

Valid until the end of the summer semester of academic year 2017/2018



prof. Dr. Michal Pěchouček, MSc.

Head of Department



prof. Ing. Pavel Ripka, CSc.

Dean

Prague, October 18, 2016