I. IDENTIFICATION DATA

Thesis name:	Indoor Positioning System with BLE and Wi-Fi technologyData Analysis and Accuracy Improvement
Author's name:	Bc.Ching-Chieh Chiu
Type of thesis :	master
Faculty/Institute:	Faculty of Electrical Engineering (FEE)
Department:	Department of Telecommunication Engineering
Thesis reviewer:	Ing. Filip Beneš, Ph.D.
Reviewer's department:	Institute of Economics and Control Systems - VŠB – Technical University of Ostrava

II. EVALUATION OF INDIVIDUAL CRITERIA

Assignment	**challenging**
Evaluation of thesis difficulty of assignment.	
I consider the final thesis to be very beneficial and fully meeting the criterion for master's level.	

Satisfaction of assignment	**fulfilled**
Assess that handed thesis meets assignment. Present points of assignment that fell short or were extended. Try to assess importance, impact or cause of each shortcoming.	
The final thesis corresponds to the assignment in its entirety.	

Method of conception	**correct**
Assess that student has chosen correct approach or solution methods.	
The methods and approaches from the theoretical basis to practical testing were appropriately chosen and applied. The structure of the thesis is based on the given assignment. The individual parts of the thesis logically follow each other. The extent of the individual parts is balanced, the theoretical parts complement individual practical experiments and put them into context.	

Technical level	**A - excellent.**
Assess level of thesis specialty, use of knowledge gained by study and by expert literature, use of sources and data gained by experience.	
The author has demonstrated the knowledge gained during the studies. The choice of citation sources and backgrounds is also at the high level.	

Formal and language level, scope of thesis	**A - excellent.**
Assess correctness of usage of formal notation. Assess typographical and language arrangement of thesis.	
The thesis fulfills all formal requirements. The language expression corresponds with the level of the graduate. Graphical layout is good as well. The author respects the content structure, uses logical and orderly sorting of chapters.	

Selection of sources, citation correctness	**A - excellent.**
Present your opinion to student's activity when obtaining and using study materials for thesis creation. Characterize selection of sources. Assess that student used all relevant sources. Verify that all used elements are correctly distinguished from own results and thoughts. Assess that citation ethics has not been breached and that all bibliographic citations are complete and in accordance with citation convention and standards.	
The author used a total of 37 references in his thesis. The choice of sources is relevant to the topic of work and concerns mainly indoor localization. The author duly uses citations and his thesis is in accordance with citation standards and habits.	

Additional commentary and evaluation
Present your opinion to achieved primary goals of thesis, e.g. level of theoretical results, level and functionality of technical or software conception, publication performance, experimental dexterity etc.
I consider the result of the experimentally achieved accuracy using the hybrid system to be very successful. The author himself mentions that the area of indoor localization is still relatively young and can still be improved using a combination of other methods and algorithms. I support this opinion and I recommend that the author continue to focus on the topic, publish the results of his work in scientific journals or develop the results of his work in scientific projects.

III. OVERALL EVALUATION, QUESTIONS FOR DEFENSE, CLASSIFICATION SUGGESTION

Summarize thesis aspects that swayed your final evaluation. Please present apt questions which student should answer during defense.

I evaluate the thesis as very successful and I recommend it for the defense. I particularly appreciate the practical part of the work where the author devoted himself to practical experiments and to comparing several approaches to localization.

In the defense, the student should elaborate the following questions:
- What are the financial costs of the Ibeacon solution, Wi-Fi and hybrid solution implementation compared on an area of the same size as at the Figure 4-10?
- If a 10-storey hotel is equipped with a given system, is the described localization system resistant to unintentional readings and incorrect localization between the floors?

I evaluate handed thesis with classification grade **A - excellent.**

Date: **3.6.2017**   Signature: ....
                                                                        Ing. Filip Beneš, Ph.D.