

## I. IDENTIFICATION DATA

<b>Thesis name:</b>	<b>IoT based Conditioning Monitoring System</b>
<b>Author's name:</b>	<b>Deepak Koranga</b>
<b>Type of thesis :</b>	master
<b>Faculty/Institute:</b>	Faculty of Electrical Engineering (FEE)
<b>Department:</b>	Cybernetics
<b>Thesis reviewer:</b>	Ing. Vaclav Matz, Ph.D.
<b>Reviewer's department:</b>	Honeywell spol. s r.o.

## II. EVALUATION OF INDIVIDUAL CRITERIA

<b>Assignment</b>	<b>challenging</b>
<i>Evaluation of thesis difficulty of assignment.</i>	
The assignment of the master thesis is challenging, as it represents the complete design and development of a comprehensive system. The main task is to design and create a program and hardware platform for monitoring and data sharing with a superior IoT based system.	

<b>Satisfaction of assignment</b>	<b>fulfilled</b>
<i>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.</i>	
The submitted master thesis correctly describes the chosen issue, theoretical assumptions, designed system and its implementation, achieved results and final data analysis. The results obtained are fully in line with the master thesis assignment. A comprehensive system for measurement and vibrations analysis has been designed and developed by sending data to a superior system using IoT.	

<b>Method of conception</b>	<b>correct</b>
<i>Assess that student has chosen correct approach or solution methods.</i>	
The method used to obtain the final solution is correct, the student focused on vibration recording from the accelerometer and data sharing into the cloud system. A microprocessor with a memory card was used for recording and basic data analysis. In this stage, it was necessary to create the appropriate software to carry out the proposed analysis of the data from the accelerometer and subsequent sharing of data via the implemented Wi-Fi booster into the MQTT Broker (Raspberry Pi). The final step was to create the superior system using the ThingSpeak IoT platform. At the end of the thesis, detailed testing of the whole system was carried out using two accelerometers. From the description above, it is clear that the procedure was correct and the individual steps in the work logically follow.	

<b>Technical level</b>	<b>B - very good.</b>
<i>Assess level of thesis specialty, use of knowledge gained by study and by expert literature, use of sources and data gained by experience.</i>	
The technical level of the final thesis is at a very good level. All important aspects are adequately described. The student demonstrated the ability to apply theoretical knowledge in practical application. If he did not know it, he traced them in the literature he rightly quoted.	

<b>Formal and language level, scope of thesis</b>	<b>A - excellent.</b>
<i>Assess correctness of usage of formal notation. Assess typographical and language arrangement of thesis.</i>	
The diploma thesis is written in English. Since I am not a native speaker, I cannot assess the language level. However, I think the formal and language level is at an excellent level.	

<b>Selection of sources, citation correctness</b>	<b>A - excellent.</b>
<i>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</i>	

*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.*

Resources for creating and writing the thesis have been correctly selected. Citations are also correctly stated.

### **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.*

In my opinion, the master thesis is very well described and presented, and achieved results fully correspond to the assignment. Student demonstrated application of the theoretical knowledge gained during the study in real practice and designed and created the complex device for recording and data analyzing from accelerometers with the following communication into a superior IoT based system. The student is also aware of other possible progress / development, which proves detailed knowledge of the subject. I have no critical comments or comments.

### **III. OVERALL EVALUATION, QUESTIONS FOR DEFENSE, CLASSIFICATION SUGGESTION**

*I have no additional comments to the thesis, it is written at an excellent professional level. The student has demonstrated the knowledge of the problem and has created a comprehensive device for data recording, analysis and distribution via Wi-Fi to a superior IoT system. The device thus created can be modified in the future to record other variables and to monitor the state of the machines and equipment in critical states.*

*I only have the following questions to ask:*

- 1. The proposed system architecture uses the microprocessor to record and analyze data and the MQTT broker to share data using the MQTT protocol to the central access Wi-Fi point. Would it be possible to find equipment that would enable both operations on one platform? Is there such a device?*
- 2. What is the price level and robustness of the proposed device? Is it possible to install this device in real industrial applications?*

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

Date: **5.6.2017**

Signature: