University of Hradec Králové
Faculty of Informatics and Management

OPPONENT´S REVIEW OF BACHELOR'S THESIS

Name of student: Mina Bayat

Thesis title: Optimalization the power output of solar panel using smart hardware

Reviewer : Ing. Karel Mls, Ph.D.

Thesis objective: To revise current state in solar energy area and to implement small scale prototype to verify this observations.

Criteria required for evaluation	Evaluation scale (grade)					
	A	B	C	D	E	F
Content relevant to the field of study	☒	☐	☐	☐	☐	☐
Setting and meeting objectives	☒	☐	☐	☐	☐	☐
Treating theoretical aspects of the topic	☐	☒	☐	☐	☐	☐
Treating practical aspects of the topic	☐	☒	☐	☐	☐	☐
Adequacy of applied methods and their use	☒	☐	☐	☐	☐	☐
Depth and accuracy of implemented analysis	☐	☒	☐	☐	☐	☐
Dealing with literature sources	☒	☐	☐	☐	☐	☐
Logical structure and composition of the thesis	☒	☐	☐	☐	☐	☐
Language and terminology	☐	☐	☒	☐	☐	☐
Formal layout	☒	☐	☐	☐	☐	☐
Student´s contribution	☒	☐	☐	☐	☐	☐
Practical applicability of results	☐	☒	☐	☐	☐	☐

Comments and recommendations:
The thesis is well structured, it contains comprehensive and relevant theoretical part and practical part with original environment measurements and evaluation of measured data. Unfortunately, there are formal imperfections left in the manuscript – too small font sizes in author's own figures and spelling mistakes.

Overall assessment and reasons for the final grade:
The main contribution of the thesis is the practical implementation of the prototype of dual-axis tracking support for a solar cell with smart regulator with Arduino microcontroller. The comparison of output power of two identical panels – one fixed and the other positioned on the built tracking support – confirms the theoretical assumptions on better efficiency of the latter.

Questions for oral defence:

- How did you calculated the 13% difference in output voltage between two panels in your experiment?

- In your opinion, is the (theoretical) 6% difference in output from solar panels between single-axis and dual-axis tracker worth the increased electro-mechanical complexity of the tracking system? If yes, then why and when?

I recommend the thesis for oral defence.

Suggested final grade: B

Hradec Králové, 15/09/2017

signature