



Review report of a final thesis

Student: Bc. Jiří Pospíšilík
Reviewer: Ing. Alexandru Moucha, Ph.D.
Thesis title: Lokalizace senzorů v síti LoRaWAN
Branch of the study: Computer Systems and Networks

Date: 22. 5. 2018

1. Difficulty and other comments on the assignment	<i>The evaluation scale: 1 to 5.</i> 1 = extremely challenging assignment, 2 = rather difficult assignment, 3 = assignment of average difficulty, 4 = easier, but still sufficient assignment, 5 = insufficient assignment
<i>Criteria description:</i> Characterize this final thesis in detail and its relationships to previous or current projects. Comment what is difficult about this thesis (in case of a more difficult thesis, you may overlook some shortcomings that you would not in case of an easy assignment, and on the contrary, with an easy assignment those shortcomings should be evaluated more strictly.)	
<i>Comments:</i> The requirement is straight forward: to analyse the possibility of obtaining location information based on LoRaWAN. However the work integrates a couple of areas (being thus an interdisciplinary study: hardware, software, understanding of the principles of localisation, wireless networks)	
2. Fulfilment of the assignment	<i>The evaluation scale: 1 to 4.</i> 1 = assignment fulfilled, 2 = assignment fulfilled with minor objections, 3 = assignment fulfilled with major objections, 4 = assignment not fulfilled
<i>Criteria description:</i> Assess whether the thesis meets the assignment statement. In Comments indicate parts of the assignment that have not been fulfilled, completely or partially, or extensions of the thesis beyond the original assignment. If the assignment was not completely fulfilled, try to assess the importance, impact, and possibly also the reason of the insufficiencies.	
<i>Comments:</i> Although the results show that the method is very far away from being accurate, the work goal was fulfilled.	
3. Size of the main written part	<i>The evaluation scale: 1 to 4.</i> 1 = meets the criteria, 2 = meets the criteria with minor objections, 3 = meets the criteria with major objections, 4 = does not meet the criteria
<i>Criteria description:</i> Evaluate the adequacy of the extent of the final thesis, considering its content and the size of the written part, i.e. that all parts of the thesis are rich on information and the text does not contain unnecessary parts.	
<i>Comments:</i> The work size is at the expected level.	
4. Factual and logical level of the thesis	<i>The evaluation scale: 0 to 100 points (grade A to F).</i> 85 (B)
<i>Criteria description:</i> Assess whether the thesis is correct as to the facts or if there are factual errors and inaccuracies. Evaluate further the logical structure of the thesis, links among the chapters, and the comprehensibility of the text for a reader.	
<i>Comments:</i> The work is well written, in a logical and clear way. Easy to read and understand.	
5. Formal level of the thesis	<i>The evaluation scale: 0 to 100 points (grade A to F).</i> 75 (C)
<i>Criteria description:</i> Assess the correctness of formalisms used in the thesis, the typographical and linguistic aspects, see Dean's Directive No. 26/2017, Article 3.	

Comments:

Many pages (48, 49, etc) contain vast amounts of code which is pointless for someone not familiar with Python. It is also pointless if a code is written in one language or another for as long as it is not extremely important and commented.

Page 43 - what is n with a hat on?

Fig 7.2 and 7.3 - the vertical axis is "pocet" - the number of what?

Evaluation criterion: *The evaluation scale: 0 to 100 points (grade A to F).*

6. Bibliography

100 (A)

Criteria description:

Evaluate the student's activity in acquisition and use of studying materials in his thesis. Characterize the choice of the sources. Discuss whether the student used all relevant sources, or whether he tried to solve problems that were already solved. Verify that all elements taken from other sources are properly differentiated from his own results and contributions. Comment if there was a possible violation of the citation ethics and if the bibliographical references are complete and in compliance with citation standards.

Comments:

Excellent work with literature.

Evaluation criterion: *The evaluation scale: 0 to 100 points (grade A to F).*

7. Evaluation of results, publication outputs and awards

85 (B)

Criteria description:

Comment on the achieved level of major results of the thesis and indicate whether the main results of the thesis extend published state-of-the-art results and/or bring completely new findings. Assess the quality and functionality of hardware or software solutions. Alternatively, evaluate whether the software or source code that was not created by the student himself was used in accordance with the license terms and copyright. Comment on possible publication output or awards related to the thesis.

Comments:

The results maybe publishable as I do not know if there is a work analysing the possibility of LoRa WAN localisation.

Evaluation criterion: *No evaluation scale.*

8. Applicability of the results

Criteria description:

Indicate the potential of using the results of the thesis in practice.

Comments:

See 7.

Evaluation criterion: *No evaluation scale.*

9. Questions for the defence

Criteria description:

Formulate any question(s) that the student should answer to the committee during the defence (use a bullet list).

Questions:

These are not questions rather details:

Paragraph 3.2.2 - signal attenuation and antenna anisotropy also play part in the RSSI

Paragraph 3.2.3 - LoRaWAN is immune to GPS jamming but someone may create a LoRaWAN jammer. It would be interesting to see which is more resilient to jamming: GPS or LoRa as GPS is more powerful but very far away and the signal weakens at least with the square of the distance.

It could be interesting to see how LoRaWAN behaves in an open field rather than in a city in which there is multipath and strong attenuation.

Evaluation criterion: *The evaluation scale: 0 to 100 points (grade A to F).*

10. The overall evaluation

85 (B)

Criteria description:

Summarize the parts of the thesis that had major impact on your evaluation. The overall evaluation **does not** have to be the arithmetic mean or any other formula with the values from the previous evaluation criteria 1 to 9.

Comments:

A very interesting work: I also learned quite a lot from it, including the difference between triangulation and trilateration - to my asame I did not know it. I also learned about LoRa which I did not previously know anything before. Thank you.

Well done!

Signature of the reviewer: