Supervisor's statement of a final thesis

Czech Technical University in Prague   **Faculty of Information Technology**

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Thesis title:	Implementation of client and server for control and interpretation of robot Karel
Branch of the study:	Web and Software Engineering

Date: 6. 6. 2017

Evaluation criterion:	The evaluation scale: 1 to 5.
1. Difficulty and other comments on the assignment	*1 = extremely challenging assignment,* *2 = rather difficult assignment,* ***3 = assignment of average difficulty,*** *4 = easier, but still sufficient assignment,* *5 = insufficient assignment*

Criteria description:
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.)

Comments:
The task is to implement a remotely accessible Karel robot to interact with. The task consists of more subtasks. One is parsing a Karel language which should be classified as simpler. Also there is a fact that the final solution is to be implemented on embedded system with limited memory and substantially different libraries available. In summary the complexity of the task is average.

Evaluation criterion:	The evaluation scale: 1 to 4.
2. Fulfilment of the assignment	***1 = assignment fulfilled,*** *2 = assignment fulfilled with minor objections,* *3 = assignment fulfilled with major objections,* *4 = assignment not fulfilled*

Criteria description:
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.

Comments:
The solution as implemented is working and it conforms with the task.

Evaluation criterion:	The evaluation scale: 1 to 4.
3. Size of the main written part	***1 = meets the criteria,*** *2 = meets the criteria with minor objections,* *3 = meets the criteria with major objections,* *4 = does not meet the criteria*

Criteria description:
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.

Comments:
The text of the bachelor thesis is long enough by standards. There are some rather large images that take some unnecessary space but even without them the length would be acceptable.

Evaluation criterion:	The evaluation scale: 0 to 100 points (grade A to F).
4. Factual and logical level of the thesis	*60 (D)*

Criteria description:
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.

Comments:
Section 2.2 states this particular Arduino "allows for 80% for user application and programming" without giving a reason for such a value.
Sometimes the text is misleading in use of more names to one thing. For example instruction and command.
The specification of the Karel language could be deeper, more formal. Specifications of available conditions are missing for flow control statements.
Chapter testing shows the same command RIGHT and RIGHT_2 with the same body, whereas the second should most likely be constructed using ITERATION.
The more complex testing shows more complex program that however finds a flag in an empty world (an empty maze) only when the flag is in the top right corner. I would expect a maze with walls that is in fact a connected acyclic graph.
The installation guide is not present in the thesis text.

Evaluation criterion:	The evaluation scale: 0 to 100 points (grade A to F).
5. Formal level of the thesis	*65 (D)*

Criteria description:
Assess the correctness of formalisms used in the thesis, the typographical and linguistic aspect s, see Dean's Directive No. 14/2015, Article 3.

Comments:

The English language of the text is very good. However the style is not of a technical text in many places. The selection of some words would suit novels more. Also the text is unnecessarily personal in some places.

The Abstract is split to two pages in the middle of its English variant.

The text is not properly aligned on its right side. Images use bitmap format even when unnecessary.

Each of sections 4.3.1, .2, .3 consist of single long paragraph only.

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:

Correct.

Evaluation criterion:	*The evaluation scale: 0 to 100 points (grade A to F).*
7. Evaluation of results, publication outputs and awards	*80 (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 original idea of the task was to provide an independent server where some information is hidden (as a flag) and Karel robot needs to find it with help of the user. This is in fact implemented. However the maze is statically generated. The code of the parser could have been implemented to follow the standard LL1 parser implementation more. The use of global variable secretText seems to be unnecessary.

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:

In current state the solution needs to be extended to meet up the original idea. However it is a solid foundation for actually deployable version.

Evaluation criterion:	*The evaluation scale: 1 to 5.*
9. Activity and self-reliance of the student	*9a:* *1 = excellent activity,* ***2 = very good activity,*** *3 = average activity,* *4 = weaker, but still sufficient activity,* *5 = insufficient activity* *9b:* *1 = excellent self-reliance,* ***2 = very good self-reliance,*** *3 = average self-reliance,* *4 = weaker, but still sufficient self-reliance,* *5 = insufficient self-reliance.*

Criteria description:
Review student's activity while working on this final thesis, student's punctuality when meeting the deadlines and consulting continuously and also, student's preparedness for these consultations. Furthermore, review student's independency.

Comments:

The text and the implementation was mostly worked on in last few weeks before the thesis submission deadline. However that was mostly caused by initial complications with the Arduino framework.

Evaluation criterion:	*The evaluation scale: 0 to 100 points (grade A to F).*
10. The overall evaluation	*75 (C)*

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:

The implementation is working well. However there are some deficiencies with the text mentioned above which affect the overall scoring. I have to point out that the task was connecting more disciplines together (embedded programming and theory of parsing, ...). Meaning it required the student to acquire the knowledge of these disciplines before starting the project, which is expected skill of a software engineer. I recommend the thesis to be rated with 75 points and mark C good.

Signature of the supervisor: