

I. IDENTIFICATION DATA

Thesis title:	Global Localization of Mobile Robot Using Randomly Placed Artificial Markers
Author's name:	Can Gundogdu
Type of thesis :	Master
Faculty/Institute:	Faculty of Electrical Engineering
Department:	Department of Cybernetics
Thesis supervisor:	Karel Košnar
Supervisor's department:	CCIIRC/IMR

II. EVALUATION OF INDIVIDUAL CRITERIA

Assignment	Select: ordinarily challenging
<i>How demanding was the assigned project?</i>	
The assignment is a standard task in the field of mobile robotics, and there are no extra challenging tasks. The motivation was more to get an integrated solution than solving a task on the edge of research.	

Fulfillment of assignment	Select: fulfilled
<i>How well does the thesis fulfil the assigned task? Have the primary goals been achieved? Which assigned tasks have been incompletely covered, and which parts of the thesis are overextended? Justify your answer.</i>	
The assignment is fulfilled as the student provides a functional method for the localization of the mobile robot in an environment complemented with artificial landmarks. The only diversion from the assignment is the usage of different sensor from the same manufacturer, and this change was discussed with the supervisor.	

Activity and independence when creating a final thesis	Grade: B
<i>Assess whether the student had a positive approach, whether the time limits were met, whether the conception was regularly consulted and whether the student was well prepared for the consultations. Assess the student's ability to work independently.</i>	
The student works independently with high enthusiasm. He consults the steps with the supervisor regularly. Unfortunately, there were a few misunderstandings during the work and the student spent some effort on work ending in the "dead end".	

Technical level	Grade: D
<i>Is the thesis technically sound? How well did the student employ expertise in his/her field of study? Does the student explain clearly what he/she has done?</i>	
Even the student spends a lot of effort on the thesis, the results are not presented in a sufficient manner. I am missing a more detailed description of the student's own contribution especially in the chapter dedicated to the localization. There is a reference to the actual code, but it is not described in the text of the thesis. Also, I am missing some important information in the experimental part e.g. how many trials were used for the evaluation of the obstacle avoidance algorithms? The experimental evaluation with the real robot should be also more extensive. Multiple trajectories in the same map should be described and evaluated to get sufficient data for statistics. I would like to see the same type of tables as in the Obstacle avoidance evaluation.	

Formal level and language level, scope of thesis	Grade: C
<i>Are formalisms and notations used properly? Is the thesis organized in a logical way? Is the thesis sufficiently extensive? Is the thesis well-presented? Is the language clear and understandable? Is the English satisfactory?</i>	
The thesis is organized well but I am missing some general classification of the methods in the "State of the Art (SotA)" chapters. The selected methods reflect well the diversity of the available approaches, but I am missing some insight that connects the selected methods with mentioned classes of the approaches. The description of the SotA methods is enough detailed, on the other side, the own contribution of the student should be described in greater detail.	

Selection of sources, citation correctness**Grade: C**

Does the thesis make adequate reference to earlier work on the topic? Was the selection of sources adequate? Is the student's original work clearly distinguished from earlier work in the field? Do the bibliographic citations meet the standards?

The sources are cited well, but some of the mentions should be cited as well e.g. ARToolkit and ARTags on page 2. There is sometimes not clearly visible, where ends the used library and starts the original work of the student.

Additional commentary and evaluation (optional)

Comment on the overall quality of the thesis, its novelty and its impact on the field, its strengths and weaknesses, the utility of the solution that is presented, the theoretical/formal level, the student's skillfulness, etc.

The work of the student was delayed by a forced stay of the student outside of the Czech Republic due to restrictions connected with COVID19. That generates a rush at the end of the work period mainly during the experimentation, and this rush consequently causes the supervisor doesn't receive a final version of the thesis before the final submission.

III. OVERALL EVALUATION, QUESTIONS FOR THE PRESENTATION AND DEFENSE OF THE THESIS, SUGGESTED GRADE

The student works independently with great effort, nevertheless, the result of the thesis doesn't reach the top quality needed for an excellent marking. There are flaws in the text of the thesis and also the experimental verification could be made more thoroughly.

The grade that I award for the thesis is **D**.

Date: 12. 1. 2022

Name and signature: