THESIS REVIEWER'SREPORT

I. IDENTIFICATION DATA

Thesis title:	Sensor fusion for object localisation in adverse conditions for mobile robots
Author's name:	Tomáš Rouček
Type of thesis :	master
Faculty/Institute:	Faculty of Electrical Engineering (FEE)
Department:	Department of Computer Science
Thesis reviewer:	Milan Kroulík
Reviewer's department:	CULS Prague, Department of Agriculture Machines

II. EVALUATION OF INDIVIDUAL CRITERIA

Assignment	**extraordinarily challenging**

How demanding was the assigned project?

The complexity of the assignment is given by the requirement for a combination of the theoretical basis and especially the practical implementation of various sensor techniques into the robotic platform.

Fulfilment of assignment	**fulfilled**

How well doesthe thesis fulfil the assigned task?Have the primary goals been achieved? Whichassigned tasks have been incompletely covered, and which parts of the thesis are overextended?Justify your answer.

In my opinion, the assignment was fulfilled mainly by a successful presentation of the system in the DARPA competition, where it was required to identify and accurately locate objects, possibly injured, in an autonomous mode of work and in an unknown environment.

Methodology	**outstanding**

Comment on the correctness ofthe approach and/or the solution methods.

With regard to the success on the DARPA competition and placing on the podium, it is a proof of correctly chosen methods.

Technical level	**A - excellent.**

Is the thesis technically sound? How well did the student employexpertise in the field of his/her field of study? Does the student explain clearly what he/she has done?

The introductory part of the diploma thesis provides an overview of the system with a description of the advantages and disadvantages and gradually composes the individual chapters into larger logical units. Everything is supported by a comprehensive review of the cited literature.

Formal and language level, scope of thesis	**A - excellent.**

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?

Thesis meets the requirements for the type of output. The chapters are logically divided, the literature is duly cited. From the point of view of the formal arrangement, it is absolutely fine.

Selection of sources, citation correctness	**A - excellent.**

Does the thesis make adequate reference toearlier 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 work presents a balanced ratio of resources taken over, which are properly cited and with their own opinions, experiences and knowledge. From this point of view, the work meets the requirement of originality. The mentioned placement in the DARPA competition proves that the student made appropriate use of the acquired knowledge and experience with sensor technology and applied the selected ones on a robotic platform.

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.
I really appreciate the combination of the theoretical basis and especially the subsequent application in a real and difficult task. The experience gained during the competition will certainly be a significant benefit, which the work also presents. I also appreciate information on other recommended activities. The work will certainly be a suitable starting source of information for other design teams, or a basis for real applications.

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

The diploma thesis is clearly divided and gradually graduates in providing information. At work, I appreciate the student's approach to the practical part, which resulted in successful participation in the competition, where the team succeeded in demanding team competition. I rate the work as excellent.

Is it possible to use sensor data to navigate a robot in an unknown environment and with limited or excluded use of GPS for example?

The grade that I award for the thesis is**A - excellent.**

Date: **10.6.2020**　　　　　　　　　　　　Signature: