

## I. IDENTIFICATION DATA

<b>Thesis title:</b>	<b>New applications of tactile modules for individuals with vision impairments</b>
<b>Author's name:</b>	<b>Bc. Kryštof Woldřich</b>
<b>Type of thesis :</b>	master
<b>Faculty/Institute:</b>	Faculty of Electrical Engineering (FEE)
<b>Department:</b>	Department of Computer Graphics and Interaction (13139)
<b>Thesis reviewer:</b>	Ing. Miroslav Macík, Ph.D.
<b>Reviewer's department:</b>	Department of Computer Graphics and Interaction (13139)

## II. EVALUATION OF INDIVIDUAL CRITERIA

<b>Assignment</b>	<b>challenging</b>
<i>How demanding was the assigned project?</i>	
The assignment of the thesis is rather challenging due to following reasons:	
<ul style="list-style-type: none"> <li>- It is a follow-up work of an existing project, so it requires learning it in detail.</li> <li>- The project involves software implementation and the development of novel physical hardware.</li> <li>- The project involves a specific user audience (individuals with vision impairments) that is hard to approach and imposes higher demand on all parts of the development cycle.</li> </ul>	

<b>Fulfilment of assignment</b>	<b>fulfilled</b>
<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 student fulfilled the assignment of the thesis to the full extent. Minor shortcomings could be seen in the scope of own user research into the target user audience and a relatively low number of academic research papers covered by the analysis. On the other hand, the work involves several physical prototypes and software iterations.	

<b>Activity and independence when creating final thesis</b>	<b>B - very good.</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 devoted extensive effort to his master's thesis project. He attended meeting with me and another team member regularly. Also, he was able to organize and conduct evaluation sessions with representatives of the target user audience almost independently.	

<b>Technical level</b>	<b>A - excellent.</b>
<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>	
The reviewed thesis is well structured, so it is easy to comprehend the details of the project. The project required expertise in more fields of study areas. The student showed analytical skills as well as ingenuity in the design. Furthermore, the evaluation required particular effort as it required rather long sessions involving representatives of a specific target user audience.	

<b>Formal level and language level, scope of thesis</b>	<b>A - excellent.</b>
<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 written in English, and it is well organized. The extent fulfills the standards for a Master's thesis.	

**Selection of sources, citation correctness****B - very good.**

*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 thesis contains 34 citations. About one-half of them are online sources. Referencing more scientific publications would have been beneficial to the work.

**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 student dealt with an assignment that required successfully covering multiple areas – from analysis, through the development of an interactive physical prototype (and related software), to evaluation involving individuals with vision impairments. The software implementation was based on Node.JS (and libraries Say.JS, Node SerialPort, and Commander.JS). The SW architecture reflected the requirements and proved to be sufficient for the prototype, including its extensibility.

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

The reviewed thesis proves that the student is capable of independent work on complex assignments. Bc. Kryštof Woldřich contributed to our initiative to support individuals with vision impairments through multimodal interactivity. I have only minor comments on the thesis, mostly related to the extent of user research and coverage of the analysis.

Question: How complex would it be to extend the size of the physical prototype, e.g., to represent more Braille letters?

The grade that I award for the thesis is **B - very good**.

Date: **8.6.2022**

Signature:

