

## I. IDENTIFICATION DATA

<b>Thesis title:</b>	<b>Digital representation of building interiors for individuals with vision impairments</b>
<b>Author's name:</b>	<b>Hliavitskaya Hanna</b>
<b>Type of thesis :</b>	bachelor
<b>Faculty/Institute:</b>	Faculty of Electrical Engineering (FEE)
<b>Department:</b>	Department of Computer Graphics and Interaction
<b>Thesis reviewer:</b>	Ing. Miroslav Macík, Ph.D.
<b>Reviewer's department:</b>	Department of Computer Graphics and Interaction

## II. EVALUATION OF INDIVIDUAL CRITERIA

<b>Assignment</b>	<b>challenging</b>
<i>How demanding was the assigned project?</i>	
The thesis assignment focused on the development of a method for modeling spatial environment (digital twin) to provide spatial knowledge to create cognitive maps in individuals with vision impairments. Considering the heterogeneity of data to be represented and the focus on a specific user group, the assignment is challenging.	

<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 thesis addressed all significant requirements of the assignment. All primary goals have been successfully achieved.	

<b>Activity and independence when creating final thesis</b>	<b>A - excellent.</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 has demonstrated her ability to work independently to solve complex problems. At the same time, she has shown the ability to work in a team. The student attended all scheduled consultations and was well-prepared.	

<b>Technical level</b>	<b>B - very good.</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 technical level of the thesis is excellent. The analysis clearly maps important knowledge to support subsequent design decisions and reasoning related to the implementation stack. However, more details related to the specifics of the target user audience of the developed tool (i.e., individuals with technical experience who prepare and maintain the digital twin model) would further improve the thesis. Requirements are specified clearly in Chapter 3. Chapter 4 – Design comprises all important information. However, I lack more details, especially in relation to the second prototype (section 4.5). This is partly balanced by the descriptiveness of the next chapter (implementation). The first prototype was evaluated using a cognitive walkthrough method, while the second prototype was evaluated with five participants. A better structure and a more detailed description of usability issues revealed by the evaluation will improve the clarity of the work.	

<b>Formal level and language level, scope of thesis</b>	<b>B - very good.</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 proper English and has 32 pages (39 pages including references and appendices), which is sufficient for a bachelor thesis. It is well and logically organized, and the language is understandable. There are minor typographic issues (e.g., text overflowing to the next page), but they have little impact on the clarity of the thesis.	

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

*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 correctly references the related prior work as well as relevant tools, terms, etc. The student's work is clearly distinguished from the preceding work. There are 28 cited references, 22 of them are scientific papers.

**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.*

Please insert your comments here.

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

*Summarize your opinion on the thesis and explain your final grading.*

Mrs. Hanna Hliavitskaya showed that she is capable of independently solving complex problems. The result of her work is the well-documented prototype of a tool for the creation and maintenance of indoor geographical data that forms a digital twin for the purposes of providing spatial knowledge to individuals with vision impairment.

Question: Which features need to be added to your tool to enable the automatic creation of interactive tactile maps (e.g., tactile maps with buttons in rooms that trigger audio/voice output)?

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

Date: **5.6.2024**

Signature: