THESIS SUPERVISOR'S REPORT

I. IDENTIFICATION DATA

Thesis title:	**Image data analysis on embedded systems**
Author's name:	**Michal Pech**
Type of thesis :	bachelor
Faculty/Institute:	Faculty of Information Technology (FIT)
Department:	Department of Software Engineering
Thesis reviewer:	Ing. Miroslav Macík, Ph.D.
Reviewer's department:	Department of Computer Graphics and Interaction / Faculty of Electrical Engineering

II. EVALUATION OF INDIVIDUAL CRITERIA

Assignment **challenging**

How demanding was the assigned project?

The project assignment required the development of a module for image analysis that will be part of an existing project, VENT-CONNECT. That implied challenging requirements in both the analytical and implementation parts of the thesis. Part of the assignment was the deployment of the solution to units that are placed in the hospital and connected to lung-ventilator image output. This need is reflected in specific requirements on performance, integration, and evaluation.

Fulfilment of assignment **fulfilled**

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.

The assignment was fully fulfilled. The thesis adequately addresses individual tasks/requirements described as defined in the assignment. The overall quality is very good to excellent. However, I do not see any parts of the assignment that are overextended.

Activity and independence when creating final thesis **A - excellent.**

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.

The student has demonstrated the ability to work independently to solve complex problems. At the same time, he has demonstrated the ability to work in a team and to contribute to a complex solution with development in progress. Individual partial decisions are well justified and reasoned.

Technical level **A - excellent.**

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?

The technical level of the thesis is excellent. The design decisions are well-argument in the thesis. The implementation is well-thought and the evaluation proved that it meets the requirements from the perspective of accuracy, performance and system integration.

Formal level and language level, scope of thesis **B - very good.**

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?

The thesis is written in proper English and has 34 pages (excluding references and appendices), which is sufficient extent for a bachelor's thesis. It is well and logically organized, and the analysis results, design and design decisions, results, implementation details, evaluation, and conclusions are well presented. There are a few vague or colloquial statements (e.g., "We will not prolong the discussion", "bunch of", "RSD unsurprisingly stands …", "…we need to get quite a bit ..."). However, this has no negative effect on the clarity and understandability.

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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, including 13 scientific papers, which is sufficient for work of this type. The bibliography meets the citations standards for CTU in Prague final theses.	

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 overall quality of the thesis is high, and the results significantly contribute to a research project with real-world impact. The environment of intensive-care units poses specific demands on technical means deployed (even as part of a research study) that must be met to assure safety.

Question: The VentVision module uses a GStreamer signal to upload the digitized data to the server (roughly every 10 seconds). Can you provide details on this connection (type, persistence, etc.)?

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

Mister Michal Pech proved that he is capable of working independently to solve complex problems. The resulting solution has already been deployed in two ICU units at the University Hospital Kralovske Vinohrady. The evaluation proved that the accuracy of the resulting digitized data is sufficient for the task.

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

Date: **30th May, 2024** Signature: