

I. IDENTIFICATION DATA

Thesis title:	Automatic identification of linear actuator movement via machine vision
Author's name:	Paranin Pavel
Type of thesis :	Bachelor's Thesis
Faculty/Institute:	Faculty of Mechanical Engineering
Department:	Instrumentation and Control Engineering
Thesis reviewer:	Ing. Adam Pechl
Reviewer's department:	Instrumentation and Control Engineering

II. EVALUATION OF INDIVIDUAL CRITERIA

Assignment	A
<i>How demanding was the assigned project?</i>	
In my opinion, the assignment was challenging and slightly exceeds requirements (in a good way).	

Fulfilment of assignment	A
<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>	
I have no objections. In my opinion all of the assigned tasks were fulfilled.	

Methodology	A
<i>Comment on the correctness of the approach and/or the solution methods.</i>	
The selected methods are correct and pretty well documented in the theoretical part of the thesis.	

Technical level	A
<i>Is the thesis technically sound? How well did the student employ expertise in the field of his/her field of study? Does the student explain clearly what he/she has done?</i>	
The theoretical part of the thesis is written well and easily readable. The practical part of the thesis is mainly about implementation. That makes it a little bit harder for readers to navigate between names of classes and class methods. Nevertheless there is no important information missing and i also appreciate the documentation directly in python scripts.	

Formal and language level, scope of thesis	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>	
Thesis is logically organized and well presented. English is satisfactory with small amounts of typing errors, whose quantity corresponds to scope of the thesis.	

Selection of sources, citation correctness	B
<i>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?</i>	
The selection of sources is adequate. There are a lot of online sources and references to python libraries. I would like to see a little bit more sources on image processing theory.	

Additional commentary and evaluation (optional)
<i>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>

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

In my opinion, the assignment was challenging and slightly exceeds requirements. Assignment was completed by a well documented and organized python module. The selected methods for image processing are correct and well documented in the theoretical part of the thesis.

The thesis is pretty well written and readable. My overall impression is that the student worked hard on a solution and learned a thing or two in the process.

Questions:

- 1) In section 4.2 (Current state of the project and ways of improvement) you wrote: “ *Detecting motions on a video stream: currently algorithm can work only with pre recorded videos, which is not very useful in practice, since the requirement is to detect errors in the real time.*” What is that you need to do for this algorithm to be used for real time detection?
- 2) In section 4.4 (Setting up the project before start) there is a set of instructions for preparing the python environment, however version of python interpreter is not specified. Is it something you did not mention on purpose or is the version of python interpreter important for your project?
- 3) In your class named *MotionDetector* you implemented several methods starting with “_” (single underscore). Is there any pythonic convention in using single or double underscores?
- 4) How would your algorithm be improved if you use Otsu thresholding instead of binary thresholding?

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

Date: **27. 8. 2020**

Signature: