

## DIPLOMA THESIS EVALUATION

Student's name and surname: Hari Shankar Venkataraman

Name of the diploma thesis: Creating an Algorithm for AGV Control

Supervisor of the thesis: Ing. Petr Keller, Ph.D.

### 1. Diploma thesis evaluation

Evaluation	excellent	excellent minus	very good	very good minus	good	failed
Meeting the goal and fulfilling task of the thesis			X			
Quality of conducted survey				X		
Methodology of solutions			X			
Expert level of the thesis				X		
Merit of the thesis and its potential applicability of results			X			
Formal and graphic level of the thesis			X			
Student's personal approach			X			

Mark x in the corresponding box.

Supervisor's final evaluation is based on his/her overall subjective evaluation.

Grading is stated literally in the article no. 5, neither by a number, nor by a letter.

### 2. Comments and remarks on diploma thesis:

The thesis deals with the design of an algorithm for AGV control, including the need to back out of the parking/loading position. The theoretical part of the thesis introduces the existing AGV solutions in the industry. The assignment was to design a line following AGV control algorithm, unfortunately there is a completely missing research of existing algorithms, although the student was provided with references to previous works.

Student describes used components of AGV, in some cases in too much detail. There is mentioned the Arduino Nano as used AGV controller, unfortunately in the next Figure 11 is a pinout for the Arduino Micro.

In the practical part, the AGV control is analyzed with respect to the need for reversing, which is not quite common function. There is mentioned the problem of the line detection sensors placement but here it would be better to do a deeper analysis.

This is followed by a description of the proposed algorithm including a source code listing. For better understanding of the whole algorithm, in my opinion, it would be more appropriate to mark the individual control sequences in the figure of trajectory with an explanation of the control principle in each area.

However, the author has implemented his solution in practice including centralized wireless control using IoT modules and thus confirmed the practical handling of the task.



**3. Questions about diploma thesis:**

1. With the current algorithm, how would the vehicle follow the line if the turns on the given path were to the right (also the decision markings will be on the right in the direction of vehicle movement)?
2. What all would need to be modified to allow more vehicles to move on a given path?

**4. Supervisor's statement on results of the inspection carried out by the anti-plagiarism program in the STAG system:**

The result of the analysis from IS STAG is that the matches found are mainly in the first pages of the work, such as the assignment, declaration and in the next text of the thesis mainly in the lists of some technical parameters of the used components. Therefore, it can be concluded that the submitted work is original.

**5. Supervisor's grading of the diploma thesis:**

VERY GOOD

Date: 30. 1. 2022, in Liberec

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*Supervisor's signature*

