

Department of Manufacturing Systems and Automation

DIPLOMA THESIS EVALUATION

Author name: Kasi Viswanathan Puthucode Balakrishnan
 Thesis title: Design of control system of manipulator for manufacturing system with Industry 4.0 conception
 Opponent name: Ing. Zdeněk Braier
 VÚTS a.s., Svárovská 619, 460 01 Liberec XI – Růžodol I

Evaluation aspects of the diploma thesis	Classification			
	Excellent	Very good	Good	Failed
Fulfillment of Thesis tasks		X		
Results elaboration			X	
Applicability in practice			X	
Students own contribution			X	
Conceptual approach		X		
Formal quality	X			

The aim of this project is describe basic principles of Industry 4.0 and meet Arduino development boards, its accesories and shields. Part of the thesis was to find kinematic equations for movement of individual arms and their conversion to variables corresponding to positions of servomotors controlled by Arduino including move objects.

Formally, the presented work has a structure usual for diploma's theses, the text is comprehensible with a minimum of typing and grammatical errors, has a logical structure and is completed by table of figures, list of symbols, appendices index and references. The work testifies to the fact that the author penetrated into the depth of the problem and demonstrated not only good theoretical knowledge but also factual insight and skill of independent technical work.

I positively evaluate the design of the technical solution and the subsequent experiments on the real device. It should be noted that the author has found a certain solution to the task, demonstrating that he has the skills for creative technical work.

Additional queries:

- How will the rigidity of the robot arm to the accuracy of the position of the object?
- How is used safety of manipulator when wi-fi connection is interrupt.

Work meets the Master degree requirements and therefore I recommend it for defense.

I suggest to classify this work by grade: **good**.

In Liberec on: 25.5.2018



Ing. Zdeněk Braier
VÚTS a.s.