SIMULATION AND EXECUTION OF ROBOTIC WELDING
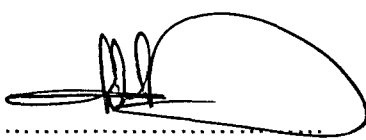
HUDZAIFAH BIN Z.ARIFUDIN

(2006882479)

A thesis submitted in partial fulfillment of the requirement for award of Bachelor Engineering (Hons) Mechanical

Faculty of Mechanical Engineering
Universiti Teknologi Mara (UiTM)
40450 Shah Alam,
Selangor Darul Ehsan.

NOVEMBER 2009

"I declared that this thesis is the result of my own work except the ideas and summaries which I have clarified their sources. The thesis has not been accepted for any bachelor degree and is not concurrently submitted in candidature of any bachelor degree."

Signed: ....

Date : *25 NOV 2009*

HUDZAIFAH BIN Z.ARIFUDIN
UiTM No: 2006882479

ACKNOWLEDGEMENT

ABSTRACT

The purpose of this project is to explore the features and generates basic understanding of robotic welding using IRB 2400_16kg which is a series of ABB Robot. This robot came with its own software ABB RobotStudio $_{5.10}$™. ABB Robot allows users to execute the program by two methods which are virtual controller method using the software and real controller method using Teach Pendent on robot. For this project, the author used both methods in order to complete this study. In virtual controller method, the study case is done by several steps involving CAD modeling, layout arrangement, rapid programming, I/O programming and simulation. The author used study cases for each step such as simple geometry for generate rapid program, creating new mechanism and synchronize it with robot using I/O programming and creating movement function in advanced rapid programming. In real controlling method, author used direct robot programming using Teach Pendent. To understand this method, the example of scale down ship panel is used. This involving creating target and movement of the robot manually. Besides that, there are some preparations of the program data on the robot that need to be determined and it is shown together as example in this study cases. Since this involving the study of welding ship panel, the appropriate welding parameter is also needed for real data documentation. As conclusion, all these activities above are used as guidance for beginner to understand both virtual and real controller in ABB Robot together with the relationships between each other. They also able to start creating their own programs and executing with the robot so that they can familiarize with the software and robot.

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