

DESIGN AND FABRICATE A 2-D TOOL BEARER UNIT

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ABSTRACT

This report is based on the findings and research conducted from January 2006 to march 2006 as a requirement for the Diploma Final Project Mechatronics Engineering program. This report consists of researches conducted to build the project entitled "Design and Fabricate A 2-D Tool Bearer Unit" using stepper motor which can perform basic x-axis and y-axis motions controlled from a computer through serial data communication.

As for a brief introduction, this project is basically a modified Cartesian Coordinate Machine (plotter). A plotter is a device that draws pictures on paper based on commands from computer using a pen attached as the robot's end effector. It is mainly used in engineering applications where precision is mandatory. For the purpose of my project, I have replaced the pen with a tool bearer unit which can hold different types of tools to perform different types of operations such as milling; drilling, engraving and etc. thus, it is a very flexible and useful device which can be used for mass production of a product.

This report consists of 4 main parts which are the body, conclusion, list of references and appendix.

In the body, the basic information will be discussed in the introduction part of the report so that readers will be able to have a basic understanding of the project. It is then followed by the construction of the project as well as the method implemented to complete this project. After that the analysis and the result will be discussed. Besides that, the details on programming with next step ES and software programming with BASIC are also included.

In the conclusion of the report the application aspects, suggestions for further improvement and the summary of the project will be explained as a whole.

Finally, referenced and appendixes are included at the end of the project report.