INTEGRATION AND PLC PROGRAMMING OF A STATE OF THE ART INDEX ROTARY TURNTABLE INTO AN FMS SYSTEM

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"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 degree and is not concurrently submitted is candidature of any degree."

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ABSTRACT

Index rotary turn table in the Mechatronic Laboratory of Faculty of Mechanical Engineering UiTM is a prototype model where its application can be found in many industries such as assembly operation, machining and packaging process. This prototype was developed to study its workability and integration in the present Mechatronic Lab. The system model was designed using Programmable Logic Controller (PLC) and push buttons as human interface. This model can be operated either in manual mode or automatic mode.

The objective of this project is to integrate the index rotary turn table which representing a prototype of a single dial-type production line into a lab scale FMS system. A new PLC programming need to be established to enable the rotary table to work as part of the present FMS system in the Mechatronic Laboratory. The index rotary turn table used OMRON SYSMAC CQM1H CPU21 Programmable Logic Controller to control its operation and to integrate it with the FMS system while CX-Programmer software is used to develop a new PLC programming.

After completing this project the index rotary turn table will work in tandem as part of the FMS system and have the flexibility of accepting drastic change on top of being more efficient and reliable. The benefits of implementing the FMS system such as increase the productivity, reduce the operations time, lowering the operation and maintenance cost and also improving the quality of the product.

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