DESIGNING AND CREATING A SIMULATED CONTROLLER SYSTEM FOR HANDLING STATION OF FESTO MODULAR PRODUCTION SYSTEM AND ROBOT USING TECNOMATIX PLANT SIMULATION

By

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11110-030

A thesis submitted to the Faculty of

ENGINEERING & INFORMATION TECHNOLOGY

in partial fulfillment of the requirements
For the
BACHELOR'S DEGREE
In

MECHATRONICS ENGINEERING

SWISS GERMAN UNIVERSITY

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August 2014
Revision after Thesis Defense on July 18th, 2014

STATEMENT BY THE AUTHOR

I hereby declare that this submission is my own work and to the best of my knowledge, it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgement is made in the thesis.

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ABSTRACT

DESIGNING AND CREATING A SIMULATED CONTROLLER SYSTEM FOR HANDLING STATION OF FESTO MODULAR PRODUCTION SYSTEM AND ROBOT USING TECNOMATIX PLANT SIMULATION

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The main objective of this thesis is to develop a wireless control and monitoring system of material handling process using Tecnomatix Plant Simulation. The material handling process is modelled by Festo MPS handling station and Mitsubishi RV-M1 robot. The problem that needs to be solved is the monitoring of the sequence of the process occurs during the material handling process that can be addressed for troubleshooting the real system. This project work creates a system that facilitates the connection from Tecnomatix to the machine in terms of controlling and monitoring. Cubieboard, a single-board computer is used to receive wireless data package and forward it in logic level form to the PLC input module. Two bridging programs are generated using Qt-Creator to converts the message protocol, enabling communication between Tecnomatix, cubieboard and the Handling Station. Wireless communication takes place between the communications of Tecnomatix in the form of Modbus data by using the infrastructure of TCP/IP socket connection. Several tests are conducted to examine the generated system, yet hardware, software and the messaging protocol. By the end of the project, Tecnomatix is able to send command through the system to the Robot and the animation is displayed, even though it is not real time. However, the sequence of the system follows the Tecnomatix as the controller.

Keywords: Tecnomatix, Simulation Process, Control, Wireless, Modbus Protocol.

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DEDICATION

I dedicate this works for everyone who loved me.

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ACKNOWLEDGEMENTS

First, I would like to give my Thanks to Jesus Christ, for He has overflow me with grace, blessings, strength throughout this thesis work.

Besides, I would also thank my family for their moral supports, concern and everything that they have given to me.

I would like to give my sincere gratitude to my advisor, Dr. Ir. Tutuko Prajogo, MSMfgE and co-advisor Dipl.–Ing. Maralo Sinaga for their guidance and support to accomplish this thesis work. I would also like to give my gratitude to Cepi M. Hanafi, SST and Erikso Sinaga S.T., M.Kom. for their massive help and suggesstion.

Furthermore, I would also like to give my thanks to my friend from batch 2010, for my project teammates Dhuhaa Auga, Kelvin Recia, and Victorino Aditya. Special for these guys, they give me massive support during the incoming end of the thesis work; Jonathan Marshell Kevin, Stevie Andrea Lucardi, Harsyadi Adhiarsya, Gandhi Winata, Victorino Aditya, Glenn Vialli, Linda Wijaya Jong, Aaron Richard Wijaya, Mascellia Tifanny Agung and the others that I cannot mention one by one.

For everyone, thank you once again, and I wish the best for our lives.

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TABLE OF CONTENTS

STATEMENT BY THE AUTHOR 2
ABSTRACT 3
DEDICATION 5
ACKNOWLEDGEMENTS 6
TABLE OF CONTENTS 7
LIST OF FIGURES 11
LIST OF TABLES 13
1 CHAPTER 1 – INTRODUCTION 14
1.1 Background 14
1.2 Thesis Objectives 15
1.3 Thesis Problems 15
1.4 Thesis Scope 15
1.5 Thesis Limitations 15
1.6 Thesis Organization 16
2 CHAPTER 2 – LITERATURE REVIEW 18
2.1 Introduction 18
2.2 Flexible Manufacturing System (FMS) 18
2.2.1 Components of Flexible Manufacturing System 18
2.2.2 FMS Flexibilities 19
2.2.3 Advantages and Disadvantages of FMS 20
2.3 Festo Modular Production System 21
2.3.1 Distribution Station 22
2.3.2 Testing Station 23
2.3.3 Processing Station 24
2.3.4 Handling Station and Robot 25
2.4 Programmable Logic Control (PLC) 26
2.4.1 Input Output (I/O) Configuration 27
2.4.2 Ladder Programming Logic 28
2.5 Socket Communication 28
2.6 Modbus 30
2.6.1 Functions 31
2.6.2 Cyclical Redundancy Error Checking 33
2.7 Tecnomatix 34

SWISS GERMAN UNIVERSITY

2.8 Electrical Cross Talk (XT) 36
3 CHAPTER 3 – METHODOLOGY 38
3.1 Introduction 38
3.2 Proposed System Solution 38
3.3 Modified or Developed Hardware 41
3.3.1 Modification of Existing PLC I/O Connection 41
3.3.2 Making of an Interface Voltage Converter 43
3.3.3 Cubieboard (Mini-PC) 46
3.4 Connections 50
3.4.1 Tecnomatix to TM-PC 50
3.4.2 TM-PC to M-GPIO-PC 51
3.4.3 Cubieboard to PLC 52
3.5 Data Communication Protocol 53
3.5.1 Transfer Protocol of Tecnomatix and TM-PC Program 54
3.5.2 Data Transfer Protocol of PC and Cubieboard in Modbus 54
3.5.3 Mapping of Cubieboard and PLC 56
3.5.4 Mapping of the PLC and Mitsubishi Robot 56
3.5.5 Synchronization Protocol 58
3.6 Software or Program Functions and Strategy 59
3.6.1 Tecnomatix 59
3.6.2 Tecno-Modbus Protocol Converter Program (TM-PC) 64
3.6.3 Modbus-GPIO Protocol Converter Program (M-GPIO-PC) 67
3.6.4 PLC Ladder 71
3.6.5 Robot Program 72
3.7 Synchronization with Festo MPS Stations 75
3.7.1 Synchronization with Processing Station 77
3.7.2 Synchronization with Testing Station 78
3.8 Development Tools 79
3.8.1 Siemens PLM Tecnomatix 79
3.8.2 Qt Creator 79
3.8.3 Siemens Simatic Step-7 80
3.8.4 Robot Downloader 80
4 CHAPTER 4 – RESULTS AND DISCUSSIONS 81
4.1 Testing 81
4.1.1 Cubieboard Input-Output & Voltage Converter Test 81

SWISS GERMAN UNIVERSITY

4.1.2 Communication Testing 84
4.1.3 Interrupt Test 86
4.1.4 Siemens PLM Tecnomatix 88
4.1.5 Robot Movement Test and Overall Communication 91
4.1.6 Synchronization Test 93
4.2 Result 94
5 CHAPTER 5 – CONCLUSIONS AND RECOMENDATIONS 95
5.1 Conclusions 95
5.2 Recommendations and Future Developments 95
GLOSSARY 96
REFERENCES 97
6 Appendix 98
A. Appendix A: Tecnomatix Method 98
1 Method commRead 98
2 Method lineSourceSensor 99
3 Method colorControl 99
4 Method start 99
5 Method Stop 99
6 Method reboot 100
7 Method takeBlack 100
8 Method takeRed 101
9 Method takeSilver 101
10 Method blackCounter 102
11 Method redCounter 102
12 Method silverCounter 102
13 Method changeMode 102
14 Method silverCounter 102
B. Appendix B: Tecno-Modbus Protocol Converter ProgramConnection 104
1 Connection Class 104
2 CRC Class 105
3 Tecnomatix Class 108
4 MainWindow Class 111
C. Appendix C: Modbus-GPIO Protocol Converter Program 126
1 Connection Class 126
2 crc Class 127

SWISS GERMAN UNIVERSITY

3 GPIO Class 130
4 MainWindow Class 133
D. Appendix D: PLC Ladder Program 147
1 PLC Ladder Symbol List 147
2 PLC Ladder Program 148
E. Appendix E: Robot Program 156
F. Appendix F: Cubieboard Specs 159
G. Appendix G: Sharp PC817 Specs 160
H. Appendix H: Complete Memory Mapping 164
I. Appendix I: Bill of Material 166
7 CURRIRULUM VITAE 167

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