SCARA FOR FMS LAB EQUIPMENT

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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

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This research paper presents the development of a SCARA (Selective Compliance Assembly Robot Arm) robot specifically designed for pick and place operations in Swiss German University's FMS (Flexible Manufacturing System) lab equipment. The aim is to increase productivity and efficiency, which may then be utilized in current industrial sectors via automation. The paper provides an overview of the significance of SCARA robots in manufacturing automation and discusses the requirements and constraints associated with pick and place tasks. The research methodology involves a systematic design and development process, carefully selecting hardware designs and integrating a robust control system for precise positioning and path planning. Experimental tests validate the performance of the developed SCARA robot, demonstrating its high-speed capabilities and precise positioning. The results establish the effectiveness of the proposed design, highlighting its potential for transporting the cup from distribution station to a plate in the conveyor station. This research contributes to the advancement of SCARA robot design and development, with implications for improving operational efficiency in various manufacturing industries.

Keywords : SCARA Robot, Pick and Place, FMS, Automation, Manufacturing Automation

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DEDICATION

This paper is dedicated to God who always show me a way throughout my journey,
to my family who gives me support,
my friends who strive together along my side
and my beloved one who gives me encouragements.

Also, I would like to dedicate this work for
the sake of technological knowledge yet to be pursued amidst this modern era.

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TABLE OF CONTENTS

Page

STATEMENT BY THE AUTHOR 2
ABSTRACT 3
DEDICATION 5
ACKNOWLEDGEMENTS 6
TABLE OF CONTENTS 7
LIST OF FIGURES 9
LIST OF TABLES 11
CHAPTER 1 - INTRODUCTION 12
1.1. Background 12
1.2. Research Problems 14
1.3. Research Objectives 14
1.4. Significance of Study 14
1.5. Research Question 15
1.6. Hypothesis 15
CHAPTER 2 - LITERATURE REVIEW 16
2.1. Industrial Automation in Manufacturing 16
2.2. SCARA Robtos and Its Role in Automation 16
2.3. Inverse Kinematics 17
2.4. Development, Integration, and Optimization of Automation Prototype Modules (MPS) for Mechatronics Lab 18
2.5. Remote Terminal (CRT-ID16 & CRT-OD16) 19
2.6. Arduino RFID Module 19
2.7. Arduino Serial Communication (RX-TX) 20
CHAPTER 3 – DESIGN AND METHODOLOGY 22
3.1. SCARA Arm Platform 24
3.2. SCARA Base Support 25
3.3. SCARA Base Timing Gear 28
3.4. SCARA Z-Axis Bottom Plate 29

3.5. SCARA Gripper 30
3.6. SCARA Robot's Electrical System 33
3.7. Additional Electrical Adjustments 36
3.8. SCARA Robot Main Program 38
3.8.1. SCARA Main Program (Setup) 39
3.8.2. SCARA Main Program (Initialization) 41
3.8.3. SCARA Main Program (Sequence) 42
3.8.4. SCARA Main Program (Inverse Kinematics) 43
3.8.5. SCARA Main Program (Angle to Step) 45
3.8.6. SCARA Main Program (Grip) 46
3.8.7. SCARA Main Program (Loop) 47
3.9. SCARA Program Set Point 48
3.10. Conveyor Program 49
CHAPTER 4 –TESTING AND DISCUSSION OF RESULTS 52
4.1. Overview of Prototype Performance 52
4.2. Testing and Experimental Methods 52
4.3. Test Results 53
4.4. Discussion of Results and Error Diagnoses 55
CHAPTER 5 – CONCLUSIONS AND RECOMENDATIONS 57
5.1. Conclusions 57
5.2. Recommendations for future work 58
GLOSSARY 59
REFERENCES 60
CURRICULUM VITAE 61

LIST OF FIGURES

Figures Page

Figure 1. Simplified SCARA arm with angles and coordinates illustrated 17
Figure 2. Ardunio and RFID connection wiring diagram 20
Figure 3. A part of screenshotted Arduino code made by Robin2 in Example 5 21
Figure 4. Isometric view of the initial SCARA Robot design 23
Figure 5. Section view of the Z-Axis Mount Platform 24
Figure 6. Isometric view of the Z-Axis Mount Platform 24
Figure 7. Section view of the modified Z-axis mount platform 25
Figure 8. Isometric view of the modified Z-axis mount platform 25
Figure 9. The 3D printed base with the crack mentioned 25
Figure 10. Section view of the SCARA Robot base 26
Figure 11. Normal radial bearing contact angle 27
Figure 12. Angular contact bearing contact angle 27
Figure 13. Isometric view of the base design 27
Figure 14. Section view of the shaft and bearing alignment on the base 27
Figure 15. Simple technical drawing of the initial timing gear design 28
Figure 16. Simple technical drawing of the modified timing gear design 29
Figure 17. Isometric view of the initial design of Z-axis bottom plate 29
Figure 18. Top isometric view of the modified Z-axis bottom plate from 29
Figure 19. Bottom Isometric view of the modified Z-axis bottom plate 29
Figure 20. Final assembly of the SCARA robot's base 30
Figure 21. Isometric view of the initial design of SCARA gripper with its cover opened 30
Figure 22. Illustration of the said SCARA section before the gripper was removed 31
Figure 23. Illustration of the said platform for the pneumatic gripper to mount on after the gripper was removed 31
Figure 24. Isometric view of the pneumatic gripper housing 32
Figure 25. The gripper finger design integrated with the pneumatic gripper 32
Figure 26. Wiring connection of CNC shield, the four steppers and the limit switches as well as the buck converter to supply 5V to the Arduino 33
Figure 27. Arduino CNC shield pin outs 34
Figure 28. Wiring connection of the SCARA robot 35
Figure 29. Floating on the limit switch reading when it is connected with the terminal 35
Figure 30. Driver Stepper A4988 36
Figure 31. Stepper driver mounted on a breadboard 37
Figure 32. Final electrical wiring for the SCARA robot 38
Figure 33. A screenshot of variables needs to be set up 39
Figure 34. Illustration of L1 and L2 39
Figure 35. Stepper signal in declaration 40
Figure 36. Screenshot of void setup 40
Figure 37. Screenshot of homing for the fourth stepper 41
Figure 38. Layout of the system arrangement 42

Figure 39. Screenshotted part of sequence function 42
Figure 40. Illustration of SCARA's arm in 2D 43
Figure 41. Screenshot of the inverse kinematics calculation in Arduino 44
Figure 42. Mirrored projection of the SCARA arm 45
Figure 43. Screenshot of angle to step function 46
Figure 44. Screenshot of grip function 46
Figure 45. Screenshot of main loop 47
Figure 46. Screenshot of main loop from SCARA program set point 48
Figure 47. Screenshot of the modified parseData function 48
Figure 48. Picture of data transfer from laptop via serial monitor 49
Figure 49. Layout of the conveyor system arrangement 50
Figure 50. Layout of half of the conveyor system closed up 50
Figure 51, Screenshot of function block used in conveyor program 51
Figure 52. Image of the cup placement result from the first method 53
Figure 53. Image of the cup placement result from the second method 54
Figure 54. Precision test result #1 54
Figure 55. Precision test result #4 55
Figure 56. Precision test result #3 55
Figure 57. Precision test result #2 55

LIST OF TABLES

Table Page

Table 1. List of SCARA Robot's part names.....23
Table 2. I/O list of the additional Arduino pins used 34
Table 3. List of conveyor system's part names 50
Table 4. SCARA's performance based on speed with different library 53