MCTA 3203 (MECHATRONICS SYSTEM INTEGRATION)

WEEK 5

TITLE:

Understanding both software and hardware aspects of PLC interfacing with Microcontrollers.

SEMESTER 1, 24/25

SECTION 1 – GROUP 9

LECTURER:
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ABSTRACT

TABLE OF CONTENT

OBJECTIVES

1. To implement PLC and microcontroller integration
2. To demonstrate ladder diagram creation and simulation
3. To test the functionality of the start-stop control circuit.

1. INTRODUCTION

2. MATERIALS AND EQUIPMENT

• OpenPLC Editor software
• Arduino Board
• 2 Push Button Switches
• Jumper Wires
• LED
• Resistors
• Breadboard

3. EXPERIMENT SETUP

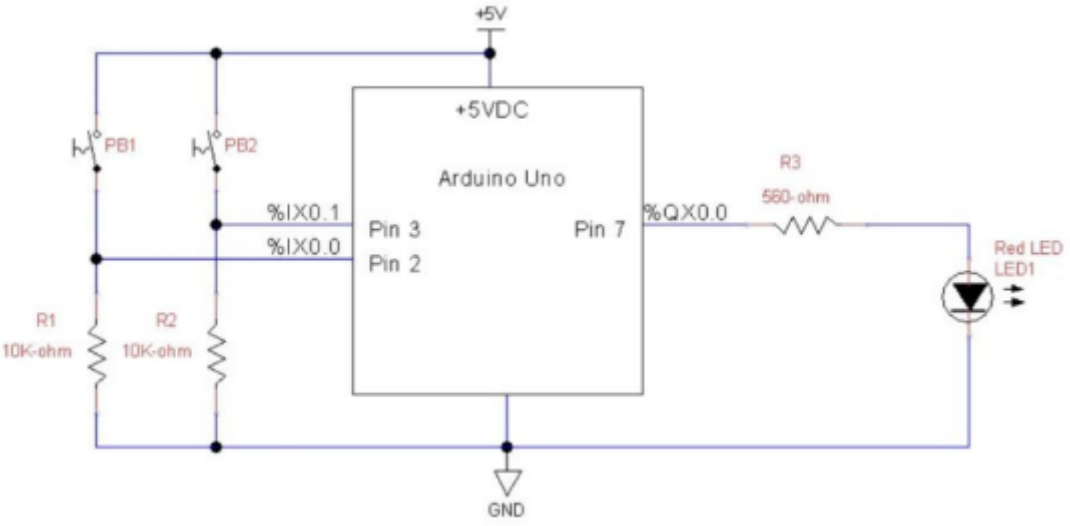


Fig : Start-Stop Control Circuit

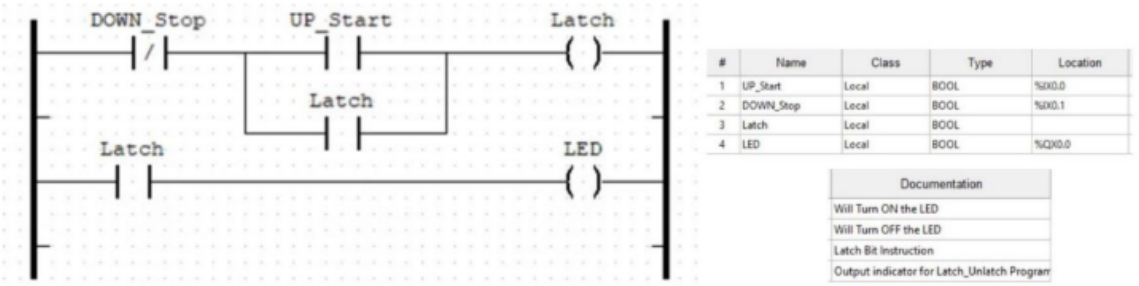
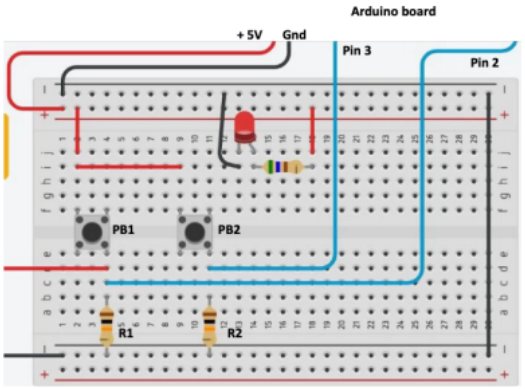


Fig : Ladder Diagram for the Start-Stop Control Circuit

This circuit was made on the breadboard and tested once the ladder diagram was uploaded to the Arduino board, the right COM port number was chosen, and all pin relationships between the OpenPLC variables and the Arduino board were confirmed:



4. METHODOLOGY

5. DATA COLLECTION

6. DATA ANALYSIS

7. RESULT

8. DISCUSSION

9. CONCLUSION

10. RECOMMENDATION

11. REFERENCES

- Zulkifli. (2014). Mechatronics Interfacing Lab Manual, (Rev. ed.). Unpublished Class Materials

12. APPENDICES

13. ACKNOWLEDGEMENT

We want to thank everyone who helped, guided, and supported us throughout this endeavour. First and foremost, we thank Assoc Prof Dr. Zulkifli Bin Zainal Abidin and also Dr. Wahyu Sediono for providing extensive guidance and supervision during the experiment. Their comments, suggestions, and excitement helped us understand Arduino programming.

Our fellow group members deserve special recognition for their teamwork and support. Our conversations, information sharing, and problem-solving sessions dramatically improved our understanding of the experiment's topics and the overall learning experience. Our group members' joint efforts not only enhanced our learning experience, but also greatly contributed to the effective completion of this project.

14. STUDENTS DECLARATION

Certificate of Originality and Authenticity

This is to certify that we are **responsible** for the work submitted in this report, that **the original work** is our own except as specified in the references and acknowledgement, and that the original work contained herein have not been untaken or done by unspecified sources or persons.

We hereby certify that this report has **not been done by only one individual** and **all of us have contributed to the report.** The length of contribution to the reports by each individual is noted within this certificate.

We also hereby certify that we have **read** and **understand** the content of the total report and no further improvement on the reports is needed from any of the individual's contributors to the report.

We therefore, agreed unanimously that this report shall be submitted for **marking** and this **final printed report** has been **verified by us.**

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CONTRIBUTION	Introduction, material and equipment	**Agreed** ✔

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CONTRIBUTION	Experiment setup, methodology, data collection	**Agreed** ✔

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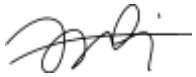
CONTRIBUTION	Data analysis, result, discussion	**Agreed** ✔

SIGNATURE		
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