



# Control Systems Internship in Automation Industry

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## INTRODUCTION

- Control Systems
- 1<sup>st</sup> Summer: May 2021 – August 2021
- 2<sup>nd</sup> Summer: May 2022 – August 2022
- Part-Time: September 2022- Present
- Found through Spring 2021 Co-Op Fair

## LEARNING OBJECTIVES

- Learn to Review and Design PLC Cabinet Drawings
- Reading & Testing Ladder Logic Code
- HMI/SCADA Manipulation & Implementation

## RESPONSIBILITIES

- Creation & Editing of PLC Cabinet Drawings
  - CAD Knowledge necessary
  - My name is now on initial PLC drawing sets
- Manipulation of HMI/SCADA Systems
  - SCADA Network knowledge necessary
  - Creating/testing screens used by plant operators
- Testing PLC Code
  - Coding knowledge needed; specifically ladder logic
  - Tested critical alarms before system installation

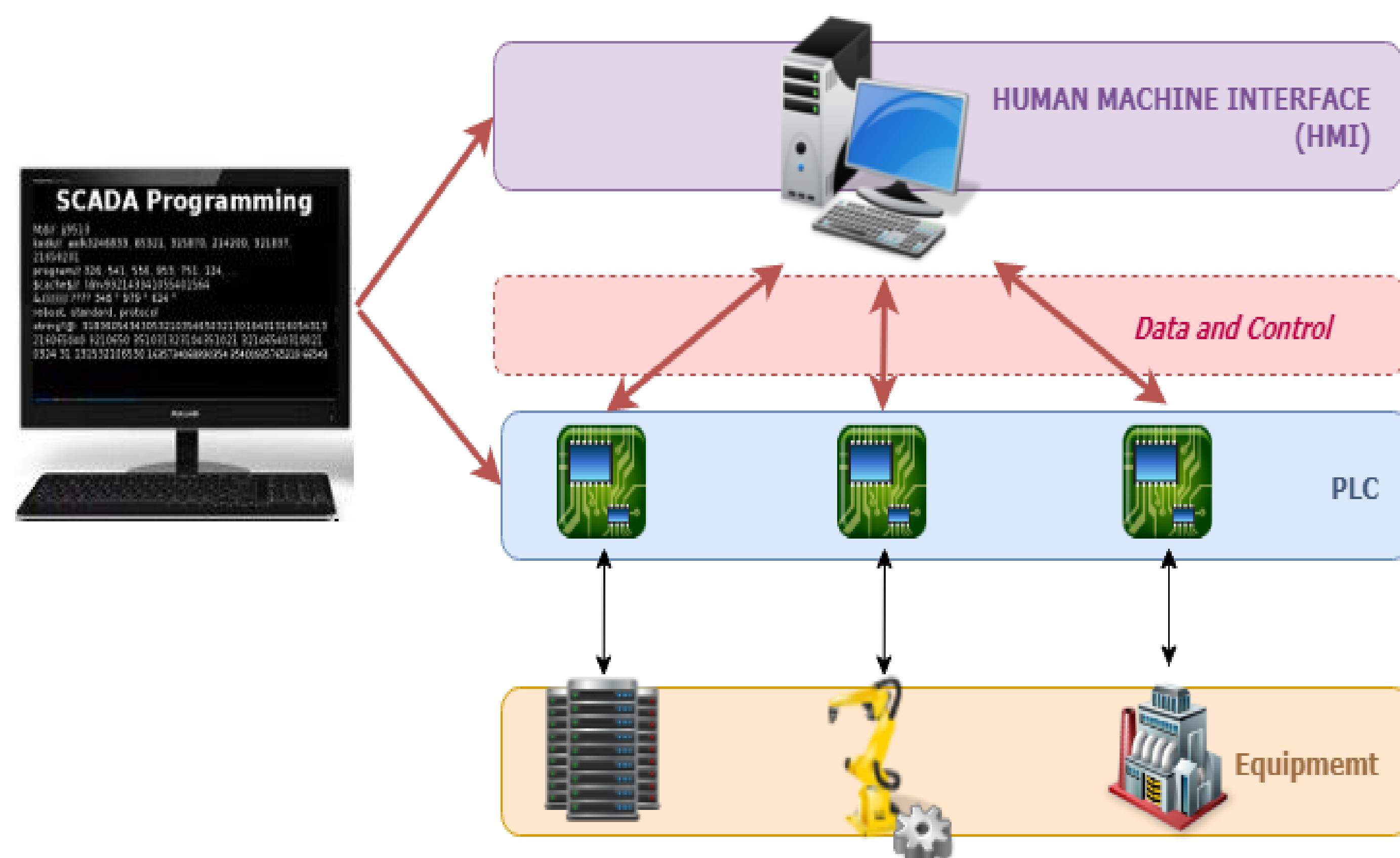


Figure 1. HMI and SCADA Diagram



Figure 2. RoviSys Logo

## APPLICATION OF COURSE CONTENT

- CAD Courses
  - PLC Cabinet Drawing Design & Review
- Linear Controls
  - Process Control Concepts: IO, block diagrams, etc.
- Electrical Engineering Concepts
  - Power Distribution Design

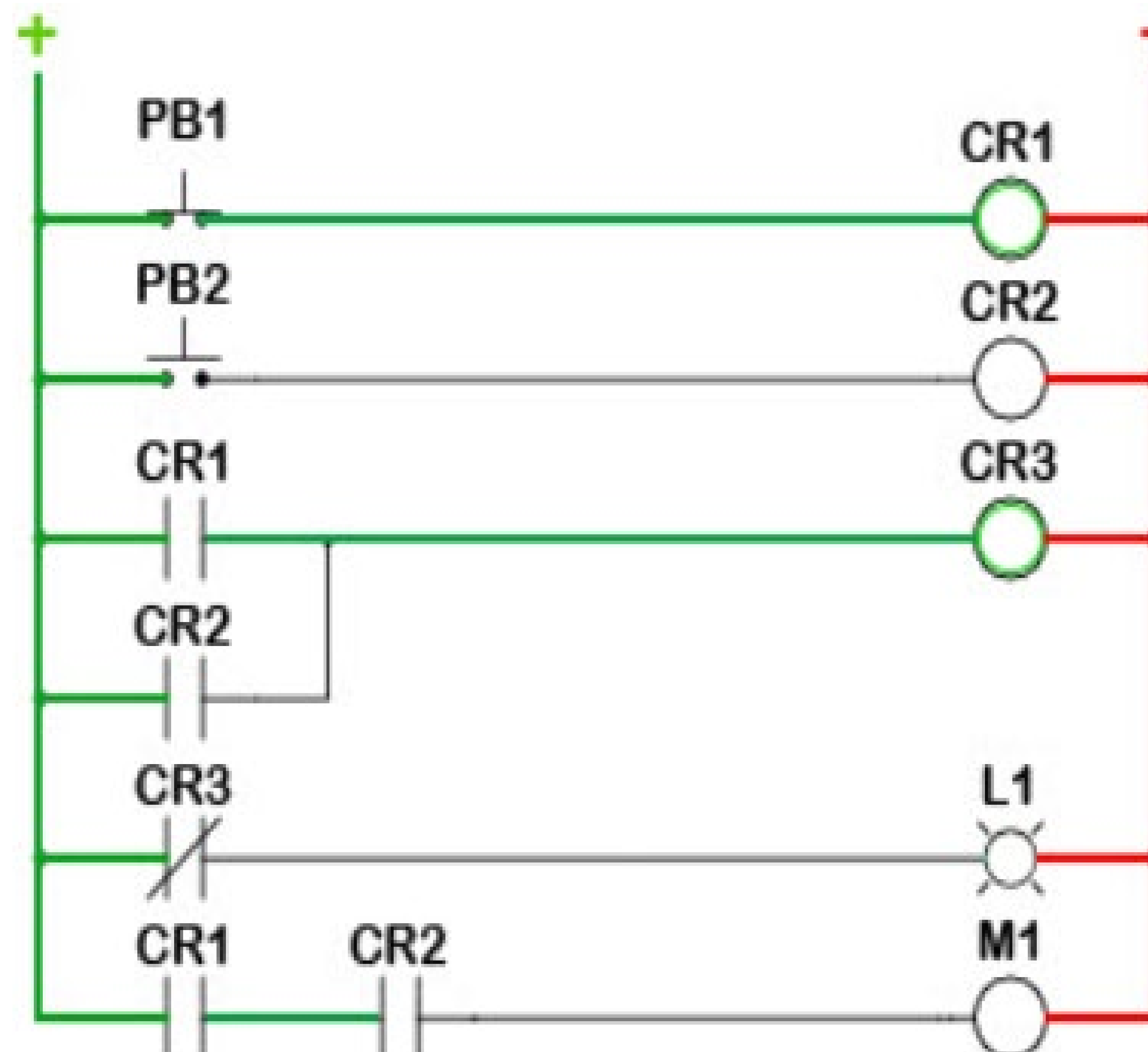


Figure 3. Example of Ladder Logic with Pushbuttons, Control Relays, Motor and Light Symbols

## LESSONS LEARNED

- Lessons learned on the job are more valuable than those learned in school
- Refer to prior schoolwork for minor understanding, but rely on senior co-workers for pertinent knowledge



Figure 4. Annealing Lehr Rollers for Float Glass Process

## FUTURE CAREER OBJECTIVE

I aim to work Full-Time for RoviSys, and continue my career in Systems Engineering

## ACKNOWLEDGMENTS

I would like to thank my general manager and RoviSys team for training me and involving me in their projects. I would also like to thank the Cleveland State College of Engineering and Choose Ohio First Internship Track for providing the resources necessary to begin my career.

## REFERENCES

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- “How do SCADA Systems Work?” DPS Telecom, <https://www.dpstele.com/scada/how-systems-work.php>. Accessed 23 Feb 2023.
- “What is Ladder Logic?” Library – Automation Direct, [https://library.automationdirect.com/understanding-ladder-logic/?utm\\_source=ad-newsletter&utm\\_medium=email&utm\\_campaign=2-26-15](https://library.automationdirect.com/understanding-ladder-logic/?utm_source=ad-newsletter&utm_medium=email&utm_campaign=2-26-15). Accessed 23 Feb 2023
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