Lab 1: Motor Control

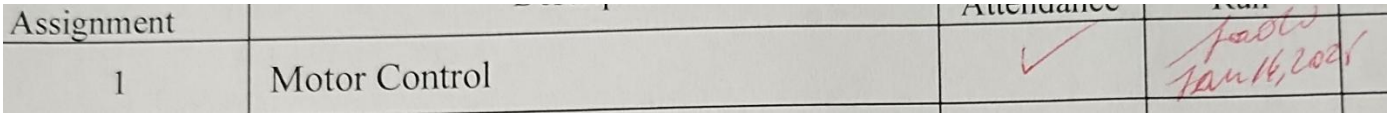
Michael McCorkell – N01500049

Humber Polytechnics

Programmable Logic Controllers: MENG 3500 0NB

Savdulla Kazazi

January 23, 2025



Assignment		Attendance	
1	Motor Control	✓	Jan 16, 2025

Summary

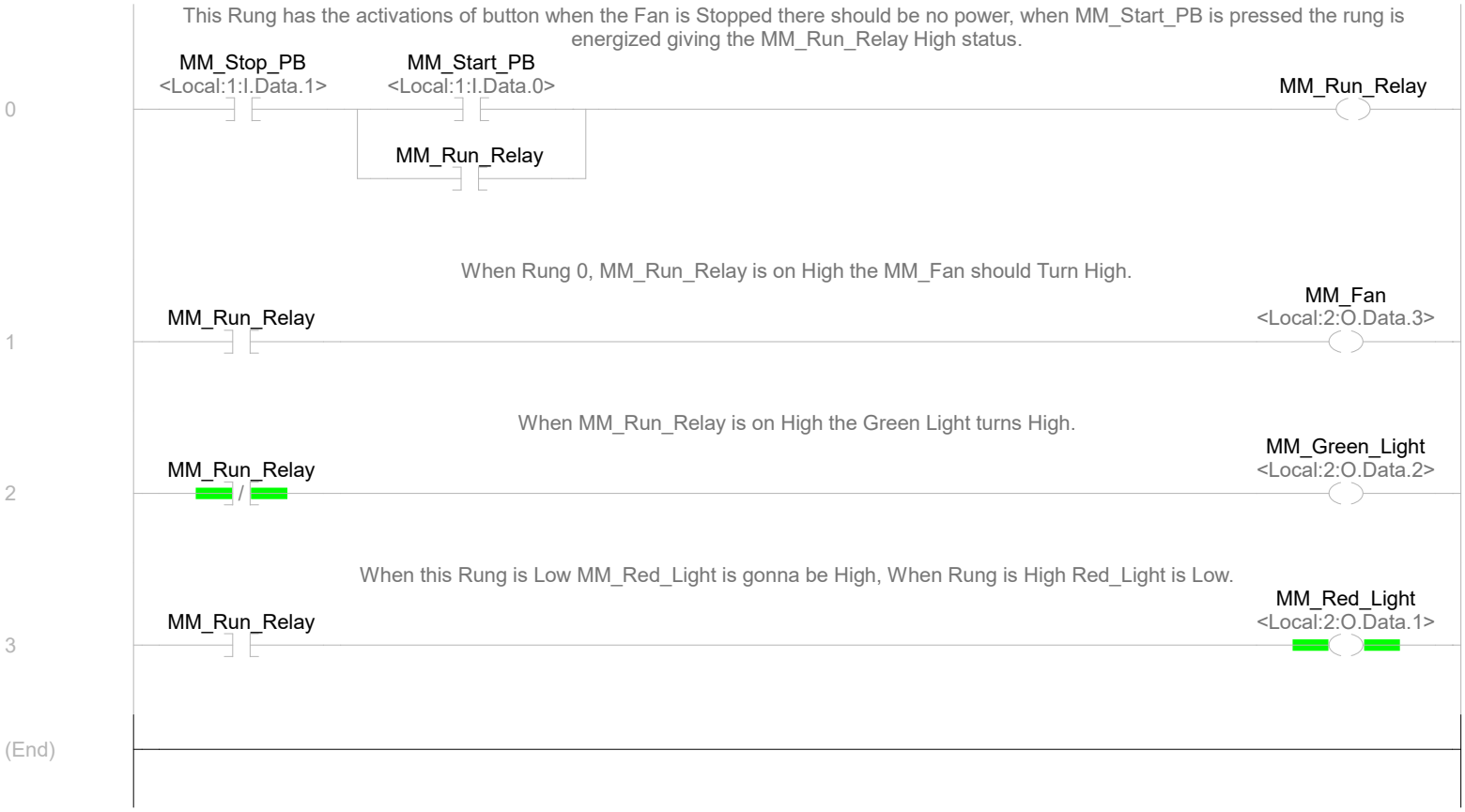
Objectives

The main objectives of this lab were:

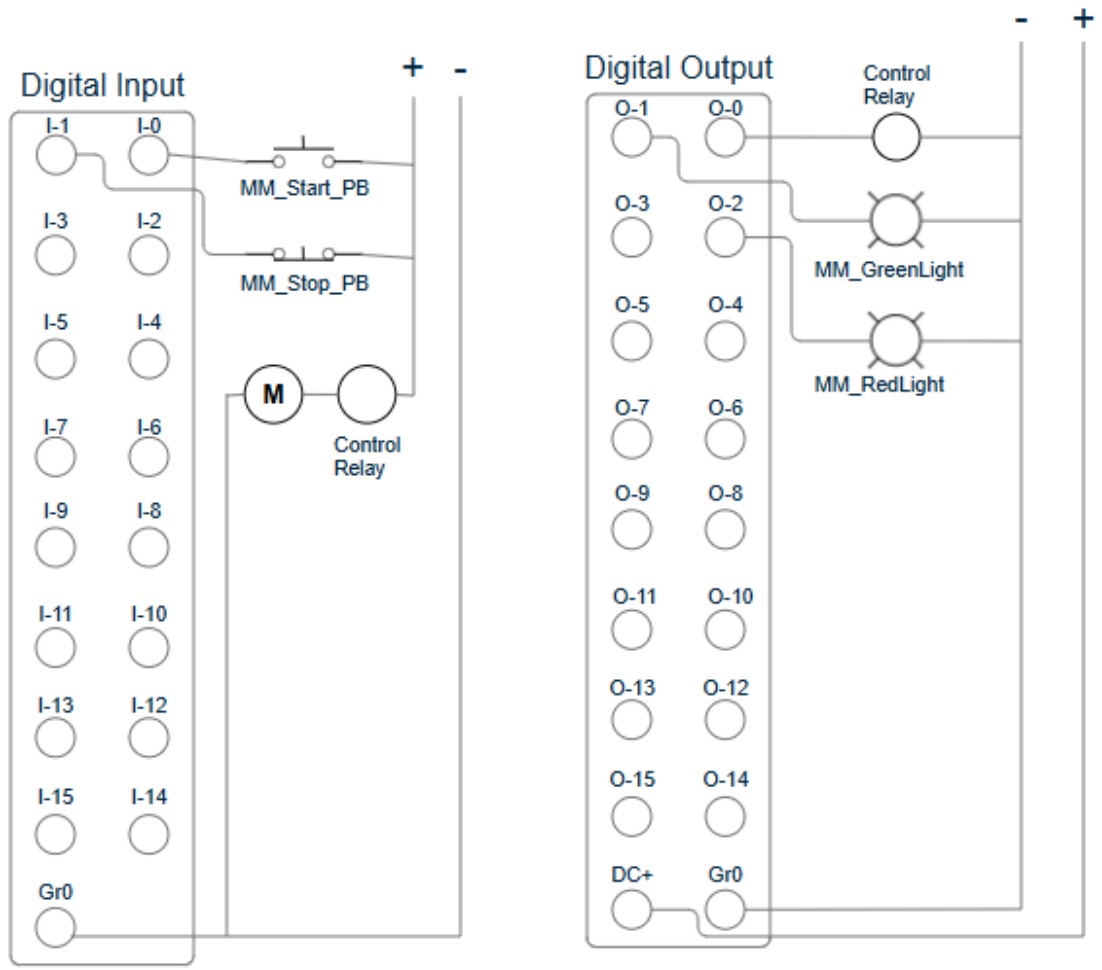
1. Establishing a reliable communication link between the PLC and the computer.
2. Configuring the PLC, including addressing input and output modules.
3. Designing, developing, and downloading a control logic program for motor operation.
4. Wiring field devices according to a provided schematic.
5. Testing the system to ensure proper functionality and troubleshooting as needed.

Description of Work Completed

- **Communication Setup:** A communication link was successfully established between the PLC and the computer, ensuring compatibility.
- **Project Creation and Configuration:** A new project tailored to the PLC type was created. The PLC processor and input/output modules were configured with appropriate addresses.
- **Programming:** A control logic program was developed to manage motor operation based on the following conditions:
    - When the motor is stopped, the RED_LT lamp is on, and the GREEN_LT lamp is off.
    - Pressing START_PB starts the motor, turning on the GREEN_LT lamp and turning off the RED_LT lamp.
    - Pressing STOP_PB stops the motor, reverting the lamps to their original states.
- **Wiring and System Testing:** Field devices, including pushbuttons, indicator lamps, and the motor relay, were wired as per the schematic. The system was tested to verify it met the specified functional requirements.
- **Troubleshooting:** Any issues encountered during testing were resolved, ensuring the program and wiring worked seamlessly.



Wiring Diagram



Conclusions

The lab objectives were successfully achieved. The system demonstrated consistent and reliable operation per the scenario requirements. Key skills, such as PLC programming, field device wiring, and troubleshooting, were developed and reinforced through this assignment.