Student Name:

Project Title: Remove all green writing before you submit

A photograph/ diagram of the final setup.

Project Summary Sheet:

Attach a scanned copy of the Project Work Summary sheet signed off by one of the instructors or GPTI after successful in-lab live demonstration of your final project. This can go to the first page of your report (before this page).

During the pandemic era, the students were allowed to demonstrate their project via video. In this case, you may put a link to your video here. Do not upload the video file to Blackboard. You do not need a Project Work Summary Sheet in this case. Whether the video submission is allowed or not differs from semester to semester. Watch out for the announcement near the end of the semester.

Description:

Describe the real-life problem that your project is designed to solve. Why did you pick this problem? What are the benefits of automation in this application? What simplifying assumptions did you make to make the problem manageable?

Inputs:

**List the names and part number of i**nput sensors to your system, including physical function (e.g. “Photoresistor 1 detects the presence of an object large enough to block the light beam. The signal is TRUE when the beam is blocked.”), the type of input signal (e.g., “Boolean 0–5 V”), and the label you assign (e.g., “Photo1”).

Outputs:

**List** and describe the output(s) of your system, including the physical function (e.g. “The arm motor rotates the arm so that the selected package is knocked off the conveyor belt”), the type of output signal (e.g., analog DC voltage, 0–9 V”), and the label you assign (e.g. “Arm Motor”).

Functions:

Precisely define the sequence of tasks that your device is intended to perform. E.g.

1. Detect a new object on the conveyor belt.
2. Delay until the object is in position in front of the arm.
3. Rotate the arm to knock the object off the belt.
4. Stop the arm motor after the arm passes the limit switch.

Include a flowchart if possible. A flowchart is a type of diagram that represents an algorithm, workflow or process. If your project related to arduino you should able to draw a flowchart.

Design:

Draw a schematic of your system including all important components and functions such as **circuit diagrams**. As appropriate include LabVIEW block diagrams and front panels, ladder logic diagrams, and circuit diagrams.

Measurements and Calculations:

Describe all measurements, including tables of parameters like resistor or capacitor values, etc. Show the calculations and/or reasoning that you used to pick these values. For any discrete-time signals, list the sampling rates, discuss possible aliasing, and describe how you ensured aliasing did not occur.

If you have no measurement, just write “no measurement.”

Results:

Describe the tests you performed to validate the performance of your system. Describe the test results, including graphs and tables summarizing key data. Include a discussion of possible sources of measurement error and uncertainty.

If you have no results, just write “no results.”

Discussion:

Evaluate the performance of your device based on the test results.

Improvements and Extensions:

Describe how the performance of the system can be improved, and discuss the modifications needed to make your design useful for a real-life problem.

References:

**Cite any intellectual contributions to your project that are not your own original work.**

Appendix:

Include code.