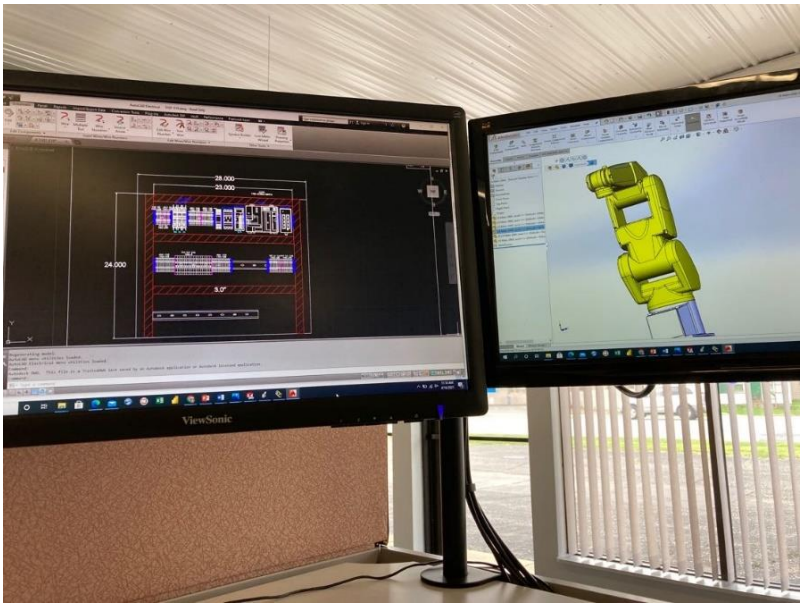
Internship Summary

PELOTON INC.

AUG 2020 – AUG 2021

Basic Experience with:

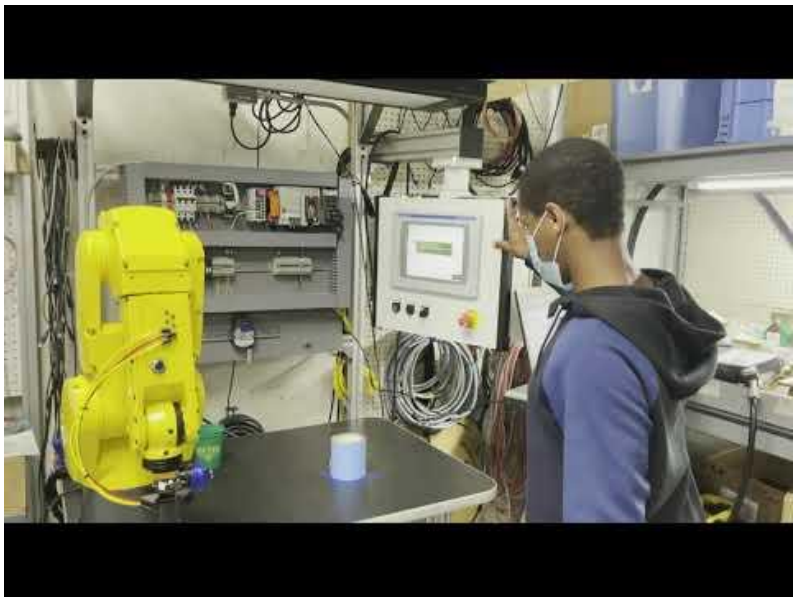
- PLC Programming
  - Allen Bradley
  - Omron
- HMI programming
  - Panel View Plus
  - Advantech
- Excel
  - Query
  - VBA Macros
  - Pivot Tables
- FANUC Robot Programming
- MIR Robot Programming
- Automotive Panel Building
- Field Wiring
- Solidworks
  - Assembly Design
  - Detail Drawings



JOB DESCRIPTION: INTERNSHIP
August 2020 – August 2021

I worked half days at Peloton inc. throughout my senior year of high school as part of a co-op program. I was invited to continue working over the summer.

My Role
I was allowed to try many different positions at the company. I worked with the build teams, electrical teams, design teams and the controls team.



https://www.youtube.com/watch?v=M4Wlef-v40I

PROJECTS

ROBOTICS R&D

Overview: I worked on research and development of applications for collaborative robots to create a more efficient part restock for assembly line stations. This system involved a stationary test bench with a FANUC 200IC robot arm and a MIR trolley robot. The FANUC robot arm was responsible for restocking the trolley robot. While the MIR trolley robot was responsible for delivering the part restock to the correct assembly station. Assembly stations operators could connect wirelessly to the trolley robots and add a restock mission to its queue when the station ran low on parts. Once the trolley queued a mission it navigated to the test bench for restock and then delivered the part to the appropriate station.

System Components: FANUC 200IC robot arm with LR Mate 30IA controller, MIR 100 trolley robot.

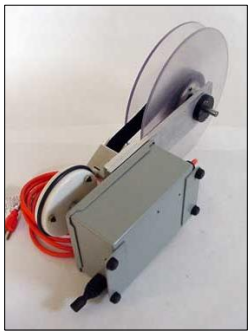
Electrical Design: I worked with an electrical design team to design the electrical system for the FANUC robot test bench and learned some AutoCAD electrical basics. I designed a safety circuit to include safety IO and wired it on the FANUC test bench

Build: I designed, built, and wired the test bench panel and established communications between all components. This involved everything from cutting and painting the plywood sheet to designing and wiring the electrical system.

Controls: I used Rockwell Automations Studio 5000 software to program the Allen Bradley PLC and the Panel View HMI. I established communications between the HMI, PLC, and FANUC robot controller via direct wiring. Then I integrated wireless communications to the MIR trolley robot. I connected multiple PCs to the trolley robot as a proof of concept to simulate multiple assembly stations connected to it. This allowed for missions to be requested and queued by multiple stations. Once the trolley robot received a mission, it navigated to the test bench to be loaded by the FANUC robot arm. Once the robot trolley arrived at the test bench it would turn on its external IO bits to notify the FANUC it had reached its location as well as a bit to specify the part requested. The FANUC would then run the program for the requested part bit and notify the trolley once it was done. Then the trolley robot navigated to the location where the part was requested to complete the mission.

FELT-O-MATIC

Overview: I reverse engineered a small machine for the company. I learned to use Solidworks to create a 3D model of the machine to be used by the manufacturing team for production. I was trained to use calipers and radius gauges to get accurate measurements of parts for drawings. I created detail drawings for about 20 custom machined parts and created a bill of materials for all purchased parts and materials for the machine.



Felt-O-Matic

Design: I led the design of the machine with occasional guidance from the design team. I worked through several iterations of the design with input from managers at design review meetings as well as the manufacturing team. Made appropriate changes and connected electrical system for testing.

Build: Worked with the manufacturing team to assemble the machine. Then I worked to calibrate the machine so that the felt came off the roll continually with no issues. This build was approved and is now manufactured in bulk by the company.