EE/CprE/SE 491 WEEKLY REPORT 11
9/13/2022 - 9/19/2022
Group number: SDDEC22-01
Project title: Plastic Machine Embedded IOT Controller
Client & Advisor: Mark Hansen & Dr. Jones

Team Members/Role:
Stone Widder - Technical Lead
Joshua Baringer - Software Lead
Rachel Teberg – Team Lead / Recorder
Evan Pasero – Technical Support
Charles Sang - Controls Lead

- **Weekly Summary**

This week we finished up testing our previous circuits so we could start making the PCB board. On the software side we continued working on getting the display up and running. We also continued working on PID code.

- **Past week accomplishments**

Evan: Finished research + preliminary testing on battery recharging circuit. We looked into trying to use the breakout board purchased for testing on the main pcb itself, and we will include breakout pins for this board on the next rev of the pcb for testing purposes, but we need to draw around an amp from the battery when the BBB shuts down, and the chip cannot withstand that amperage drawn through it for an extended time period.

Rachel: Finished converting autotune code from c++ to python. Planned out what we need to do for the manual PID code.

Stone: Finished the display testing PCB. Also started and finished research on if we can/need to change to a different relay. Did not find a good replacements so with so circuit modifications we will be sticking with the current relay. Also did testing with the BBB to verify the startup and shut down processes and how the power button and reset pins interact with it.

Charles: Did the power test on the voltage regulator and the biggest issue was overvoltage due to a damaged chip. Ordered a new voltage regulator to arrive Wednesday so as to complete the noise filtering test and BBB boot.

Joshua: Fixed some bugs with the display and database communications. Tested BBB -> PCB -> Display connection. Added Tuning page to GUI. Worked with Rachel on how to implement both manual and auto tuning PID programs.

- **Pending issues** *(If applicable: Were there any unexpected complications? Please elaborate.)*

  - Display connectors are not in the right spot. The touchscreen connector is wrong.
  - Damaged regulator chip. New one ordered.

- **Individual contributions**

NAME	**Individual Contributions** *(Quick list of contributions. This should be short.)*	**Hours this week**	**HOURS cumulative**
Stone Widder	Test PCBs, PCB debugging	8	20
Rachel Teberg	Created Autotune PID code	5	17
Joshua Baringer	Tested display to PCB connection, fixed some bugs on the GUI	5	17
Evan Pasero	Parts researched for battery recharging circuit + parts purchased + gentle shutdown re-designed.	4	16
Charles Sang	Debugging voltage regulator circuit and BBB boot. Also, acquire parts and test touchscreen/PCB connection	4	16

- **Plans for the upcoming week**

Joshua: Edit device tree to have display work. Find dimensions of connectors. Continue to debug GUI, PCB connection, and command line interface. Implement PID tuning stuff to GUI/commandline.

Stone: Will be working on the PCB as much as possible as we want to finish it for the end of the week

Rachel: Add PWM code, research graph options for manual PID UI

Charles: Test new voltage regulator and get a new connector for the touchscreen and test.

Evan: Re-design and layout 5V regulator schematic, layout battery recharging circuit, assist Stone in ensuring that the rest of the PCB is prepared for order on Friday.

- **Summary of weekly advisor meeting**

This week we did not have a meeting with our advisor due to the career fair. We passed a long an email with our goals for this semester that Dr Jones responded too.