Brew Science

April 4th

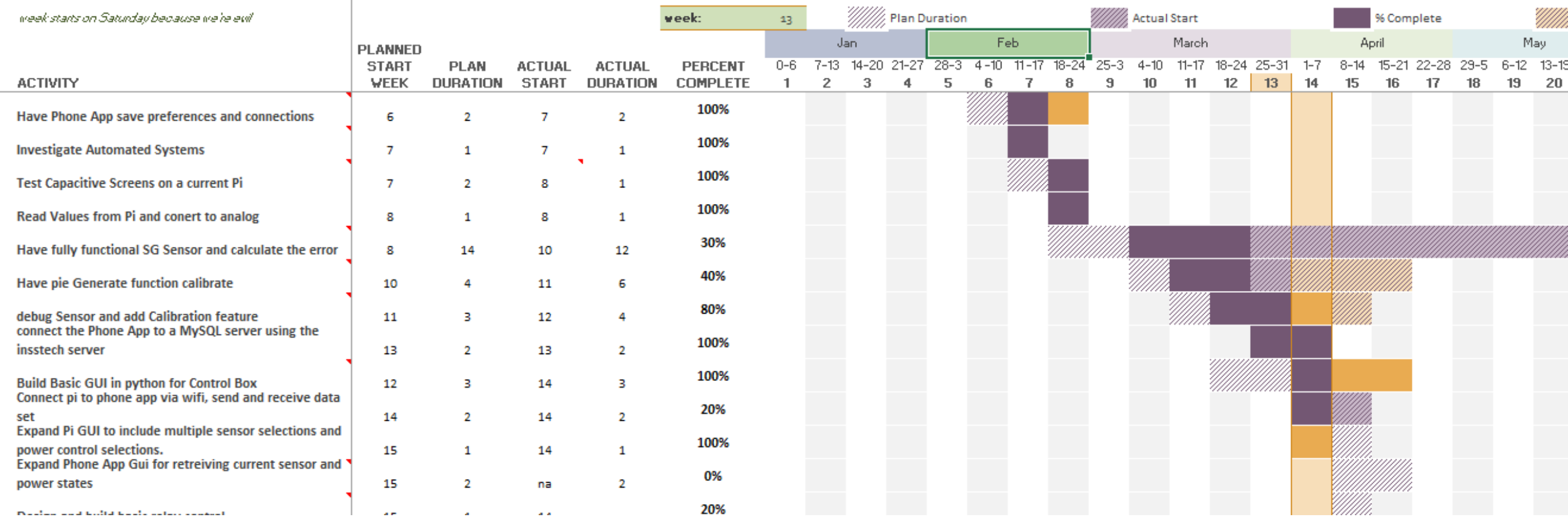
Automation Station

week starts on Saturday because we're evil

week: 13

Plan Duration | Actual Start | % Complete

ACTIVITY	PLANNED START WEEK	PLAN DURATION	ACTUAL START	ACTUAL DURATION	PERCENT COMPLETE
Have Phone App save preferences and connections	6	2	7	2	100%
Investigate Automated Systems	7	1	7	1	100%
Test Capacitive Screens on a current Pi	7	2	8	1	100%
Read Values from Pi and conert to analog	8	1	8	1	100%
Have fully functional SG Sensor and calculate the error	8	14	10	12	30%
Have pie Generate function calibrate	10	4	11	6	40%
debug Sensor and add Calibration feature	11	3	12	4	80%
connect the Phone App to a MySQL server using the insstech server	13	2	13	2	100%
Build Basic GUI in python for Control Box	12	3	14	3	100%
Connect pi to phone app via wifi, send and receive data set	14	2	14	2	20%
Expand Pi GUI to include multiple sensor selections and power control selections.	15	1	14	1	100%
Expand Phone App Gui for retreiving current sensor and power states	15	2	na	2	0%
Design and build basic relay control	15	1	14		20%



Hardware: Andrew Gates

- Completed – Reagan has made a PCB for us to order that will encompass everything we have tested so far, as well as having extra ports for expansion. From the previous week my plan of connecting resistors to a mux for bias selection is complete, I just need to expand this further next week to allow for pull-up voltage with resistor selections as well.
- To Do – While the board is being ordered, I ordered some through-hole components that I can use to continue testing as much of the full scale system as possible. If the multiplexers that I ordered come in early next week I will continue work to have every single multiplexer interfaced in some fashion to allow for each type of sensor to be read.
- Noted Problems – Properly designing our PCB to make sure it encompasses everything we have planned right now, and for the future.

Hardware: Andrew Klonitsko

- Completed - Using the Insttech server I connected to the mysql database from a java class which can be used for an android app without much modification. I also started the mysql code to be able to store a serializable.
- To Do - I am going to connect to the database using an android app and add a .txt file to the data base and check if everything worked correctly.
- Noted Problems -The problem that I faced was having to learn how to code in mysql.

GUI/SG sensor: Reagan Stovall

- Completed – Completed basic Timing selection page as well as cleaned up the interface by making all widgets versatile across differing screen sizes. Implemented a writing function for all data arrays, this will be replaced later by the database. Ran some more tests on the S.G. Sensor, not looking great, was given the idea for using sound to measure the density, researched and found a device that might work.
- To Do – For the GUI, the next week I need to be a able to program a relay to respond to a thermistor, write that array function to the txt file, then have it work correctly. We'll expand on completely as we go from there. For the SG sensor, I found an interesting I2C chip for Identifying a liquid via ultrasonic. I'm ordering the chip and a few other necessary components to see if we can make it work for our application. This will be dependent on when we get it in the mail, so we might not have it tested by next week.
- Noted Problems –Of the linear hall effect sensors that I purchased for testing, only three operated in the range we would need, all three showed the same characteristics of measuring the magnetic field between 1.5 inches and .5 inches, but the distance the hydrometer moves is typically around 1.5 inches. Coupled with this, it was noted that in close proximity, .5 to .7 inches, minute changes reflected dramatically, with boiling water the float moved too much to generate better than a +/-20% measurement with "cleaned data" hopefully the new option will give us a cleaner and easier way to measure the density.

Mitigation Plan – N/A (On track so far)

Spec Development – First draft completed, will be submitted in the appropriate area on Canvas.

Test Plan – A portion of this was completed along with our spec development, still in progress though.