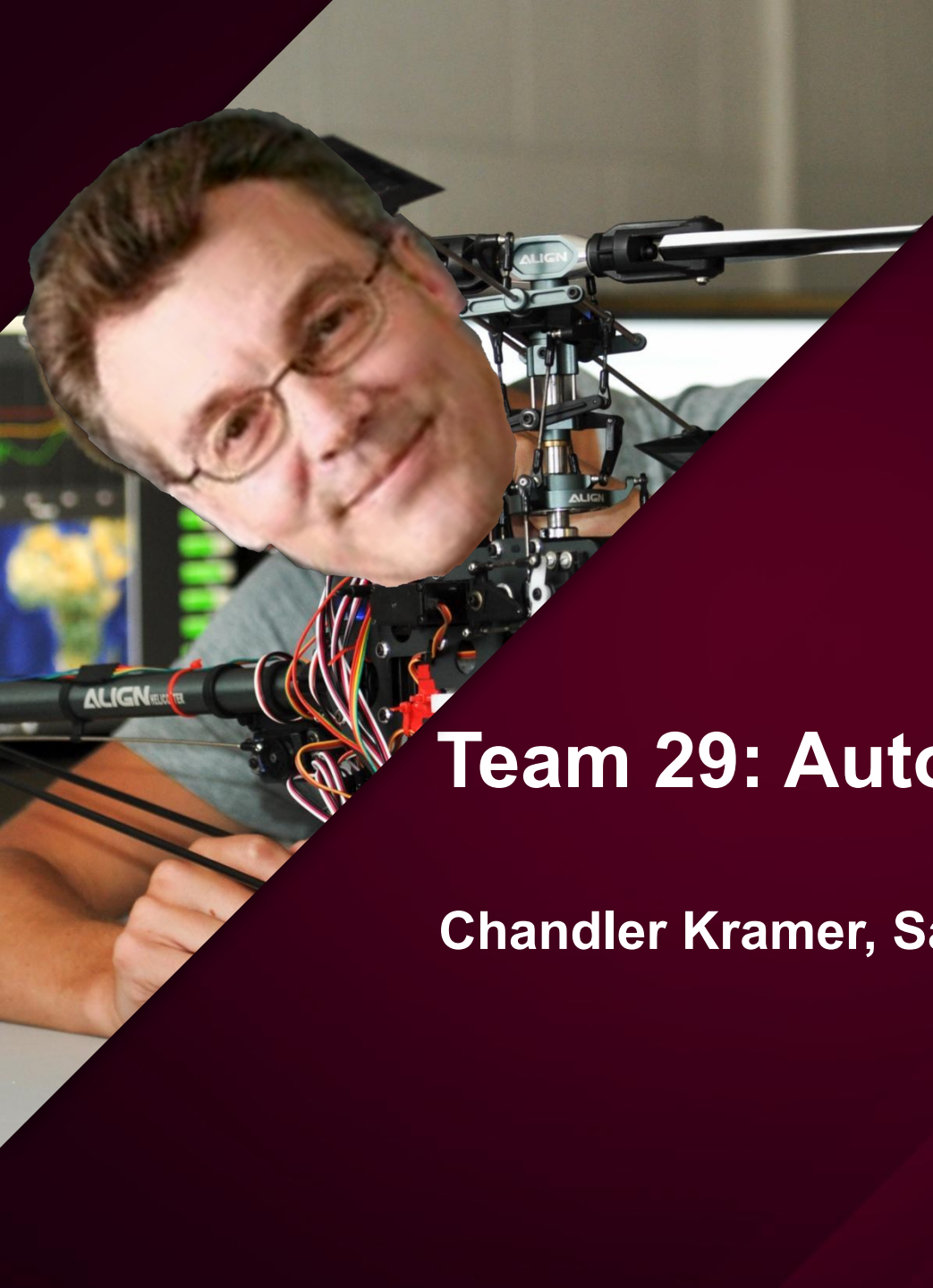

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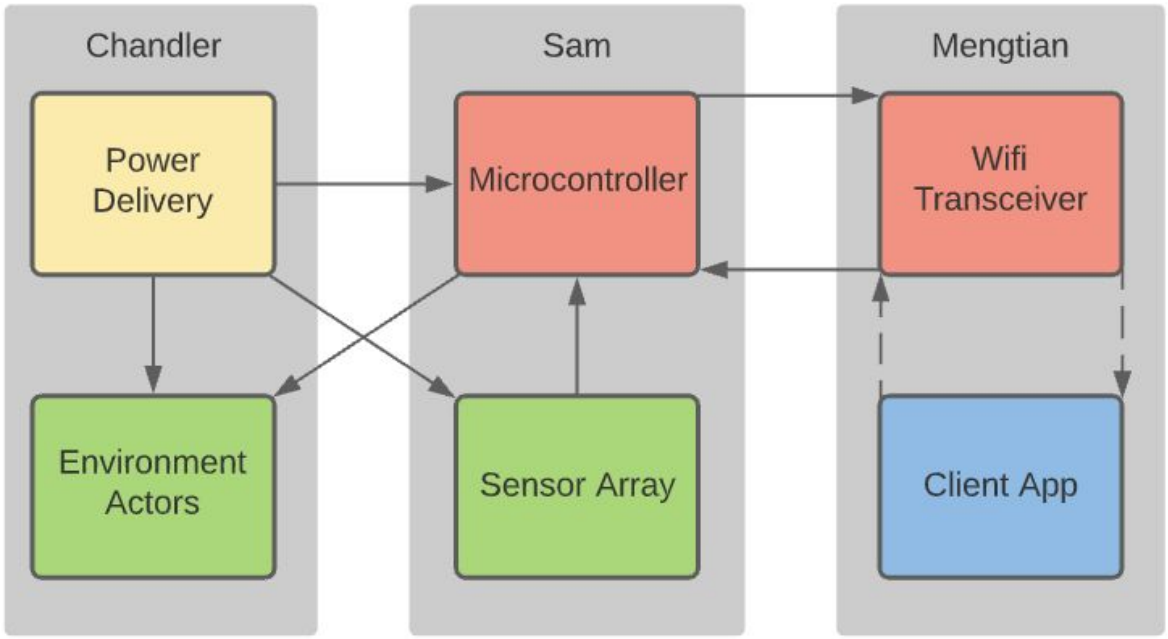
Team 29: Automated Greenhouse
Bi-Weekly Update 3

Chandler Kramer, Samuel Erickson, Mengtian Ke
Sponsor: Kevin Nowka
TA: Skyelar Head

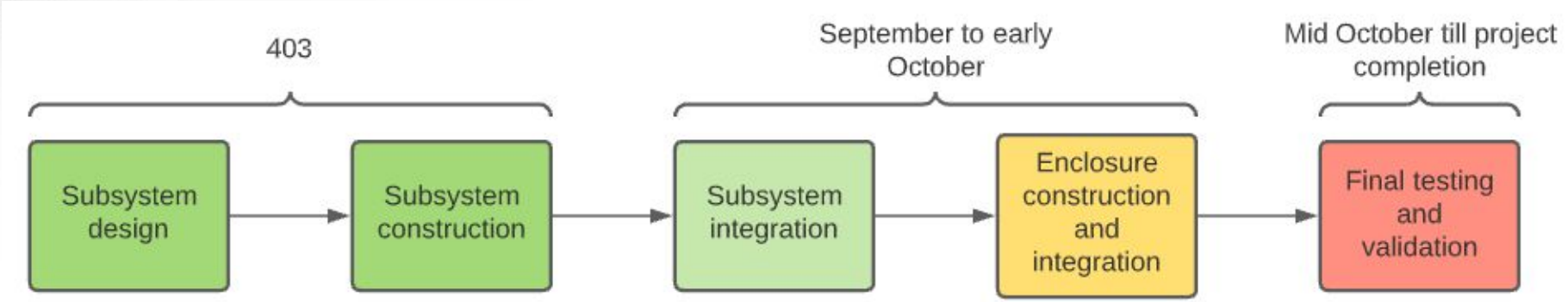
Project Summary

- Traditional gardening, even with a greenhouse, is a very manual process that can be very time consuming and plants are still vulnerable to the elements.
- The automatic greenhouse attempts to alleviate this problem by automating water delivery, temperature regulation, and airflow according to remotely set values by the user.

Subsystem Overview



Project Timeline



Power Subsystem

Owner: Chandler Kramer

Accomplishments since last update 12 hrs of effort	Ongoing progress/problems and plans until the next presentation
- Temporary configuration of the buck converter for the MCU	- Integrating the MCU subsystem with the Power Subsystem - Setting up and integrating subsystem with the greenhouse enclosure

MCU and Sensor Subsystem

Owner: Samuel Erickson

Accomplishments since last update 7 hrs of effort	Ongoing progress/problems and plans until the next presentation
- Framework of control algorithm created - Sending wifi board sensor-like data to display - Drove solenoid with relay board	- Affix more permanent wiring - Implement control algorithm logic - Integrate with greenhouse enclosure

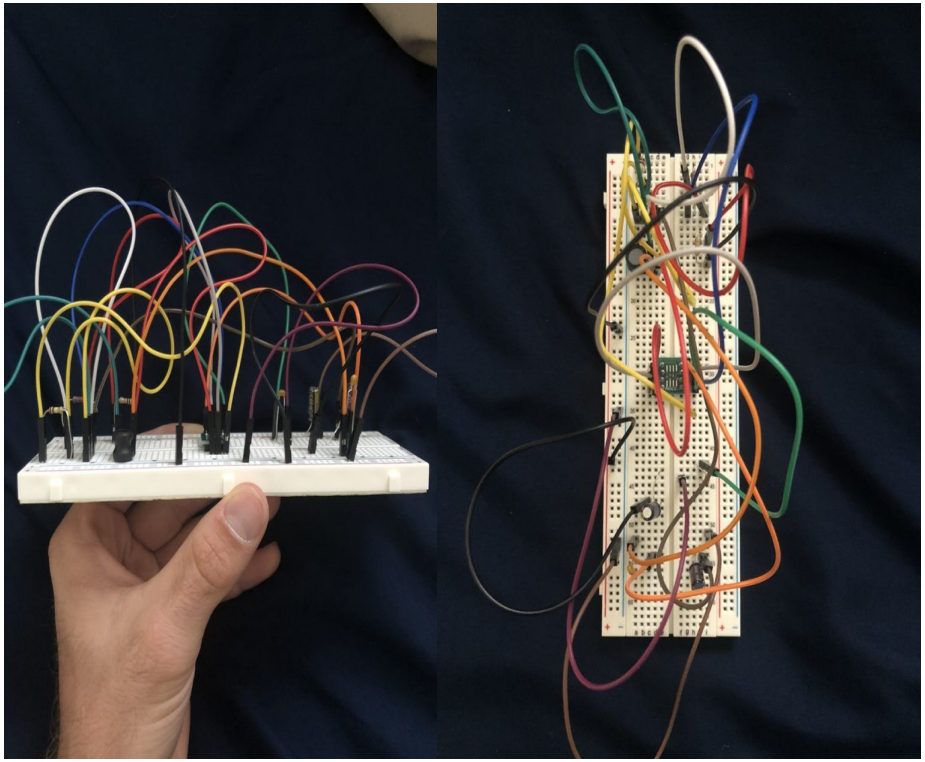
Client Interface Subsystem

Owner: Mengtian Ke

Accomplishments since last update 7 hrs of effort	Ongoing progress/problems and plans until the next presentation
- Improved the communication between MCU and Particle board - Display data in the report page	- Communicate with MCU and output the real data - Modify the client interface to be more user friendly

Power Subsystem

- Temporary configuration
- USB type A breakout board

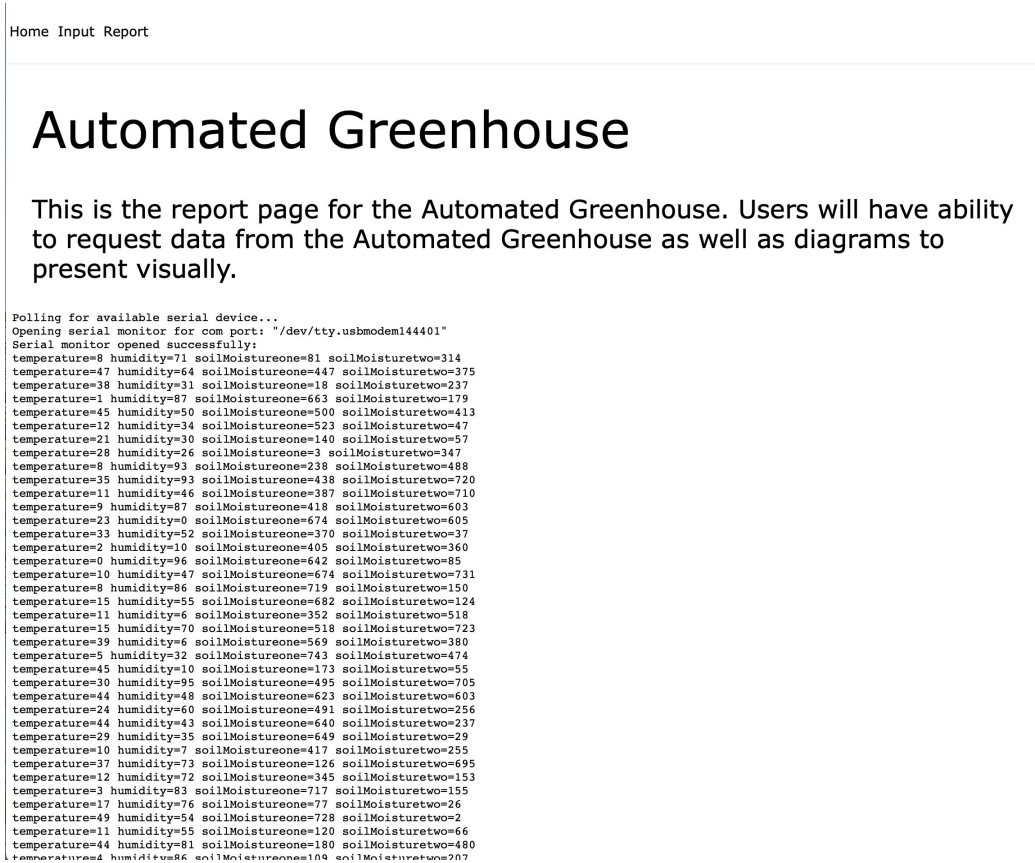


MCU and Sensor Subsystem

- Framework and control functions for control algorithm have been written.
- Solenoids driven by planned power source and switched via relay

Client Interface Subsystem

- The report page includes four fake data values that generated by rand()



Home Input Report

Automated Greenhouse

This is the report page for the Automated Greenhouse. Users will have ability to request data from the Automated Greenhouse as well as diagrams to present visually.

```
Polling for available serial device...
Opening serial monitor for com port: "/dev/tty.usbmodem144401"
Serial monitor opened successfully:
temperature=8 humidity=71 soilMoistureone=81 soilMoisturetwo=314
temperature=47 humidity=64 soilMoistureone=447 soilMoisturetwo=375
temperature=38 humidity=31 soilMoistureone=18 soilMoisturetwo=237
temperature=1 humidity=87 soilMoistureone=663 soilMoisturetwo=179
temperature=45 humidity=50 soilMoistureone=500 soilMoisturetwo=413
temperature=12 humidity=34 soilMoistureone=523 soilMoisturetwo=47
temperature=21 humidity=30 soilMoistureone=140 soilMoisturetwo=57
temperature=28 humidity=26 soilMoistureone=3 soilMoisturetwo=347
temperature=8 humidity=93 soilMoistureone=238 soilMoisturetwo=488
temperature=35 humidity=93 soilMoistureone=438 soilMoisturetwo=720
temperature=11 humidity=46 soilMoistureone=387 soilMoisturetwo=710
temperature=9 humidity=87 soilMoistureone=418 soilMoisturetwo=603
temperature=23 humidity=0 soilMoistureone=674 soilMoisturetwo=605
temperature=33 humidity=52 soilMoistureone=370 soilMoisturetwo=37
temperature=2 humidity=10 soilMoistureone=405 soilMoisturetwo=360
temperature=0 humidity=96 soilMoistureone=642 soilMoisturetwo=85
temperature=10 humidity=47 soilMoistureone=674 soilMoisturetwo=731
temperature=8 humidity=86 soilMoistureone=719 soilMoisturetwo=150
temperature=15 humidity=55 soilMoistureone=682 soilMoisturetwo=124
temperature=11 humidity=6 soilMoistureone=352 soilMoisturetwo=518
temperature=15 humidity=70 soilMoistureone=518 soilMoisturetwo=723
temperature=39 humidity=6 soilMoistureone=569 soilMoisturetwo=380
temperature=5 humidity=32 soilMoistureone=743 soilMoisturetwo=474
temperature=45 humidity=10 soilMoistureone=173 soilMoisturetwo=55
temperature=30 humidity=95 soilMoistureone=495 soilMoisturetwo=705
temperature=44 humidity=48 soilMoistureone=623 soilMoisturetwo=603
temperature=24 humidity=60 soilMoistureone=491 soilMoisturetwo=256
temperature=44 humidity=43 soilMoistureone=640 soilMoisturetwo=237
temperature=29 humidity=35 soilMoistureone=649 soilMoisturetwo=29
temperature=10 humidity=7 soilMoistureone=417 soilMoisturetwo=255
temperature=37 humidity=73 soilMoistureone=126 soilMoisturetwo=695
temperature=12 humidity=72 soilMoistureone=345 soilMoisturetwo=153
temperature=3 humidity=83 soilMoistureone=717 soilMoisturetwo=155
temperature=17 humidity=76 soilMoistureone=77 soilMoisturetwo=26
temperature=49 humidity=54 soilMoistureone=728 soilMoisturetwo=2
temperature=11 humidity=55 soilMoistureone=120 soilMoisturetwo=66
temperature=44 humidity=81 soilMoistureone=180 soilMoisturetwo=480
temperature=4 humidity=86 soilMoistureone=109 soilMoisturetwo=207
```

Misc. Update

- Electronics Box for enclosure
- Relay board amperage
- Seeds
- Additional hardware arriving tomorrow

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Execution & Validation Plan

Thank you!
Any Questions?