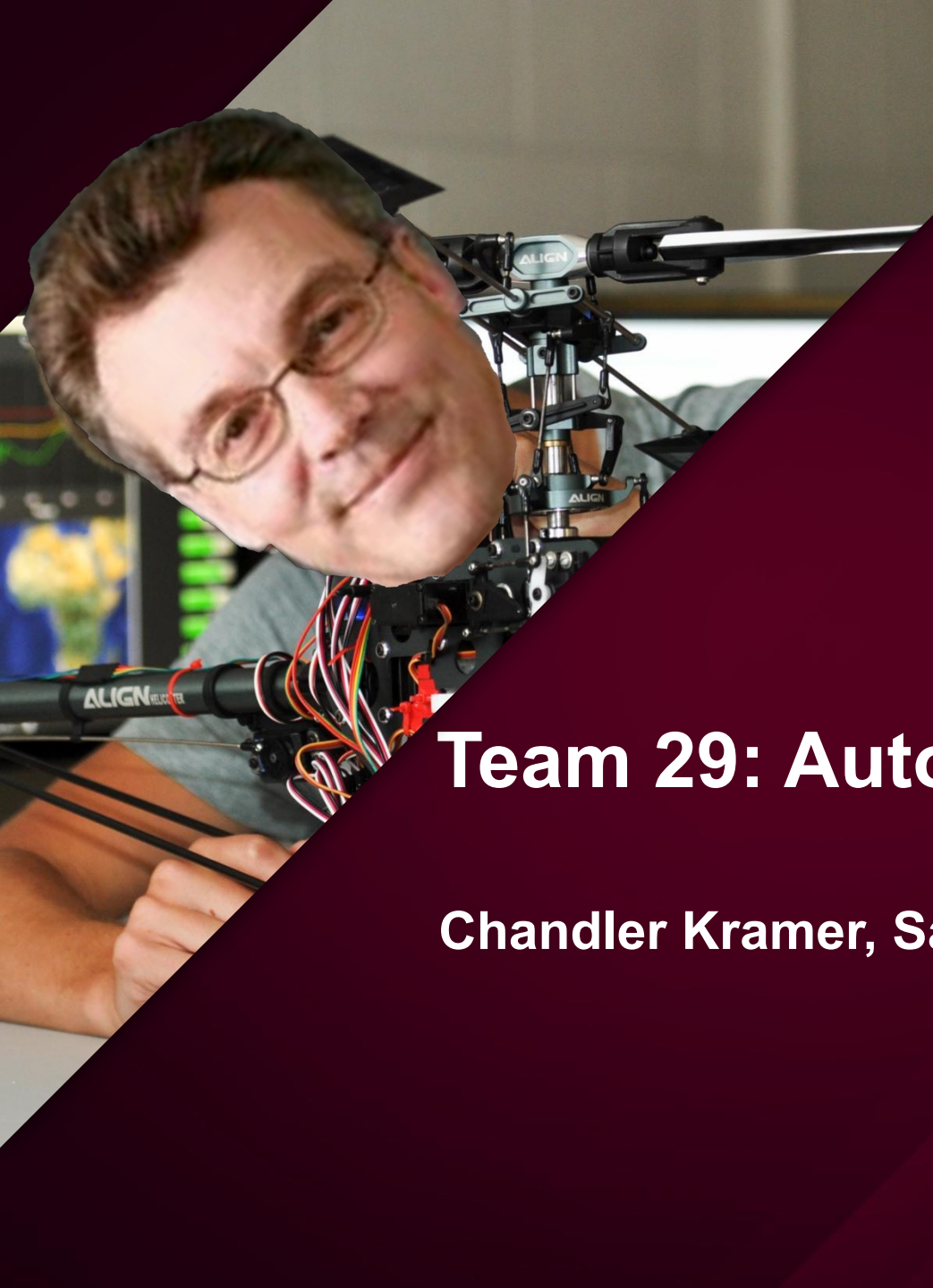

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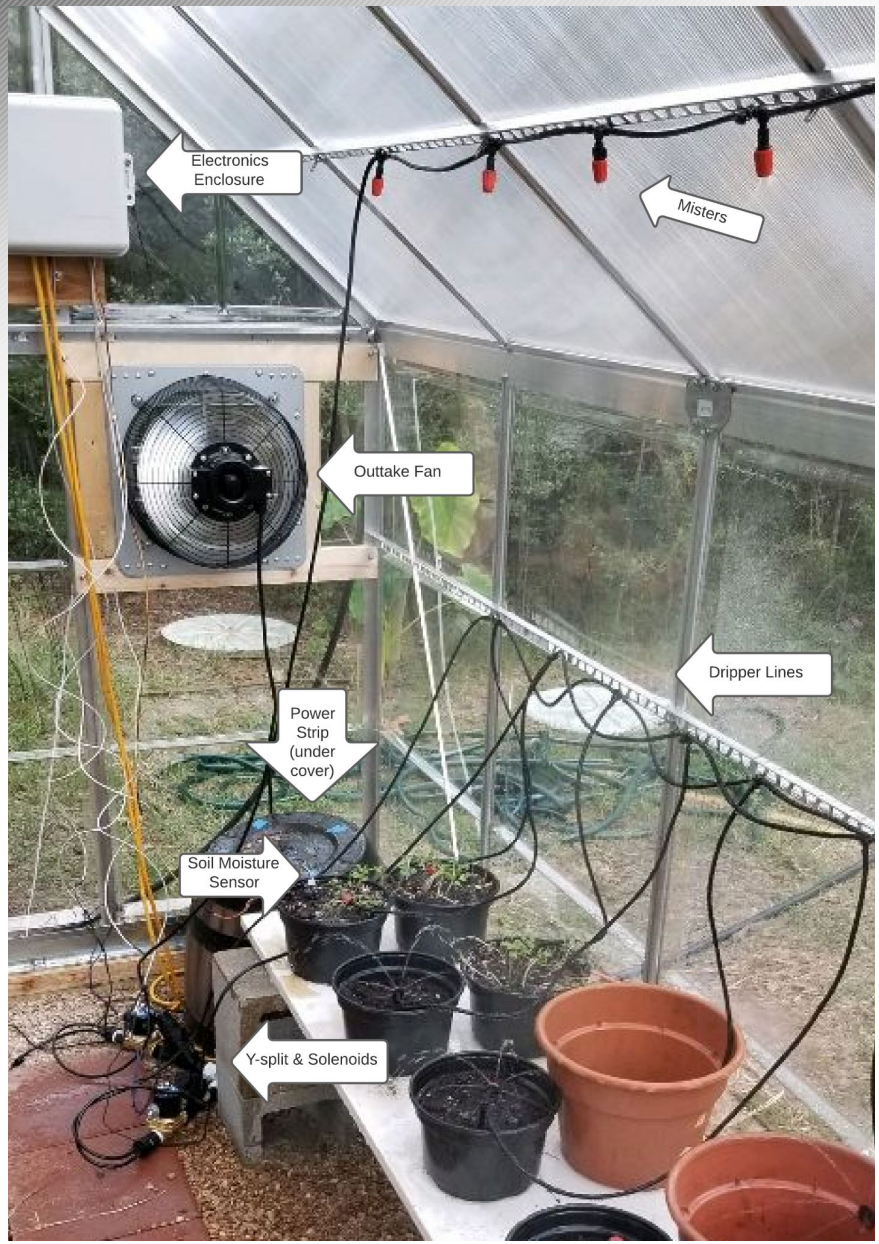
Team 29: Automated Greenhouse
Bi-Weekly Update 5

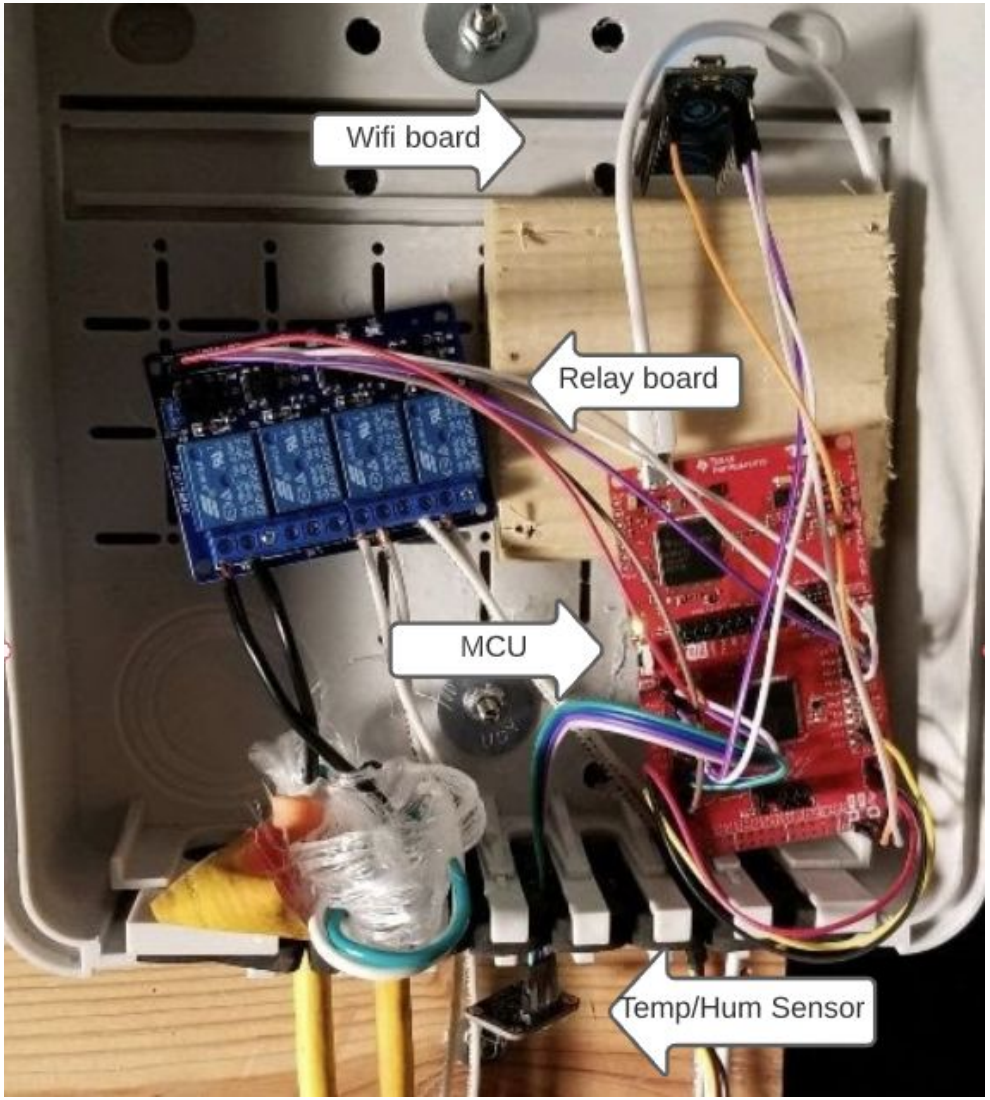
Chandler Kramer, Samuel Erickson, Mengtian Ke
Sponsor: Kevin Nowka
TA: Skyelar Head

Project Summary

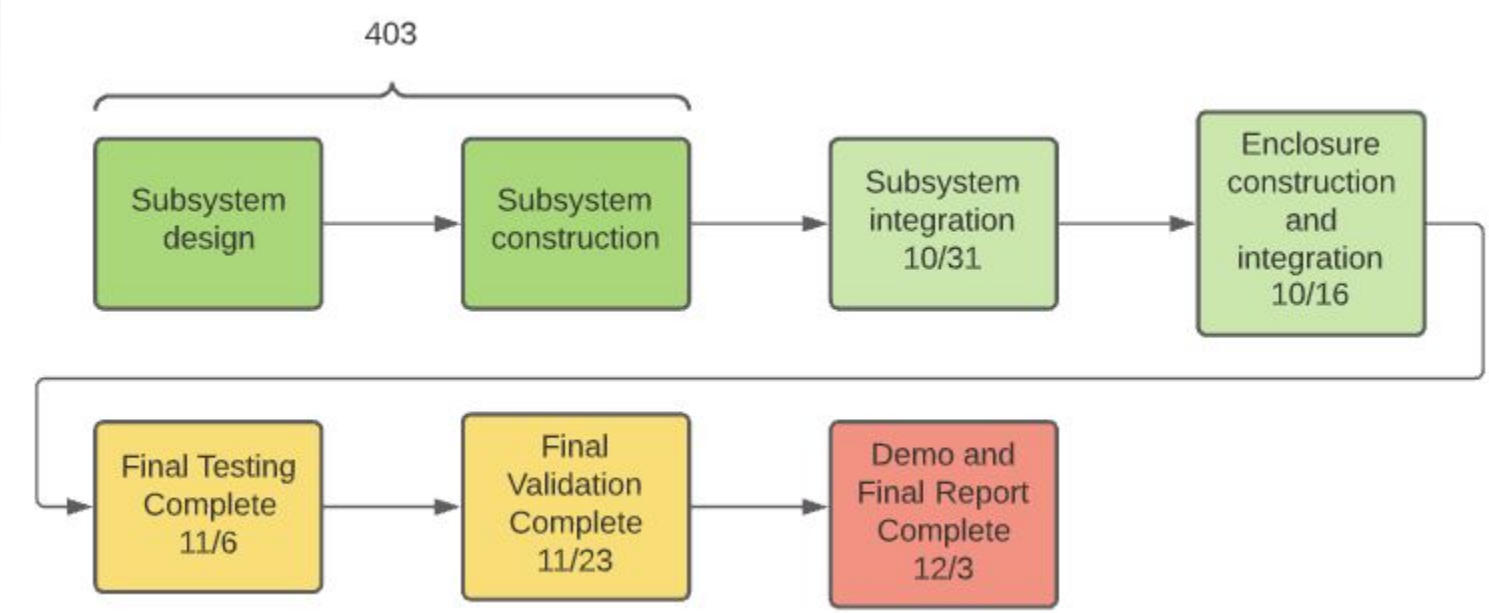
- Traditional gardening, even with a greenhouse, is a very manual process that can be very time consuming and plants are still vulnerable to the elements.
- The automatic greenhouse attempts to alleviate this problem by automating water delivery, temperature regulation, and airflow according to remotely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

Integrated System Diagram





Project Timeline



Power Subsystem

Owner: Chandler Kramer

Accomplishments since last update 18 hrs of effort	Ongoing progress/problems and plans until the next presentation
- New BC - Ordered PCB Components - Began PCB Design - Perf Board - Perf Board Components	- Finalize PCB Design and have it sent out - Construct Prototype on Perf Board - Test Bench Prototype

MCU and Sensor Subsystems

Owner: Samuel Erickson

Accomplishments since last update 9 hrs of effort	Ongoing progress/problems and plans until the next presentation
- Tested humidity and soil moisture control algorithm, collected data on current performance - Validated wifi connectivity and data collection in live environment	- Add improvements to algorithm based on test data - Test updated algorithm and validate in live environment

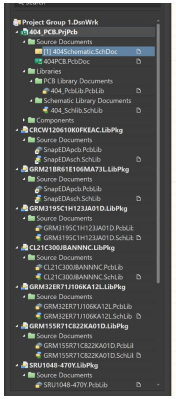
Client Interface Subsystem

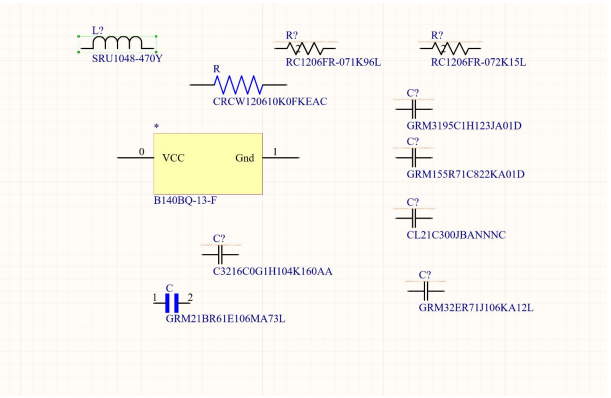
Owner: Mengtian Ke

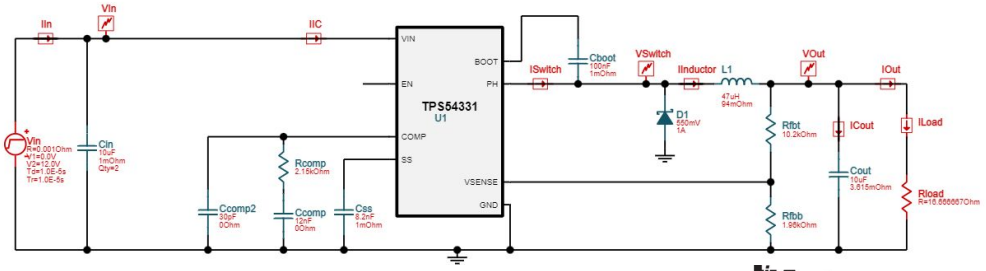
Accomplishments since last update 10 hrs of effort	Ongoing progress/problems and plans until the next presentation
- Client Interface sends out data to temperature, humidity and soil moisture sensor and receive current data every two seconds. - Implemented features in the Client Interface	- Display data trading over time - Summarize data over a period of time

Power Subsystem

- New BC
- PCB Design







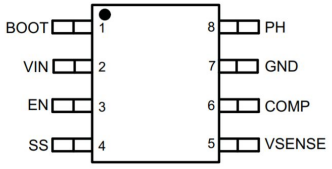
TEXAS INSTRUMENTS

TPS54331

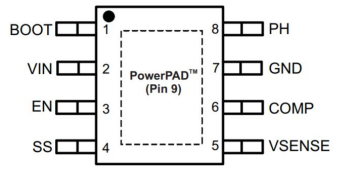
SLVS839F – JULY 2008 – REVISED OCTOBER 2014 www.ti.com

6 Pin Configuration and Functions

D Package
8-Pin SOIC
Top View

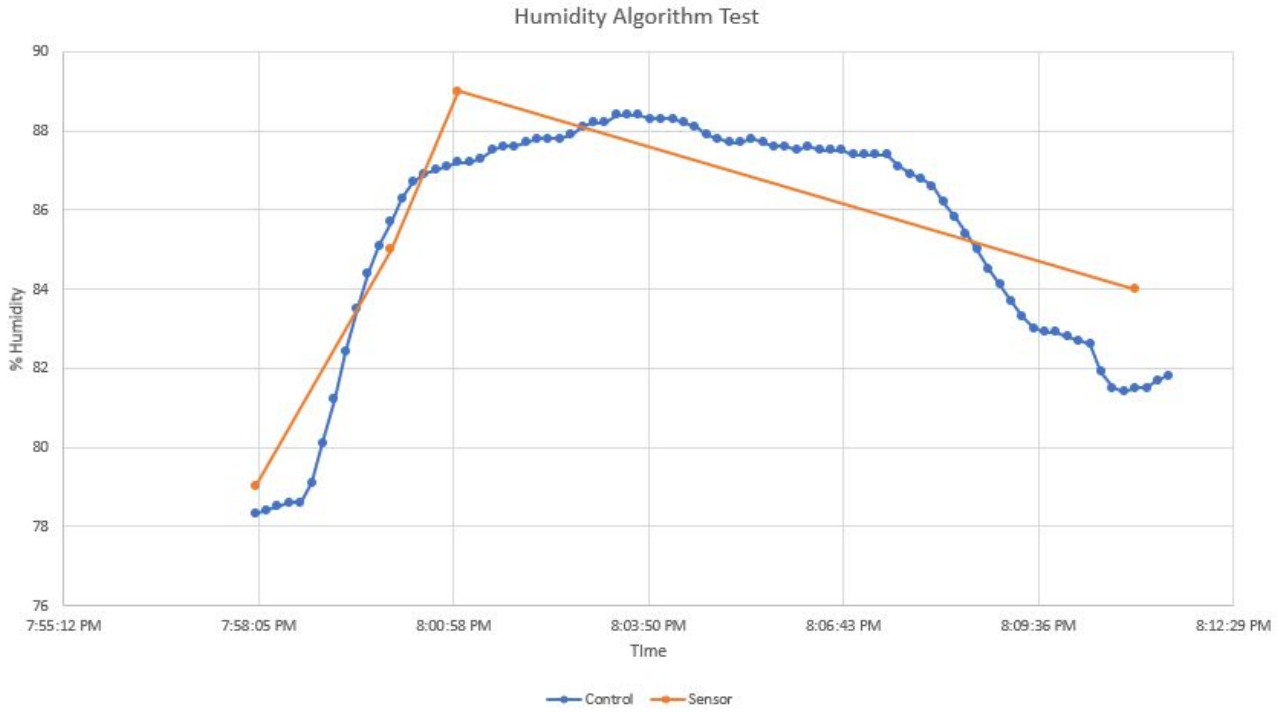


DDA Package
8-Pin SO With PowerPAD™
Top View



MCU and Sensors

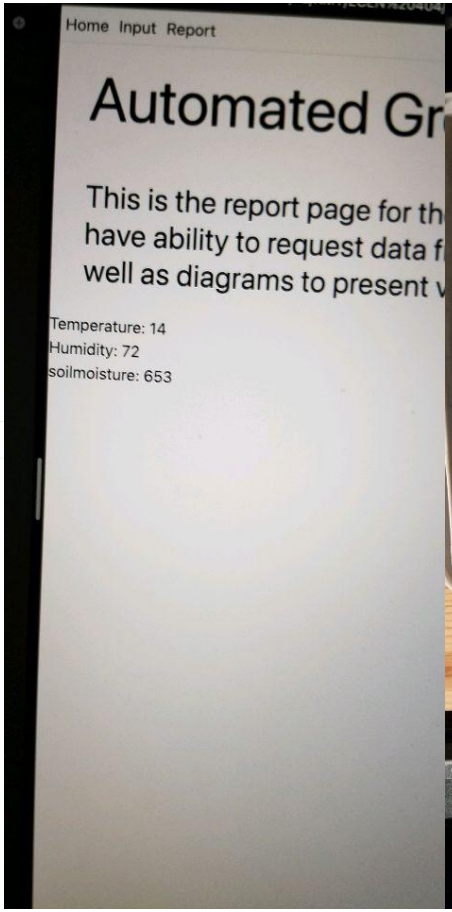
- Data collection on current performance of humidity and soil moisture control

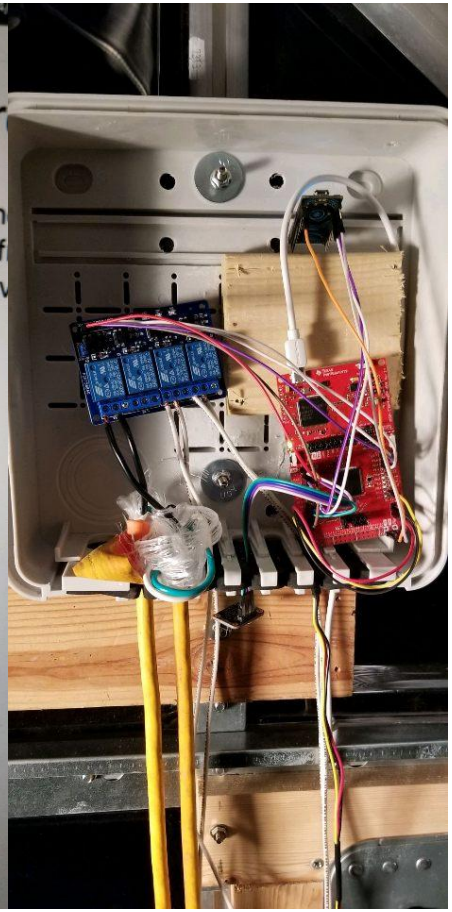


- Current irrigation solution lets water reach the bottom of pot in ~40 seconds
- Current humidity control algorithm slightly overshoots humidity

Client Interface Subsystem

- Current data
- Implement Client Interface





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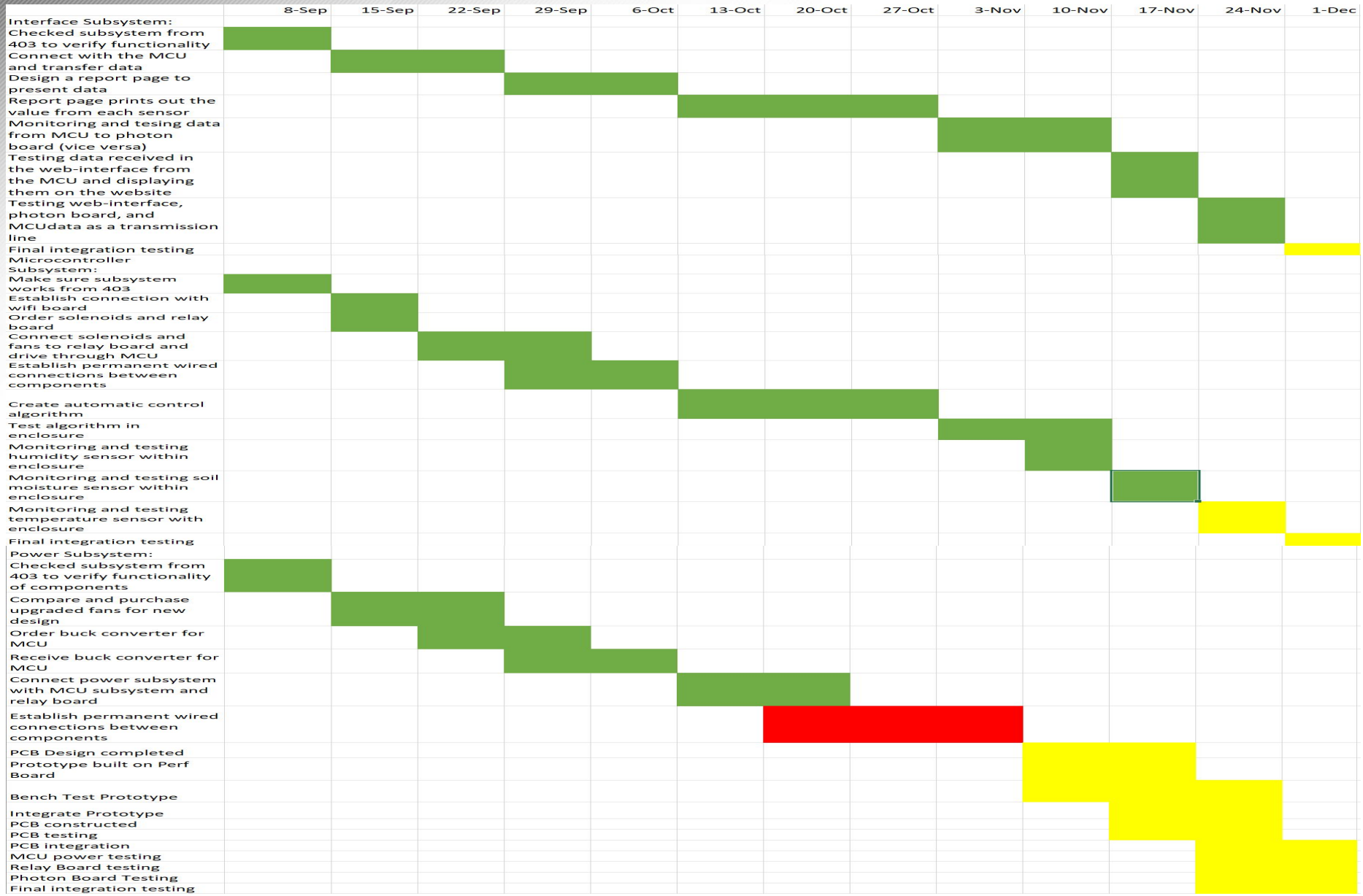
Execution & Validation Plan



Thank you!
Any Questions?