Where the Team Started

- Under spec. electrical parts
- Sudden failure from ESC explosions
- Only manual flight options
- Digital pump flow rate control

Electrical Thrust Testing

- The team began testing the newly added electrical components by performing a thrust stress test.
- This was done by anchoring the drone to the ground and rapidly fluctuating the thrust while monitoring the current load and temperature of the electrical components.

Flight Testing

- Flight testing consisted of tuning PID values for flight stability
- Next was programing and testing autonomous flight routes

Oregon State University

Agricultural Drone

OSU Agricultural Drone 2023

From the Ashes

The team started the year off with a bang and got quick to work rebuilding the drone after a nasty crash

Our Sponsor

- Raitong Organics in Thailand are working to revolutionize the agricultural industry by adding autonomous drone technology to increase farming efficiency.
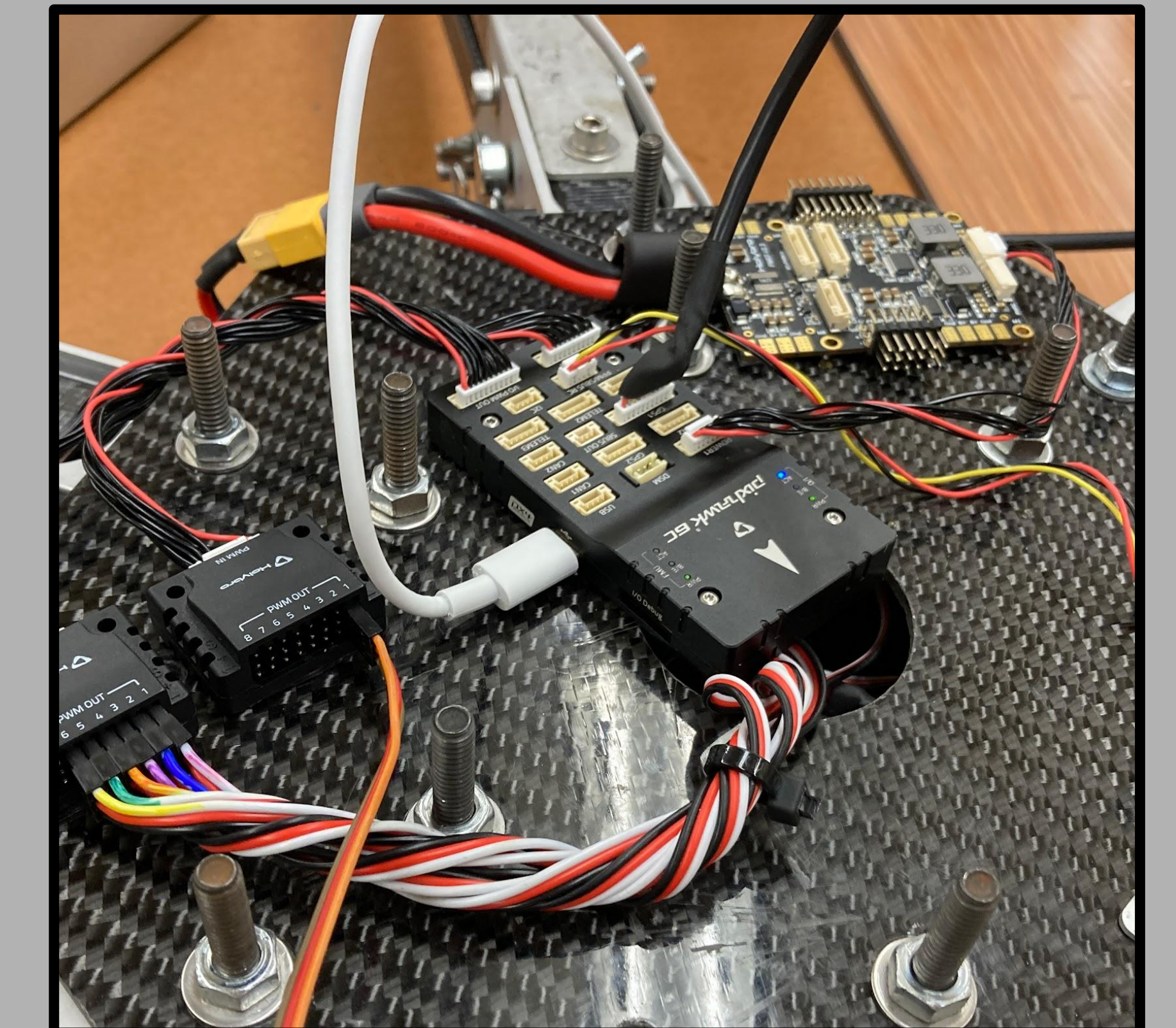- With the use of drones, manual labor can be reallocated to less labor intensive tasks.

Raitong organics farm

CAD Model

Switching to Pixhawk

- The Pixhawk flight controller enabled inexpensive, open source, mission planning and autonomous flight capabilities.

Flight Planning

- The QGroundControl software enables users to plan autonomous missions and set flight parameters such as flight speeds, altitudes, and failsafe criteria.

Future Work

- Adding an obstacle avoidance system would protect the drone from crashing into unforeseen obstacles during automated flight.
- A tank level sensor could automate the drones ability to return home once the tank has been emptied during spraying.
- Reducing weight to increase flight time.
- Addition of tank baffles to minimize fertilizer sloshing during flight.