

The Foliage Father

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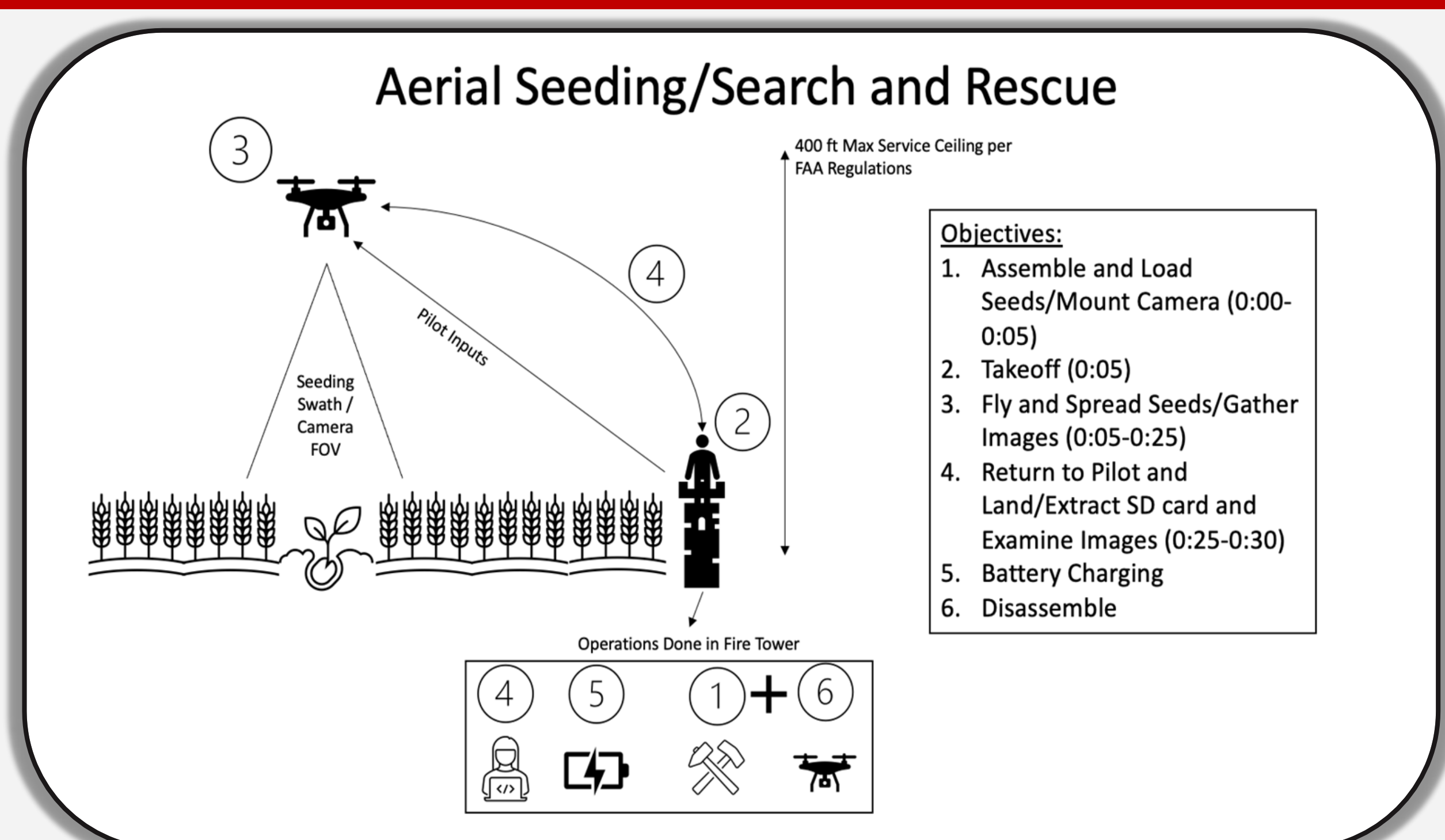
PROJECT OVERVIEW



Specification	Value
Weight	10 pounds
Thrust/Weight	2.4
Endurance	20 minutes
Seed Payload	1.33 liters

Team Guardian Props has created a multi-rotor drone platform capable of search and rescue and aerial seeding missions: The Foliage Father.

CONCEPT OF OPERATIONS



Preflight: Follow Preflight Checklist and assemble proper payload for desired mission

Takeoff: Takeoff from ground to appropriate altitude

Flight: Pilot Foliage father to spread seeds/capture images

Landing: Descend to ground station

Post Flight: Inspect aircraft for damage and extract SD Card from camera

DESIGN SOLUTION

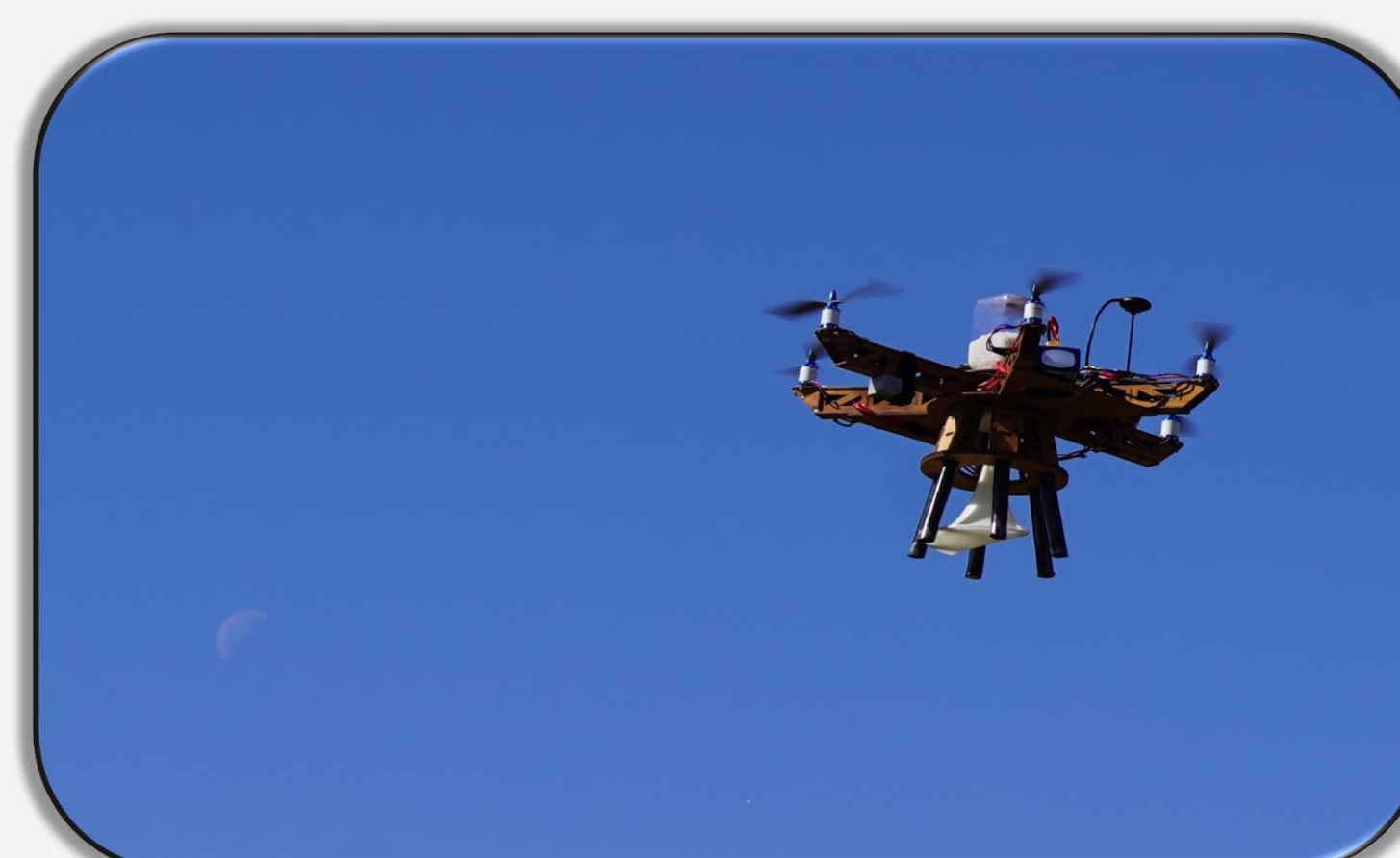
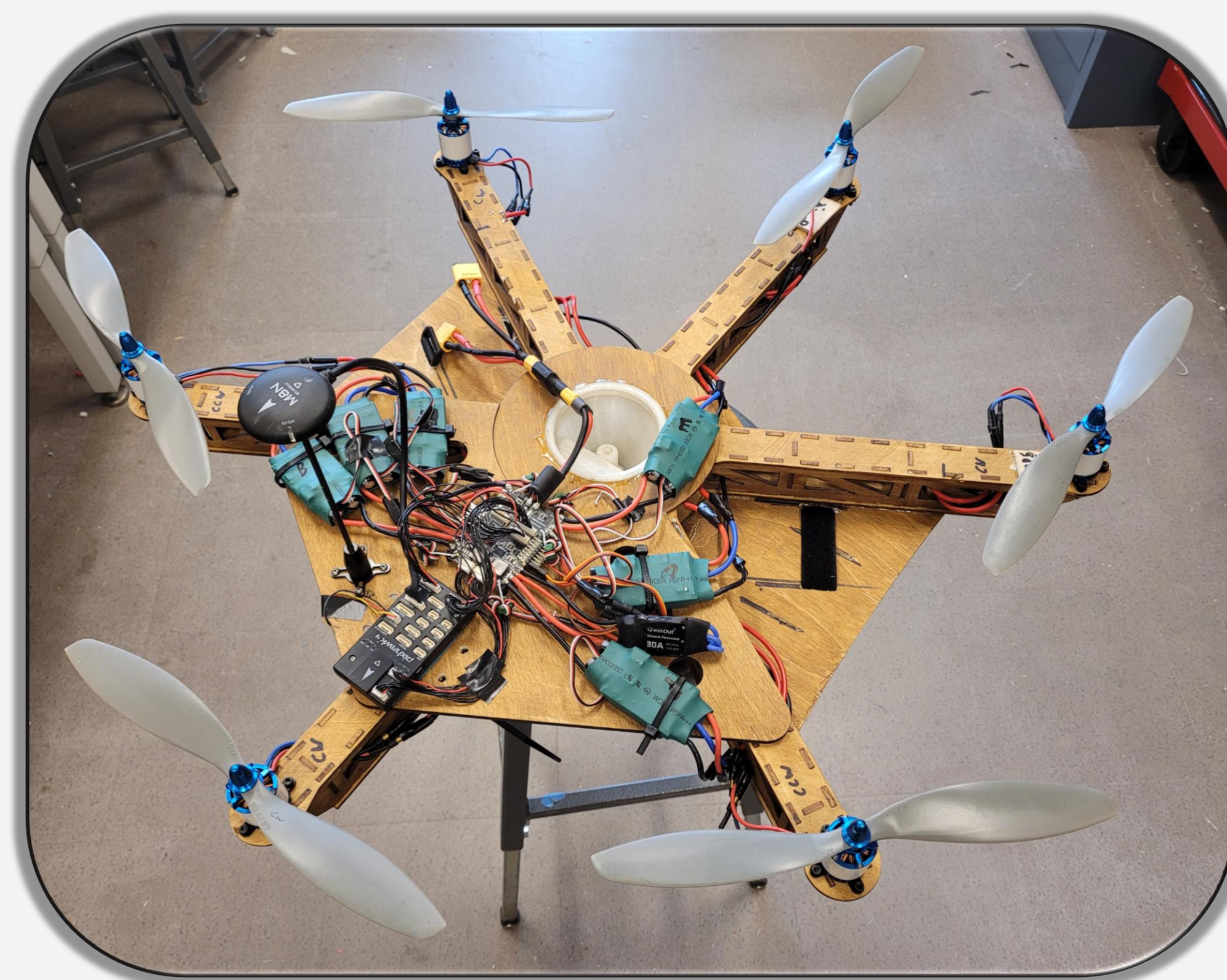


CAD Model of the Foliage Father

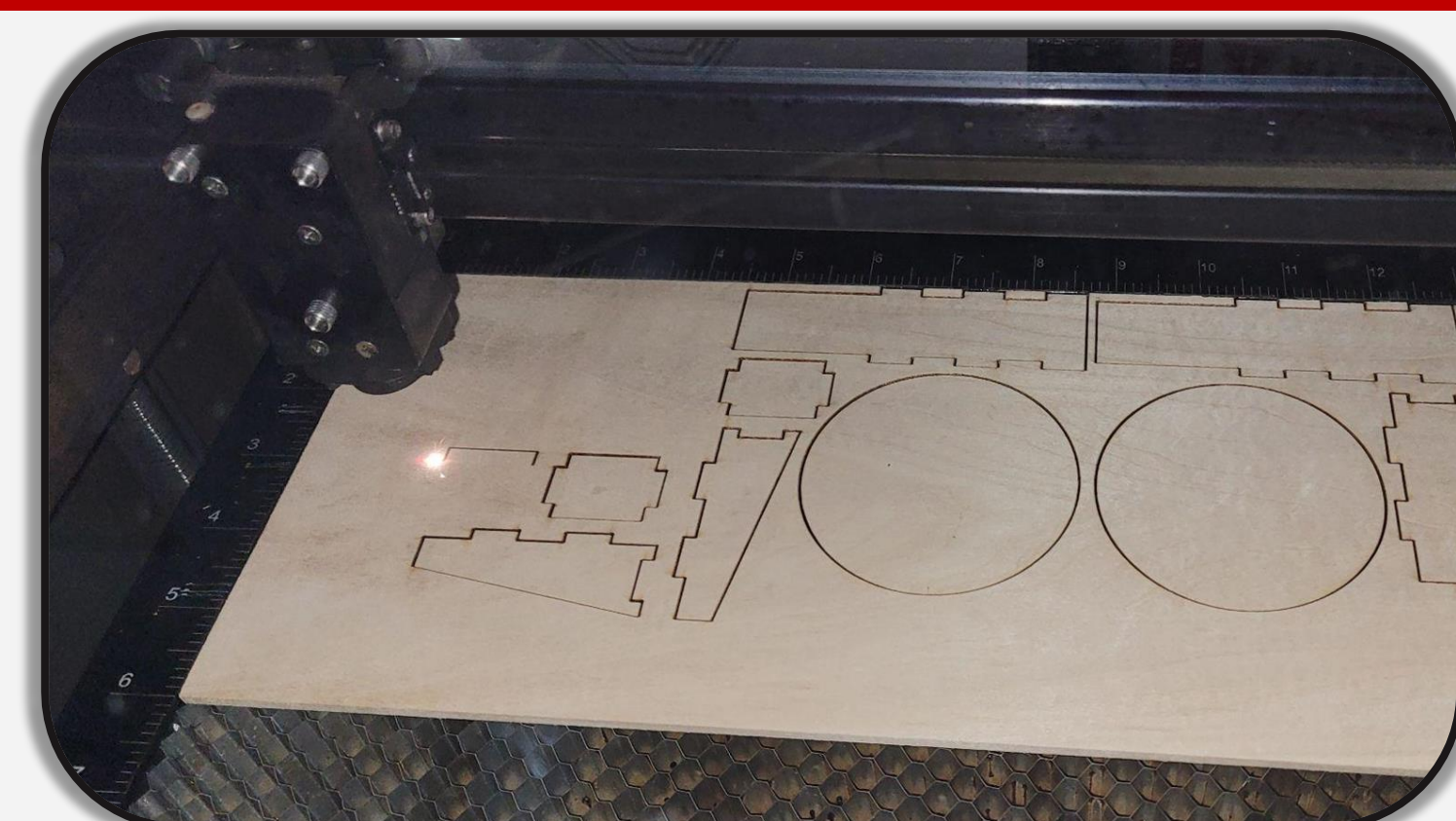
Features

- Centralized Payload
- Autopilot
- Removable Landing Gear
- Crash Resistant

PROTOTYPE



MANUFACTURING



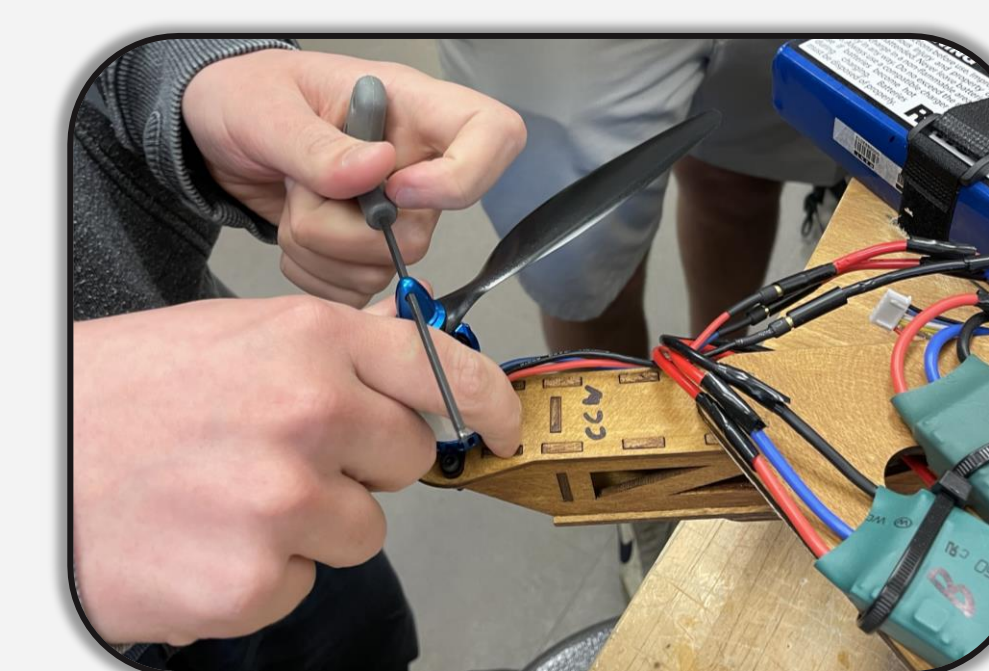
Laser Cut Basswood for Airframe and Landing Gear Skirt



3D-Printed Components for Aerial Seeding Mission



Laser Cut Basswood Sealed and Glued Together

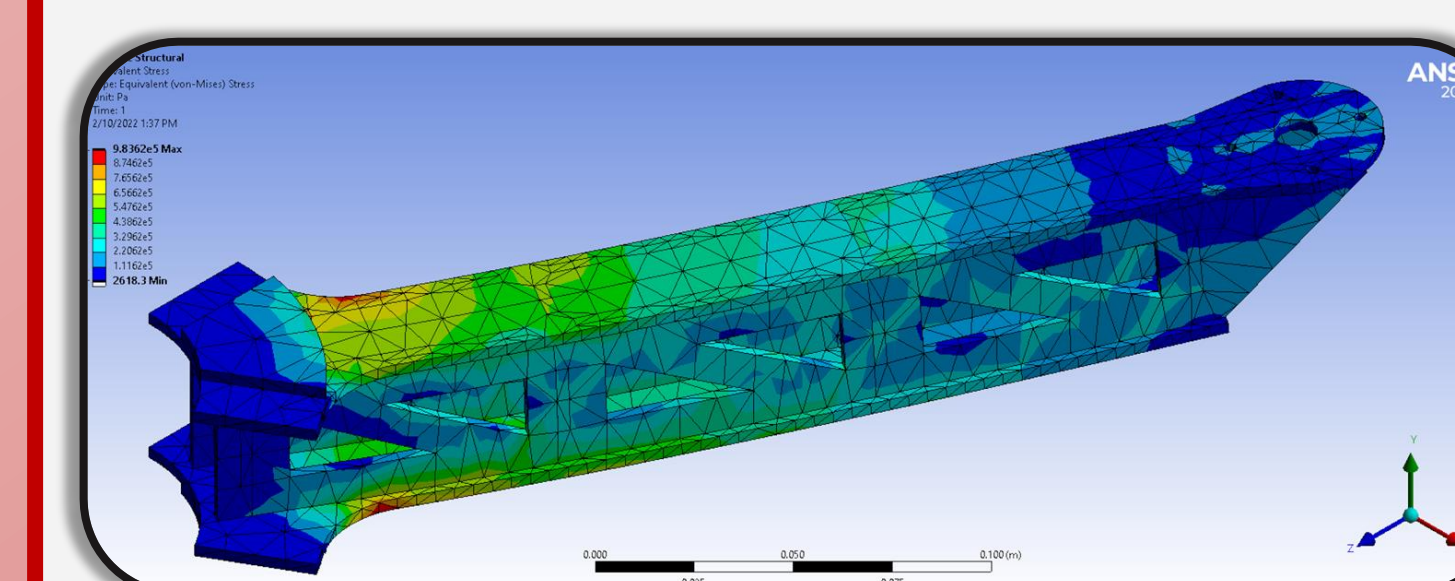


Propulsion System Mounted on the Aircraft

TESTING



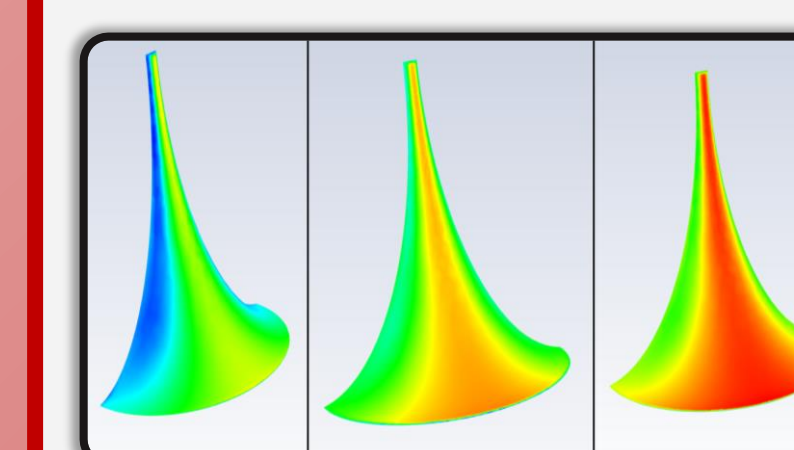
Drop Testing of Landing Gear Components to Verify Strength During Landing



Ansys Simulations to Numerically Predict Airframe and Landing Gear Strength

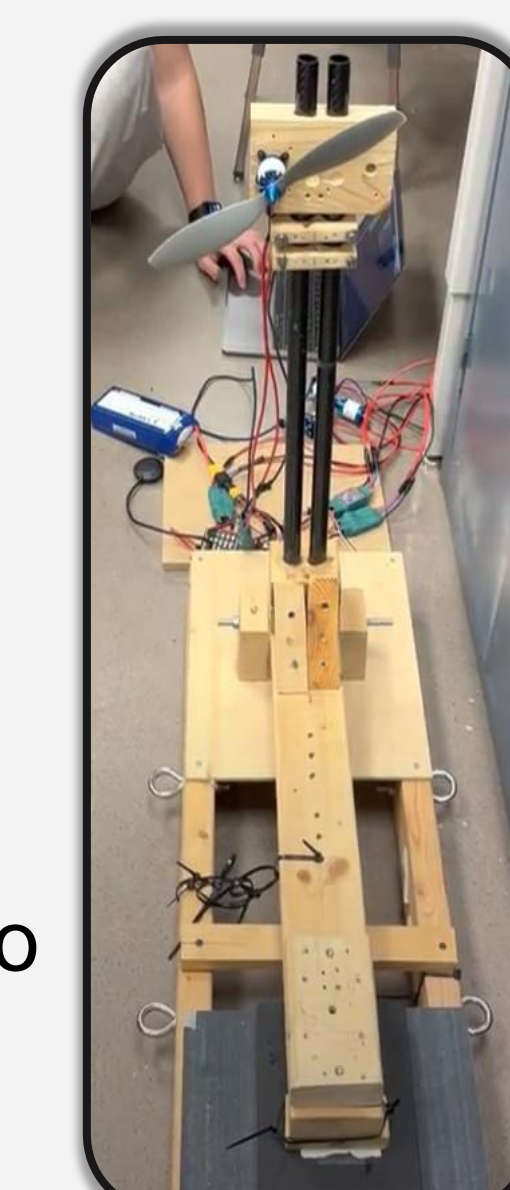


Arm Loading Test to Verify Airframe Strength During Flight



CFD Simulations to Determine Seeder Drag

Static Thrust Tests to Verify Motor Thrust



FUNCTIONAL BLOCK DIAGRAM

