

UCI Cargo Plane 2018-2019

“Anteater Express”

Background

UCI Cargo Plane is a team composed of undergraduate students who design and manufacture a 55 lb. RC plane to carry passengers and luggage to compete in SAE Aero West in April, 2019.

Goal

To design a consistent flying plane, minimize weight, and win the competition.

Competition Requirements

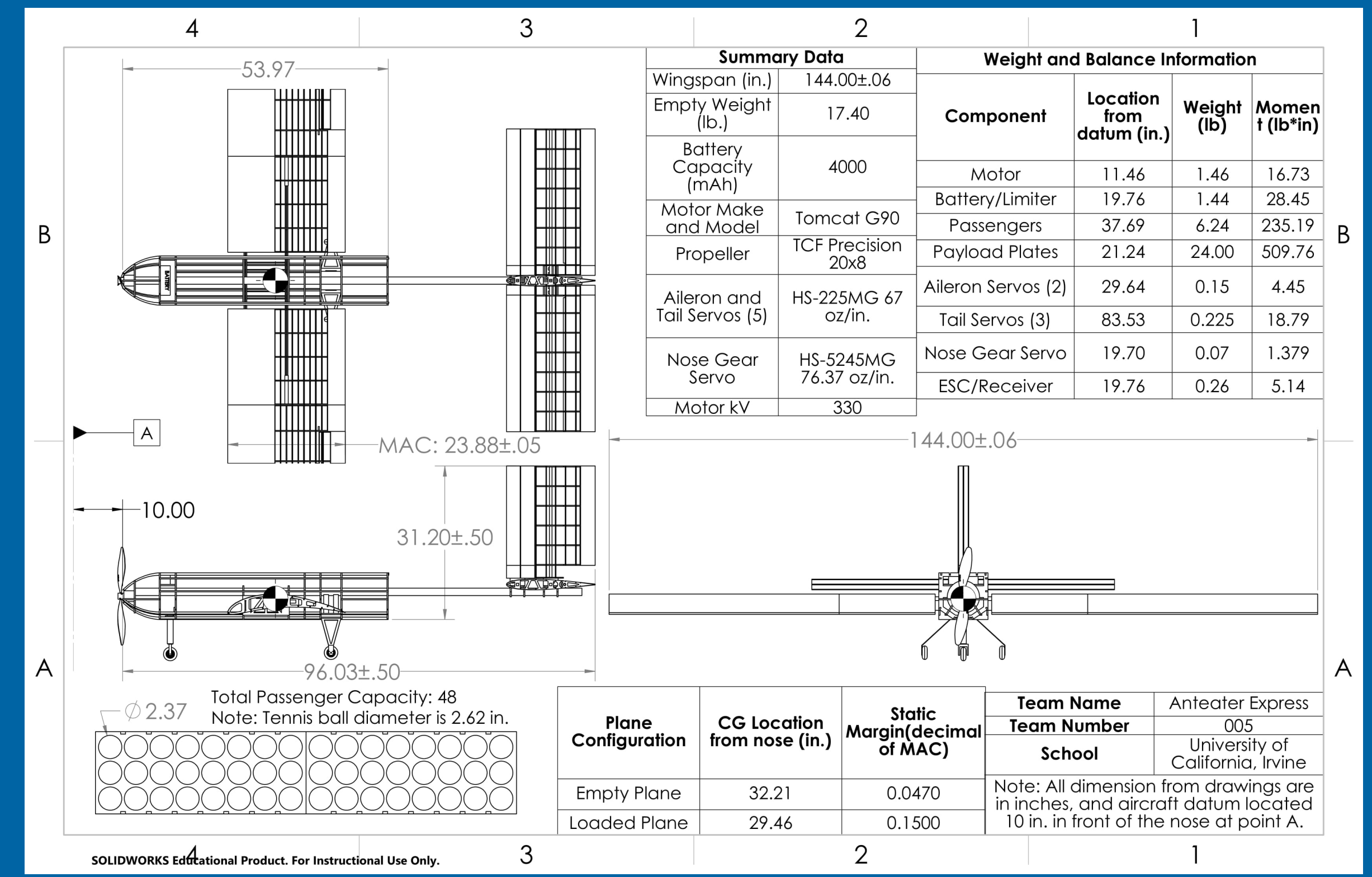
- Max wingspan: 12 ft.**
- Max loaded weight: 55 lb.**
- Max motor power: 1000 W**
- Passenger:** Tennis balls
- Luggage weight per passenger: 0.50-0.75 lb.**
- Mission:** Takeoff in less than 200 feet, maneuver, and land on a runway within 2 minutes
- CG Requirement:** Flyable in empty and loaded configuration
- Material:** No composites

Innovation

- 1) **Weight reduction** by 4.54 lb. from last year
- 2) **Wooden wing spars**, and unique wing outboard and inboard sections
- 3) **Larger tail** with more control surface area
- 4) **Top-loaded** passenger and luggage
- 5) **Larger propeller** size (up to 24 in.)
- 6) **Function design** with more exposed area

Contact Information

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Current Status

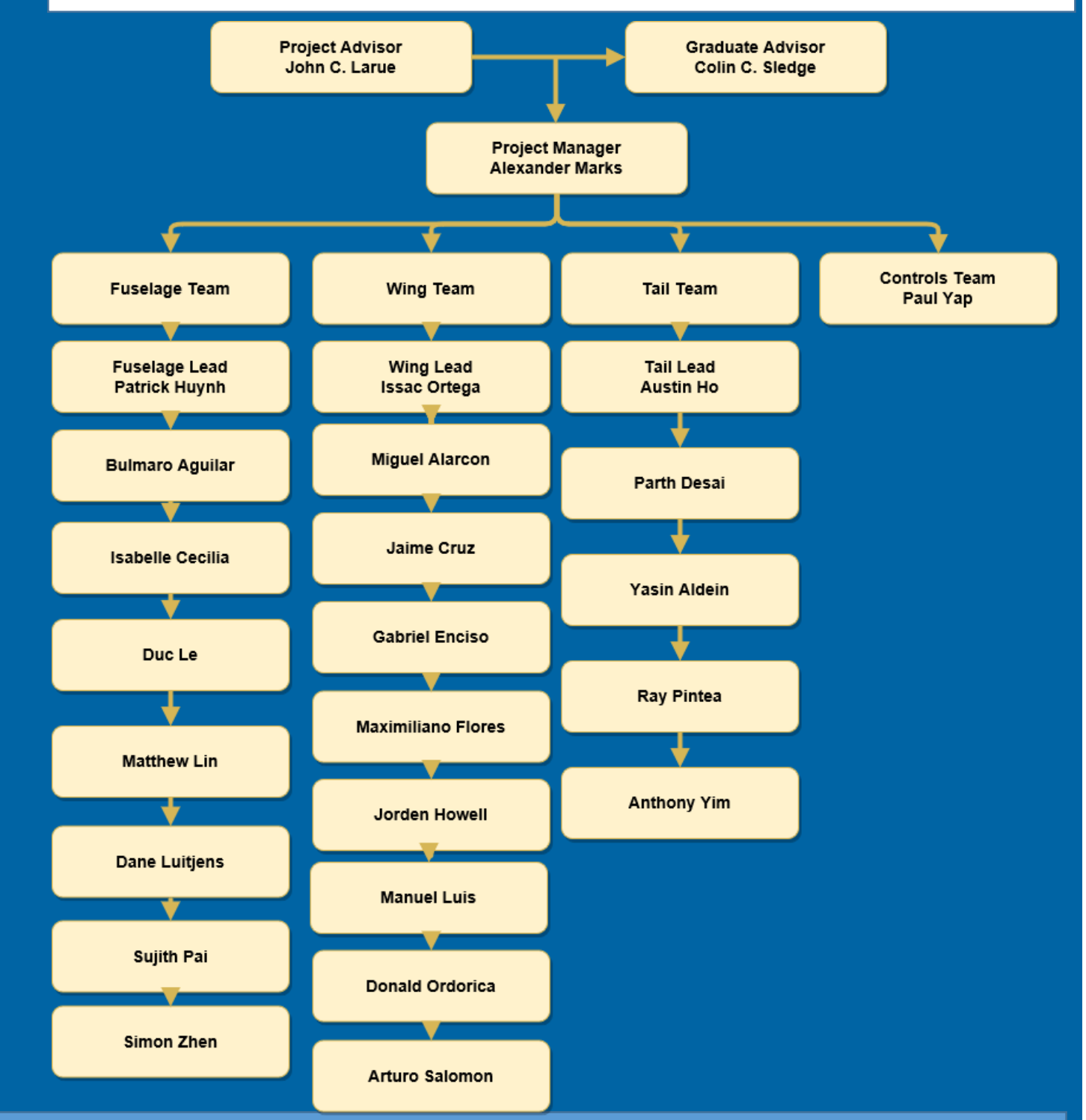
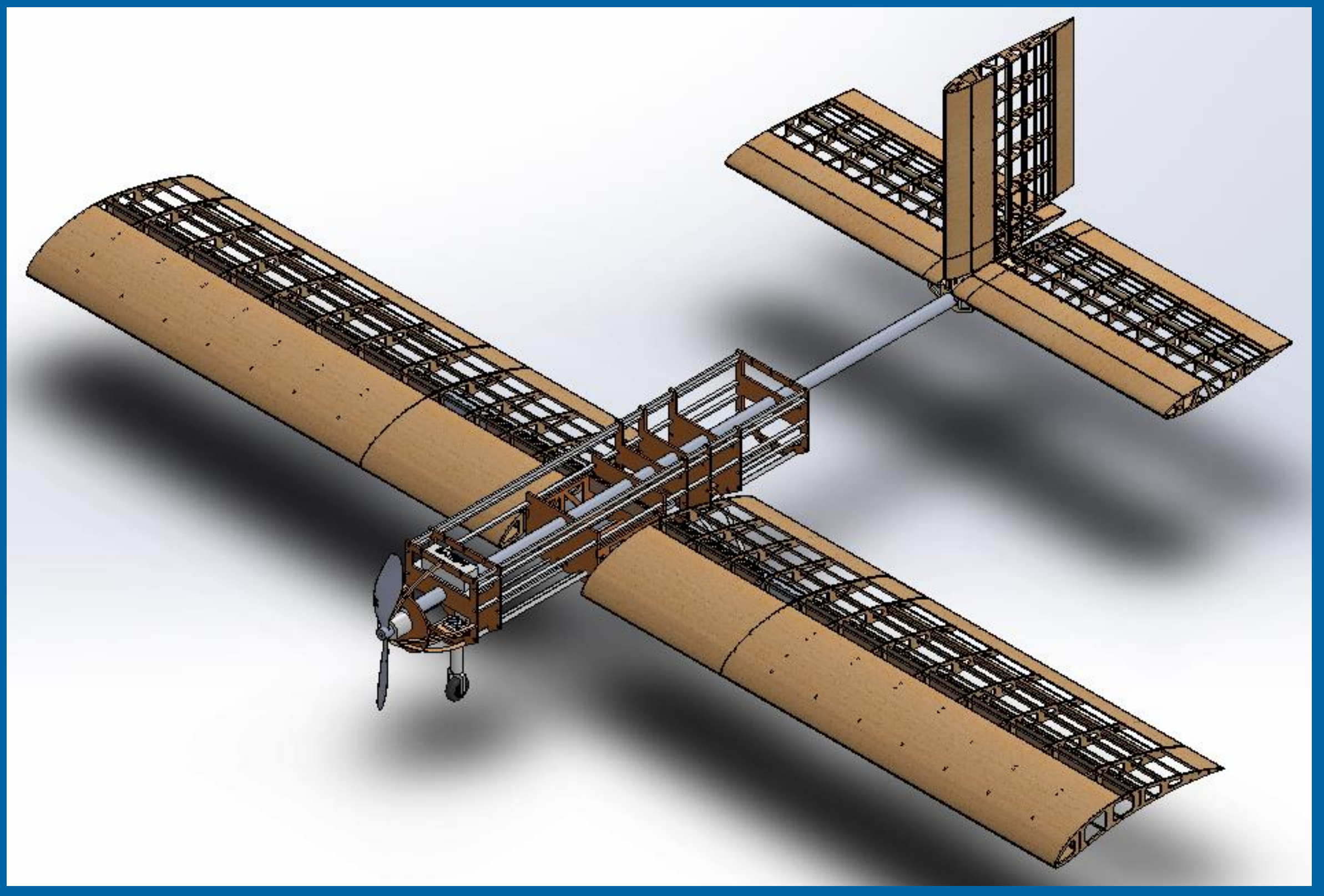
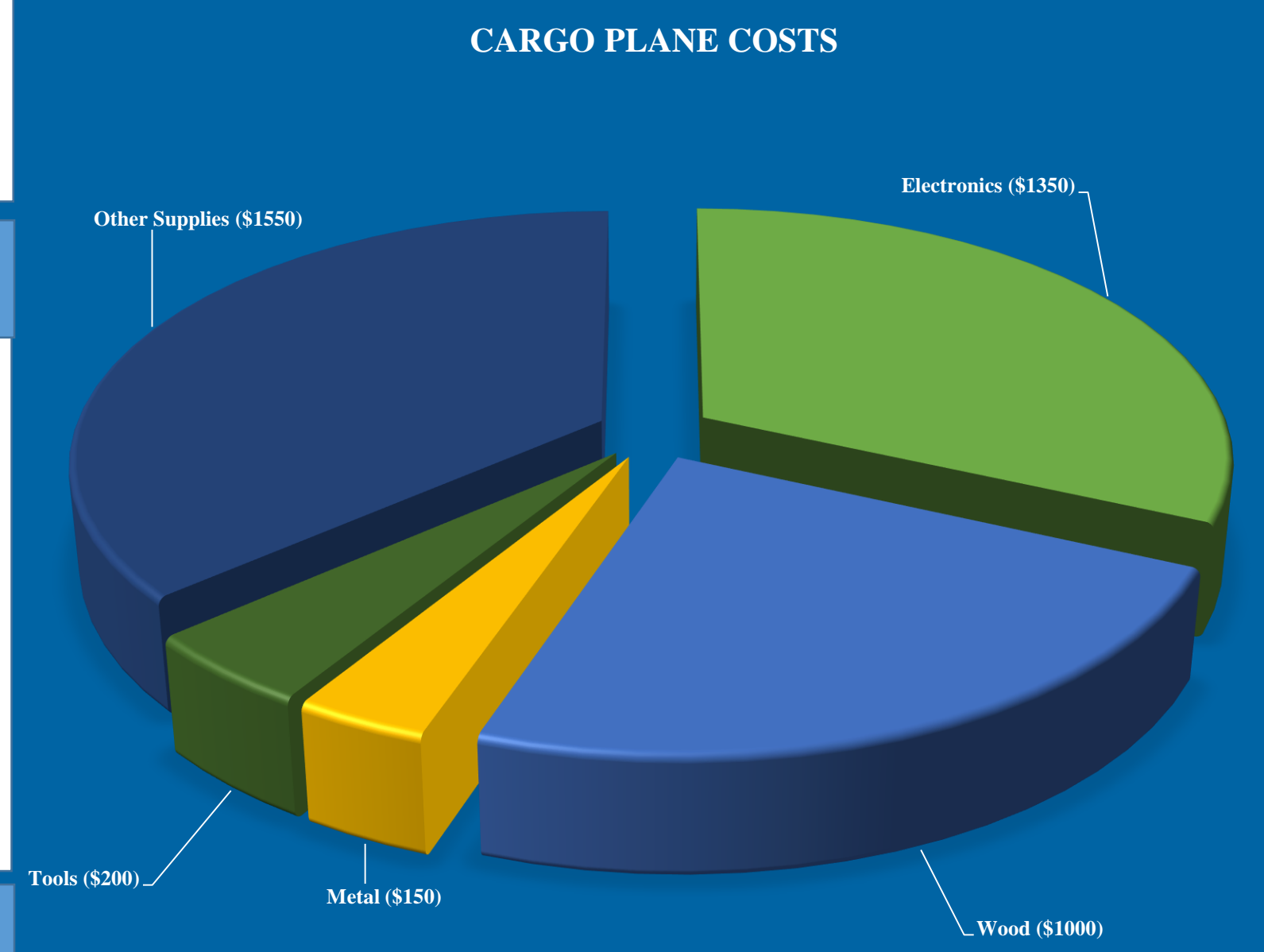
We are finished with the design. We are manufacturing the full plane by laser cutting wood and assembling it by March 16th, 2019.

Next Steps

Preparing for competition by having a test flight during spring break. All minor revisions must be completed one week before April 5th, 2019.

Bigger Picture

We have gained experience designing a plane based on **flight characteristics, simulations, and calculations** learned in our academic classes. We have also gained **manufacturing experience** with 3D printers, laser cutters, and assembly techniques. We have learned **teamwork, communication, following schedules and deadlines.**



Timeline

