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SSOE Research Symposium Dean's Awards

Title

2019 AIAA Design/Build/Fly

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AIAA Design/Build/Fly

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What is Design/Build/Fly?

AIAA Design/Build/Fly is an annual international remote-controlled aircraft competition that allows teams to apply their analytical skills and showcase their cooperative efforts in building real-world aircrafts. Students must design, manufacture, and demonstrate the flight capabilities of an aircraft that can perform in a series of different flight scenarios.

Goals and Objectives

- Design an aircraft based on the given rules and constraints
- Develop and apply innovative, practical, and affordable fabrication techniques
- Document and compile design, manufacturing, and testing process into industry-standard written report

Requirements and Constraints

- Must have a minimum wingspan of 4 feet
- Aircraft must fit in a 3x2 foot box in stowed condition
- Takeoff within a 10 ft on a ramp
- Must be capable of carrying at least 4 stores



Competition Mission Objectives

Ground Mission

Mission 1

Assemble the radome and stores onto the plane as fast as possible

Fly 3 laps with no payload within 5 minutes.

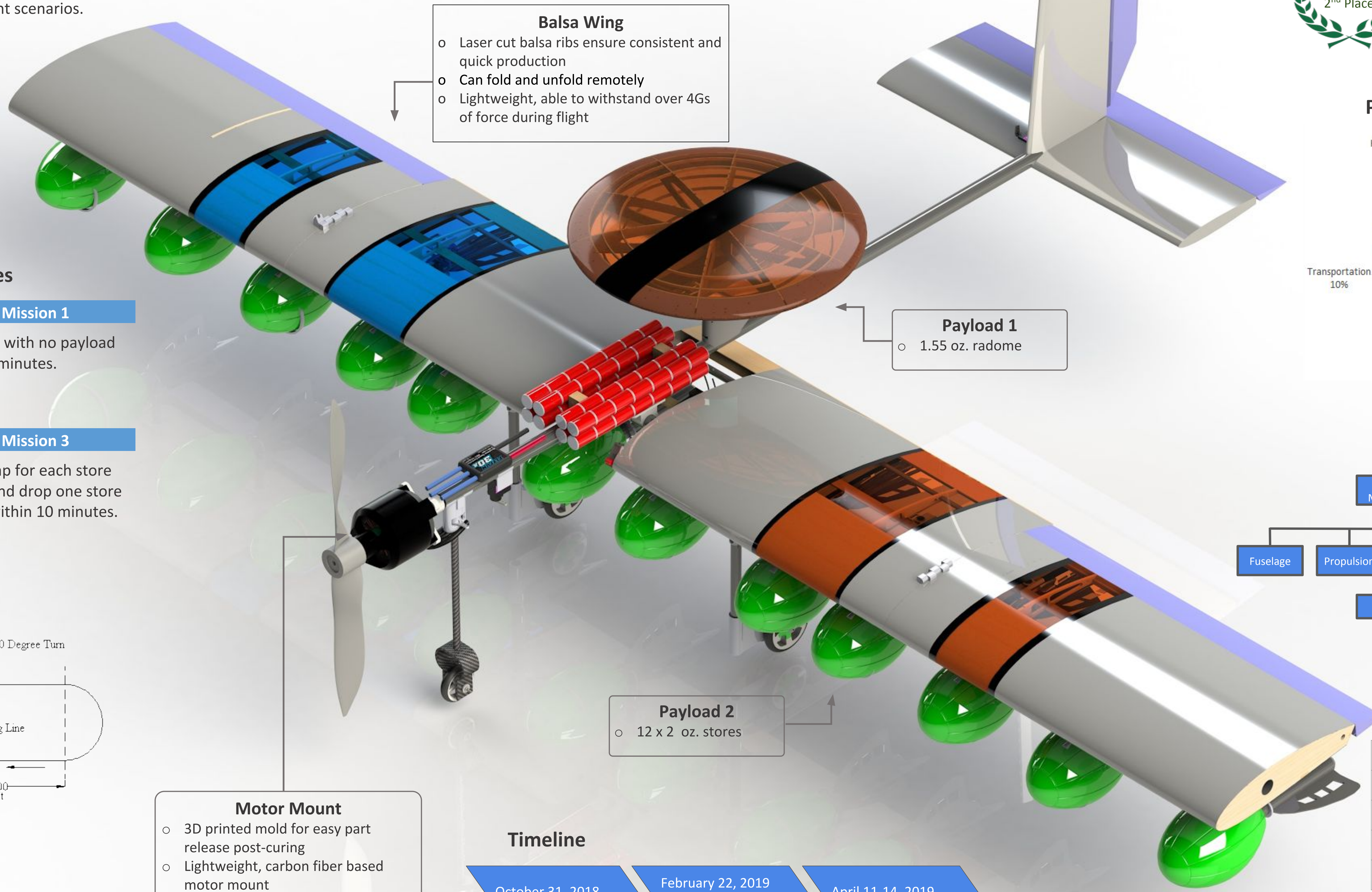
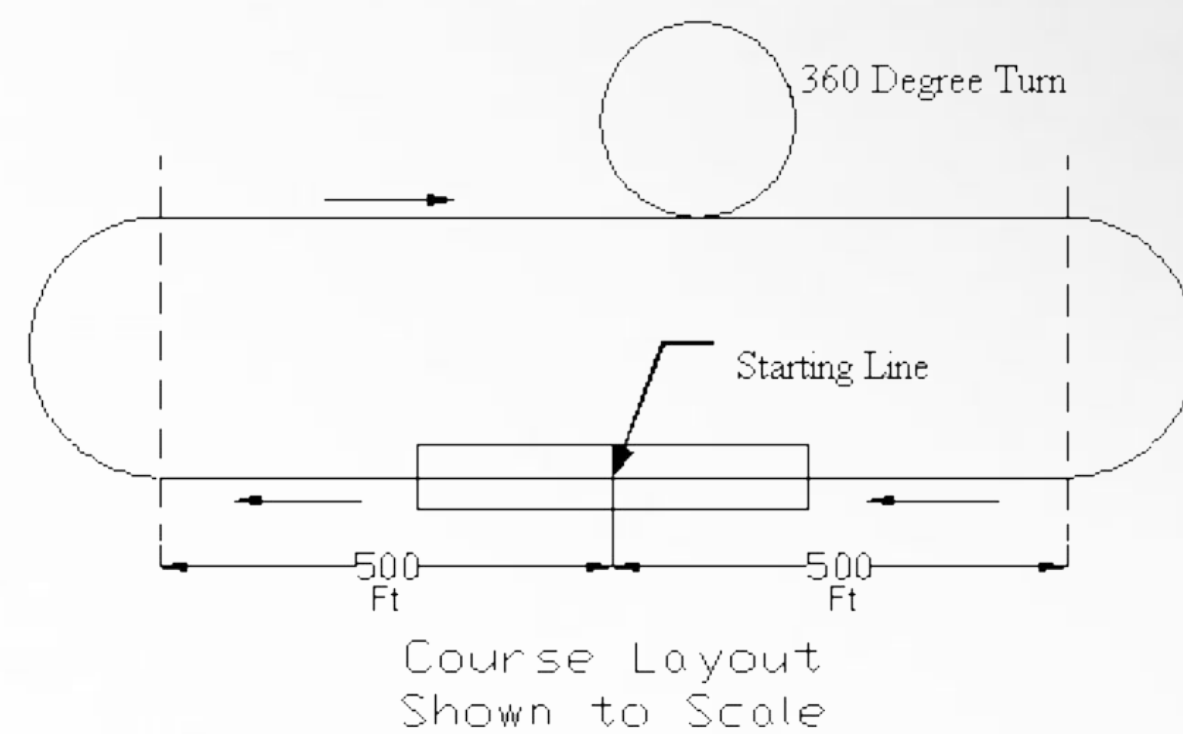
Mission 2

Mission 3

Fly 3 laps as fast as possible while carrying the radome within 5 minutes.

Fly one lap for each store carried and drop one store per lap within 10 minutes.

Flight Course



Balsa Wing

- Laser cut balsa ribs ensure consistent and quick production
- Can fold and unfold remotely
- Lightweight, able to withstand over 4Gs of force during flight

Payload 1

- 1.55 oz. radome

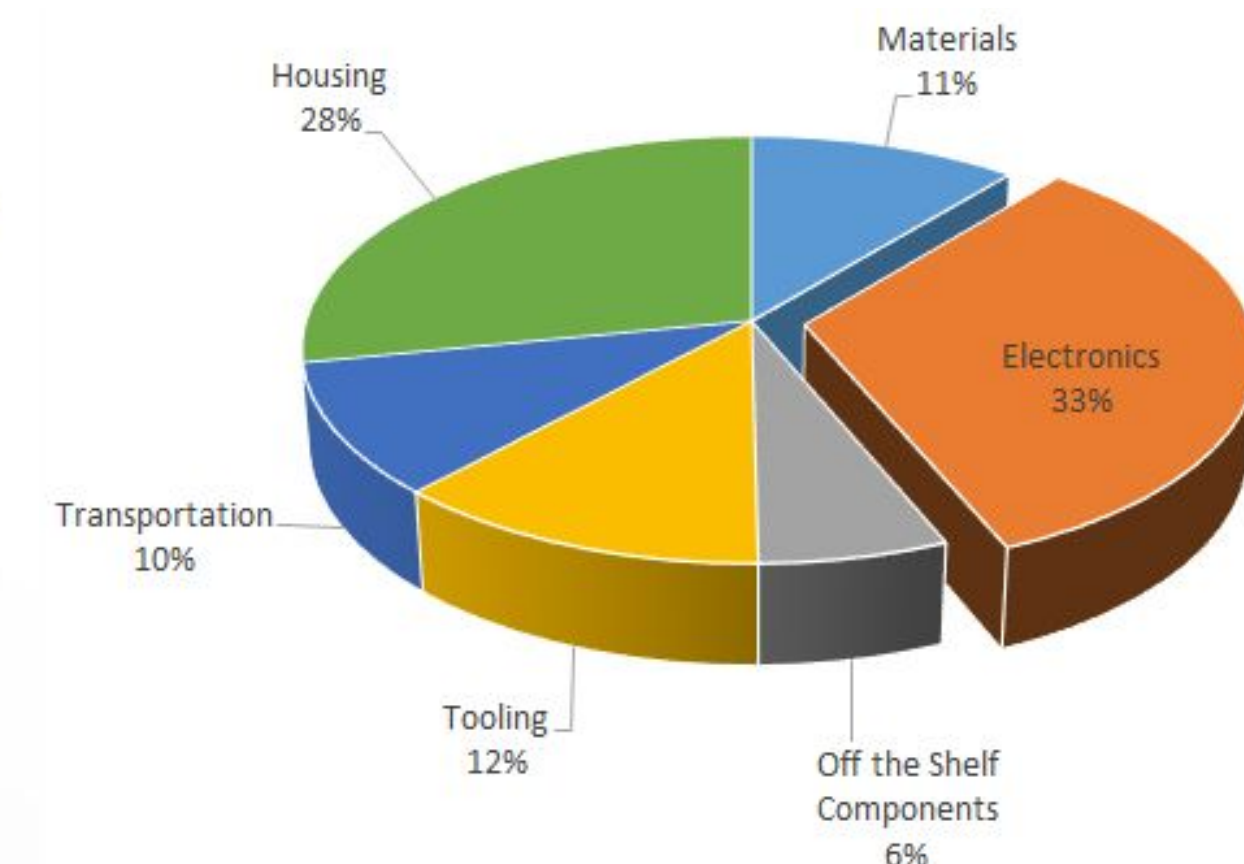
Payload 2

- 12 x 2 oz. stores

Motor Mount

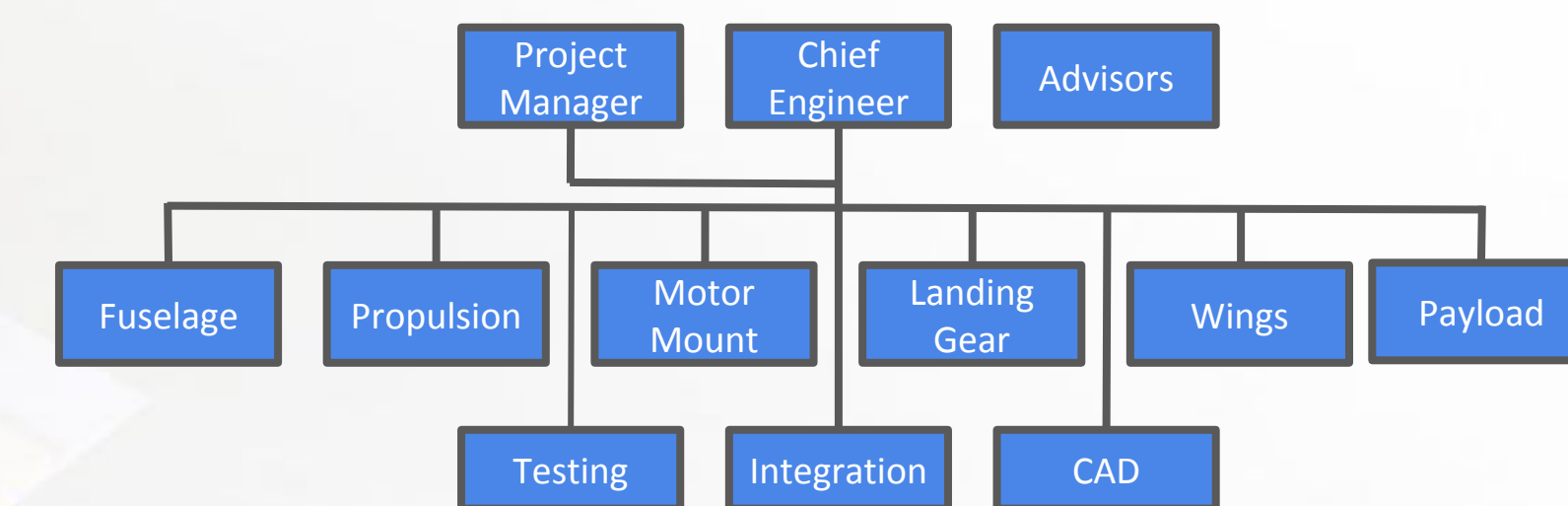
- 3D printed mold for easy part release post-curing
- Lightweight, carbon fiber based motor mount
- Able to withstand vibrations and forces from propulsion

Project Costs & Expenditures



Grand Total: \$4200

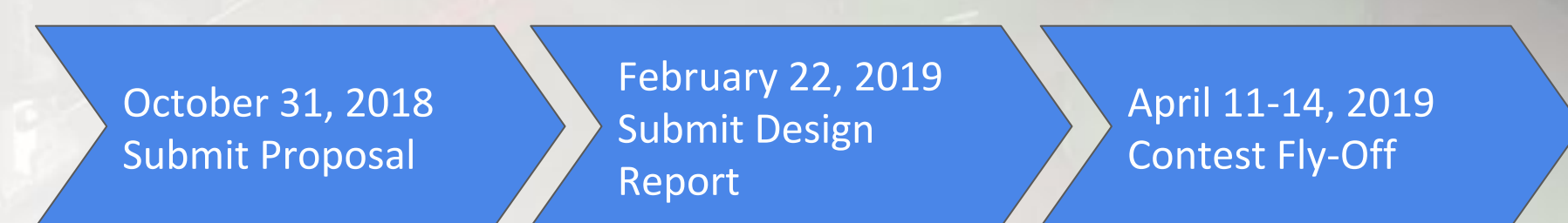
Team Structure



Team Members

James Bechler	Tina Nguyen
Brian Chen	Aakash Patel
Adrienne Dao	Andrew Reuter
Erick Hernandez	Marlon Sevilla
Sam Hince	Nathan Yeung

Timeline



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