

CIRCULAR UAV

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Background

Aerobat Aviation, with their circular planform aircraft Geobat, has claimed characteristics such as low stall speeds while maintaining directional control and stability, stability and maneuverability at high speeds, and a wing structure that allows the lifting forces to be distributed with greater uniformity.

Goal

This project aims to build a technology demonstrator to evaluate these claims.

Objectives

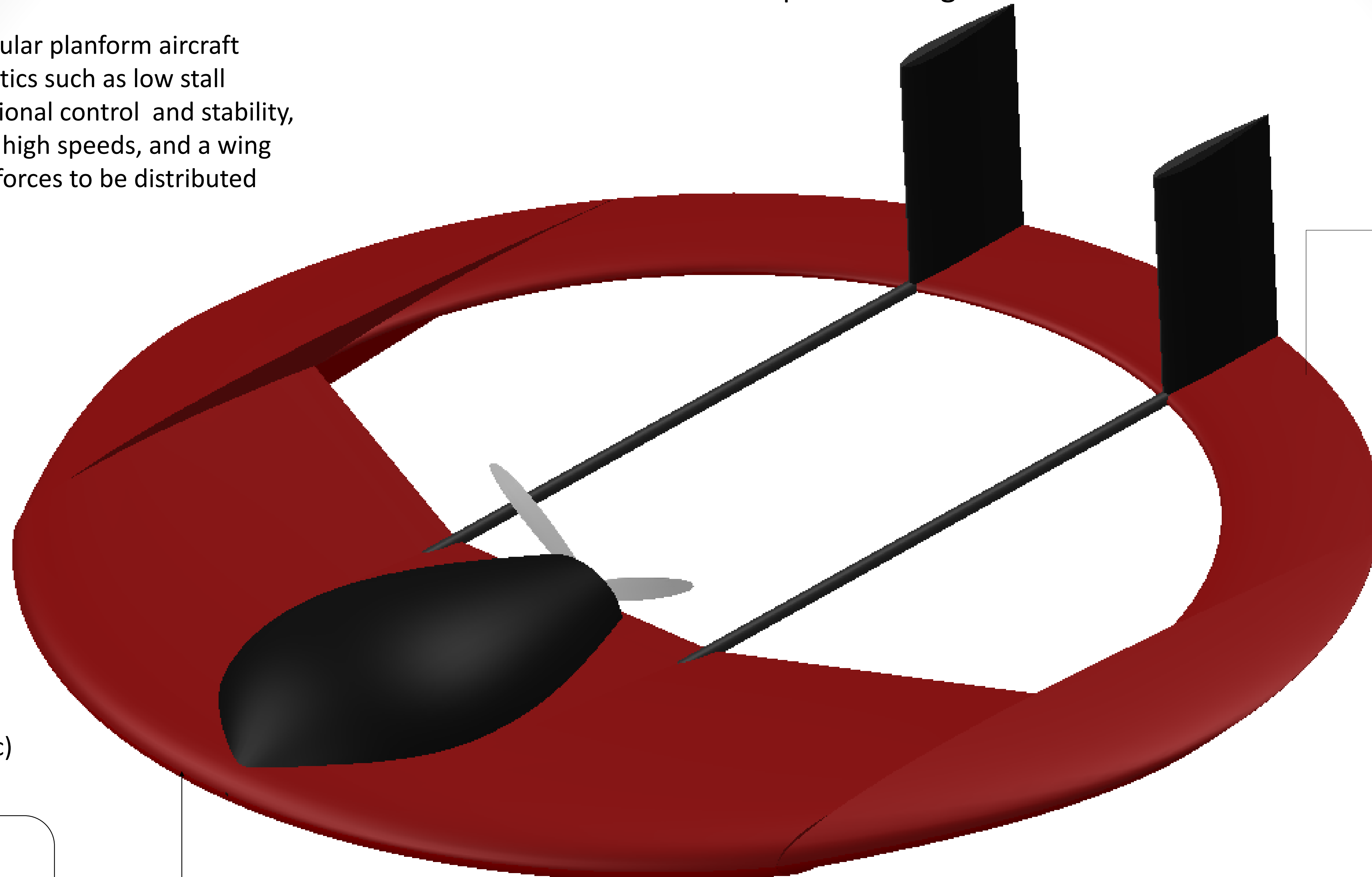
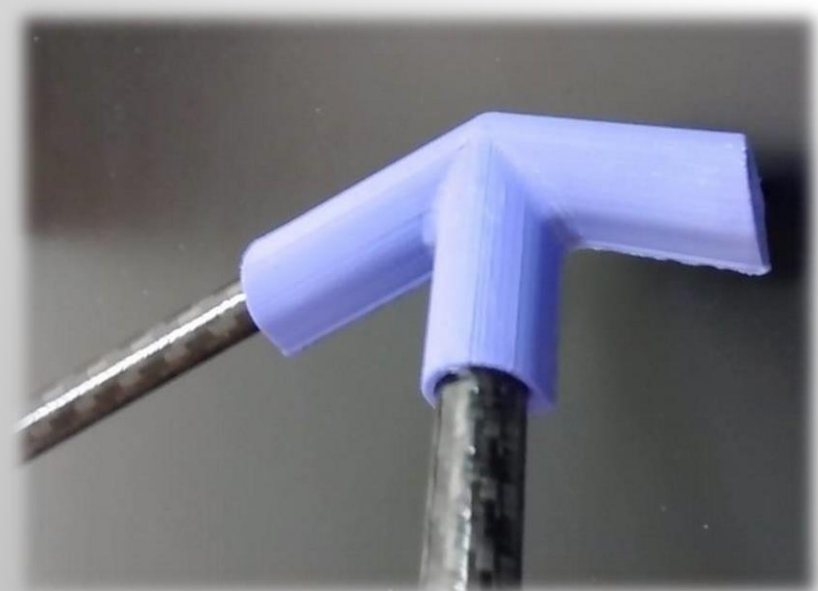
- Design, build & fly the circular planform UAV
- Analyze performance data

Requirements

- Rate of climb: 600 ft/min
- Range: 3 miles
- Endurance: 20 minutes
- Stall speed: 11 mph (16 ft/sec)

Structural Skeleton

- Embedded in the foam body
- Made of carbon fiber tubes and 3D printed joiners
- Provides structural rigidity for the aircraft

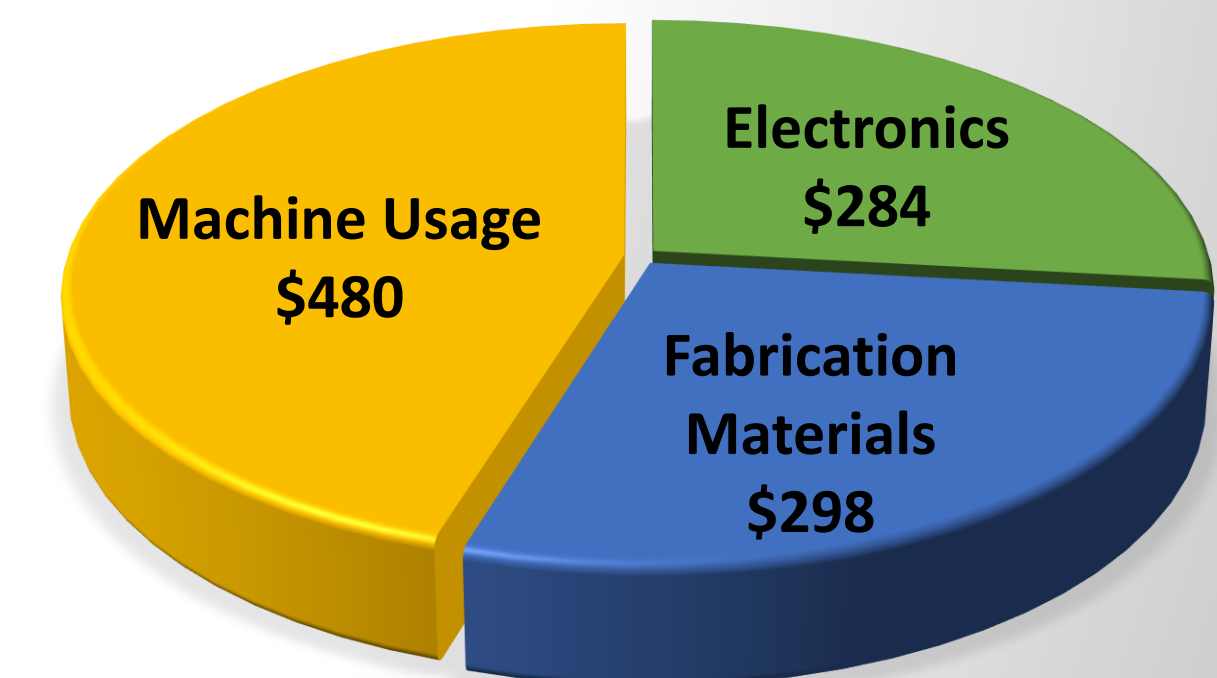


XPS Foam Body

- Comprised of 3 distinct pieces (main wing, tail, wingtips)
- CNC router used to manufacture accurate shape



Budget



Innovation & Bigger Picture

- Innovative circular planform aircraft
- Validating the flight dynamics of a circular planform aircraft

Next Step

- Installing electronics and RC components
- Flight testing
- Wind tunnel/CFD testing

Team Members & Contact Info

Moses Choi, Project Manager: mosessc@uci.edu
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Fall	Winter	Spring
Conceptualize	Design Documentation	Final Assembly
Requirement Calculations	Procurement	Validation
Aircraft Configuration	Fabrication	Flight Test

