AIAA Design/Build/Fly

Faculty Adviser: Professor Robert H. Liebeck
Advisers: Colin Sledge, John Chen, Paul Parcell, Joseph Hsieh, Kunal Deshpande

Cessna Aircraft Company
Raytheon Missile Systems
AIAA Foundation

UCI Samueli School of Engineering

2012 2nd Place
2013 1st Place
2014 2nd Place
2015 2nd Place
2016 3rd Place

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

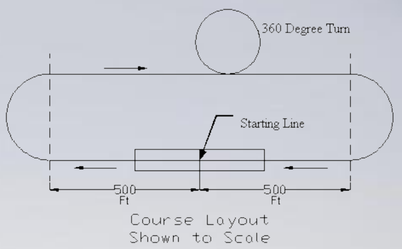
- Nothing can come off in flight
- Hand-launched
- Lightest empty weight
- Be capable of carrying at least 3 hockey pucks
- Lightest launch tube that satisfies L/D=4

Competition Mission Objectives

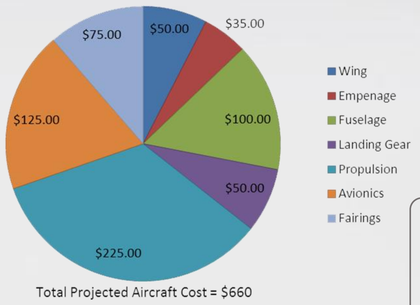
Ground Mission	Mission 1
Aircraft and payload is placed into a launch tube and is subjected to 3 drop tests from a height of 12 inches.	Fly 3 laps with no payload within 5 minutes.

Mission 2	Mission 3
Fly 3 laps with three hockey pucks within 5 minutes.	Fly as many laps with as many hockey pucks, within 5 minutes.

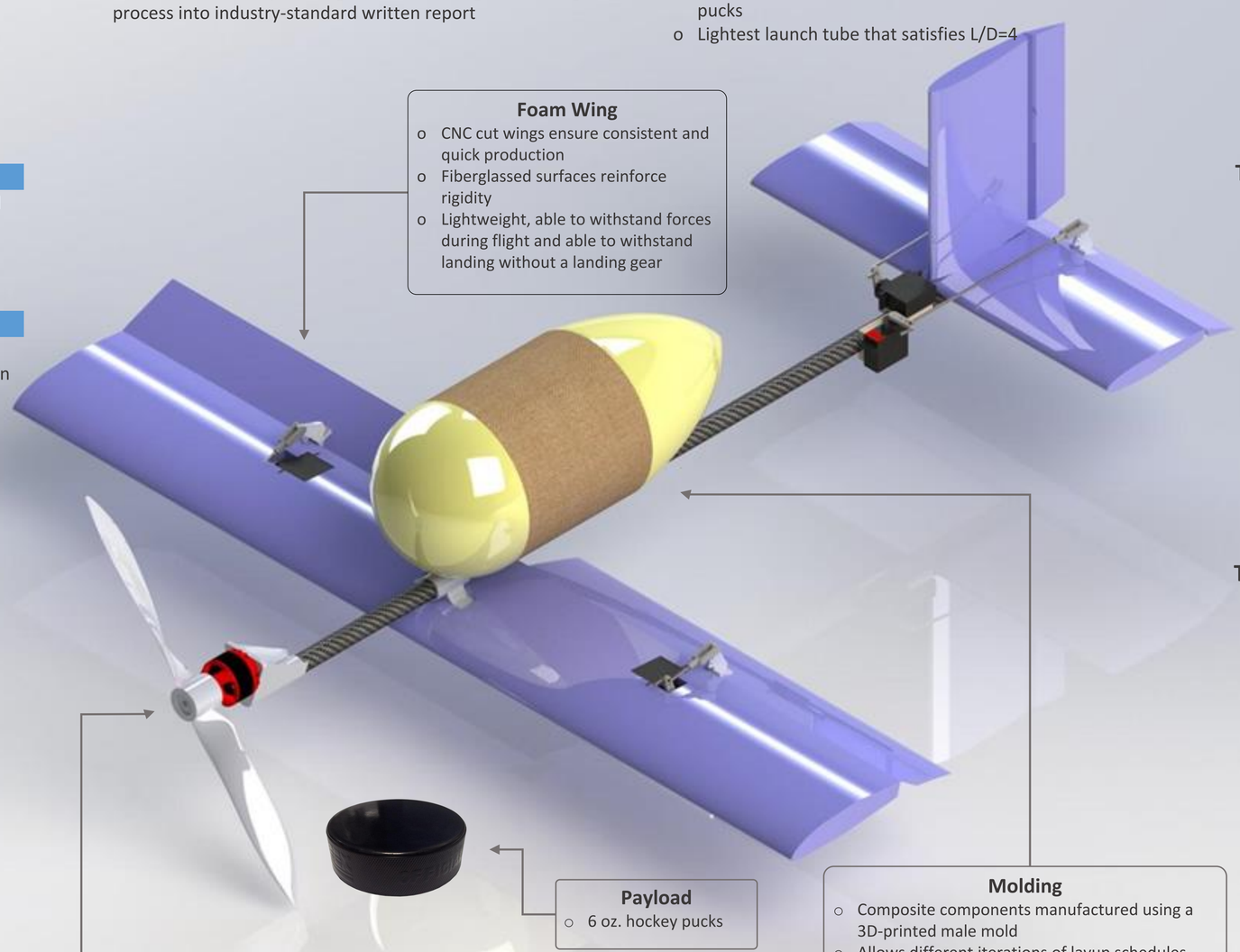
Flight Course



Aircraft Cost Breakdown



Total Projected Aircraft Cost = $660



Foam Wing

- CNC cut wings ensure consistent and quick production
- Fiberglassed surfaces reinforce rigidity
- Lightweight, able to withstand forces during flight and able to withstand landing without a landing gear

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

Payload

- 6 oz. hockey pucks

Molding

- Composite components manufactured using a 3D-printed male mold
- Allows different iterations of layup schedules and composites
- Ensures consistent quality of the part
- Lightweight, aerodynamic and structurally stiff

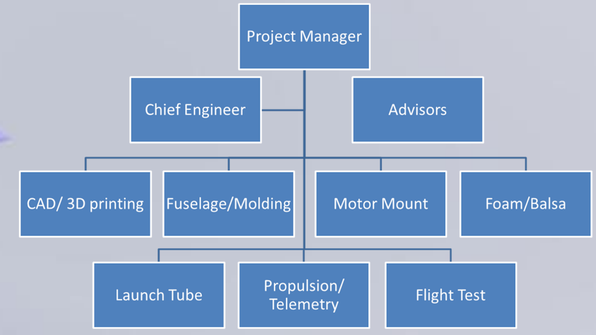
Team entry registration from October 15 - 31 — Oct. 15

Oct. 31 — **Proposal**

Feb. 22 — **Design Report**

April 20-23 — **Contest Flyoff: 4 day event in Tucson, AZ**

Team Structure



Team Members

Raphael Antwi	Joyce Le	Kelley Quisbert
Shanuka Solanga Arachchige	Joshua Lee	Ryan Razo
Gabriela Arevalo	Stephen Lee	Justin Ringhofer
Pedro Castillo	Amoya Lewis	Christian Rodriguez
Wayne Chan	An Bao Nguyen	Tarou Seki
Richard Cheng	Vietmy Nguyen	Daniel Tran
Yohan Jeon	Chang-Hyun Oh	Eric Trieu
Justin Kerr	Daniel Ovalles	John Wilson-Fink
Saho King	Brenda Padilla	Johnny Wong
Laliphat (Mai) Kositchaimongkol	Jorge Perez	Joshua Yang
Hai Lam	Bao Pham	

For more information, visit http://www.aiaadbf.org/

For further inquiry, contact: Saho King kingsl@uci.edu
Justin Kerr jpkerr@uci.edu