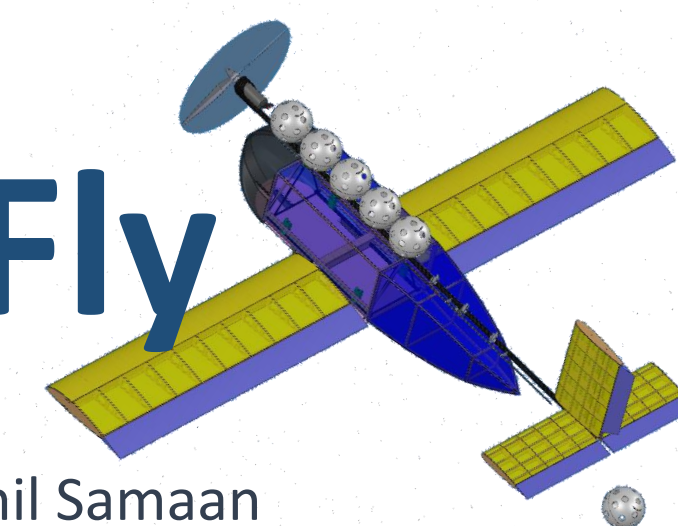


AIAA Design/Build/Fly

Faculty Advisor: Professor Robert H. Liebeck
 Advisors: Colin Sledge, Guiseppe Venneri, John Chen, Paul Parcel, Kamil Samaan



What is Design/Build/Fly?

AIAA Design/Build/Fly is an annual international remote-controlled airplane competition that allows team 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

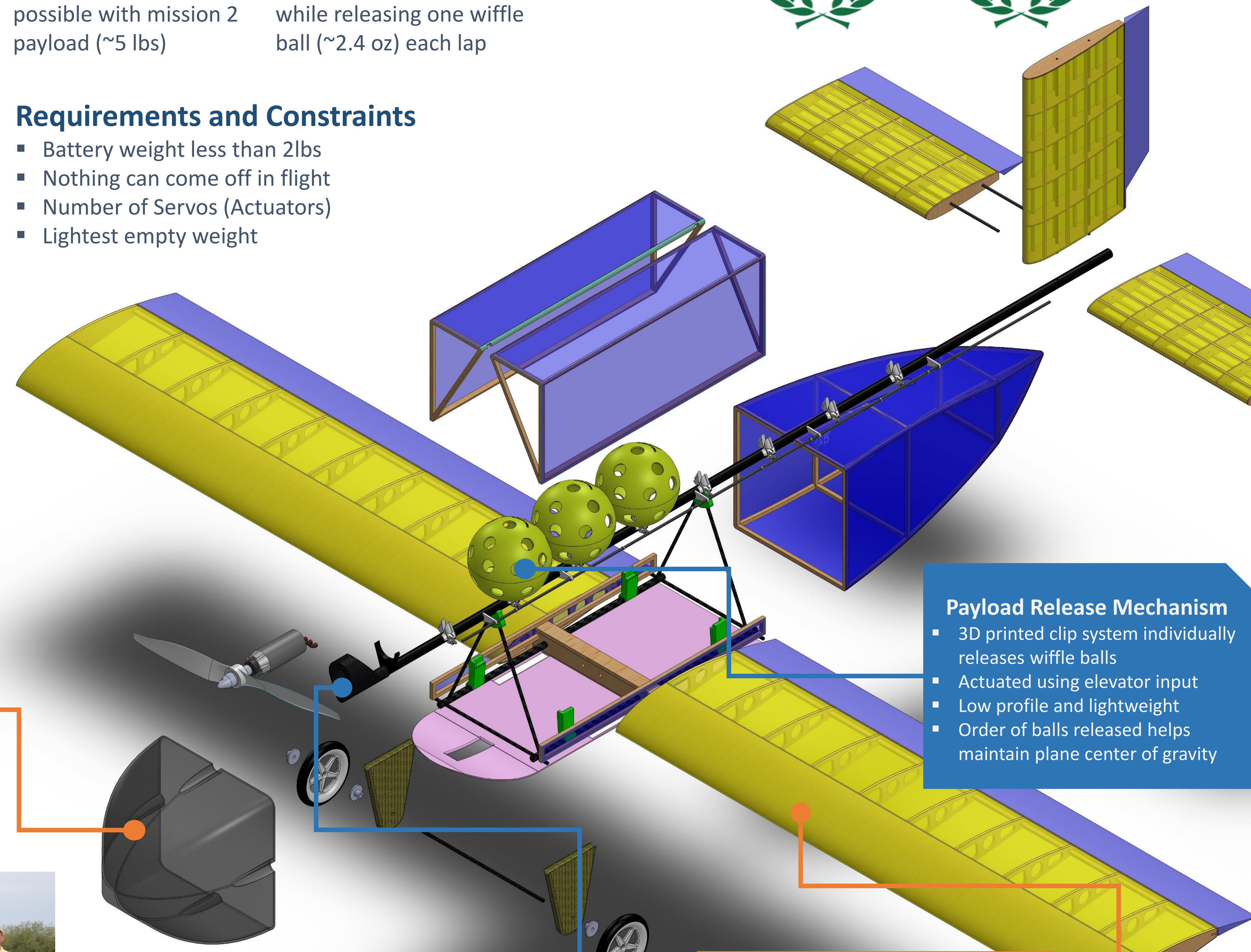
- Design aircraft based on given rules and constraints
- Develop and apply innovative, practical, and affordable fabrication techniques
- Document and compile design, manufacturing, and testing process into industry-standard written report

Competition Mission Objectives

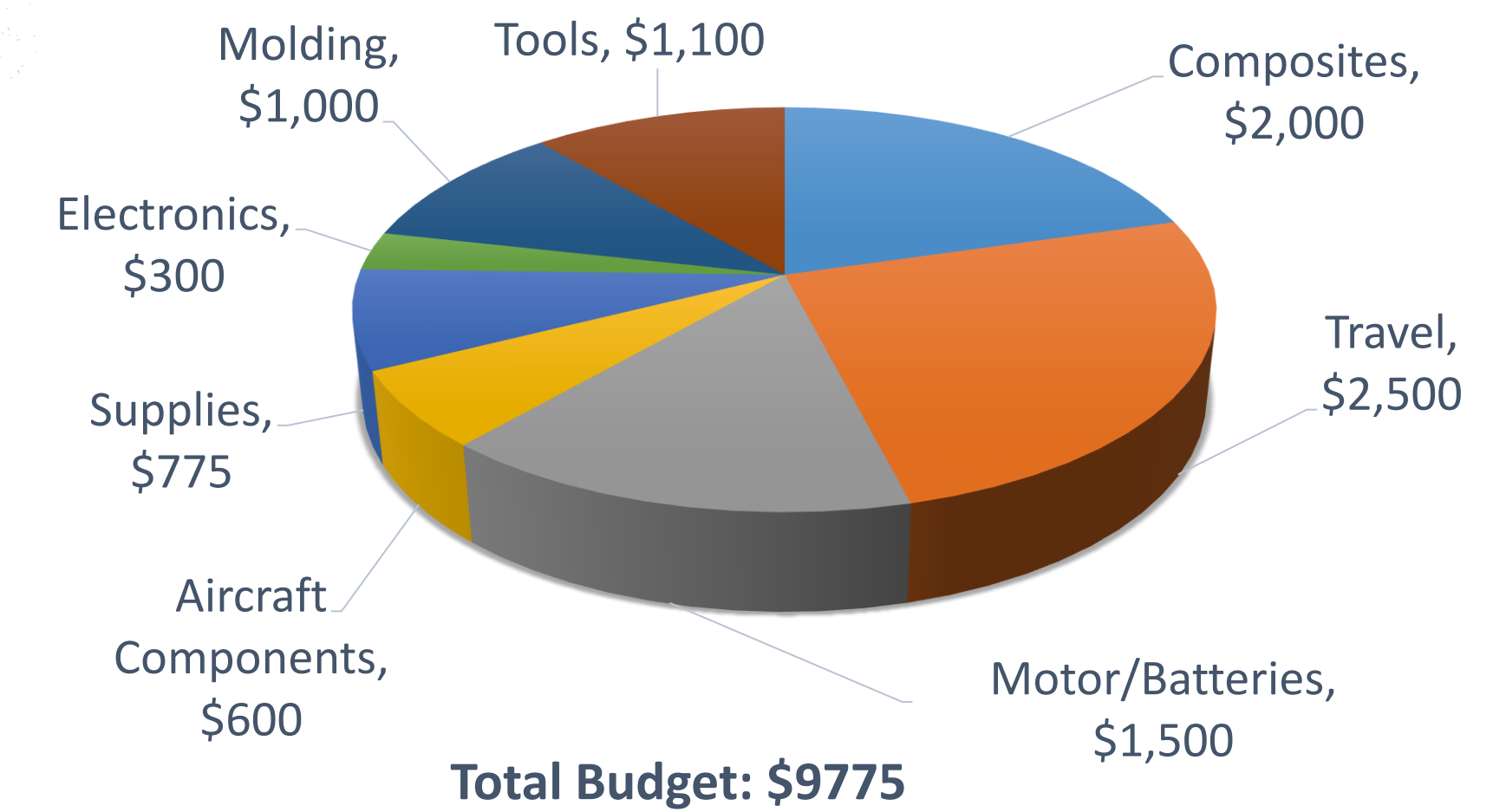
Ground Mission	Mission 1
Load mission 2 and 3 payloads in least time possible	Maximum number of laps in 4 minutes (empty load)
Mission 2	Mission 3
Fly 3 laps in least time possible with mission 2 payload (~5 lbs)	Maximum number of laps while releasing one wiffle ball (~2.4 oz) each lap

Requirements and Constraints

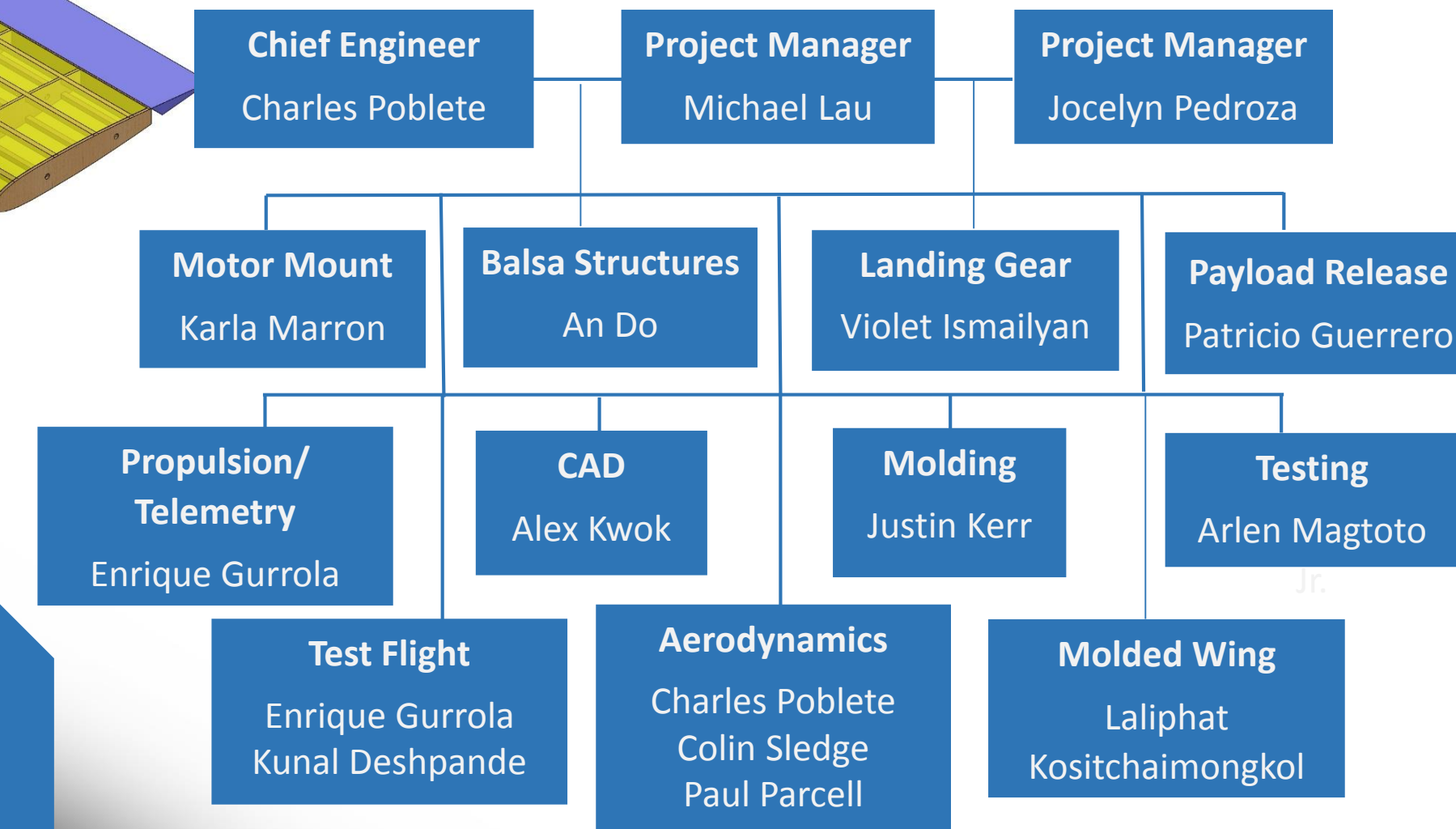
- Battery weight less than 2lbs
- Nothing can come off in flight
- Number of Servos (Actuators)
- Lightest empty weight



2014-2015 Costs and Expenditures



Team Structure

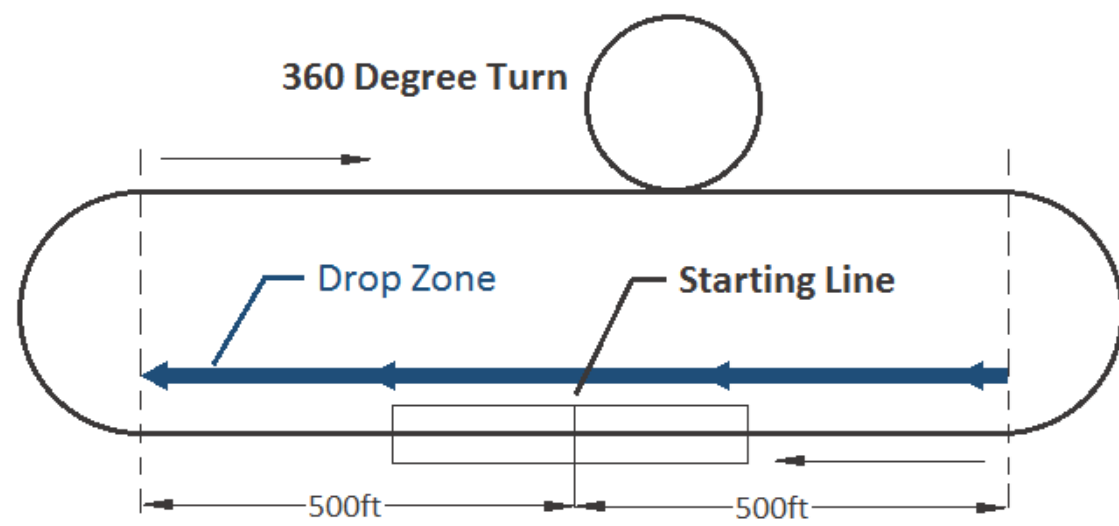


Team Members

- | | | |
|---------------------------|------------------|------------------|
| Alexandre Law | Elena Vazquez | Marvin Lin |
| Allen He | Ho Kyoung Lee | Michael Luong |
| Amoya Lewis | Hugo Mendoza | Quan Ngo |
| Andres Ruiz | Jacob Gantz | Russell Okamura |
| Anuj Patel | Jamie Ibrahim | Ryan Razo |
| Brian Pham | Jesus Zepeda | Sabrina Ng |
| Caroline Alvarado Cantu | Jonathan Chen | Saho King |
| Daniel King | Joseph Hsieh | Saamil Shah |
| David Nguyen | Juan David Lopez | Sonny Li |
| Edmund Situ | Justin Williams | Willis Zhang |
| Raveen Solanga Arachchige | Kristanto Uisan | Zulema Rodriguez |

For more information, visit <http://www.aiadbf.org/>

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Flight Course

Molded Front Fairing

- Foam-core male plug made using CNC foam cutter and hand-shaping
- Composite female mold formed from male plug
- Mold allows different iterations of layup schedules and consistency in quality of parts
- Lightweight, aerodynamic, and structurally stiff

Payload Release Mechanism

- 3D printed clip system individually releases wiffle balls
- Actuated using elevator input
- Low profile and lightweight
- Order of balls released helps maintain plane center of gravity

Motor Mount

- 3D printed mold for rapid prototyping and production with consistency
- Lightweight, carbon motor mount
- Able to withstand vibrations and forces from propeller

Balsa Wings

- Adjustable wing jig and laser-cut balsa parts ensure consistent production
- Parts assembled using jig and bonded using CA super glue
- Microlite skin provides torsional strength
- Lightweight and able to withstand G-forces during flight



2015 UC Irvine DBF Team – Tucson, AZ