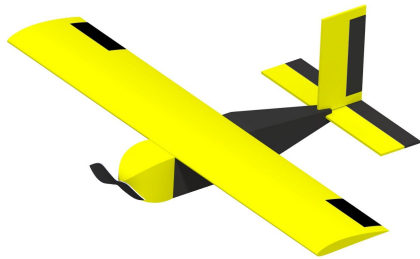




“Aviation is our bread and butter”

Bronze Propeller Competition Aircraft



The Breadbox is Sponsored by:



Mission Overview

Each team must design a semi autonomous aircraft that has the ability to carry and release emergency supplies accurately which are represented by tennis balls. The aircraft must be assembled from storage and complete a flight check in under 5 minutes. Followed by a hand launch, upon completion to fly 5 laps around a course approximately 1000 ft per lap. After the 2nd lap the payload must be dropped autonomously within either a 40'x40' area (for 1 point per ball) or a 20'x20' (for 2 points)

Design Strategy

Based on a scoring analysis, our design strategy is to carry a moderate payload at high speed. The Breadbox's payload ejection system was designed to keep

the payload from “floating” in the payload area due to unfavorable pressure once the payload cover is retracted. This increases our drop zone accuracy, to guarantee that the payload will land in a small drop zone, every time.

Team Contacts

Advisor: **Dr. Leonard Scott Miller**

scott.miller@wichita.edu

Team Lead & Stability: **Jun Wei Ng**

Jxng4@shockers.wichita.edu

Propulsion: **Cameron Fitzgerald**

cpfitzgerald@shockers.wichita.edu

Structures: **Zhao Heng Tan**

zxtan@shockers.wichita.edu

Aerodynamics: **Bik Sheng Sia**

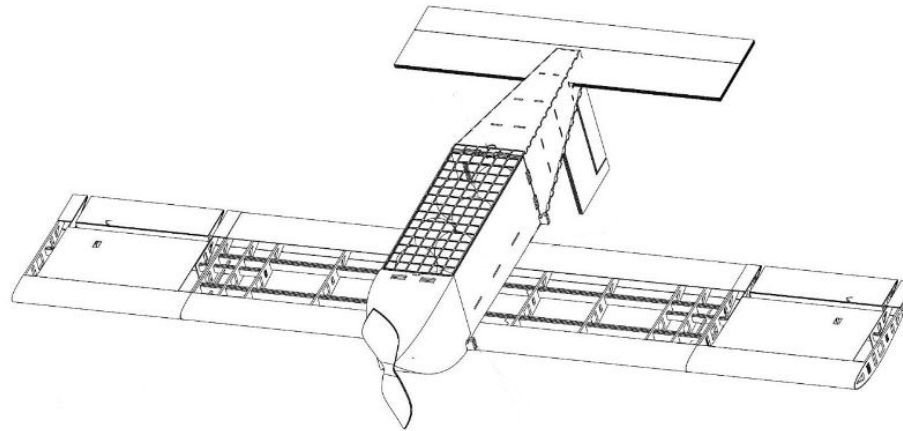
bxsia@shockers.wichita.edu

Mission Aspects: **Surrendiran Thiagaraja**

sxthiagarajapillai@wichita.edu

Aircraft Overview

- ❖ Wingspan: 60 inches
- ❖ Fuselage Length: 31 inches
- ❖ Takeoff Weight (w/payload): 3 lbs
- ❖ Empty Weight: 2.3 lbs
- ❖ Payload Capacity: 6 Tennis Balls
- ❖ Power Available : 323 W
- ❖ Prop Size: 11x7
- ❖ Thrust to Weight : (1.1) : 1
- ❖ Cruise speed: 90 ft/s
- ❖ Stall speed: 25 ft/s



Aircraft Unique Features

- ❖ Automated payload ejection
- ❖ Automated payload area cover
- ❖ Retractable payload deployment cover
- ❖ Payload flexibility (Any volume within 8.35 x 6.2 x 2.7 in)
- ❖ Multi-section detachable wing for easy storage

