

Team 31 – SAE Aero Design Advanced Class

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Objective Statement

To design and manufacture a working remote-controlled airplane that will compete at the SAE Advanced Aero West competition. It will be capable of carrying static and dynamic payload, and accurately drop the dynamic payload into a target circle from an altitude of 100 feet.



Colonists Delivery Aircraft

Component	Weight
50G Sensors	0.48 oz
30 Table Tennis Balls (Colonists)	2.85 oz
Electronics	0.83 oz
Frame	2.25 oz
Total	6.41 oz

Results

Empty Aircraft Weight	17 lb
Dynamic Payload	<ul style="list-style-type: none"> 2 500 mL Fiji Water Bottles 1 Colonists Delivery Aircraft 5 Nerf Vortex Aero Footballs
Wingspan	10 ft. 6 in.
Static Thrust	8.5 lb
Flight Time	6 minutes
Competition	14 th / 20

Testing

Max weight carried successfully: 7.2 lb

- **Dynamic:** 5 lb
- **Static:** 5 lb

Number of successful flights: 10

Payload delivered on target: 4 footballs, 2 water bottles

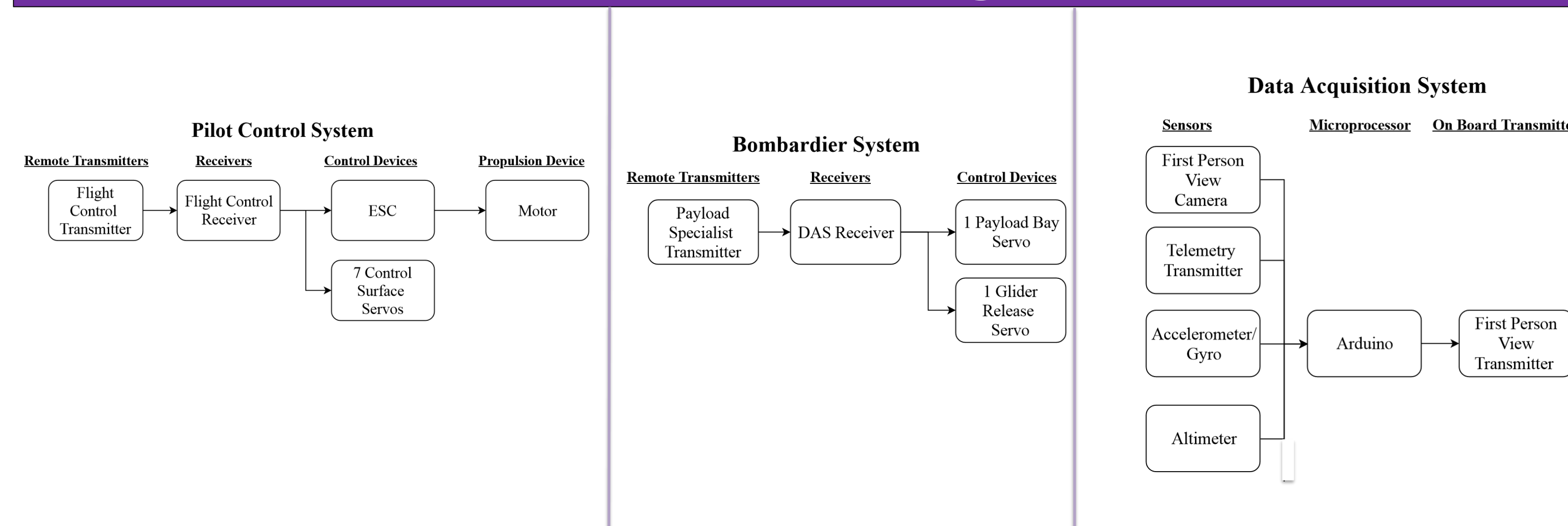
Wing Loading: 25 lb weight applied between ailerons and flaps

Stress Testing: 10 lb weight applied to payload doors

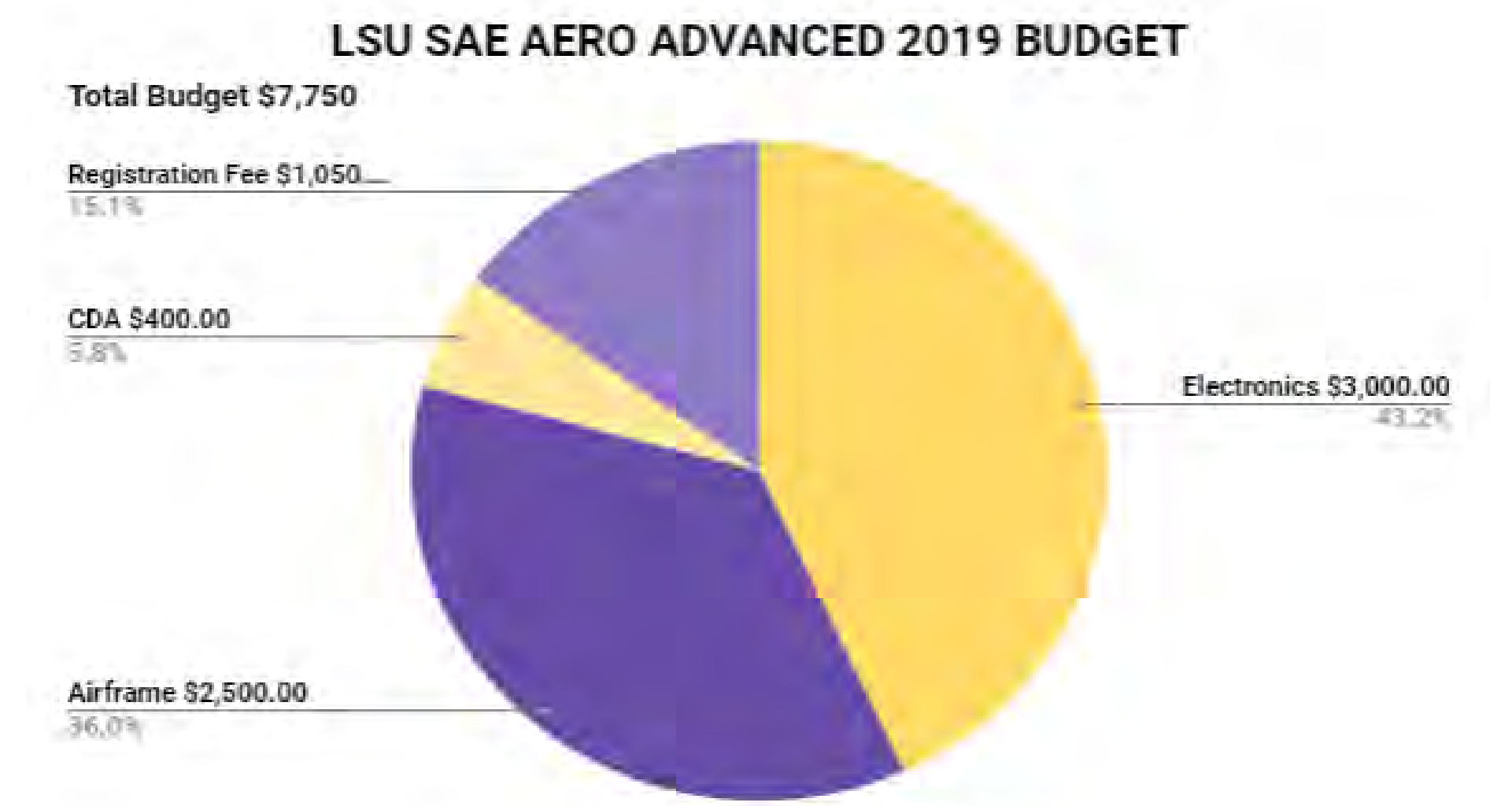
Drop Test: 19 in. above ground with landing weight



Electronics Configuration



Budget



SAE Aero West Advanced Class Competition

Design	Presentation	Overall
29.9430	36.7167	63.6597

