



# Team 31 – SAE Aero Design Advanced Class

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### Objective

The 2017-2018 Louisiana State University (LSU) Aero Advanced team will design and manufacture a straightforward, competitive aircraft capable of winning the 2018 SAE Aero West competition and comply with all SAE rules and regulations.

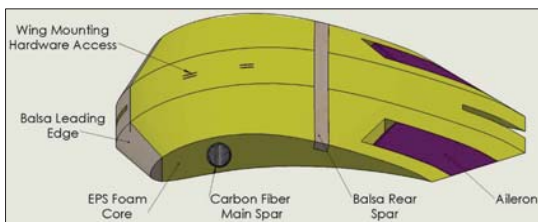
### Specifications

Criteria	Required	Result
Engine Displacement	≤ 0.46 in <sup>3</sup>	0.46 in <sup>3</sup>
Gross Aircraft Weight	≤ 55 lbs.	35 lbs.
Static Payload	-	10.31 lbs.
Dynamic Payload	2 – 2.25 lbs. ea.	4 (8 lbs. tot.)
Wingspan	-	137 in.
Engine Thrust	-	~9 lbs.

### Safety

- Proper PPE
- Compliance with FAA and AMA rules
- Propeller awareness
- Throttle kill for pilot
- Proper fire extinguishers
- LiPo bags for battery charging

### Wing Configuration



### SAE Aero West Competition

## 4<sup>th</sup> Place Overall

Design	Presentation	Flight Score	Overall
38.1044	39.74	27.48	<b>104.3244</b>
Humanitarian on Target			
Zone 1	Zone 2	Zone 3	Zone 4
2*	1*	2	4

\* = Dropped from 98 ft., 38.6625 flight score negated

### Flight Testing

- Payload release mechanism
- Carriable weight
- Camera gimbal
- Targeting system



- Battery life
- Fuel consumption
- Telemetry / DAS
- Takeoff distance
- Landing shock

### Electronics

- 1) Camera
- 2) Roll Servo
- 3) Pitch Servo
- 4) Holybro Antenna
- 5) Video Antenna
- 6) FrSky Antenna
- 7) HiTec Antenna
- 8) GPS



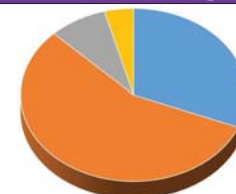
### Aircraft Iterations

**Mk 1**  
11 flights

**Mk 2**  
27 flights



### Budget



Electronics Parts	\$3,738
Airframe Parts	\$6,782
Registration Fee	\$1,000
Pilot Fee	\$500
<b>Total Expenses</b>	<b>\$12,020</b>
Total Funding	\$12,600
Remainder	\$580

### Flight Total

## 38 Successful Flights

\*41 Flight Attempts



**Sponsors:** LaSPACE, Dr. Keith Gonthier, ExxonMobil, Solidworks, FlyingFoam, Jack Rettig, LA State Police, Crystal Clear Imaging

**Advisors:** CAPT David Giurintano, Dr. Ram Devireddy, Dr. Morteza Naraghi-Pour, Jack Hawkins