**MISSION STATEMENT**
To place in the top ten of all teams at SAE Aero West by flying with 20 pounds for at least 50% of all flight rounds.

**OBJECTIVES**
To design a RC aircraft to carry as much payload as possible with restrictions in power and size.

**MATERIALS**

**Propulsion**
- Motor: E-flite Power 60 brushless motor
- Propeller: 18x5.5
- Battery: Turnigy 3000 mAh, 30C 6-cell

**Wings**
- Balsa Wood for the ribs
- Aluminum 6061 hollow tubing for main spar
- Wooden dowels for the end of the main spar
- Monokote as skin for the ribs
- EXI Digit D122F for the aileron servos

**Empennage**
- Balsa Wood for the ribs

**Fuselage**
- Al 2024-T3 latch clasp for payload bay
- Plywood for the body
- Basswood for the tail

**Landing Gear**
- Al 2024-T3 for the main gear strut

**SOLIDWORKS MODEL**

**WINGS**
- Tapered Design (Ratio: .375)
- Planform Area: 1650ft^2
- Wing Loading: 117.5 lbs
- Lift: 67.2 lbs
- Drag: 7.4 lbs
- Stall Speed: 12.5 mph
- Factory of Safety: 1.2
- Bending Moment: 1468.9 lb-in.
- Number of Ribs: 48 (24 half sizes)

**DESIGN PARAMETERS**

2016 SAE Aero Regular Class Competition:
- Maximum combined length + width + height is 175 in.
- Total gross weight must be under 55lbs.
- Power will be cut off with a power limiter at 1000W.
- Carry a the maximum amount of payload possible for a safe successful flight for maximum points

**EMPENNAGE**
- Airfoil: NACA0009
- Span Length: 13.3in
- Chord Length: 12.8in
- Number of Ribs: 12
- Factory of Safety: 1.2
- Ruddervator Length: 11.97in

**FUSELAGE**
- Warren Truss Design
- Center of Gravity: 16.10in
- Factory of Safety: 1.2
- Total load: 114 lbf

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**LANDING GEAR**
- Factory of Safety: 1.2
- Height: 4in
- Clearance Angle: 20
- Max take-off rotation angle: 20
- Overtturn Angle: 54

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**BUILT PLANE**

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**PROPATH||**
- Take off velocity: 37.5 mph
- Total flight lifetime of battery: 4 minutes