## **DESIGN REPORT**

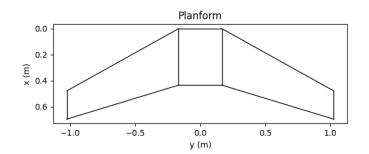
## Input Parameters

- Payload Weight : 0.5 kg

- Endurance : 60.0 minutes

- Cruise Altitude : 300.0 m - Cruise Speed : 15.0 m/s - Wing Loading : 3 kg/m2

- Aspect Ratio : 7
- Taper Ratio : 0.5
- Fuselage Width Ratio : 0.14
- LE Sweep Angle : 25 deg
- Twist Angle : -2 deg
- Root Airfoil : hs522
- Tip Airfoil : hs522



#### Calculated Parameters

- MTOW/Payload Ratio : 4.8792 - MTOW : 2.4396 kg - Airframe Weight : 1.5775 kg - Wing Area : 0.8132 m2 - Full Span : 2.3859 m - Fuselage Width : 0.3340 m - Wing-Only Semispan : 1.0259 m - Root Chord : 0.4342 m - Tip Chord : 0.2171 m - MAC : 0.3377 m - MAC LE X-Position : 0.2126 m



- Air Density : 1.1911 kg/m3 - Dynamic Viscosity : 1.7797e-05 Ns/m2

- Reynolds Number : 339023 - Mach Number : 0.0442 - Lift Coefficient : 0.2196

# Q3D Analysis Results

- Cruise AoA : 1.7966 deg - Drag Coefficient : 0.0106 - Lift-to-Drag Ratio : 20.6960

# Propulsion System Specifications

Power-to-Weight Ratio : 220 W/kg
Motor Power : 536.7145 W
Motor Weight : 0.1111 kg
Battery Capacity : 35.3875 Wh
Battery Weight : 0.2510 kg

