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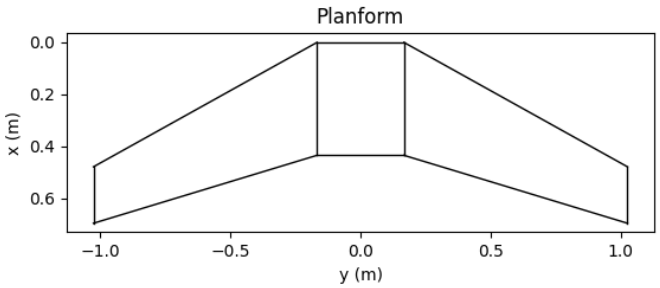
DESIGN REPORT

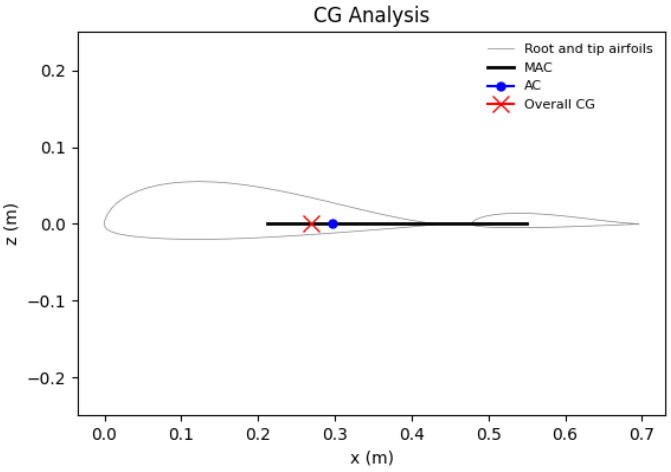
Input Parameters

- 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 : 1.7418 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



Flight Conditions

- 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 : 17.3399 Wh
- Battery Weight : 0.0867 kg