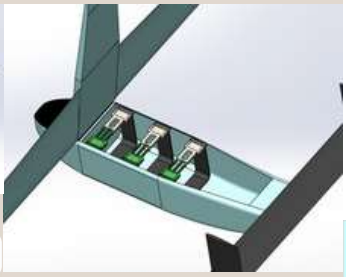
PORTFOLIO

Solar Aircraft Design

Aim

The Aim of this project is to Design a Solar Electric Aircraft of 1meter wingspan which is capable of carrying 5 Kg payload and maintain flight solely on solar energy.



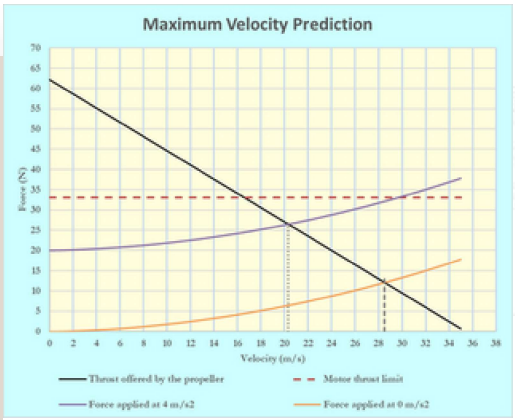
Smooth Composite (Monocoque), Glass Fiber Used

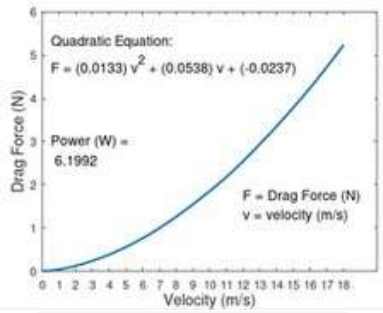
Aircraft Skeleton (Truss), Balsa Used

Two Versions of the aircraft were modelled, Truss (Balsa) and Monocoque (Glass Fiber)

Features

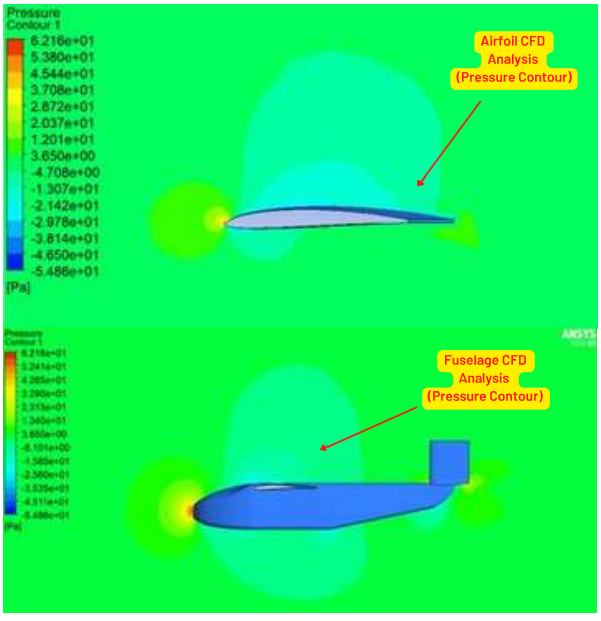
- Easy Loading and Unloading of Payload.
- Max Speed 10 km/h and 75 km/h on Solar Power.
- Requires only 16 meters for takeoff.
- Flight time over 11 hours *regions near equator.
- Over 550 Km range
- Optimized designed for minimum Drag coefficient to achieve high speed on Solar power



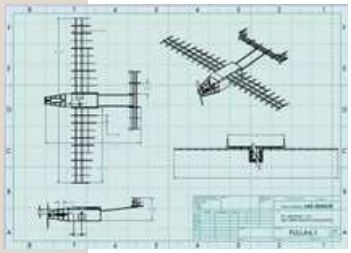


Automated The Calculation work for Power Calculation and Motor Selection

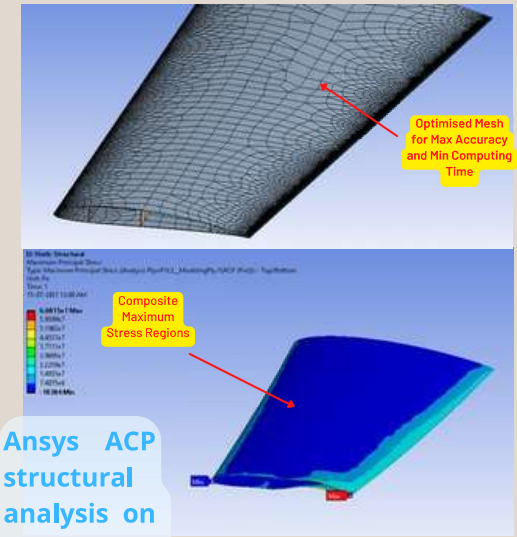
The CFD Analysis is done in Ansys Fluent for optimization of aircraft aerodynamics



Modelling and Simulation Prep was done in Solidworks



GD&T For Manufacturing and Assembly



Ansys ACP structural analysis on Monocoque

Applications

- Military and Disaster Surveillance
- Cargo Air Drop
- Fast Delivery between two city warehouses