SOLAR CANARD PLANE / GLIDER

1. TEAM MEMBERS

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2.PROJECT DESCRIPTION

What's a Canard Plane?

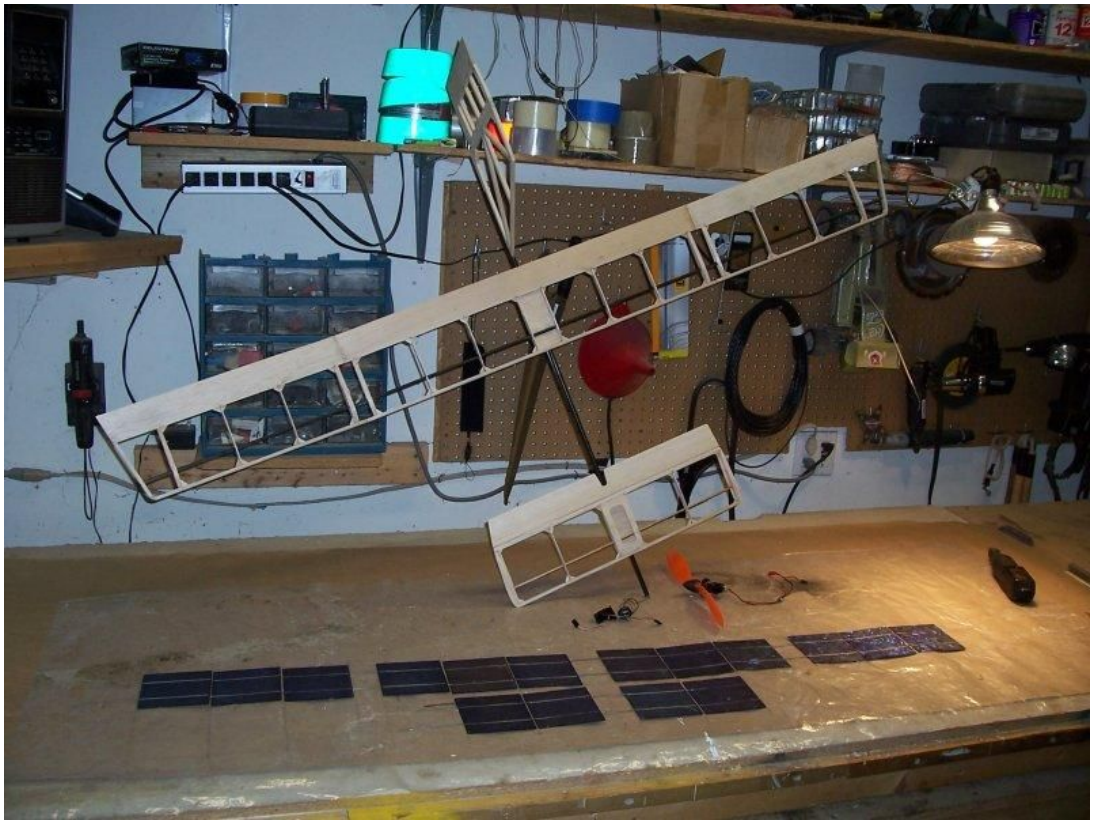
A Canard Plane is an Aircraft with the front wing smaller than the rear or the main wing. It's lift is provided by the rear wing which preferably has a high aspect ratio, and the front wing is called as the canard wing. There are 2 types of canard planes, Lifting Canard and Control Canard in the first one, the weight of plane is shared by both the wings while in the latter, the weight is taken up by the main rear wing.

Some project specifics

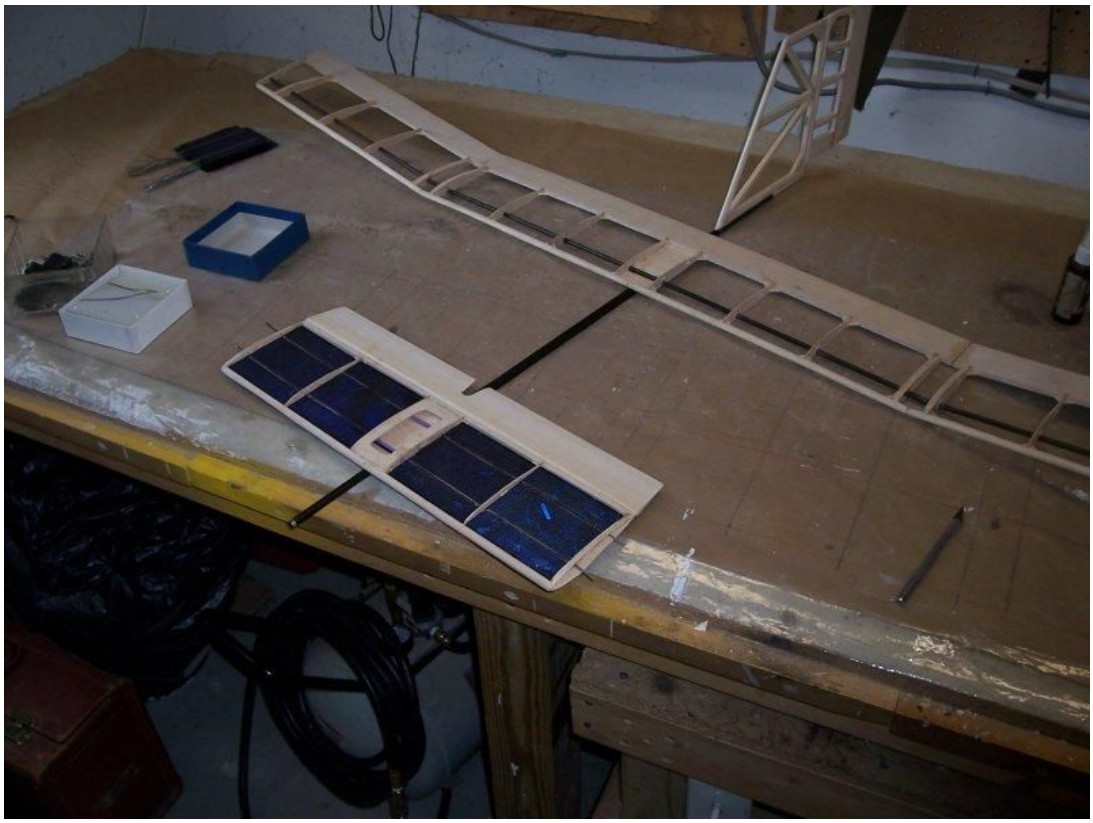
Shown above is a model similar to what we wish to accomplish(A Control Canard). Note that our the elevator and the rudder at the back are the only control surfaces. An aileron is not needed as the rudder would serve the purpose because of the dihedral angle present in the rear wing. **We are trying to power the plane with solar panels only without a battery.**(we might have to change this depending on our final design)

Design to be done -

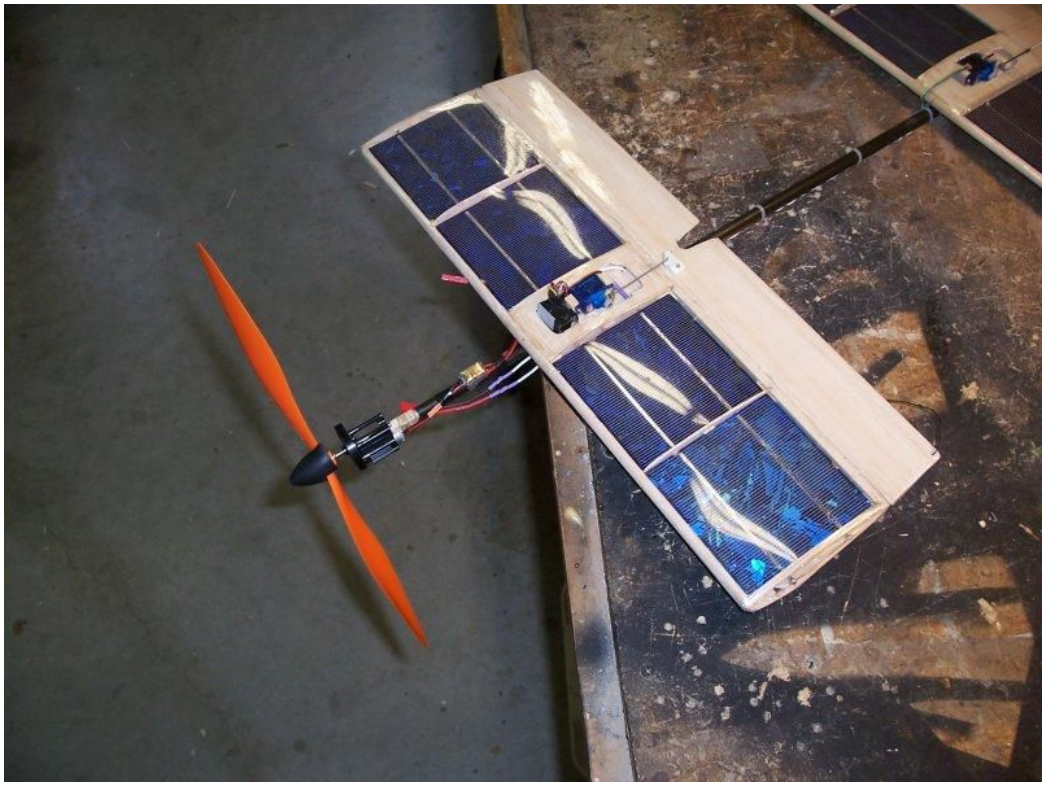
(frame to be built)



(frame and solar cell layout)



(canard wing with solar panels installed and slot for servo)



(completed canard covered with mylar)

3. TIMELINE

Week 0 (April 24th-may 4th) -

1. Preliminaries before design
2. Buying of parts

week 1(may 4th - 12th) -

1. Figure out how to connect solar panels in a suitable way to satisfy the voltage and current requirements.
2. Figure out dimensions of wings,aerofoil and body for most efficient lift and maneuverability.
3. Design parts in autocad for laser cutting.

week 2(may 13th - June 20th)

1. Finish construction of wings and vertical stabiliser+rudder.
2. Assemble plane and make all connections on carbon fiber tube.ok

week 3(may 20th - 28th) -

1. Create a foam made simple canard to practice flying on.
2. Fly the actual plane.

week 4(June 15th - 21st)-

1. More flying!
2. Debugging
3. If component delivery is delayed, this week may have more work to be done.

4. COMPONENTS

Brushless dc motor (turnigy D2822/14 1450Kv) (7.2 V, max 160 W) – Rs. 1000
Electronic Speed Control - Rs. 1000
2 x Servo Motors – (already available)
17 x Solar Panels(V, A) – Rs 3400
Carbon fibre rods - Rs 1000
Balsa – Rs. 800
Laser Cutting - 300
Li-po battery (maybe)- 1000

TOTAL Rs. 8000-9000

5. References

http://www.chrisgood.com/rcplanes/solar_canard_mini/