

Solar Powered Aircraft

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With the decreasing fossil fuels and shifting of the automobile sector towards autonomous vehicles, there is also a need of an aircraft that should be developed to utilize green technology. Use of solar power is one of them. Solar powered aircrafts are gaining much concentration and a lot of research and capital is being spent. For instance solar impulse that completed the world tour, sponsored by IATA, It had a capacity of carrying one passenger and was able to float for 26 hours under testing for 350 meters and 1 Meter above ground[1].

A plane named Solar impulse 2 was able to complete the world trip with a capability of carrying one man,the plane was totally powered by solar power having zero emission. First fully powered aircraft on solar power was Edelweiss, comprised of a large wing span that could carry only One Hundred and Fifty Four pounds[2]. Later Sun Seeker [3, 4] I was designed which was an improved design and could carry much load than the Edelweiss. Its size was huge but with improved efficiency.

Later sun seeker II [4]was developed with the modified design of Sun Seeker I. It had longer flight duration and improved size to weight ratio. Later on, much more modification was done and Sun seeker Duo was developed, which had more weight lifting capacity and had a wing span of 22 meters. It was 23% efficient than its predecessor[4, 5]. Solar flight started a project named sun star which depicted like a sail boat but used a 3 motor configuration, two at the front and one at back to produce lift.[6] A conceptual design of 6 passenger solar powered aircraft was released by solar flight. This design was much better than its previous models and had capacity to carry extra batteries in its baggage compartment. This design was much efficient and could trap maximum sunlight[7]. All these solar powered aircraft were quite enormous in size and to absorb much photons large wingspan were made.

The idea is to design such a solar powered aircraft that could entrap maximum sunlight and could carry or lift maximum load. Our design highlights the area where solar panels could be placed to trap maximum sun light and carry 8-10 passengers with longer flight duration. Solid-Works will be used to design the structure of aircraft and CFD analysis will done of the structure. Some other software will be used to prove our point.

References and Bibilography

[1] S. Mukherjee. (2010-2012) Solar powered Aircraft. Available: http://aroundtheworld.solarimpulse.com/

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[3] S. Flight. *Sun Seeker I*. Available: http://www.solar-flight.com/projects/sunseeker-i/

[4] S. Flight. *Sunseeker II*. Available: http://www.solar-flight.com/projects/sunseeker-ii/

[5] S. Flight. *Sunseeker-duo*. Available: http://www.solar-flight.com/projects/sunseeker-duo/

[6] S. Flight. *Sunstar*. Available: http://www.solar-flight.com/projects/sunstar/

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Biography

We are doing Bachelors in Mechanical Engineering from NFC Institute of Engineering and Technology Multan Pakistan. We are students of 08th year and have written a review paper before on Vegetable oil as coolant, Application of Cryogenic Fuels in Hybird Car.

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