



PROPELLER DESIGN FOR SOLAR POWERED GLIDER

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ABSTRACT

This project involves designing a two blade propeller for a solar powered model size glider with a specified mission profile. A Software called JavaProp was used to assist in the design analysis. The solar powered glider has a weight of 0.662 kilogram with wing span of 2 meter, glide ratio of 19 and gliding velocity of 10 m/s. The propulsion for the glider is primarily intended for climbing at 10 degree climb angle. The propeller design has a diameter of 30 centimeter, pitch of about 30 centimeter and blade angle (at 75% radius) of 22.7 degree. It has a maximum efficiency of about 74 % with available thrust and power of 1.46 Newton and 13.21 Watt respectively, at design condition. The off design performance characteristic for the propeller was also predicted. The detailed geometry of the propeller is presented as AutoCAD drawings.

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