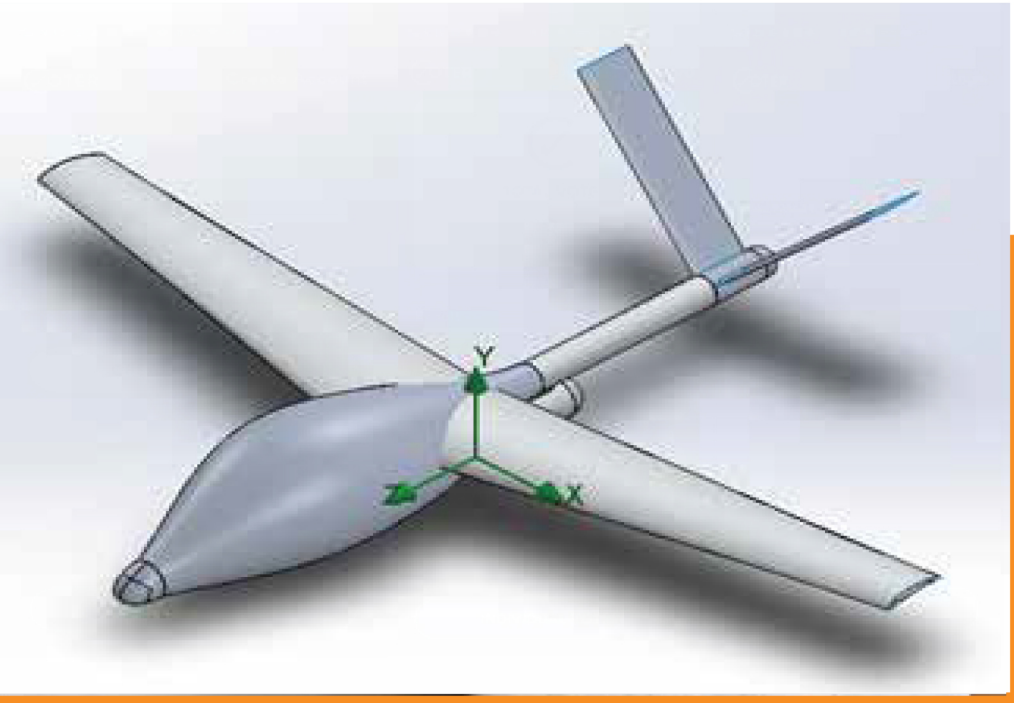
This project is aimed to design a small autonomous fixed-wing UAV, for maximum endurance for monitoring of forest fires. The UAV is capable of monitoring and collecting data of both pre- and post-fires. With the help of the data that has been transmitted from the cameras fixed to the UAV, the source of fire can be predicted, and the further path of the fire can be determined.

Difficulty of surveying and conducting surveillance of large areas of land (like forests) is reduced with the help of drones. We aim to reduce the impact of the destruction left by forest fires every year, with the help of our small fixed wing UAV named Trident. Trident will be capable of conducting periodical surveillance of a large forested area, for wildfires and disaster management, with a fantastic endurance of up to 4 hours. For this, extensive optimisation in the UAV design has been carried out in our project, for achieving enhanced capabilities that makes it the best choice for the mission. The above can be achieved with the help of thermal soaring, which is infrequently available in nature. Thermals caused by convection in the lower atmosphere are commonly used by birds and glider pilots to extend flight duration, increase cross-country speed, improve range, or simply to conserve energy.

Specifications for the product are as below:

- Maximum payload – 6 kgs
- Maximum take-off weight - 30 kgs
- Operating ceiling – 2-5 km



20 PROJECT

DESIGN AND DEVELOPMENT OF LONG ENDURANCE AUTONOMOUS MINI CLASS FIXED WING UAV

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