Analysing the drone of weight 10 kg using 3D experience

Mukundjee pandey[1*] Suparna priyadarshinee dash[2,] lopamudra mahanta[2,] guptesh mohanta[2]

[1]Mechanical Engineering Department, Centurion University of Technology and Management, Odisha, India
[2]MSc. MATHEMATICS, Centurion University of Technology and Management, Odisha, India

[*]Corresponding author:mukundjee.pandey@cutm.ac.in

Abstract

Over the past few years, unmanned aerial vehicles (UAVs) or drones have been a most important and beneficial application of this cutting-edge technology. The Drone is nothing but a type of airplane which can operate without the physical presence of a human being in it. It can work with the remote sensing technology and basically, they are the best aids for reaching the places where we can't reach easily and it is used for the security issues, laws & regulations worldwide owing to impressive advances and use in bio remote sensing and photo grammatical surveying. In this research paper, we will draw a clear understanding of analysing the drone using CFD techniques along with it we will use the 3DEXPERINCE SOFTWARE for performing our simulation tasks and for a detailed study of the drag and lift force changes when subjected to certain velocity and temperature at different steps.

Key points

Analysis of Drone, Velocity distribution, Efficiency and correctness of the drone,Drag force vs lift force.

Introduction

Nowadays technologies are being upgraded on a daily basis. One of the most advanced technologies is the Unmanned aerial vehicle. This unmanned aerial vehicle is using in various fields such as military purpose, home delivery, monitoring, etc. Both developed and developing countries using this technology. Further, in upcoming days we can see many upgraded versions of these technologies with better function & performance.

Drone is a part of an aircraft system while other aircraft can be operated by a human being but Drone can be operating without human so this is called UAV (Unmanned aerial vehicle). This UAV controlled by remote or autopilot. In 1916, a semi-automatic airplane was designed. In the armed forces, it plays an important role. [1]

Aircraft system that will have better efficiency includes a major improvement in the Lift-to-Drag ratio of a wing coupled to transformative improvement in composite structure and engines, such as Blended Wing Body aircraft configuration. The principle of drones is controlling the upwards and downward force with the help of spinning blades in lift force. [2]

Drone consists of battery or fuel, propeller, rotors, and a frame to achieve its flight. Drones are extensively used in American Vietnam War because most of the American pilots were killed by Vietnamese force so using drones is more efficient than manned aerial vehicles. For National Security UAV is used in surveillance and rescue operations in the air force. [3]

ISSN: 2395-6216