

# CONCEPTUAL DESIGN AND STATIC STRUCTURAL ANALYSIS OF A QUADCOPTER FOR HEART MOBILITY IN BANGALORE CITY

K. C. Kruthika  
Student

Department of Aerospace Engineering  
Defence Institute of Advanced Technology  
(DIAT)  
Pune-411 025, India  
Email : kkruthika835@gmail.com

Ranjan Ganguli  
Professor

Department of Aerospace Engineering  
Indian Institute of Science (IISc)  
Bangalore-560 012, India  
Email : ganguli@iisc.ac.in

## Abstract

The present work involves conceptual design and static structural analysis of a quadcopter which carries the human heart as a payload for heart transplantation operation between a donor hospital and a recipient hospital within Bangalore city. The payload for this mission was first estimated by choosing an appropriate container for the heart. Then, the range of the required quadrotor was determined taking into account the distance between various hospitals in the city which perform heart transplants. Thereafter, the propulsion system was selected. Finally, the different parts of the quadrotor were selected. The quadrotor was conceptually designed using the Catia software and the static structural analysis was carried out using Ansys software.