

MVJ COLLEGE OF ENGINEERING

DEPARTMENT OF AERONAUTICAL ENGINEERING

UAV CLUB

The UAV Club helps the students to learn and understand the design and fabrication of Unmanned Aerial Vehicles. It encompasses the application of Aerodynamics and Stability in a real aircraft model and helps the students to get a hands-on understanding in Aeronautical Engineering. The Club conducts workshops for helping the students in fabricating these model aircrafts. The Club has signed a MoU with Avian Aerospace and they are setting up a UAV LAB in the campus. Our students have created many models of different types via Quad copters, Hex copters and fixed wing aircrafts which are in the UAV lab and are to be modified to improve their performance.

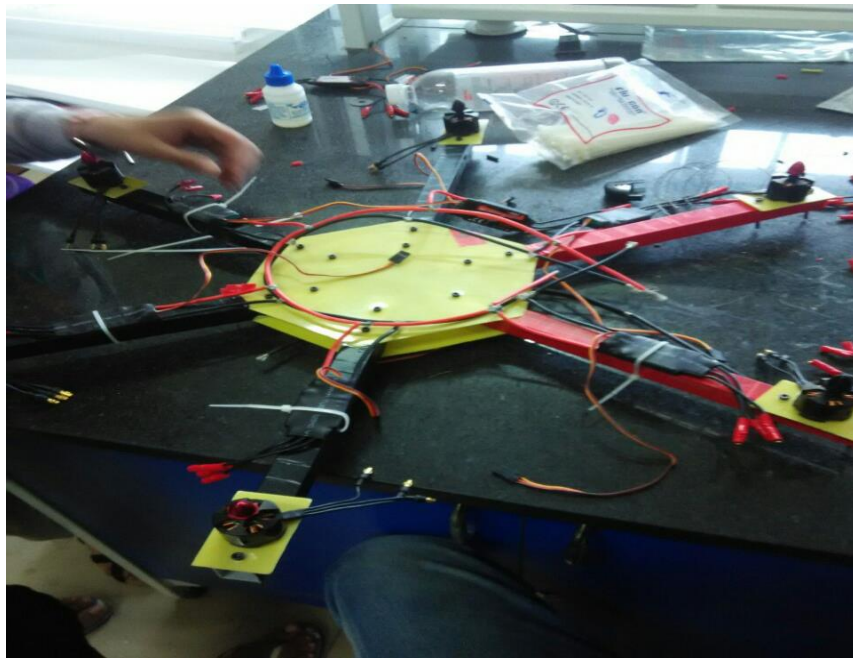


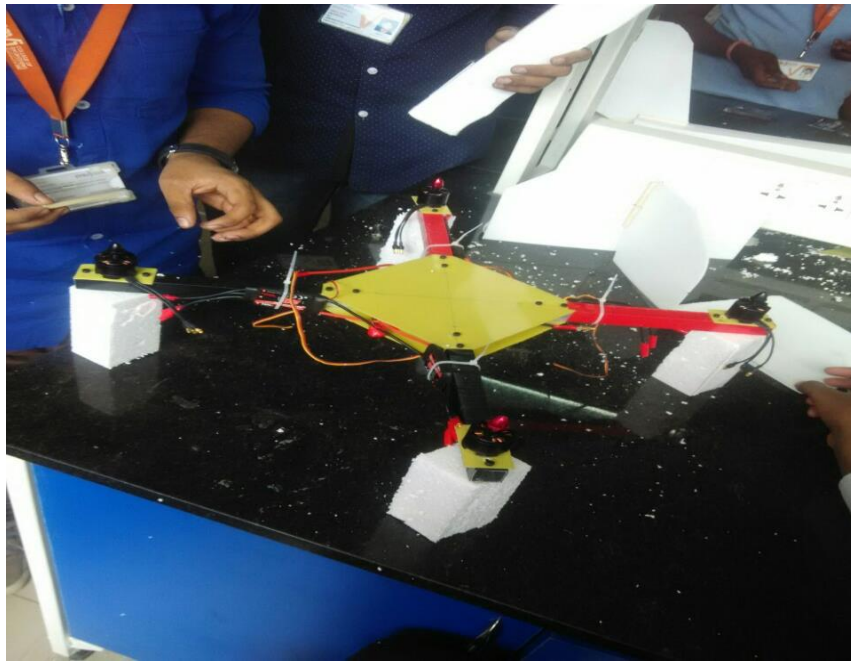
During the 10 day workshop, the students were exposed to the following topics:

1. Introduction to UAVs, Project development cycle
2. Basic Operating principles of different types of UAVs
3. Parameter selection and design of Fixed Wing and Multi-rotor UAVs
4. Various materials used
5. Fabrication of Fixed wing and Multi-rotor UAVs
6. Working with various tools
7. Fabricating Fixed Wing UAV wing sections using hot wire cutter
8. Introduction to Electronics used in UAVs
9. Propulsion system selection
10. Various sensors used in UAVs
11. Introduction to control systems for UAV
12. Basics of PID controller and Kalman filter
13. Introduction to Microcontrollers - Arduino UNO
14. Programming first code and debugging
15. Working with IMU sensor package and Programming for UAV
16. Debugging and testing on GUI suite
17. Basics of piloting a UAV
18. Using Simulator for training
19. Pre - Flight Checks
20. Test flying the vehicle, error rectification and tuning
21. Introduction to Electro - Optical Payloads, cameras and ground control station
22. Various real time applications of UAVs

THE MODELS MADE IN THE UAV WORKSHOP







AERIAL VIEW OF MVJ COLLEGE OF ENGINEERING FROM A UAV

We are forming two teams for research activities - **Aero team** and **Electronics team**.

They will start research on the following topics shortly with help from experts from **Avian Aerospace**.

1. Design and Fabrication of Advanced Heavy Lift Quad copter (with Phase 1 lab equipments)
2. Urban Survey Application
3. Self Balancing robot with indigenous code
4. Control Algorithm for Multi-rotor UAV
5. Design study of underwater glider
6. Algorithm development for Quad copter with Vision based sense and avoids system



A FIXED WING UAV IN FLIGHT



A HEX COPTER IN FLIGHT