

Report on the Workshop on “Building and Understanding Quadcopters and Drones”

Organized by: Department of Electrical Engineering, Faculty of Engineering and Technology, Gurukula Kangari (Deemed to be University), Haridwar

Date: 9th November 2024

Location: Faculty of Engineering and Technology, Gurukula Kangari Deemed to be University, Haridwar

Coordinators: Mr. Lokesh Bhardwaj and Mr. Aviral Awasthi

Mentor: Mr. Gajendra Singh Rawat, Head of Department (HOD) of Electrical Engineering

Introduction

On November 9, 2024, the Department of Electrical Engineering at Gurukula Kangari Deemed to be University, Haridwar, organized an enlightening workshop on “Building and Understanding Quadcopters and Drones.” This hands-on workshop aimed to familiarize students with the basics of quadcopters and drones, as well as provide an in-depth demonstration on assembling quadcopters. The workshop was skillfully coordinated by Mr. Lokesh Bhardwaj and Mr. Aviral Awasthi, who brought their expertise and passion for drones to lead students through an engaging learning experience. The event saw enthusiastic participation from students of various engineering disciplines.

Objectives of the Workshop

- Fundamental Knowledge:** To introduce students to the basic principles of drones and quadcopters, including aerodynamics, components, and flight mechanics.
- Hands-on Experience:** To enable students to assemble a quadcopter independently, fostering a deeper understanding of the technology.
- Skill Development:** To help students gain practical skills in the construction and operation of quadcopters, enhancing their technical proficiency and interest in modern technology.
- Encouragement of Innovation:** To motivate students to explore further advancements in drone technology and apply their learnings to future projects.

Workshop Highlights

1. Welcome and Opening Remarks:

The workshop commenced with a warm welcome from Mr. Gajendra Singh Rawat, the HOD of the Electrical Engineering Department. Mr. Rawat, an accomplished mentor, set an encouraging tone, stressing the importance of learning emerging technologies and integrating them with academic pursuits. He highlighted the growing significance of drones and quadcopters in various industries, from surveillance and agriculture to entertainment and logistics.

2. Fundamentals of Quadcopters and Drones:

Mr. Lokesh Bhardwaj and Mr. Aviral Awasthi led an introductory session that covered the basics of quadcopter and drone technology. This session included a detailed explanation of components such as motors, propellers, flight controllers, and power distribution boards. The coordinators discussed the physics behind flight stability and control, making it easy for students to understand how drones achieve balanced and stable flight.

3. Assembly Session:

In this hands-on segment, students were guided through the step-by-step process of assembling a quadcopter. Mr. Bhardwaj and Mr. Awasthi provided valuable insights and practical tips, helping participants connect different components while ensuring precision in the build. The students were highly engaged in this practical session, gaining first-hand experience in handling various parts and troubleshooting minor technical challenges.

4. Mentorship and Motivation:

Professor Gajendra Singh Rawat circulated among the participants during the assembly process, offering mentorship and personalized guidance. His constructive feedback and technical advice inspired students to overcome any challenges they faced. His words of encouragement motivated participants to adopt a solution-oriented approach, reinforcing the significance of technical learning and experimentation.

5. Support from Faculty Leadership:

Dean of the Faculty of Engineering and Technology, Professor Vipul Sharma, commended the Electrical Engineering Department for initiating this workshop. He praised the coordinators, Mr. Bhardwaj and Mr. Awasthi, for their dedication and encouraged students to continue exploring new technologies that hold the potential to transform the engineering landscape. Professor Sharma's support reinforced the department's commitment to practical, hands-on learning.

Conclusion

The "Building and Understanding Quadcopters and Drones" workshop was a resounding success, achieving its objectives by providing students with valuable theoretical knowledge and practical skills. Under the guidance of dedicated coordinators and mentors, students were able to assemble quadcopters and understand the fundamentals of drone technology. The enthusiastic participation and positive feedback from students reflected the workshop's success in sparking interest and fostering technical skills.

This workshop exemplifies the Faculty of Engineering and Technology's commitment to fostering a forward-thinking educational environment. It served as an excellent platform for students to gain hands-on experience, encouraged by the support of faculty members, including Mr. Gajendra Singh Rawat, Professor Vipul Sharma, and the honored guests. The department plans to organize similar workshops in the future, further contributing to the technical growth and skill development of its students.





