



Department Achievement Report

The Department of Aeronautical Engineering, Gopalan College of Engineering and Management (GCEM) achieved a prestigious state-level recognition through its student project under the 47th Series of the Student Project Programme (SPP) 2023–24, conducted by the Karnataka State Council for Science and Technology (KSCST).

The project was awarded “Best Project of the Year – Aeronautical Engineering” at the state level, recognizing its technical innovation, design novelty, and practical relevance. The project was funded with a grant of ₹7,000 under the KSCST SPP scheme and additionally received a cash prize of ₹6,000 for securing the Best Project award.

The award was conferred during the State-Level Poster Presentation and Exhibition held on 9th and 10th August 2024 at Sharnbasva University, Kalaburagi, where projects from engineering institutions across Karnataka were evaluated by expert panels.

Notably, the outcome of the project has resulted in intellectual property generation, with the project work applied for a patent and subsequently published, highlighting its originality and research significance. This further reflects the department’s emphasis on innovation, research commercialization, and protection of intellectual property.

The project was carried out by final-year students of the Department of Aeronautical Engineering, GCEM, under the guidance of Mr. Suprith M, Assistant Professor, who provided continuous technical mentorship throughout the project lifecycle.

This achievement underscores the department’s commitment to research-driven education, innovation-led student projects, and excellence in engineering practice, enhancing the academic reputation of the institution at the state level and inspiring future student cohorts.

References / Evidence Links

1. **KSCST – 47th Series Best Performing Colleges and Best Projects of the Year Awards (Official PDF):**
https://www.kscst.org.in/spp/47_series/47S_SPP_best_performing_college_and_best_projects_of_the_year_awards.pdf
2. **KSCST Student Project Programme – 47th Series Overview:**
https://www.kscst.org.in/spp/47_series/spp47s_announcement.html
3. **Announcement Video:**
[Announcement_KSCST.mp4](#)
[Presentation.mp4](#)

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(12) PATENT APPLICATION PUBLICATION
 (19) INDIA
 (22) Date of filing of Application :18/08/2025

(21) Application No.202541078158 A
 (43) Publication Date : 29/08/2025

(54) Title of the invention : Three-Degree-of-Freedom (3DOF) Modular Test Bed for UAV Dynamics Evaluation

<p>(51) International classification :B64C0039020000, G05D0001000000, G06F0003010000, G01M0015140000, G01M0005000000</p> <p>(86) International Application No :NA Filing Date :NA</p> <p>(87) International Publication No :NA</p> <p>(61) Patent of Addition to Application Number :NA Filing Date :NA</p> <p>(62) Divisional to Application Number :NA Filing Date :NA</p>	<p>(71)Name of Applicant : 1)C. Prabhakar Address of Applicant :House No. 5, Richmond Road, Bengaluru, Karnataka, 560025 Bangalore ----- Name of Applicant : NA Address of Applicant : NA</p> <p>(72)Name of Inventor : 1)Suprith M. Address of Applicant :Assistant Professor, Department of Aeronautical Engineering, Gopalan College of Engineering and Management, KR Puram, Bangalore, Karnataka,560048 Bangalore ----- 2)Gagan D. Address of Applicant :Student, Department of Aeronautical Engineering, Gopalan College of Engineering and Management, KR Puram, Bangalore, Karnataka,560048 Bangalore ----- 3)Hemashree DS. Address of Applicant :Student, Department of Aeronautical Engineering, Gopalan College of Engineering and Management, KR Puram, Bangalore, Karnataka,560048 Bangalore -----</p>
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(57) Abstract :
 Abstract Three-Degree-of-Freedom (3DOF) Modular Test Bed for UAV Dynamics Evaluation [0069] The invention relates to a modular three-degree-of-freedom (3DOF) testing system for evaluating the dynamic behavior of unmanned aerial vehicles (UAVs). The system comprises a fixed base plate (101), a rotatable yaw plate supported by a ball bearing assembly, and a top plate (106) mounted via vertically oriented guide structures and compliant linkage elements. Vertically displaceable sliders (104) housed within guide tubes (103) translate thrust-induced forces into angular deflection, enabling simulation of pitch and roll dynamics. While the sensing subsystem provide real-time feedback on angular displacement, the MCU processes sensor data, executes calibration routines, and interfaces with display, logging, and wireless modules. Validation is performed through theoretical modeling and experimental comparison, with calibration supported via Mission Planner and Pixhawk interfaces. The system achieves high measurement accuracy, low latency, and rapid reconfiguration, making it suitable for precision UAV testing, control algorithm tuning, and dynamic performance evaluation. (to be published with FIG. 1)

No. of Pages : 30 No. of Claims : 5