Zaosh Khambata

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EXPERIENCE

Swarm Robotics Feb 2024 – Dec 2025
UAV Testing Lead, Research and Electronics Udupi, Karnataka, India

- Led flight testing and validation for fixed-wing and multirotor UAV platforms during development and competitions.
- Handled system design, integration, tuning, troubleshooting, and ensured field readiness.
- Built autonomous vehicle systems and handled electronics integration.
- Conducted flight testing and operated Pixhawk-based UAV systems.

PROJECTS

Fixed-Wing Aircraft Design and Fabrication

- Built 10+ fixed-wing RC aircraft (gliders, trainers, aerobatic) from scratch.
- Fabricated balsa airframes and integrated propulsion systems (brushless motors, IC engines) with various controllers.
- Conducted flight testing, troubleshooting, and competition flying.

Fixed Wing – High Payload Delivery Platform

- Designed and built a high-lift fixed-wing platform capable of carrying 50 golf balls
- Developed dual servo-actuated drop mechanism with short takeoff (∼20 m) and stable loaded flight
- Deployed at Boeing IIT National Aeromodelling Competition – 1st Runner-Up

High-Performance Aerobatic Aircraft (3D Flight Capable)

- Lightweight, high thrust-to-weight airframe optimized for aggressive aerobatics
- Direct PWM control with large surface deflections for high authority
- Capable of vertical climb and sustained hover and aerobatics (3D flight)

FPV-Cinematic and Racing Drone Systems

- Built and tuned custom quadcopters; frame assembly, electronics integration, and Betaflight/INAV setup
- PID tuning, resource remapping, and hardware debugging
- Flown extensively in high-speed and competitive environments

Heavy Lift Hexacopter Design (Pixhawk Based)

- Designed six-motor multirotor for stable heavy payload operations
- Integrated Pixhawk, telemetry, GPS, and tuned powertrain

Autonomous UAV Platforms (Pixhawk and Jetson)

- Developed multirotors with ArduPilot-based waypoint and automated missions
- Integrated Jetson Nano and sensors (LiDAR, GPS, cameras)
- Field testing and tuning for reliable autonomous operation with backup manual control

Flight Testing and UAV Operations

- Actively involved in flying and testing the systems built
- Conducted stability, endurance, and payload tests with on-site tuning and repairs
- DGCA licensed multirotor pilot (<25 kg)

EDUCATION

Manipal Institute of Technology, Manipal Expected: 2027
B.Tech. Aeronautical Engineering

ACHIEVEMENTS

- **First Runner-Up** – International Space Drone Challenge | Pixhawk-based autonomous drone | BITS Pilani Goa Campus (2025)
- **Winner** – Best Design Award, Regatta 2.0 | Designed and fabricated a lightweight lighter-than-air airship platform; recognized for structural efficiency by Autodesk (2024)
- **Runner-Up** – Technoxian Drone Soccer | Designed cage-protected multirotor | Swarm Robotics (2024)
- **Winner** – Search & Rescue UAV | FPV pilot, ∼2 kg payload lift | BITS Pilani Goa Campus (2024)
- **Runner-Up** – Boeing IIT National Aeromodelling Competition Finals | High-lift Dual payload aircraft | Pilot | Indian Institute of Technology Delhi (2019)
- **Runner-Up** – Boeing IIT National Aeromodelling Competition Zonals | Payload aircraft design | Pilot | Indian Institute of Technology Bombay (2018)

CERTIFICATIONS

- **Remote Pilot Certification** (Multirotor UAV < 25 kg) – Directorate General of Civil Aviation - India – Mar 2025 (Valid till 2035) | Credential ID: 67240615D84ZZ
- **Autonomous Aerospace Systems** – Università degli Studi di Napoli Federico II – Sep 2025 | Credential ID: YR4QOW3S88VE
- **MATLAB & Simulink Training Suite** (MATLAB, Simulink, Control Design, Simscape Fundamentals) – MathWorks

SKILLS

Flight Operations: Piloting, testing, tuning, field troubleshooting
Flight Control: Pixhawk, ArduPilot, Betaflight, INAV
UAV Systems: Airframe design, propulsion, payload integration, telemetry/RF, LiDAR, GPS
Computing: MATLAB, Simulink, Jetson Nano, Python, basic computer vision
Engineering Tools: ANSYS, CAD, CFD