Piyush Kumar

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EDUCATION

Vellore Institute of Technology, Bhopal *Aug 2022 – Ongoing*
B.Tech in Aerospace Engineering, CGPA: 8.03/10

Modern Vidya Niketan, Faridabad, Haryana *2022*
Class XII, Percentage: 75%

St. Columbus School, Faridabad, Haryana *2020*
Class X, Percentage: 88%

WORK EXPERIENCE

Drone Frame Designer Intern, AirM Pvt. Ltd. (Remote) *Mar 2025 – Ongoing*

- Designed a foldable drone frame (DJI Mavic clone) in Fusion 360, achieving 75% cost reduction.
- Conducted FEA in CATIA to validate structural support for 2 kg payload.
- Led a small team, coordinated tasks, and managed design reviews.

Research Intern, Aeronautical Society of India, Bangalore (On-site) *Oct 2024*

- Hands-on exposure to UAV systems and aerospace technologies during a one-week program.
- Learned industry-standard aeronautics tools and flight simulation workflows.

UNIVERSITY PROJECTS

Forward-Swept Wings in Commercial & Small Aircraft *2023–2024*

- Designed and built a 1:20 scale wing section with 10° forward sweep for aerodynamic testing.
- Conducted wind-tunnel experiments to map lift, drag, and stall behavior.
- Validated data via CFD and optimized structural layout using CAD/CAM tools.

Air-Breathing Hypersonic Scramjet Engine *2024*

- Developed theoretical models for airflow and fuel injection to sustain combustion at Mach ¿ 8.
- Optimized inlet and combustion-chamber geometry using ANSYS Fluent.
- Built lab-scale prototypes, performed high-speed wind-tunnel tests, and validated via STK simulations.

Compact Foldable Drone (DJI Mavic Clone) *Mar 2025 – Ongoing*

- Engineered ultra-compact drone frame in Fusion 360, reducing cost by 75% while preserving performance.
- Re-designed fold-arm mechanism and central fuselage; performed FEA for 2 kg payload support.
- Integrated basic computer vision into the flight controller to detect traffic signals and hospital markers.

Autonomous Drone Mission Planner with Visual Route Optimization *2025*

- Created a mission planner that parses route checkpoints from MS Excel and converts them to drone waypoints.
- Integrated onboard camera to recognize road signs (e.g., traffic lights, "+" hospital markers) and adjust flight paths autonomously.
- Simulated complete missions in STK to validate route optimization and automated behaviors.

ACTIVITIES & ACHIEVEMENTS

- 3rd Prize, Rocket Launching Event (KARMAAN), designing a custom rocket (VIT Bhopal).
- Industrial visit to mechanical and automobile plants in Chennai, gaining hands-on experience.
- Core Technical Member, Blockchain Club, VIT Bhopal (Jul 2023 – Present): Frontend development and event coordination.

ADDITIONAL

Technical Skills: Java, JavaScript, HTML, CSS, SQL, Python; ReactJS; Fusion 360; CATIA; AutoCAD; STK; Git; MS Excel.

Certifications: VITyarthi Certification in Python & Fundamentals of AI & ML; STK Software Course; Agnirva Space Internship.

Languages: English (fluent); Hindi (native).