Aditya Shinde

UAV & DRONE SYSTEMS ENGINEER | FPV DRONE PILOT

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SKILLS

- **Technical Skills:** Python, Data Analytics, DBMS, Computer Networks, Cloud Computing, MIoT
- **UAV & Drone Systems:** FPV Drone Racing, Flight Tuning, Autonomous Navigation, Telemetry Integration, Ground Control Systems, Mission Planner, BetaFlight
- **Design & Automation:** AutoCAD, Fusion 360, Pneumatic Systems, Mechanical Design, Automation Prototyping
- **Embedded Systems:** Microcontrollers, Sensors & Actuators, Circuit Design, Hardware Integration
- **Programming & Tools:** Arduino IDE, MATLAB (Basics), Soldering & PCB Handling
- **Soft Skills:** Team Leadership, Project Management, Problem Solving, Technical Documentation

EXPERIENCE

Design and Automation Intern – VVS System and Solution ｜Jan 2025 – Apr 2025
- Developed precise CAD models using AutoCAD and Fusion 360 for optimized design and maintenance.
- Designed and automated pneumatic switch systems for utility vehicles, improving operational efficiency.

Team Lead – UAV & Drone Projects, Team Vajra (MMCOE) ｜2023 – Present
- Led the drone team, piloted the drone to achieve World Rank 3 in FPV drone racing competition.
- Managed end-to-end UAV development using Pixhawk, APM, and SpeedyBee flight controllers.
- Supervised flight tuning, testing, and integration of embedded and automation systems.

PROJECTS

Low-Cost HC-12 Telemetry Kit for UAVs
- Developed a low-cost telemetry system using HC-12 433 MHz RF modules, reducing cost by 70% vs commercial MavLink kits.
- Integrated HC-12 with Pixhawk/CrossFlight via UART to stream GPS, battery, and attitude data.
- Achieved reliable 800 m – 1 km LOS range through optimized antenna placement and serial tuning.
- Designed a lightweight, plug-and-play module ideal for low-budget UAV testing.
- Validated on an autonomous delivery drone, confirming reliable short-range telemetry performance

MBT-Based ADAS System (MATLAB/Simulink)
- Developed and simulated ADAS modules (Lane Detection, ACC, Obstacle Detection) using Model-Based Design.
- Performed MIL/SIL testing and generated embedded-ready code via Simulink Coder.
- Implemented sensor fusion and control logic for real-time ECU deployment.
- Improved system reliability through automated model checks, scenario simulations, and iterative refinement.

5-Inch FPV Racing Drone
- Designed and built a high-performance 5-inch FPV racing drone using the SpeedyBee F405 V3 flight controller.
- Optimized for agility, speed, and precise control through advanced component tuning.

Line-Following Material Handling Bot with Phone-Controlled Robotic Arm
- Developed an ESP32-based autonomous robot capable of line-following navigation using an IR sensor array and PID motor control.
- Integrated a smartphone-controlled 4-DOF robotic arm with Wi-Fi/Bluetooth override for pick-and-place operations.
- Added ultrasonic obstacle detection and designed a lightweight chassis for smooth and safe warehouse material handling.
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ACHIEVEMENTS

- **World Rank 3 & AIR 2** – Technoxian Drone Racing 2025 (32 international teams)
- **Cleared Level 2** – AeroGCS Global Competition
- **2nd Place** – MMCOE Dexterity 2K24 Drone Racing Simulator
- **4th Place** – AISSMS Silicon Fusion – Air-o-rush Event
- **1st Place** – Uddan 2K23 Drone Competition