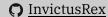# Rupankar Majumdar

Robotics & Drone Enthusiast

⊙ India

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Profiles

🔗 Rupankar Majumdar

○ InvictusRex

Skills

UAV Technology

Fixed & Rotary Wing Drones, Coaxial Drones, Tricopters, Flight Computers, ArduPilot, Pixhawk, BLDC Motors, PID Tuning, Data Acquisition Sensors

Robotics

Arduino, ESP32, IoT Sensors, Motor & Motor Drivers, Terrestrial & Marine Vehicles, Combat Robotics, RoboWars

Solar Electric Vehicle

Solar Panels, MPPT, Prismatic & Cylindrical Cells, Electronic Control Unit, Tractive System, Powertrain

Programming

Python, C/ C++, Embedded C, Java, Shell Script, ML, OpenCV, YOLO, Classification & Regression, CNN

Front End Development

HTML, HTMX, CSS, Bulma, Bootstrap, JavaScript

Publications

Drone Simulation Approach for Maritime Search and Rescue
JOES, Elsevier
Under Review
https://github.com/InvictusRex/Drone-Simulation-Approach-for-Maritime-Search-and-Rescue

Education

Vellore Institute of Technology, Chennai
B.Tech CSE & AIML
8.57 CGPA
Aug 2023 - Present

Experience

Centur-Ion Mobility Pvt. Ltd.   Jul 2024 - Dec 2024
Research & Development Intern   Chennai, India

Completed a 6-month industrial internship as a R&D Trainee, working on **Coaxial Drones** and **Tricopters**.

- Finalized electrical integration of coaxial drones and tricopters.
- Developed and implemented real-time data acquisition systems for sensors including **GNSS**, **IMU**, **MEMS microphones**, **LVDT**, and **RVDT**.
- Designed, analyzed, and developed an **Electrical Test Bench** for testing BLDC drone motors.

REVA Solar Racing   Feb 2024 - Present
Co-Founder & Electrical Department Lead   Chennai, India

Leading the Electrical Department of REVA Solar Racing, a special team of VIT Chennai, aiming to ideate and manufacture Chennai's first student developed single-seater adventure class **Solar Electric Vehicle** and competing in Electric Solar Vehicle Championship 2025.

IEEE Robotics & Automation Society, VIT Chennai   Feb 2024 - Present
Project Department Lead   Chennai, India

- Represented IEEERAS in **Robowars** during Gravitas'24, VIT Vellore, reaching the semi-finals in the 8kg category.
- Participated in multiple robotics competitions, including **RoboSoccer** and **RoboRun** during Shaastra'25, IIT Madras, and **ROBOFEST Gujarat 4.0**, competing in the Submarine and Underwater Robot track.

Robotics Club, VIT Chennai   Sep 2023 - Present
Technical Department Lead   Chennai, India

Led the Rev-Up Arduino Workshop Series, introducing **Arduino** and microcontroller basics through projects like Home Automation, Plant Watering Systems, and Weather Stations. Delivered talks on **TensorFlow**, **OpenCV**, and virtual environments in ML & DL Bootcamps. Designed and developed an **Automatic Beach Cleaner** for cleaning beaches in Chennai.

Projects

Sky-Sense Multi-Role Helicopter   Dec 2023
🔗 https://tinyurl.com/Sky-Sense-Helicopter

Developed an intricate single-rotor multi-role helicopter as part of a Semester 01 project, incorporating sensors for **real-time data acquisition** and achieving over five iterations with continuous improvements.

Nautilus X   Jun 2024
🔗 https://github.com/TheKingslayerPrime/NautilusX-Robofest4.0

Designed and developed a multi-functional submarine robot for Gujarat Robofest 4.0, featuring advanced buoyancy control with syringe-based and **peristaltic pump ballast tank** systems, integrated **water-jet propulsion** for maneuverability.

CupCake BattleBot   Sep 2024
🔗 https://tinyurl.com/CupCake-BattleBot

Designed and built an 8kg combat robot for RoboWars at GraVITas'24, with **3mm 6061 aluminum chassis** reinforced mild steel for enhanced impact resistance, dual **800kV BLDC** motors with BBOX gearboxes for high RPM, torque, and precise maneuverabilityand a fixed wedge design as both an offensive and defensive system, effectively flipping opponents and absorbing high-impact collisions.