Pratyush Kundu

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Profile

Electrical Engineering undergraduate with interest in **Robotics, Embedded Systems, Power Electronics and Power Systems, Digital and Analog Electronics, and Autonomous UAVs**. Expertise in **Embedded hardware integration, Real-time control, Sensing systems, and MATLAB-based modeling**

Education

Alipurduar Government Engineering and Management College *2023 – 2027*
Alipurduar, West Bengal, India
B.Tech in **Electrical Engineering** (MAKAUT) | WBJEE 2023 Qualified

Higher Secondary — WBCHSE (English Medium) *2020 – 2022*
Siliguri Baradakanta Vidyapith — Science **(82.2%)** | Siliguri, West Bengal, India

Secondary — WBBSE (English Medium) *2015 – 2020*
Pranavananda Centenary Shikshayatan (83.7%) | Jalpaiguri, West Bengal , India

Technical Skills

Programming: C, C++, Python | **Embedded Systems and Micro-controllers:** ESP32, Arduino, GPIO, PWM, UART, EEPROM | **Core skills:** Power Electronics, Motors, Rectifiers, Sensors and Transducers, Measuring Devices
Tools: MATLAB, Simulink, PSpice, Multisim
Domain Skills: Robotics, UAVs, IoT, Embedded Systems, Power Electronics

Experience

Summer Intern — Jalpaiguri Government Engineering College *Jun–Jul 2025*

- Control system modeling using **MATLAB/Simulink** and circuit simulation using **PSpice**.
- Practical exposure to **Electrical machines** like Transformers, Motors, Variac operation, and Coil winding.
- Industrial observation of electrical systems at Caron Tea Factory.

RKVY Trainee — Indian Railways (Kolkata Metro) *Jul 2024*

- Studied traction motors, substations, battery banks, and metro power distribution.
- Learned about the maintenance of Rolling Stock.

Projects

Team Lead of Autonomous UAV for GPS-Denied Exploration in Martian Terrain Project *Ongoing*

- Implemented **Vision–inertial navigation, Energy-aware mission logic, and Fail-safe autonomy.**
- Added feature of a **Real-Time seed image detection** and a **robotic control system** with a **2 km telemetry range.**

S.A.N.K.A.L.P. — Signal-Activated Navigation with Kinematic Arm and Locomotion Precision GitHub

- **Team Lead of project**; Applied **ESP32–Arduino UART architecture, EEPROM state retention, and sinusoidal PWM control**. Robotic system operating at **11.1V**.
- Finalist at Control Craft, SRIJAN 2K25, **Jadavpur University.**

IoT-Enabled Robotic Car with Obstacle Detection GitHub

- Executed **ESP32-based robotic platform** with **ultrasonic sensing and autonomous obstacle avoidance.**
- Used **Real-time processing of data** acquired by sensors.

Certifications

IoT — NPTEL (**IIT Kharagpur**) ***Elite + Silver***
Joy of Computing using Python — NPTEL (**IIT Ropar**) ***Elite + Silver***
Problem Solving Through Programming in C — NPTEL (**IIT Kharagpur**)

Achievements and Co-Curricular Activities

Finalist in Robotics Contest at **Jadavpur University** | Event Organizer — **College Quiz** (Quiver) |
Content Moderator — **Siliguri Quiz Club** | Runners-up at **Quiz Premier League Season 10**
Finalist in Creative writing contest at **Coochbehar Government Engineering College**