

# ANGIRA MUKHERJEE

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## Education

### Indian Institute of Engineering Science and Technology (IEST), Shibpur

*B.Tech in Electronics and Telecommunication Engineering; CGPA: 8.53*

Howrah, WB

2023 - 2027

### Pathfinder Higher Secondary Public School

*Class XII (WBCHE); Score: 86%*

Kolkata, WB

2023

### Bidya Bharati Girls' High School

*Class X (WBBSE); Score: 90.4%*

Kolkata, WB

2021

## Experience

### Research Intern

*TIHAN, IIT Hyderabad*

- Worked on verification of hardware designs before PCB production and layout stages.
- Validated schematic-level designs to identify functional and integration issues prior to layout implementation.
- Collaborated in pre-layout verification workflows to improve design reliability and reduce production errors.
- Engineered a high-current priority Power MUX solution through circuit design, schematic development, PCB layout, and production-ready PCB Board in KiCad.

May 2026 - Present

Hyderabad, India

### Research Intern

*Birla Institute of Technology, Mesra (BIT Mesra)*

- Designed the implementation of a small-scale batch processing system using RISC-V architecture.
- Authored a research paper detailing the design of a low-cost automation system using a 32-bit RISC-V processor.

Jun 2025 - Jul 2025

Ranchi, India

## Publications

### Design and Implementation of a Small-Scale Batch Mixing System using RISC-V | *First Author*

Jul 15, 2025

- Accepted at the 13th IEEE International Conference on Intelligent Systems and Embedded Design (ISED), NIT Raipur.
- Proposed a cost-effective automation architecture leveraging 32-bit RISC-V processing.

## Projects

### Priority Power Multiplexer Design | *Analog Design, PCB Design, KiCad*

May 2026 - Present

- Designed a 25V UAV priority power mux for auto switching between tethered power and battery backup with manual override.
- Simulated dual LM74800-Q1 power-path architecture in PSpice, validating switchover, manual override, and gate-drive safety.
- Designed for 100 A continuous / 150-200 A surge using parallel MOSFET banks, TVS protection, and input/output decoupling.
- Created a 4-layer KiCad PCB with wide copper pours, via arrays, solid power-pad connections, and high-current routing for fabrication readiness.
- Selected specification compliant components, including power MOSFETs, TVS devices, capacitors, and connectors, and prepared the project BOM.

### RISC-V Batch Processing System | *Verilog, Digital System Design*

Jun 2025 - Jul 2025

- Designed a 32-bit non-pipelined RV32I RISC-V processor in Verilog for batch mixing automation and integrated core processor modules including the Program Counter, Control Unit, ALU, Register File, Instruction Memory, and Data Memory.
- Developed an FSM-based control system that integrate the modules to automate ingredient dispensing, heating, mixing, discharge, and error handling using real-time sensor feedback.
- Implemented memory-mapped I/O to interface processor with virtual sensors and actuators for automated control of valves, heater, mixer and RV32I assembly programs to configure recipes, manage FSM state transitions, and execute the batch mixing sequence
- Verified the design through Vivado simulations, achieving 100 MHz single-cycle operation

### Line Following Robot Car | *Arduino, C++, Robotics*

Feb 2024 - Mar 2024

- Designed a robot utilizing an IR sensor array, motor drivers, and Arduino Nano.
- Implemented and tuned a PID controller to improve line-following accuracy and stability over simple logic.

## Awards & Achievements

- **2x Winner:** MATLAB Cody Challenge (May 2025, May 2026).
- **Recipient:** GAABESU Research Award, IEST Shibpur Alumni (Jan 2026).
- **Scholar:** IAmFutureReady Infosys Scholar, Infosys Foundation (Feb 2025).
- **2nd Runners Up:** Institutional Startup Competition, IEST Shibpur (Jun 2024).
- **Participant:** Texas BYTE, Texas Instruments.

## Technical Skills

**Languages:** C/C++, MATLAB, Verilog, HTML/CSS

**Software:** Xilinx Vivado, LTSpice, PSpice, Micro-Cap 12, NI Multisim, KiCad

**Subjects:** Analog & Digital Electronics, Microelectronic Devices, Instrumentation & Control Systems, Probability and Statistics, Linear Algebra, Calculus, Signals and Systems, Communication Networks, Analog and Digital Communication, VLSI and CAD, Computer Organization and Architecture

**Spoken Languages:** English, Hindi, Bengali