Saransh

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Education

J.C. Bose University of Science and Technology, YMCA, *Faridabad, India* *12/2021 – 05/2025*
B.Tech. in Electronics Engineering – Specialization: Internet of Things **GPA: 7.46/10.00**
Relevant Courses: *Signals and Systems, Circuit Analysis and Synthesis CMOS, Analog Circuits, FPGA, Semiconductor Devices, Embedded Systems, MOSFET, Digital Design, Static Timing Analysis, Digital Electronics, Microprocessors*

Work Experience

Graduate Engineer Trainee | Vivo Mobile India Pvt. Ltd., *Noida, India* *03/2025 - 07/2025*
- Contributed to the **Repair NPI team** for flagship devices (X 200FE, X Fold5 etc.), handling prototype repair, validation, and performance optimization; **received a return offer** based on performance and ownership.
- Performed board- and component-level diagnostics using multimeters, regulated power supplies, and software tools, resolving issues across **80+ prototypes** and reducing repair turnaround time by **20%**.
- Collaborated with cross-functional teams to conduct root cause analysis and advanced rework, reducing recurring hardware failures by **15%** before mass production.

Embedded Systems Intern | CSIR – National Physical Laboratory, *New Delhi, India* *01/2025 - 03/2025*
- Developed a novel high-precision ambient temperature estimation system using **HC-SR04 and ATmega16A**, leveraging ultrasonic velocity variation with atmospheric conditions.
- Achieved **~99% measurement accuracy** through structured experimentation with **200-sample averaging per cycle** and precise timing control (10 µs trigger, 10 ms sampling interval).
- Built a calibrated **100 cm acoustic test setup** to ensure repeatable velocity benchmarking and reliable performance comparison under controlled and ambient environments.

Key Projects

Smart IoT- Based Ventilator System | Prof. Sunil Jadav, EEN-753 *07/2024 - 11/2024*
- Developed a low-cost IoT smart ventilator using Arduino Nano and ESP8266, achieving functional parity with **~$4,000** commercial systems at a **~$110** build cost **(≈97% cost reduction)**; Ranked **#1 in Department.**
- Designed a real-time embedded monitoring system with SpO_2 and temperature sensors and cloud connectivity, delivering **<2 s latency** and **>98% measurement reliability** for continuous monitoring.

Railway Line Fault Detection Robot | Prof. Rohit Tripathi, EE-IOT-752 *08/2024 - 10/2024*
- Built an autonomous railway fault detection robot with Arduino Uno and HC-SR04 sensor, detecting obstacles within 14 cm and alerting via buzzer/GSM; achieved **Rank 1 ES** and **Top 5** on Dept. test leaderboard.
- Optimized motor control and sensor logic with L298D and Embedded C, achieving **>95% accuracy**.

Bob – The Obstacle Avoider *01/2024 - 02/2024*
- Designed and built an autonomous line-following robot with a multi-channel IR sensor array and PID-based adaptive thresholding for precise trajectory tracking; **1st place in Robotics Hackathon.**
- Implemented closed-loop PWM motor control and signal-conditioning circuits, tuning PID gains via iterative hardware-in-the-loop testing to optimize stability, response, and motor performance.

Achievements

Project Associate-I, CSIR-NCL, Pune, 2025: *Solely selected nationally for 18-month research project.* *11/2025*
Employee Excellence, Vivo India, 2025: *Received full GWP for system optimization contributions.* *03/2025-07/2025*
Samsung-IISc-Synopsys Fellowship, ISWDP Cohort 52025: *Selected nationwide from 27K+ participants.* *06/2025*
CDIL India Semicon Challenge, 2024: *1 of 14/2,500+ candidates; earned industrial visit & 6-month internship.* *12/2024*
Dept. Project Distinction, YMCA Faridabad, 2024: *IoT Ventilator ranked highest (A+) and presented to peers.* *12/2024*
Robotics Line Follower Hackathon, BML Munjal University, 2024: *1st among 70+ teams; awarded INR 25,000.* *03/2024*
Autonomous Self-Balancing Robot, YMCA Faridabad, 2023: *2nd among 25+ participants; awarded INR 5,000.* *02/2023*

Technical Skills

Programming: C/C++, Python, VHDL, UVM, SystemVerilog
MCU's: ATmega16A, Arduino Uno/Nano, ESP32/8266
Communication Protocols: UART, SPI, I2C, CAN, HTTP, USB, RS-232, RS- 485 PCIe, Zigbee, MQTT
Developer Tools: Git, LT Spice, LabView, MATLAB/Simulink, JASPERGOLD, VERDI, CodeVisionAVR, KiCAD
Measurement and Testing: DMM, Oscilloscope, Logic Analyzer, Function Generator, Spectrum Analyzer