

Aravind A S

B.Tech Electronics and Communication Engineering

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Profile

Electronics and Communication Engineering undergraduate focused on **embedded systems, compute platforms, and hardware–software co-design**. Hands-on experience across **analog and digital circuit design, FPGA-based video pipelines, microcontroller systems, and PCB development**. Comfortable with schematic design, simulation, RTL/firmware development, board bring-up, and validation. Seeking an internship in **embedded computing, industrial electronics, or hardware R&D**.

Education

B.Tech in Electronics and Communication Engineering — NSS College of Engineering, Palakkad 2023–Present
VHSE – Optical Fiber Technician (NSQF Level 4) — GVHSS BHS Mancha 2021–2023
Score: 93.44%

Experience

Research Intern — IISER Bhopal (Online) May–Jul 2025

- Designed and simulated low-noise analog front-end circuits using TIAs and precision op-amps.
- Performed frequency response, stability, and noise analysis in LTspice.
- Contributed to schematic capture and multi-layer PCB layout for laboratory instrumentation.

Research Intern — IIITDM Kancheepuram (Offline) May–Jun 2025

- Developed an ESP32-based dual-microphone data acquisition system.
- Implemented FFT-based spectral analysis and digital filtering for signal characterization.

Embedded Systems Intern — Asnaviram Networks (Hybrid) 2024–Present

- Worked on microcontroller-based prototypes involving sensors, power regulation, and peripherals.
- Assisted in PCB design, board bring-up, hardware debugging, and validation.

OJT Trainee — BSNL RTTC Jan 2023

- Hands-on training in optical fiber splicing, OTDR testing, and fault localization.

Projects

- Smart Guard Robot:** Jetson Nano–based autonomous security robot with ML object detection, computer vision, speech-based AI interaction, inverse kinematics, and real-time video streaming.
- VGA Video Controller:** Designed and implemented a custom VGA video card using digital logic circuits and EEPROM, enabling image storage and display on a VGA monitor.
- ESP32-Based Nasometer:** Dual-microphone analog front-end with FFT analysis.
- Autonomous River-Cleaning Rover:** Conveyor-based rover with integrated 2-DOF arm.
- Ultra-Low Power CMOS Op-Amp:** Two-stage CMOS op-amp (1 μm), ~ 68 dB gain.

Technical Skills

Embedded Systems: ESP32, Arduino, 8051, UART, I2C, SPI | Analog Mixed-Signal: Op-amps, TIAs, filters, signal conditioning | FPGA/Digital: Verilog HDL, RTL design, VGA pipelines | VLSI Tools: Electric VLSI, Vivado, Xilinx ISE | PCB: KiCad, Altium | Simulation DSP: LTspice, FFT | Programming: Embedded C, Python | Tools: Git, Linux

Awards

- 1st Prize — IEEE PES REGEN Hackathon 2025**
- IEEE ICEdge Student Travel Grant Recipient
- IEEE Silver Star Builder Award

Leadership & Activities

- Ex-Technical Coordinator — IEEE SB NSSCE
- Chair, Ex-Vice Chair — IEEE ComSoc NSSCE
- Ex-Student Ambassador — IEEE Region 10 ACEI
- Ex-Technical Lead — IEDC NSSCE
- Vice Chair, Ex-Tech team — ELACSTA NSSCE
- Social Media Manager — IEEE Computer Society Philippines Chapter

Certifications

- Digital Design for VLSI — L&T EduTech
- Industrial Applications of MCUs — L&T EduTech
- VLSI Chip Design(Electric EDA) — L&T EduTech
- PCB Design Fundamentals — Altium
- Data Analytics — IBM
- Optical Fiber Technician — NSQF Level 4