

HARSHA GANESH

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SUMMARY

ECE undergraduate with strong software development skills seeking CS/IT roles. Proficient in Python, Java, C, and embedded systems programming. Experienced in full-stack development, PCB design automation, and machine learning applications. Completed internships at IIT Tirupati (GPR Simulation) and Hypstuma (Drone Design).

TECHNICAL SKILLS

Programming Languages: C, Python, Java, JavaScript, MATLAB, Verilog.

Frameworks & Libraries: PyQt5, pygame, GPRMax, pandas, NumPy.

Hardware: Arduino (Uno, Nano), Raspberry Pi Pico, ATmega328P, RP2040, STM32, ESP32.

Tools & Technologies: Linux (Debian, Ubuntu, openSUSE), Git, KiCad, Blender, AVR-GCC, Arduino IDE.

PCB Design: Schematic capture, PCB layout and routing, Gerber generation.

EDUCATION

Sri Venkateswara College of Engineering, Tirupati

Bachelor of Technology in Electronics and Communications Engineering | CGPA: 8.9/10 | 2023 – 2027

Relevant Coursework: Digital Design (Verilog), Analog Electronics, Data Structures, Artificial Intelligence.

PROFESSIONAL EXPERIENCE

GPR Simulation Intern | IIT Tirupati | June 2025 – July 2025

- Developed gprStudio, a custom Python IDE using PyQt5 for GPRMax ground-penetrating radar simulations with integrated terminal, syntax highlighting, and HDF5 visualization.
- Generated a dataset of 23,000 parametric simulations by automating parameter variations (depth, size, material) for machine learning applications.

Drone Design Intern | Hypstuma | June 2025 – July 2025 (Remote)

- Participated in UAV design and development training, gaining hands-on experience with drone systems and flight control.

KEY PROJECTS

gprStudio - Custom Python IDE for GPRMax | Python, PyQt5

- Built a full-featured IDE with code editing, real-time terminal output, and integrated plotting tools
- Implemented MPI/GPU configuration support and HDF5 output visualization for electromagnetic simulation

Enhanced Flappy Bird Game | Python, pygame

- Developed a feature-rich 2D game with shooting mechanics, power-ups, dynamic biomes, puzzle mode, and interactive menus

Custom PCB Designs (KiCad) | Hardware Design

- Designed multiple PCBs: Arduino Uno clone (ATmega328P + CH340), ESP32 dev board (41mm×21mm), Bluetooth module (STM32WB556TR)
- Created custom USB-C to UART converter, audio amplifier (LM386), and home automation controller with relay modules

Embedded Systems Projects | C/C++, Arduino, Raspberry Pi Pico

- Developed bare-metal 16×2 LCD library for ATmega328P with direct register-level programming
- Built RPM meter using ignition coil pickup and Arduino; created threat detection radar with servo and ultrasonic sensor
- Implemented TV remote emulator with IR receiver/blaster for Sansui Android TVs.
- Morse code encoder/decoder with hardware interface

CERTIFICATIONS & ACHIEVEMENTS

- eYantra Robotics Competition Finalist (2025-2026) Team 4042
- Digital Design Using Verilog - NPTEL
- Artificial Intelligence Fundamentals - IBM
- MATLAB OnRamp Certification
- Smart India Hackathon 2024 Participant
- Ethical Hacking Workshop, PCB Design Workshop, FPGA/Verilog Workshop