HARSHA GANESH

Aspiring Embedded Systems Engineer

CONTACT

+91 9844553752

harshaganesh300@gmail.com

22-11-220/7 Gollavani Gunta, Renigunta Road, Tirupati

ONLINE PROFILES

GITHUB:
https://github.com/Harshavar8jdm/

Linkedin:
https://www.linkedin.com/in/harsha-ganesh-23a9052b7/

CAREER OBJECTIVE

Passionate ECE undergraduate specializing in embedded systems, seeking an internship to apply hands-on experience in microcontroller programming, PCB design, and low-level hardware development.

EDUCATION

SRI VENKATESWARA COLLEGE OF ENGINEERING

- Electronics and Communications Engineering
  CGPA: 8.9

2023 - 2027

GNANADHARE COLLEGE

- 12th Standard
  Score: 88%

LANGUAGES

- English (Fluent)
- Telugu (Fluent)
- Kannada (Fluent)
- Hindi (Fluent)

SKILLS

Microcontrollers and Platforms: Arduino Uno R3, Nano, Raspberry Pi Pico, ATMEGA 328P(BARE METAL), RP2040(RP SDK).

Programming Languages: C, C++, Python, MATLAB.

Tools and Technologies:

- Linux (Debian, Ubuntu, openSUSE.)
- Arduino IDE, Thonny, AVR DUDE, AVR-GCC
- KICAD
- Blender

PCB DESIGN:

- Schematic Capture
- PCB Layout and Routing
- Gerber Generation

HARDWARE PROJECTS

Arduino and Raspberry Pi Pico Projects:

- **RPM Measurement Using Ignition Coil Pickup and Signal Amp:** An RPM meter using a magnet wire pickup from the ignition coil, amplified via a BC547 transistor circuit and read by Arduino for accurate pulse counting.
- **Threat Detection Radar Using Servo Motor and Ultrasonic Sensor**: Created a radar-like monitoring system demonstrating the capability to track objects using a servo motor and Ultrasonic sensor
- **TV Remote Emulator**: A universal TV remote emulator that uses an IR receiver and blaster to learn and transmit signals from various TV brands, controlled via a user-friendly numpad interface.
- **Morse Code Encoder and Decoder:** Built a hardware-based Morse code system using push buttons for encoding and a buzzer for real-time audio output. The decoder interprets Morse signals back into readable text by using a 16x2 display and bare-metal coding.
- **Automatic Temperature Control:** a system for controlling temperature automatically in response to temperature changes by using a L298D motor driver and thermocouple, and Using bare-metal programming.
- **Self-Written 16X2 LCD Library for AVR Microcontrollers:**

Developed a driver library for interfacing a 16x2 LCD using direct register-level programming on the ATmega328P. The library handles command/data writes, cursor control,and timing without relying on Arduino's high-level functions using bare-metal

PCB DESIGN (KICAD):

- Audio Amplifier PCB using LM386:
- Home Automation using Arduino Nano and 30A Relay Modules
- Custom USB-C TO UART Converter PCB
- **Custom ESP32 DEV Board 41mmx21mm**
- **Bluetooth Module Using STM32WB556TR Microcontroller**
- **Arduino Uno R3 Clone using ATMega328P SMD Microcontroller and CH340 USB-to-Serial Converter IC**

All projects are available on my GitHub and LinkedIn

SOFTWARE PROJECTS

Python Projects:

- **gprStudio:** A custom Python IDE using PyQt5 for editing, running, and visualizing GPRMax simulation models within a single interface. Integrated real-time terminal, syntax highlighting, plotting tools, and support for MPI/GPU configurations and HDF5 output.
- **Parametric Simulation Dataset for Ground Penetrating Radar Using GPRMax:** Generated a dataset of 23,000 ground-penetrating radar simulations using GPRMax by programmatically varying parameters like object depth, size, and material. Automated the creation of .in files and batch-simulated outputs for training machine learning models.
- **Space Blaster**: Created a two-player 2D game using the pyGame library where players control spaceships to shoot at each other, enhancing skills in game design and development.
- **Flappy Bird - Run and Gun:** Developed an enhanced Flappy Bird game in Python using pyGame, featuring shooting mechanics, power-ups, and dynamic biomes. Implemented Puzzle Mode with level-based obstacle patterns and an interactive game menu for multiple modes.
- **Weather App:** A minimalist desktop weather app built using PyQt5 that displays real-time weather data. It fetches temperature, conditions, and forecasts using the OpenWeatherMap API.

INTERNSHIPS

GPR SIMULATION

- Organisation: IIT Tirupati
- Duration : 2 Months (03/06/25) - (15/07/25)
- Type: On-Site(Unpaid)

Drone Design

- Company: Hypstuma
- Location: Remote
- Duration : 1 Month (15/06/25) - (16/07/25)
- Type: On-Site(Unpaid)

CERTIFICATIONS AND AWARDS

- **PCB Design Workshop** - SDC/23-24/PCB/02000
- **Artificial Intelligence Fundamentals -** IBM
- **Real Time Applications using Arduino Uno Workshop**
- **Ethical Hacking Workshop** - CIN_202409170004
- **Digital Design Using Verilog by NPTEL** - NPTEL25CS25S658901933
- **Analog Electronics by NPTEL**
- **Drone Training and Development - Hypstuma, Chennai.**
- **Verilog and Hands-on Workshop on FPGA - IETE**
- **Raspberry Pi Pico Workshop - Technotran, Nellore.**
- **Matlab OnRamp Certification**
- **Participated in Smart India Hackathon 2024.**