

MANOHAR KUTALA

Associate Embedded Engineer

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PROFILE SUMMARY

Embedded Systems Engineer with 1.5 years of experience in hardware design, circuit simulation, firmware development, and embedded programming. Skilled in schematic design, board bring-up, debugging, and working with STM32 microcontrollers. Experienced in communication protocols such as ADC, UART, I2C, and SPI. Passionate about developing efficient embedded solutions for IoT, industrial automation, and motor control systems.

WORK EXPERIENCE

Utthunga Technology Pvt Ltd (Oct 2023 – Present)

Associate Embedded Engineer

Single Pair Ethernet (SPE) Project

- Led the development of an Industrial IoT network using Single Pair Ethernet (SPE) for real-time data collection from factory sensors and actuators.
- Improved network reliability and reduced cabling costs by integrating SPE as a backbone for PLC controllers, remote sensors, and centralized data hubs.

Smart Energy Meter Project

- Designed a Smart Energy Metering System for a smart city project, integrating smart meters with a cloud-based real-time monitoring system.
- Implemented wireless communication using 4G LTE technology, enabling efficient long-distance data transmission with low power consumption.

Brushless DC Motors (BLDC) – Support Role

- Designed and optimized BLDC motor control systems for increased efficiency and precision using Field-Oriented Control (FOC) and PWM techniques.
 - Developed motor driver circuits to ensure smooth torque control and high-speed operation.
 - Selected appropriate motor drivers and designed an inverter system to enhance performance and minimize power consumption.
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SKILLS & TOOLS

Embedded Systems & Hardware Design

- Schematic Design & Circuit Simulation (LTspice, TI-TINA)
- Board Bring-up & Debugging
- Embedded C & C Programming

- Microcontrollers (STM32, ARM Cortex)

Software & Tools

- Altium Designer
 - OrCAD
 - STM32CubeIDE
 - PuTTY
 - Visual Studio
 - e² Studio
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EDUCATION

- **B.Tech (Electrical and Electronics Engineering)** – *Aditya College of Engineering (Affiliated to JNTUA, Anantapuramu), 2023 – CGPA: 7.8*
 - **Diploma (Electrical Engineering)** – *Govt Polytechnic Kalikiri, 2020 – 79%*
 - **SSC (Secondary School Certificate)** – *A.P Model School Yerravaripalem, 2017 – 72%*
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CERTIFICATIONS

- **Emertxe Certified Embedded Professional (ECEP)** (*Ongoing hands-on technical training at Emertxe Information Technologies, Bangalore*)
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PROJECTS

Project 1: Image Steganography using LSB

- Developed a technique to hide information by embedding messages within seemingly harmless data.
- Used C language concepts: Function Pointers, File I/O, Bitwise Operations, and String Operations.
- Key Learnings: File handling, byte-wise data manipulation, encryption & decryption techniques.

Project 2: Inverted Search

- Designed a technique for searching a document or database for specific text using hashing & linked lists.
- Used C language concepts: Functions, File I/O, String Operations, and Structures.
- Key Learnings: Hashing, linked list operations, makefiles, efficient data search techniques.