HETAL MEGHNATHI

hetalmeghnathi01@gmail.com | linkedin.com/in/hetal-meghnathi | 7359194226

EDUCATION

Vishwakarma Government Engineering College, Ahmedabad, IN — ***June 2022***
Bachelor of Electronics and Communication Engineering.

HSC P.V.Modi School Jamnagar. — ***2018***

SSC Sastri Tyambakram School Jamnagar — ***2016***

EXPERIENCE

IndieSemiC — Ahmedabad IN
Embedded Firmware Engineer — ***Aug'23 - Mar'25***

- Developed and optimized custom Linux drivers and kernel modules (GPIO, SPI, I2C, high-speed interfaces) for i.MX93 EVK, customizing Yocto-based system images to improve boot performance, stability, and industrial automation. Led SoC board bring-up, configuring device trees, bootloaders (U-Boot, Barebox), and peripherals for seamless hardware-software integration.
- Designed and developed Raspberry Pi-based LoRaWAN and asset tracking gateways, leading firmware, hardware integration, cloud connectivity, and production readiness for industrial and IoT applications.
- Engineered Zephyr RTOS drivers and optimized firmware for I2C, UART, SPI, BLE, Wi-Fi, and LoRa, improving power efficiency and real-time communication. Implemented Matter, OpenThread, and BLE Mesh, enhancing RF communication for smart home and industrial IoT.
- Led multiple embedded product development projects, working with NXP (i.MX series), Raspberry Pi, BeagleBone, and Nordic SoCs. Collaborated on schematics, board bring-ups, debugging, and customer-specific solutions from prototype to production.

Consciente.io — Hydrabad IN
Firmware Intern — ***Feb'22 - April'22***

- Applied ROS, Docker, and Azure IoT Hub technologies in industrial automation, enhancing system interoperability and efficiency.
- Conducted extensive research on material selection and 3D printing technologies, achieving a 20% cost reduction and a 15% improvement in product efficiency.

Gujarat Technological University Robotics Club — Ahmedabad, IN
Circuitry Technical Core Team Member (ECE) — ***Aug '19 - Dec'21***

- Developed and implemented PID control and Kalman filtering algorithms for autonomous robotic navigation, enhancing accuracy and stability.
- Designed embedded control system using Arduino Mega and ESP32 to regulate actuators, motor drivers, and sensors, leading to a 45% increase in operational efficiency.
- Trained and mentored a 15-member team for the ABU Robocon Competition 2021, enhancing hands-on expertise in embedded robotics.

PROJECTS

Hospital Management System
MedEc(Smart Nurse) — ***2018-2020***

- Developed an AI-integrated smart nursing robot for post-operative patient monitoring, ensuring timely treatment and reducing medical negligence risks.
- Integrated real-time sensors, image processing, and embedded programming to automate patient monitoring and medication administration.
- Enhanced healthcare efficiency by 15% through automation and remote monitoring, reducing the workload on medical staff.

ACTIVITIES

Automation and PCB designing — ***July 2019***

- Designed and troubleshot complex electronic circuits for real-world industrial applications.
- Developed automation solutions integrating embedded programming and sensor-based control systems.

Machine Learning & Artificial Intelligence - IIT Roorkee — ***Sept 2019***

- Applied Python libraries (Matplotlib, Scikit-learn) for data analysis and AI-driven solutions.
- Built machine learning models for image classification using Stochastic Gradient Descent and Random Forest Classifier.

IEEE Vgec — ***Feb'19 - March'20***

- Managed event logistics and operations for IEEE VGEC student chapter, overseeing budgeting, coordination, and compliance.

INDUSTRIAL SKILLS

Programming Languages: C, C++, Python, MATLAB, Embedded C
Embedded Systems: Linux Kernel, Yocto, Zephyr RTOS, Firmware Development
Communication Protocols: SPI, I2C, UART, BLE, Wi-Fi, CAN, Modbus