

Karthik E M

✉ karthikemmail@gmail.com | 📞 9400342967

🐙 github.com/Karthik-EM | 🔗 linkedin.com/in/karthik-e-m

Skills

Languages: C, C++, Python, HTML, CSS, JavaScript, SQL

Frameworks & Libraries: Flask, OpenCV

Tools: Git, GitHub, VS Code, Google Colab, VirtualBox, Arduino IDE

Operating Systems: Windows, Linux

Embedded Systems: Microcontrollers (Arduino, ESP32), IoT Development, Sensor Integration

Education

Adi Shankara Institute of Engineering and Technology, Kalady

2022 – 2026

BTech in Computer Science and Engineering

CGPA: 8.01/10

Relevant Coursework: Object Oriented Programming, Databases, Discrete Maths, Data Structures and Algorithms, Operating Systems, Computer Networks, Web Programming

Brahmanandodayam, Kalady

2020 – 2022

Higher Secondary Education (Computer Science) – State Board

Percentage: 95.66%

Academic Projects

- **Blind Navigation using Vision-Language Models (2025):** Built an assistive tool for the visually impaired by combining object detection (DETR), monocular depth estimation (UniDepthV2), and a vision-language model (Qwen-VL) to generate spatially-aware scene descriptions. Developed an accessible web app with TTS and chat support.
Tech Stack: Python, PyTorch, Flask, OpenCV, Qwen-VL, HTML, CSS, JS
GitHub: [Link](#)

Personal Projects

- **Interactive BIOS-Themed Portfolio Website (2025):** Designed and developed a personal portfolio themed after a retro BIOS setup screen using only HTML, JavaScript and CSS. Implemented section hover animations, transition effects, and audio effects for an immersive UI/UX experience.
Tech Stack: HTML, CSS, JavaScript
GitHub: [Link](#)
- **Smart Motion & Tilt Detection System using ESP32 (2025):** Developed a real-time IoT-based motion and tilt detection system using ESP32 with MPU6050, PIR, and RCWL sensors. Implemented calibration and vector-based sensor fusion in C++, and enabled Wi-Fi configuration with WiFiManager to send status updates to a Flask server via HTTP POST. Optimized data transfer to trigger only on state change.
Tech Stack: C++, WiFiManager, HTTPClient, Flask API, JSON, IoT communication
Hardware: ESP32, MPU6050, PIR sensor, RCWL sensor, push buttons, indicator LEDs
GitHub: [Link](#)

Certificates

- **NPTEL – Programming in C (2025):** Completed an online certification course on C programming fundamentals, problem-solving, and data structures.
Issued by: NPTEL / IIT (Government of India)

Languages

- **English:** Good command (speaking and writing)
- **Hindi:** Basic Understanding
- **Malayalam:** Native proficiency