Karthik E M

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Skills

Languages: C, C++, Python, HTML, CSS, JavaScript, SQL, PHP
Frameworks & Libraries: Flask, OpenCV
Tools: Git, GitHub, VS Code, Google Colab, VirtualBox, Arduino IDE, n8n, Figma
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