Vishrudh GK

HSR Layout, Bengaluru — vishrudh15@gmail.com — +91 99425 96436 — Portfolio

TECHNICAL SKILLS

Languages:	Python, C++, C#, JavaScript (ES6+), SQL, HTML/CSS, Verilog
Frameworks/Tools:	.NET MAUI, OpenCV, YOLO, Flask, Git, Docker, Microsoft SQL Server, SQLite
Software Domains:	RESTful API Design, OAuth 2.0, Object-Oriented Programming (OOP), MVC Architecture
Embedded Software:	C++ Firmware (STM32/ESP32), RTOS, Device Drivers, Protocol Implementation (SPI/CAN)

EXPERIENCE

Team Ojas Racing — Formula Student **2024 – Present**

Vice-Captain & Software Lead

- Firmware Architecture: Designed a modular, event-driven firmware architecture in C++ to manage safety-critical vehicle states, improving system reliability by 30%.
- Software Validation: Implemented unit testing and integration testing protocols for embedded code to ensure 100% uptime during racing conditions.
- Technical Leadership: Managed a team of 10+ engineers through the full software development life cycle (SDLC), from conceptual design to on-track validation.

TECHNICAL PROJECTS

Secure Mobile-to-Laptop Connection Software (.NET MAUI)

- Developed a cross-platform synchronization tool using C# and .NET MAUI to enable seamless data transfer between mobile devices and PCs.
- Designed a secure REST API backend with OAuth 2.0 authentication to manage user sessions and encrypted data streams.
- Optimized local database performance using Microsoft SQL Server, implementing stored procedures to handle high-frequency synchronization requests.

Intelligent Browser Control Extension (Manifest V3)

- Engineered a Chrome Extension to enhance productivity by implementing custom tab management and URL filtering logic.
- Developed a real-time keyword filtering engine that parses DOM elements to block restricted content dynamically.
- Leveraged asynchronous JavaScript and the Chrome Storage API to maintain user preferences across browser sessions.

Battery Management System (BMS) Firmware Architecture

- Developed robust firmware in C++ for high-voltage monitoring, utilizing an optimized Finite State Machine (FSM) for fault handling.
- Implemented memory-efficient data structures to log real-time cell voltage and temperature across 140 series cells.
- Engineered low-level drivers for isoSPI communication, ensuring data integrity in high-EMI environments.

Vision-Based Perception & OCR System

- Integrated a YOLO-based object detection pipeline with motor control loops, optimizing inference speed on resource-constrained hardware.
- Developed a lightweight OCR system to digitize data from legacy analog displays, converting visual inputs into structured JSON data for cloud analysis.
- Conducted performance benchmarking of Spiking Neural Networks (SNNs) to evaluate trade-offs in computational latency and power consumption.

EDUCATION

Vellore Institute of Technology, Vellore **2023 – Present**

B.Tech — Electronics and Communications Engineering **CGPA: 9.11**

AWARDS & CERTIFICATIONS

- 1st Prize: VIT Yantra Hackathon (Software Category)
- 2nd Prize: Apollo Solvathon (International Conference - Healthcare Software)
- National Finalist: V-Guard Big Idea (Technical Innovation Contest)