Mathew Pellarin – Embedded C++

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SKILLS

Languages : C/C++, Python, Java, Markdown, MATLAB, LaTeX, bash, Assembly
Tools : Embedded Systems, Battery Management Systems, PCB Fabrication, Arduino, PLC/Robotics, RF(433/2.4/BT), Serial/I2C/UART/CAN, Linux, Git, NumPy, Pandas, Jupyter, Docker, Regex, 3D Printing

EXPERIENCE

BMSLabs Windsor   Jan. 2022 – Apr. 2023
BMS Firmware Engineer   Windsor, ON
- Engineered a State-of-Charge (SOC) estimation tool specifically designed for Battery Management Systems, paired with the development of a robust cloud-based data repository.
- Developed a distinct, dynamic interface leveraging **I2C/UART** on **Raspberry Pi**, with **Python** integration via USB, employing **JSON** packets. This interface facilitated real-time data acquisition and evaluation.

Rapid Sewer Data   Jan. 2022 – Dec. 2022
Embedded Engineer   Windsor, ON
- Developed a custom board using **EasyEDA**, and programmed in **C++**. This solution is integrated with Amazon Web Services (**AWS**) for scalability .
- Utilized an **ESP32** microcontroller to establish an interface with various modules including **GPS**, **SD Card**, **Humidity Sensor**, and **Camera**, thus enhancing device functionalities.

PROJECTS

Cluster Cloner
- Implemented firmware using **C++** on an **Arduino**.
- This device successfully clones **93xC6** chips from one car cluster to another.

Robotic Arm
- Designed and built a functional Robotic Arm using **C++** on an **Arduino**.
- Created the physical and electrical components of the system incorporating a variety of components, including **electromagnets**, **inductive proximity** sensors, **servos**, and **stepper motors** and more

Home Server
- Implemented a **pfSense** home router to manage network traffic and enhance network security.
- Set up and managed a comprehensive Home Server System using an **HPE DL380 G9** server and **Slackware** OS.
- Used **Docker** and **virtual machines** to host a variety of services including **Home Assistant**, game servers, and **SMB** file sharing.

EDUCATION

University of Windsor
BSc[H] Computer Science with Artificial Intelligence Specialization   Windsor, ON
- Minor in **Mathematics** and a Minor in **Applied Information Technology**
- **86% Major Average**; received Dean's List for each completed class year.
- Won first place at CSGames 2023 for Emulators.

St. Clair College
Electronics Engineering Technology, Associate Degree   Windsor, ON
- **3.9 Cumulative GPA**; Graduated with Honours.