Mathew Pellarin

matp101.github.io | mathewpellarin@hotmail.com | matp101 | Mathew Pellarin

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 – Present

BMS Firmware Engineer
Windsor, ON

- Engineered a State-of-Charge (**SOC**) estimation tool using **AI** 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.

Ford Motor Company
June. 2022 – Present

CNC Machinist
Windsor, ON

- Operated a variety of CNC machines with precision, ensuring adherence to specifications while optimizing production
- Conducted regular quality control checks and applied troubleshooting methods to maintain a consistent, high-quality production environment.

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

Wireless BMS Development

- Designed a wireless **BMS** focusing on cell balancing, voltage regulation, and real-time current measurement, using **Espressif** devices for enhanced system responsiveness.
- Implemented a **mesh** strategy for cell monitoring, boosting overall battery pack durability and performance.

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**, **stepper motors** and more

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.