EVAN RUTTEN

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SKILLS

Languages	C, Python, Bash, HTML/CSS/JS, SQL
Software & Tools	FreeRTOS, STM32CubeMX+IDE, PlatformIO, KiCad, Altium, SolidWorks
Hardware & Protocols	STM32, ESP32, ADC/DAC, PWM, UART, SPI, I2C, CAN, BLE, WiFi

EXPERIENCE

Provisioning/Programming Specialist January 2024 – August 2024
Co-operators Guelph, ON

- Imaged, tested, and shipped Dell laptops to employees across Canada, ensuring timely and accurate deployment
- Processed returns for damaged or decommissioned devices and refurbished laptops to optimize hardware reuse
- Developed an automated VM provisioning tool for external vendors using **Python** and the Azure SDK
- Integrated the tool into an existing React app and **SQL** database, collaborating via **Azure DevOps**
- Reduced VM provisioning time by over **80%** by automating a previously manual process

Wearable Device Developer May 2023 – August 2023
Oriole AI Remote

- Designed and prototyped smart glasses capable of converting captured images to speech, to enhance accessibility
- Developed firmware in **C** for an **ESP32**, enabling control of electronic peripherals and integration with cloud APIs
- Assembled the complete electrical system, including a camera, microphone, speakers, SD reader, and battery
- Modeled and 3D-printed a custom frame to house all components, utilizing **SolidWorks** for precise design
- Conducted testing and debugging to validate system reliability and accuracy in real-world environments

Embedded Subsection Lead September 2022 – Present
Gryphon Racing FSAE Guelph, ON

- Engineered low-voltage and embedded systems for a formula-style electric racecar, ensuring robustness
- Designed multi-layer PCBs in **KiCad** and **Altium**, selected reliable components, and assembled boards by hand
- Programmed **STM32** and **ESP32** processors for vehicle control, data acquisition, and remote telemetry systems
- Developed firmware with **FreeRTOS** on **STM32CubeIDE** and **PlatformIO**, leveraging Github Actions for **CI/CD**
- Implemented in-vehicle communication via **CAN** and integrated sensors using **UART**, **SPI**, and **I2C** protocols
- Utilized **ADC**s to measure pedal position and steering angle, and controlled radiator pump operation via **PWM**
- Advanced from general member to subsection lead in 2024, managing projects and mentoring new members

PROJECTS

Real Time Home Security System ENGG*4420: Real Time Systems Design

- Developed an intruder detection system using an **STM32F4** with an LCD, camera module, and PIR motion sensor
- Utilized **STM32CubeIDE** with **FreeRTOS** to create tasks for motion interrupts, image capture/display, and alerts

Wireless Distributed BMS ENGG*4200: Wireless Sensor Networks

- Designed and prototyped a wireless battery management system for an electric longboard using **ESP32** nodes
- Programmed nodes to measure cell voltages/temperatures via **ADC** and communicate to a master node via **BLE**

Hostage Chess Web Game CIS*2750: Software Development and Integration

- Built a full-stack application for a chess variant with a **C**-based backend and a **Python**-based webserver
- Integrated the backend via SWIG, developed a frontend using **HTML/CSS/JS**, and utilized an **SQLite** database

EDUCATION

B.ENG – Engineering Systems and Computing September 2021 – Present
University of Guelph GPA: 3.7 (83.1%)

Relevant Courses – ENGG*4420: Real Time Systems Design, ENGG*3640: Microcomputer Interfacing, ENGG*4200: Wireless Sensor Networks, ENGG*3450: Electronic Devices, ENGG*2450: Electric Circuits, CIS*2750: Software Development and Integration, CIS*2520: Data Structures