

Aaron Arnason

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Engineering Projects

Alphanumeric Chromatrix Encoder — *Embedded Hardware & Firmware Design*

Overview: Created encoding system converting ASCII characters into color and spatial position, inspired by Morse code.

Technologies: STM32 (bare-metal) • KiCad • EEPROM • LED driver • RGBW LEDs • Finite State Machine (FSM) • Git.

Hardware Design: Created custom symbols and footprints from datasheets, built redundancy circuitry for debugging, validated hardware via breadboard proof-of-life.

Software Design: Incorporated firmware to develop I2C driver libraries for EEPROM and LED Charlieplex Matrix Driver. An FSM built to handle the main application logic, and a custom lookup table to output the encoded message to the LEDs.

No-Touch Task Board — *Embedded Linux Multi-Threaded C Application*

Overview: Gesture driven UI leveraging an external web API to query data and render information to a display.

Technologies: Raspberry Pi Zero 2 W • HDMI display • I2C Gesture Sensor • SDL2 • cJSON • libcurl • RPi OS.

Design: Established high-level architecture, carefully crafted project structure, and minimized third-party dependencies.

Formal Education

Diploma in Computer Engineering Technology

Northern Alberta Institute of Technology, Edmonton, Alberta

Awarded the **Louise McKinney** scholarship for academic achievement, 2024

Program Completed — Diploma pending

Bachelor of Science in Computer Engineering

University of Alberta, Edmonton, Alberta

Engineer-in-Training (EIT) — APEGA application in progress

Conferral Date — June 2018

Ongoing Training

Information Security Conferences: Attended workshops and participated in DEFCON and BSides events to expand my knowledge around the intersection of technology and security. Gained valuable insight needed to springboard into a career focused on securing the digital and physical world.

Basic First Aid & CPR/AED, Canadian Red Cross — Certified December 2024

Work History

Taping and Drywall Specialist | Lead Hand & Independent Contractor

Various Employers / Self-Employed | 2007 — Present

Experienced in residential, commercial, and high-rise projects, with a focus on renovations and new buildings. Collaborated with project managers to aid in the estimation of execution, scheduling, material planning and quality control. Promoted into roles requiring strong client communication, leadership, and technical acumen — both independently and in team environments.