Ashwin Muruganandam

itsash2win@gmail.com ash2win.github.io +1 (250)-514-0509

Education

University of Victoria – Victoria, BC Jan 2019 - May 2024
Bachelor of Engineering, With Distinction – Computer Engineering GPA: 7.84/9.0

Experience

Electrical Engineering Student, PFM Technical Solutions Ltd. – Victoria, BC Jan 2024 – Apr 2024
- Used RSLogix 5000 to analyze existing PLC code and MATLAB Simulink to simulate the logic, making necessary changes to visualize the output. Suggested improvements to optimize project performance for various clients.
- Programmed logic for a HPU cooling and heating system, VFD and other equipment, ensuring efficient and reliable operation.

Electrical Engineering Student, Stantec Consulting Ltd. – Vancouver, BC Jan 2023 – Apr 2023
- Used Revit to apply markups onto a 3D model involving power, lighting, and fire alarm floor plans.
- Created over 20 accurate single line diagrams to support the design completion of commercial buildings.

Electrical Engineering Student, Syncrude Canada Ltd. – Fort McMurray, AB May 2022 – Aug 2022
- Provided support to upgrade obsolete PLCs and configured InTouch HMI on dedicated hardware to streamline communication between plant operations and newer Modicon PLCs.
- Assisted in the creation of a database of 100+ PLCs' firmware and modules installed.

Junior Learning Technology Assistant, University of Victoria – Victoria, BC Sept 2021 – Dec 2021
- Led a team of 14 students to perform routine testing on several components of Learning Management System (Brightspace) to ensure and maintain reliability and functionality.

Skills

Programming: Verilog, VHDL, C, C++, Python, MATLAB, HTML, CSS, Ladder Logic, FBDs
Hardware: FPGA, PLC, Oscilloscope, Microcontrollers, Circuit Elements, General Electrical Equipment
Software: Vivado, iCEcube2, Wireshark, Solidworks, KiCAD, Unity Pro XL, RSLogix 5000, Revit

Projects

Conveyor Belt Sorting System
- Programmed an ATmega2560 to control a DC motor, stepper motor, reflectivity sensor and object sensor to successfully sort 48 pieces of 4 material types.
- Implemented an s-curve acceleration profile for the 200-step stepper motor to achieve a total sort time of 29s.
- Programmed a 2x16 LCD to display the amount of sorted/unsorted materials when specific interrupts trigger.

Pong (Verilog)
- Programmed an iCE40 FPGA board using iCEcube2 to play the classic game Pong through a VGA display.
- Utilized buttons on the board as paddle control and two 7-segment displays to keep track of score.
- Implemented switch debouncing, paddle and ball color selections, and UART for communication between user keyboard and FGPA board.

Sensor Assembly for Underwater ROV
- Placed 3rd in the UVic ECE Ocean Challenge 2022 for the product demonstration in a team of 2.
- Assembled an array of sensors to measure environmental qualities and utilized UART to send captured data to an ESP32 that handled data processing and storage onto an SD card.

Autonomous Human Temperature Tracker ash2win.github.io/ECE499.github.io/
- Worked in a team of 4 to implement a face-tracking camera and temperature sensor that can detect a user's face and print out their temperature using Python's OpenCV library.

Alarm Clock
- Programmed an STM board to perform specific alarm clock functions using inputs from switches.
- Designed circuit schematic and a printed circuit board in a team of 2 using KiCAD that corresponded with the code.