Alec Izett

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OBJECTIVE

I am seeking a position as an Electrical and Computer Engineering Intern, where I will apply my education, training, and work ethic to the Company. I am a responsible employee who possesses excellent time management skills and always shows up with a positive attitude.

EDUCATION

The University of Tulsa, Tulsa, OK

- Currently Enrolled in Bachelor of Science in Computer and Electrical Engineering Expected to Graduate May 2024; currently a Junior (Jr.) Standing

EXPERIENCE

Oscillator on the STM32 F411RE **2021**

- Coded (in C) a Waveform Generator on the F411RE programable board in the eclipse-based IDE named STM32Cube IDE to make an audible musical oscillator
- Assembled a physical amplifier circuit using ICs and capacitors to amplify the sound produced by the board, then sent the sound to a speaker.
- Tuned the oscillator in the equal temperament tuning system by adjusting the period of the wave to the desired frequency
- Coded a 4x4 matrix keypad input for the user to select what notes to play

Arithmetic Logic Unit (ALU) **2021**

- Coded an ALU that has 8 Functions
- Utilized D Flip-Flops banks (Decoded using a block of logic I developed using Gray Code) (Heavy use of Karnaugh Mapping). This project also used an Aurdino Uno interfaced MATLAB and Simulink
- Documented the engineering process behind all actions in great detail
- Recorded and edited explanation and demonstration videos of each project in this class

Scrolling Sign and Seven-Segment Display Decoder **2021**

- Designed and utilized a seven-segment display decoder created with the help of digital logic reduction
- Utilized the I2C protocol in combination with the PCF8574 chip to expand the number of communication channels available
- Implemented various letters onto a seven-segment display by controlling which segment is enabled or disabled

ENIAC in C and in low level MIPS Assembly **2022**

- Created a version of the ENIAC (Electronic Numerical Integrator and Computer) in the programming language C, then converted the programs into assembly inside the MIPS language emulator named MARS (I performed the action that a programming compiler would perform)
- Utilized a Taylor Series expansion to help calculate an arcsine function in assembly

Huffman Encoding Scheme in Python **2022**

- Built a Huffman encoding scheme in python for a character set consisting pulled from a local text document
- Coded functionality that discovered the frequency of each character and then stored information into a binary tree

ID Card Scanner (TU Undergraduate Research) **2022**

- Coded a functional RFID card scanner system in C at the hardware level with the help of an STM32 F746zg board
- Implemented sensor functionality for door open detection and handle rotation detection by putting power through a wire and detecting when the circuit was broken
- Allowed for communication with a local server that stores known ID numbers
- Worked with a small team to further implement the server communication abilities of the code
- Meshed an operational buck converter with the F746 program

Skills

- MATLAB and Simulink
- LTSpice & VSCode
- SOLIDWORKS & Autodesk
- Cura (3D Printing)
- CNC Motion (Mill and CNC)
- Multisim (AOI logic)
- Certified in Autodesk
- Inventor (3D modeling)
- VMWare (Virtual Machines)
- Robocell Robotic Simulation Software
- FL Studio & Audacity
- Davinci Resolve, Adobe Photoshop, After Effects, Premier
- MARS (MIPS Assembly)
- Latex (Overleaf)
- Linux & Windows
- Microsoft Suite (Word, PowerPoint, Excel, Outlook, Teams)
- Google Drive, Docs, Sheets, Etc
- Soldering Circuit Boards
- STM32 Cube IDE
- C and Python