Gerardo Chavez-Simon

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EDUCATION

California State University, Long Beach – B.S in Electrical Engineering **December 2023**

- **Awards/Honors:** Tau Beta Pi Member - Engineering Honor Society (Spring ‘23), President's Honor List (Fall ‘22)

PROFESSIONAL EXPERIENCE

Electrical Engineering Lead (Senior Design Project) **Lancaster, CA**

AFRL Smart Instrumentation Enclosure March 2023 – Present | 7 Hours/Week

- Collaborated with an AFRL program manager and a multidisciplinary team of electrical and mechanical engineering students to design an electronics enclosure, ensuring operational integrity in the high-vibration, high-heat environment of both the Mojave Desert and adjacent rocket test stands
- Directed a fellow electrical engineering student in formulating hardware solutions for high-current environments, enforcing strict safety protocols, and facilitated critical project reviews (CoDR, PDR, TRR)
- Engineered a robust electrical system for remote environmental monitoring, incorporating an ESP32 microcontroller programmed in C++ for Peltier cooler management via hysteresis logic, monitoring enclosure door status with a magnetic reed sensor, and overseeing backup power supply transitions
- Developed a user-centric website with HTML, CSS, and JavaScript for real-time monitoring; achieved a $200 cost saving by self-hosting the service and enabled remote updates and emergency alerts via email/SMS integration intended to prevent costly delays in rocket engine testing

iPhone Repair Technician **Palmdale, CA**

Freelance iPhone Repair March 2022 – Present | 7 Hours/Week

- Independently initiated, operated, and managed a successful repairing and reselling business venture, handling end-to-end operations with 100% customer satisfaction and achieving a 30-50% profit margin per phone
- Employed advanced technical skills, utilizing diode mode and ammeters to effectively detect issues, optimizing productivity by 20% through immediate identification of unfixable motherboard problems
- Repaired diverse iPhone issues with strong attention to detail, showcasing skilled assembly and mechanical expertise in handling battery, screen, and other replacements using soldering irons, heat guns, and screwdrivers

PERSONAL PROJECTS

Arduino Temperature Cooling System – C, KiCAD

- Implemented an Arduino-based thermostat that interfaces with a DHT11 sensor, 7-segment display, potentiometer, buttons, and a 74HC595 shift register, achieving a 40% reduction in required Arduino pins.
- Created a modular PCB featuring unused pads for external 12V supply and coolers, enabling user-specific thermal system customization
- Programmed in C++ using a state machine approach; integrated a relay-switched 12V circuit with debounce logic, ensuring consistent and stable operation of the cooling mechanism

Transformers Equivalent Circuit – MATLAB, Simulink

- Utilized MATLAB to program an application that calculates the equivalent circuit components of a transformer based on ratings and test data, improving efficiency in calculating and troubleshooting transformer circuits
- Automated circuit model generation in Simulink for circuits viewed from low-voltage and high-voltage sides

SKILLS

Programming Languages: Assembly, C/C++, CSS, HTML, MATLAB, JavaScript, TI-BASIC, VHDL
Software Tools: µkeil, Arduino IDE, Excel, KiCAD, LABVIEW, Multisim, Simulink, VS Code, Xilinx Vivado
Hardware: DMM, FPGA, Function Generator, Microcontroller (Arduino, ESP32, STM32), Oscilloscope, Power Supply
Technical Proficiencies: Electronics Repair, PCB Layout, Schematic Capture, Soldering