

Maeva Tsane

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EDUCATION

Bachelor of Science, Electrical Engineering Technology

Kennesaw State University

01/2021 – 12/2024 | Kennesaw, GA

GPA: 4.0

Coursework: Circuit Analysis, Electronics, Test Engineering, Data Communication, Signal and System, Microprocessors, Electric Machine, Engineering Graphics, Control system, Hardware Programming, Industrial Motors

SKILLS

Programming Languages:

Assembly Language, C programming, C++, Python, Matlab.

Tools & Technology:

Arduino, Proteus, AutoCAD, Raspberry pi.

Concepts:

Microcontrollers, Analog and Digital Circuits, Electronics, Circuit Design and Analysis

PROFESSIONAL EXPERIENCE

Electrical Engineer Intern

06/2023 – 08/2023

TAMTEK SYSTEM

- Designed and implemented a health monitoring device integrating high-precision bio-sensors (**PPG** for heart rate, **thermistors** for temperature, and **accelerometers** for activity) to ensure real-time vital sign monitoring.
- Designed and implemented signal processing algorithms using **digital filtering techniques** to filter noise and amplify sensor data, improving the signal-to-noise ratio (SNR).
- Designed and programmed embedded systems using **Raspberry Pi microcontroller** to process sensor data, manage power consumption, and control wireless communication.
- Contributed to the design of a custom PCB layout to integrate the microcontroller, sensors, and communication modules.
- Worked with the software and UI team to utilize cloud-based data analytics to store and analyze health data trends over time, enabling predictive health insights. Design a smartphone application that visualizes real-time health data.

PROJECTS

Design of a Water Leakage Detection System (Senior Capstone)

09/2024 – present

- Collaborated with a cross functional team to design and implement a smart water leakage detection system utilizing **flow** and **pressure sensors** to continuously monitor flow rates and pressure.
- Integrated a real-time data processing algorithm using an **Arduino microcontroller**, enabling the system to differentiate between normal water usage and leakage.
- Deployed capacitive **moisture sensors** at key locations to pinpoint the exact position of leaks, achieving a **90%** accuracy rate in determining leak locations.
- Developed a wireless communication interface (BLE/Wi-Fi) that instantly alerts users via a smartphone app upon detecting a leak.
- Integrated an automated water shutoff system using a **solenoid valve**, which can shut down the main pump upon user confirmation.

Design of a 12V Power Inverter

- Designed a high-efficiency 12V DC to 240V AC power inverter using **IGBTs** (Insulated Gate Bipolar Transistors) for fast switching, achieving **95%** conversion efficiency.
- Reduced **Total Harmonic Distortion** (THD) by employing Pulse Width Modulation (PWM) with LC filters, ensuring that the output waveform is clean and reliable.
- Designed a circuit in multisim, breadboarded and debugged the circuit in an electronic lab, and developed a custom PCB layout using **Altium Designer**.

Design of a Student Counter

- Designed and implemented a student counting system using **infrared (IR) sensors** and **ultrasonic sensors**.
- Developed the sensor interface and processing algorithms on an Arduino microcontroller, ensuring real-time data collection and processing.
- Designed a custom PCB layout to integrate the microcontroller, sensors, and communication modules.
- Implemented an **LCD display** and LED indicators to show real-time counts of students in the room, ensuring that data was immediately visible to users.