GRACE ONESIME ZONGO

gzongo@wisc.edu | (608) 707-2473 | Madison, WI | linkedin.com/in/grace-ozongo | https://zongr-ce.github.io/index.html

SUMMARY

Electrical Engineering student with 3 work experience across embedded systems, HVAC controls, and firmware development. Proven expertise in low-power optimization, communication protocols (I2C/USART), and custom CPU architecture.

EDUCATION

University of Wisconsin, Madison **September 2024 – present**

- BS: Electrical Engineering: Expected May 2027
- UW Credit Union Scholar and JCKF scholar

Madison College, Madison, WI **January 2022 – May 2024**

- Associate degree: Liberal Arts Transfer: Science / Math / Technology
- Dean's List – Perfect Honors for all 5 semesters.

INTERNSHIP EXPERIENCES

Design Engineer Intern | Alpha Controls and Services | Middleton, WI **May 2025 – December 2025**

- Analyzed HVAC mechanical blueprints to perform material takeoffs, select sensors, actuators, and Schneider controllers.
- Created electrical schematics and wiring diagrams for HVAC systems using equipment submittals and sequence of operation.
- Prepared cost estimates for projects by quantifying control system components and materials.
- Gained introductory experience in script and function block programming of DDC controllers for HVAC control logic.

AWS Student Intern | Space Science and Engineering Center – UW Madison | Madison, WI **April 2024 – Present**

- Reduced system power consumption by 78% and improved runtime efficiency by 85% by implementing a custom low-power sleep mode and C++ Finite State Machine.
- Created adaptive frequency sampling method for sensor drivers, and tested sensors for calibration.
- Implemented key communication protocols such as USART and I2C.
- Managed version control workflows using Git/GitHub (Gitbash CLI).

Electrical Engineering Intern | Bemis Manufacturing Company | Madison, WI **June 2022 – August 2022**

- Designed a prototype of Bemis's first smart, health monitoring bidet seat for household use.
- Incorporated a optical heart rate sensor into a bidet seat, a mechanism to record health data from this sensor.

PROJECT EXPERIENCE

Promoting Electric Propulsion (PEP) competition for electric boats **September 2023 – April 2024**

- Designed a dual 18650 Li-ion battery system and differential thrust control for an electric catamaran, contributing to a 2nd place finish at the PEP 2024 Competition.
- Developed navigation and control systems using open-source components, and implemented software + hardware fail-safes.

Honors Project: Designing an 8-bit CPU on Quartus **June 2023 – December 2023**

- Designed and simulated an 8-bit register, RAM, ALU from scratch to implement Von Neumann architecture.
- Implemented FETCH, LOAD, and ADD instructions, and designed binary to BCD converter for segment displays.
- Created comprehensive documentation and presentation explaining computer basics, based on the 8-bit computer project.

LEADERSHIP EXPERIENCE

Clubs Development Coordinator | Executive Leadership Team (ELT) | Madison College **March 2022 – May 2024**

- Supported the growth of 50+ Student Clubs and representative of ELT in the Student Activity Board.
- Assisted clubs impacted by COVID-19 and helped in the creation of tens of new clubs.
- Administered a campus wide platform, allowing club leaders to manage members, budgets, and events.
- Improved clubs' performance by organizing events and officers training to increase membership and approving clubs' budget.

TECHNICAL SKILLS

Programming: C/C++, Java, MATLAB

Tools/Hardware: Oscilloscope, FPGA (Intel Quartus), PCB Design, DDC Controllers, USART, I2C.

Concepts: Embedded Systems, HVAC Control Logic, Finite State Machines, Power Management