Reid Stutzman

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Education

University of Nebraska–Lincoln Expected Graduation: May 2024

Bachelor of Science in Mechanical Engineering, Minor in Mathematics GPA: 3.74

- Dean's List Recipient |Fall 2020 – Fall 2023 (Excluding Spring 2022)
- Nebraska Achievement Scholarship | Fall 2020 – Fall 2023
- Intercultural Services Academic Excellence Award | Spring 2021 – Fall 2023

Experience

Energy Engineer Intern, Nebraska Industrial Assessment Center – Lincoln, NE May 2022 – Present

- Conducted 13 comprehensive industrial facility energy assessments for diverse industries, preparing 30 actionable recommendations projected to save over $325,000 and reduce 2,500 MTCO2E annually
- Achieved over $1,100,000 in annual savings from implemented assessment recommendations
- Spearheaded 4 facility assessments assuming a lead role in facility manager communications, technical presentation delivery, peer revision oversight, and timely completion of detailed assessment reports
- Performed annual utility usage analysis for facilities, meticulously evaluating electricity, natural gas, water, and sewage consumption data, contributing to data-driven energy-saving strategies
- Executed on-site data collection of industrial systems using equipment such as ultrasonic leak detectors, flow meters, and infrared cameras to quantify parameters to inform energy optimization analyses
- Formulated recommendations by analyzing utility rate structures, equipment operating hours, projected implementation costs, and future expenditures to calculate anticipated cost savings and payback periods
- Championed sustainable practices and mission-driven performance by targeting compressed air, HVAC, motors, boilers, lighting, and various systems for efficiency improvements
- Earned the Department of Energy Industrial Assessment Center Certification, showcasing expertise in energy and industrial assessments after successfully completing all certification requirements

Projects

Electric Portable Water Heating System August 2023 – Present

- Engineered a portable, battery-powered hot water system for off-grid applications
- Executed thermodynamic analysis to select an optimal 48V 20AH lithium-ion battery capable of supplying power to heat 5 gallons from 55°F to 98°F in 21 minutes
- Drafted electrical hardware design through schematics and programming logic for safe and efficient microcontroller regulation of a 1500W heating element, water pump, sensors, buttons, and LED indicators
- Utilized MATLAB to model heat transfer through HDPE water tank walls under various outdoor conditions, predicting a 0.4% power input loss during a single heating cycle
- Developed budgeted bill of materials, mechanical drawings, and manufacturing plan for final prototype

IoT LED Lighting System January 2023

- Developed IoT application using an ESP32 to control a RGB LED strip through a custom web interface, integrating Wi-Fi connectivity, web server, PWM lighting control, and real-time client responsiveness
- Created web page with dynamic color picker and buttons to manipulate light color and brightness remotely
- Implemented firmware with Arduino framework to handle Wi-Fi network connection, HTTP web serving, client request parsing and PWM control signals for RGB LED hardware

Skills

Technical: Technical Report Writing, Data Analysis, Energy Auditing

Software: MATLAB, SolidWorks, MS Suite, AutoCAD (basics)