

## EE / CprE / SE 492 Weekly Report

February 06 - February 13, 2024

sddec25-08

Smart Home Control Unit for Energy Optimization

Faculty Advisor / Client: Md Maruf Ahamed

### Team Members:

- Alexander Ryan
- Mitchell Jensen
- Arie Kraayenbrink
- Gamage Binula Karunaratne
- Erik Schmidt

### Summary of Work:

This week, the team made progress on both hardware and software aspects of the project. The dimmer module prototype was started, with assembly and testing underway on the breadboard circuit. Parallel work was done on the zone controller, including soldering and integration planning. PCB models were updated in KiCad to reflect the latest sensor choices, along with research into fabrication costs and turnaround times. On the software side, work began on reestablishing the React application and project infrastructure, while troubleshooting ongoing access issues with ETG resources. The team also organized timelines for the remainder of the semester and planned task assignments to keep development on schedule.

### Work Period Accomplishments:

- **Dimmer Module:** Prototype breadboard circuit assembly initiated; collaboration between Mitchell and Binula for circuit development.
- **Zone Controller:** Soldering and construction progressed; knowledge transfer between Arie and Mitchell regarding dimmer integration.
- **PCB Development:** KiCad model updated to align with current sensor components; research conducted on PCB fabrication pricing and delivery

timelines.

- **Software Development:** Base React application and infrastructure revisited; Alexander worked on resolving ETG access issues to restore full development environment.
- **Project Planning:** Team developed timelines and milestones for remaining semester tasks; Binula supported planning and organization of workload distribution.

**Plans for Coming Week + Action Items:**

- Alexander Ryan- Get into software issues and reassess work to be completed
- Mitchell Jensen - Continue work on dimmer module
- Arie Kraayenbrink-
- Gamage Binula Karunaratne - Work with Mitchell on the dimmer module
- Erik Schmidt-

**Pending Issues:**

- Alexander Ryan- No issues
- Mitchell Jensen- No Issues
- Arie Kraayenbrink- No issues
- Gamage Binula Karunaratne- No issues
- Erik Schmidt- No issues

**Individual Contributions:**

Team Member	Contribution	Weekly Hours	Total Hours
Mitchell Jensen	Began work on dimmer module breadboard circuit prototype.	2	2.5
Arie Kraayenbrink	Worked on building and soldering the zone controller. Brought Mitchell up to speed on the light dimmer.	5	6

Binula Karunaratne	Help plan and organize the remainder of work for the project	1	1.5
Erik Schmidt	Worked on an updated KiCad Model to reflect our current sensor choices. Researched PCB fabrication pricing and turnaround times. Worked with the team to make timelines for the rest of the semester.	3	3.5
Alexander Ryan	Attempted to access digital resources to no avail. Working with ETG to get everything sorted out. Revisiting React application and base implementation + infrastructure.	1.5	3