EE/CprE/SE 492 BI-WEEKLY REPORT 3

9/28/20 – 10/11/20

Group number: 18

Project title: Magic Door Sensors

Client & Advisor: Daji Qiao

Team Members/Role:

Mitchell Bratina/ Project Plans Engineer

Calvin Christensen/ Engineering Activities Director

Isaiah Exley-Schuman/ Reports and Documentation Management

Collin Kauth-Fisher/ Conflict Resolution and Server Management

Joseph Kueny/ Meeting Facilitator

Past week accomplishments:

- PIRM Presentation – Everyone
  - Wrote slides and practiced speaking together with timer
  - Delivered presentation meeting time goal
  - Individually wrote feedback for other teams
- Meeting with Advisor – everyone
  - Updated advisor on status of project, discussed plans for the next couple weeks.
- ESP32 Room – Collin & Joseph
  - Test environment is fully set up
    - Includes data recording and formatting for easy processing
- Machine Learning – Mitchel
  - Implemented K nearest neighbors to get preliminary results
- Schematic & Layout Creation – Isaiah & Calvin
  - Schematic developed
  - Layout partially complete
  - Researched methods to detect door state

Pending issues: Wait times on PCB components, if applicable

Individual contributions:

Name	Contributions	Hours this period	Hours cumulative
Mitchell Bratina	Attended meetings, delivered PIRM, worked machine learning training	12	48

Calvin Christensen	Attended meetings, delivered PIRM, researched door state detection	12	48
Isaiah Exley-Schuman	Attended meetings, delivered PIRM, continued active sensor design, drafted reports	12	48
Collin Kauth-Fisher	Attended meetings, delivered PIRM, worked testing and data formatting	12	48
Joseph Kueny	Lead meetings, delivered PIRM, assisted with machine learning and testing	12	48

Comments and extended discussion: NA

Plans for the upcoming weeks:

- ESP32 room – Collin & Joseph
    - Continue to maintain and improve ESP32 room capability
    - Continue to measure communications data (latency, success rate, etc.)
- ESP32 programming & calibration – everyone
    - Detect when a door is open and when it is shut per Calvins work
        - Keep things simple to train model
        - Add complexity if results are promising
- Create active sensor prototype – Isaiah & Calvin
    - Deliver PCB files for manufacturing within 2 weeks
- Machine learning code and training – Mitchel
    - Continue work with learning algorithms and training machines, collect data to compare across models (false positives, false negatives, training time, etc)

Summary of weekly advisor meeting: In our last meeting, we spoke to Daji about the progress that each of us has made individually. He was interested in the preliminary results of our CSI implementation, as well as the active circuit that we are building. We conveyed our intent to continue perusing simple tests and fast results to verify the concept before adding complexity, and Daji agreed.