***EE/CprE/SE 492 WEEKLY REPORT 1***

***9/5/2021 – 9/13/2021***

***Group number: SDDEC21-09***

***Project title: Magic Sensors***

***Client &/Advisor: Daji Qiao***

***Team Members/Role:***

Ryan Lanciloti-Report Manager

Ben Pierre-Webmaster

Abdelaziz Hassan-Power Systems

Chinar Kaul-Meeting Facilitator

Alyssa Marshall-Meeting Scribe and Team Manager

Jared Hermon-Test Engineer

o **Weekly Summary**

The goal for this week was to return to where we were at the end of the spring semester. The group was able to re-establish all the main components of our project quickly due to the way in which components were deployed. In addition to this, the team restructured the data collection process slightly to consolidate to one microcontroller. Members of the team have started the acceptance testing process to have a strong foundation when the team reaches that point of testing.

o **Past week accomplishments**

∙ Chinar Kaul: Modified linear regression machine learning model from last semester trained on sample CSI data. Began identifying potential machine learning models to research and present for upcoming meetings.

∙ Ben Pierre: Redeployed the git repo to allow for continuous peer development. Built a protocol to allow UART communication between the data collection system and the server backend. Established get connections, established an NTP connection to allow timestamping data points for machine learning. Began troubleshooting post requests.

∙ Ryan Lanciloti: Looked into creating a docker container to make deploying the backend and testing locally easier. Also revisited the code for our android application which supports the overarching project.

∙ Alyssa Marshall: Finished reflector prototypes for future testing. Began composing a test plan following IEEE formatting for unit, interface, and acceptance testing.

∙ Jared Hermon: As a test engineer we were able to begin laying the foundation for a testing framework

∙Abdelaziz Hassan: working with a reflector group to test prototypes.

o **Pending issues**

∙ Chinar Kaul: Need larger and more realistic set of sample data to train model.

∙ Ben Pierre: Post requests are not sending correctly to any end point, returning a 400 request. Nothing is showing up in wireshark which is interesting as the devices are recognized at the assumed IP address by the network’s router, and the ntp protocol functions, as well as debug get requests.

∙ Ryan Lanciloti: Need to figure out which features are most important for the project as a whole, as well as figure out how to deploy the tensor flow model to the backend.

∙ Alyssa Marshall: The curved reflector is not as precise as preferred, but will be acceptable for the first round. Will search for better methods in the future if needed. No problems for test plans as the team just needs to have a discussion together.

∙ Jared Hermon: Need to finalize specifics of testing procedures that we plan to use once we get to a place where our devices are functional. Some specifics include; how many degrees classify as open, how long to test each different door configuration, how many different door configurations we want to test

∙Abdelaziz Hassan: demonstrate on our design to meet our functional and non- functional requirements.

o **Individual contributions**

| **NAME** | **Individual Contributions** | **Hours this**  **Bi-Weekly Period** | **HOURS**  **cumulative** |
| --- | --- | --- | --- |
| Chinar Kaul | Machine learning training | 6 | 6 |
| Jared Hermon | Test plans foundations | 6 | 12 |
| Alyssa Marshall | Prototypes, Test Plan | 6 | 6 |
| Ben Pierre | Data collection, Data parsing, Data forwarding | 9 | 9 |
| Ryan Lanciloti | Backend API, Android Application | 6 | 6 |
| Abdelaziz Hassan | Test of prototypes | 6 | 6 |

o **Plans for the upcoming week**

∙ Chinar Kaul: Identify larger set of sample data and train models accordingly to

improve accuracy. Work on TensorFlow backend with Ryan.

∙ Ben Pierre: Continue to troubleshoot failing post requests. Work with the backend team to consolidate the format of posted JSON. Once data is successfully posted to server work, data must be passed to determine which channels are most relevant for our application. PCA analysis will be used for this.

∙ Ryan Lanciloti: Meet with Chinar to determine the best way of running tensor flow on the server, as well as get the docker environment set up to make deploying the backend easy.

∙ Alyssa Marshall: Discuss with the whole team to verify all features that need to be tested, acceptance metrics, and configurations. Work with Ryan and Ben for interface testing procedure and documentation. Continue working with the test engineer to construct an acceptance testing plan.

∙ Jared Hermon: Propose my test plan specifics to the group and get feedback from them. Once getting the feedback the test engineer will adjust the specifics to conform to the group testing goals. Work with Ryan and Ben to assist with the issues that Ryan and Ben have to fix the issues that Ryan and Ben come across.

∙Abdelaziz Hassan: Consider doing some prototype tests of our project, from there we will reach the point where we want to be.

o **Summary of bi-weekly advisor meeting**

The team met with our professor who is also the client to remind him of our prior progress last semester. The team discussed the plan and timeline for the semester, as well as elaborated on PCA analysis, and the acceptance testing plan. Our team will continue to have bi-weekly meetings with our advisor throughout the semester for progress updates.