***EE/CprE/SE 491 BI-WEEKLY REPORT 2***

***Start Date – End Date : 10/11/21 - 10/25/21***

***Group number: 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 backend team added documentation to the Python files.

The testing team finalized a first revision of the test plan and finalized test cases.

The machine learning team developed a binary neural network model to classify the door state as either open or closed. Began work on a multi-class neural network to classify the door state into angles.

o **Past week accomplishments**

∙ Ben Pierre: Moved phase and magnitude calculations to the hardware. Experiment with multithreading.

∙ Alyssa Marshall: Finished revision one of the test plan with the test engineer. Finalized test cases and prepared test suite template for testing efforts.

∙ Chinar Kaul: Completed binary classification neural network model and achieved test accuracy of 90% using sample data. Experimented with different model parameters and recorded accuracy. Worked on adding multiple classes to neural network model to allow the model to classify door state by angle (ex. 0 degrees, 15 degrees, etc).

∙ Ryan Lanciloti: Continued work on backend documentation for each of the python files.

∙ Jared Hermon: the other test engineer and myself have solidified the first revision of the test plan that we are going to use. We have come up with exact values and testing procedures for each of the components of our project.

. Abdelaziz Hassan: I worked with another team as my team is ready to start to do testing, so now we are getting closer to do testing after all teams are ready.

**Pending issues** ∙ Ben Pierre: No pending issues this week

∙ Jared Hermon: No pending issues this week

∙ Ryan Lanciloti: Dependencies between modules in TensorFlow not allowing the docker container to build properly. More testing needed

∙ Alyssa Marshall: No pending issues this week.

∙ Chinar Kaul: Increasing accuracy of multi-class model.

. Abdelaziz Hassan: No pending issues this week

o **Individual contributions**

| **NAME** | **Individual Contributions** | **Weekly** | **Cumulative** |
| --- | --- | --- | --- |
| Ben Pierre | Migrated calculations, worked on new end points for inference. | 7 | 34 |
| Jared Hermon | revision one of the test plan complete | 6 | 24 |
| Alyssa Marshall | Revision one of test plan, test suite template revision 1 | 6 | 24 |
| Abdelaziz Hassan | Reflector part have been done and ready to do testing | 6 | 24 |
| Chinar Kaul | Model improvements. | 6 | 24 |
| Ryan Lanciloti | Documentation and backend support | 6 | 19 |

o **Plans for the upcoming week**

∙ Ben Pierre: PCA, Kalmans. The usual.

∙ Jared Hermon: We are hoping to run through a set of practice tests using fake inputs to see if the test plan that we came up with is going to go smoothly or if we will need to make some changes to it.

∙ Chinar Kaul: Finalize multi-class neural network model, get model integrated with backend.

∙ Alyssa Marshall: Discuss testing cases with the team for any necessary edits and begin editing revision two of the test plan after suggestions from the rest of the team and advisor.

. Abdelaziz Hassan: My team and I are working on a reflector. We are using aluminum tape for our reflector and now our is ready whenever other is ready we will start doing testing.

. Ryan Lanciloti: Finishing up documentation and getting the ML model integrated with the backend.

o **Summary of weekly advisor meeting**

Met with advisor, discussed progress, will be preparing a demo for our next meeting.