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CS 491 Capstone II Computer Science  
Spring 2022  
Option 2 – Audio Surveillance System

Engineering Notebook

Week 1:

For the first week, I reassessed the SCRUM board on the Github, deleting tasks which were no longer relevant due to decisions to change the architecture of our design. I also communicated with Dr. Wong in class regarding the expectations for the semester, and assigned Zachary to be the semester’s first SCRUM master.

Week 2:

The beginning of this week (Sunday) I had enough time to configure the hardware from last semester and confirm whether or not the system still functioned. After turning the system on, I ran the demo created last semester, verified the values were accurate, and plugged a drive into the Pi. I downloaded all necessary libraries and relevant firmware onto the drive to later post on GitHub. I also began coding a display program which could display multiple objects on the screen. Little progress was made in the latter half of this week. The product vision was completed, being mostly a modified version of the previous semester’s vision. We discussed as a group the viability of keeping two experimental designs, and decided on the modular (Option B) array setup.

Week 3:

This week the work was primarily centered around documentation. Dr. Wong presented us with a diagram to confirm his understanding regarding the architecture of our system. This gave me the basis for some diagrams which I felt would be elucidating the ambiguous subsystems in the SDD. I also broke the tasks down from the SCRUM backlog into subtasks and assigned them to specific group members. By the latter part of this week, I started learning the Machine Learning libraries which Jaclyn was using for her part of the system. I believe I will be able to help her on this part of the subsystem once the visualization software is complete. I finally uploaded the code to Github as well.

Week 4:

The python files which accept real time data regarding the Tuning (DOA) of the microphone array’s output can now accept multiple inputs and display multiple objects. However, because I have not run the code on the hardware yet, it remains to be seen if this successfully displays (there is no data besides dummy telemetry on a text file to instantiate more than one object). The documentation is still not in a presentable state and I worry that I will be the only one working on it, and have doubts regarding the real continued efforts/contributions of a couple team members throughout this semester. I don’t even see any template code yet or even rudimentary CAD files for the model. I will reach out to see if there is anything else I can do to break down tasks to make them more manageable(?).

Week 5: Documentation of the SRS and SDD are overdue. I am working to complete them with what details I have of the other subsystems, but overall am running behind on their completion. Overall, I was not able to do as much with the deliverables as I wanted to last week. The demonstration of the raspberry pi is consistently running and will showcase similar functionality as last semester, but beyond the surface level the visualization software is more interoperable.