**Weekly Status Report**

# Group

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# Sean Reddington

**Overview**

Since our first demo is focused on the machine learning portion which is main Michael’s role, I tried to spend this week catching up on revisions for all of our documents. Since I will be focusing on the Arduino and processing server implementations. I wanted to get all the documents finished so I can focus on programming throughout the rest of the semester. Over this sprint I finished up most of the revisions for the planning document, design document I, and contributed to the test procedure document.

**Achievements in Last Week**

* User Story 235: task 337 (est: 3 hrs – act: 3 hrs)

Finished up most of the planning document revisions for resubmission.

* User Story 235: task 464 (est: 3 hrs – act: 3 hrs)

Finished up most of the design document I revisions for resubmission.

* User Story 251: tasks 346, 347 (est: 1.25 hrs – act: 1.25 hrs)

Created initial outline and other contributions to the test procedure document.

**Issues in Last Week**

I was not able to fully finish the revisions for the documents, specifically the machine learning parts. This was something that required input from Michael, however, I will wait until he is not so overloaded with work for our first demo.

**Goals for Next Week**

Next week I plan to work on whatever help is needed to prepare for our first demo. This includes implementing some server tasks, as well as any demo specific scripts we may need to write up specifically for demo 1. I may also need to help with training the machine learning since there has been trouble with connecting to the professors GPU computer. I have a personal desktop with high performance hardware, including a GPU, that may be required to train the machine learning model in a timely manner.

# Sean Digirolamo

**Overview**

* The server classes and modules are mostly complete, including the AppConnection, BotConnection and Instruction class.
* The TreadInstruction and ArmInstruction classes have their frameworks in place, but the actual algorithms to calculate their instructions have not defined yet.
* The OpenCVWrapper class is not yet complete, and waiting on the frozen neural network model to begin implementation.
* Committed six hours, and spent six hours.

**Achievements in Last Week**

* User Story 231 Server Implementation: Task 224, Task 340
  + Both the BotConnection and AppConnection classes have been implemented along with their tests. This brings us closer to being able to communicate with both the mobile application and robot. Communication with the app will allow us to send images captured by BinBot to the app, and allow us to toggle BinBot's operation. Communication with the robot will allow us to receive images from the robot and allow the server to send instructions to the robot.
* User Story 231 Server Implementation: Task 341
  + Json reading and writing has been implemented and completed within the Instruction class. The instruction class is now capable of creating itself from a json string and also returning a json string representing itself. This is important because json strings will be used to transmit data to the BinBot robot. The instruction class must be able to return itself as a json string so that it can be sent to the robot and the robot can execute what it has been told to do within those the Instruction. In addition, the robot will send json instructions containing an image back to the server when it is requesting instructions on what to do next. This json can now be transformed into an object so the image can be read and instructions can be determined for the robot to execute
* User Story 344 Test Procedure Document: Task 344
  + The test procedures for the BinBot server have now been documented and put inside the test procedure document. This is important because documentation is important, and also this section is necessary to produce the final document.

**Issues in Last Week**

* User Story 231 Server Implementation: Task 340
  + The actual BotConnection class nor the AppConnection class have not been tested successfully. This is because the connection on the mobile application has not bee implemented yet, nor has the connection on the robot, since the actual robot hardware has not arrived yet.

**Goals for Next Week**

* User Story 270 Demo 1 Client
  + Create a client application to connect to BinBot server while the hardware for the robot is waiting to arrive, for demo purposes.
* User Story 270 Demo 1 Client: TA412
  + Implement a way to transform Buffered Images to json strings in the client
* User Story 270 Demo 1 Client: TA413
  + Convert json to image, so that image returned from server can be displayed
* User Story 270 Demo 1 Client: TA414
  + Send json to server
* User Story 270 Demo 1 Client: TA415
  + Receive json from server
* User Story 270 Demo 1 Client: TA416
  + Read a jpg
* User Story 270 Demo 1 Client: TA417
  + Write a jpg
* User Story 264 Server Implementation Sprint 2: TA401
  + Successfully send data to mobile application (Testing since we were unable last week)
* User Story 264 Server Implementation Sprint 2: TA404
  + Successfully receive data from mobile application (Testing since we were unable last week)
* User Story 264 Server Implementation Sprint 2: TA403
  + Successfully receive data from client application
* User Story 264 Server Implementation Sprint 2: TA402
  + Successfully send data to client application
* User Story 264 Server Implementation Sprint 2: TA407
  + Convert BufferedImage to json
* User Story 264 Server Implementation Sprint 2: TA408
  + Convert json to BufferedImage
* User Story 271 Sprint 1 presentation: TA419
  + Sean D Slide

# Michael Savitski

# Overview

* Machine learning image training implementation complete, pending additional testing
* Images for training data set one collected
* Eight hours were committed to this week’s tasks, nine were spent

# Achievements in Last Week

* Tasks completed last Sprint:
  + User Story 230: tasks 208 and 209 complete. 9 hours spent, versus six committed.
  + Progress in feature development as a result of those task completion. You must associate your progress in assigned task(s) to the feature(s) specified in your project. You will get a lower grade if you only list all the tasks assigned to you in the last Sprint.
  + Progress towards feature of allowing BinBot to identify trash objects by preparing training software (task 208) and collecting images for training (task 209). Additional time was spent collecting additional data sets intended to be collected in Sprint 2.
  + No features are complete. Training software complete pending more rigorous testing. Server software, the primary component for identifying trash objects and serving images to the mobile app, in beginning stages of development. Mobile application is in partially completed state. No progress on functionality of BinBot to traverse to trash or collect trash.

# Issues in Last Week

* Tasks could not been complete last Sprint:
  + User Story 230: task 210 not complete. Was unable to access GPU system. Unused time was spent on other aspects of development, including longer than estimated development time for machine learning software, and collection of additional images intended to be collected in Sprint 2.

# Goals for Next Week

* Tasks moved from Project Backlog to Sprint Backlog:
  + User Story 268: Task 409 to collect remaining images for training, task 410 to train on the image data sets Additional testing to move task 208, machine learning implementation, to accepted status and begin use.
  + User Story 264: Task 411, to create an class implementing OpenCV to be used on server software for identifying trash objects using trained neural network data model.

# Jose Silva

**Overview**

1. Progresses in Feature completion
   1. The first week I spent the majority of my time working with the robot mobility feature(s), I was able to acquire multiple documents about the robot we had a plan to work with. I spent a few hours translating the source code from Chinese to English and began figuring out how the code operated in order to see how the group would be able to connect this with our other components.
      1. I had originally committed 3.5 hours to this section of the project but after acquiring the documents and reading through them I actually ended up spending 6.5 hours to this part of the project. Some of the documents needed some research on top of them that was not planned for, this research was needed in order to grasp a clearer idea of what was being discussed in these documents.

**Achievements in Last Week**

1. Tasks Completed
   1. User Story 4 Research Robot Documents
      1. BinBot will be constructed using a robot kit. In order to make progress with the robot, I was able to get in contact with the company and acquire the manual and documents such as source code that power the robot. I spent a majority of the last sprint researching these documents which would have allowed us to make progress with the mobility feature(s) of the robot as well as the picking up waste feature of the robot.
         1. Task: Source code doc (Estimated .50 vs Actual 4 hours)
            1. Code provided to us that controls motor aspects of the robot
         2. Task: Firmware doc (Estimated .50 vs Actual .50)
         3. Task: Software and Driver doc (Estimated .50 vs Actual .50)
            1. Software to control different aspects of the robot
         4. Task: Assembly tutorial doc (Estimated .50 vs Actual .50)
            1. Assembly videos on how to construct the robot
         5. Spec and instructions doc (Estimated .50 vs Actual .50)
         6. Learning material doc (Estimated .50 vs Actual .50)
            1. Different resources on Arduino and robots
         7. Schematic doc (Estimated .50 vs Actual .50)
   2. User Story 3 Mobile App Implementation
      1. BinBot will also have a mobile application which will allow the user to power BinBot on/off. The mobile application will allow the user to see the most recent photo of the area that BinBot is in. This will allow user to see what BinBot is seeing.
         1. Set up mobile app (Estimated 2 hours vs Actual 2 hours)

**Issues in Last Week**

1. I was able to complete all tasks that were assigned to me during the first Sprint.

**Goals for Next Week**

1. User Story 3: Mobile App implementation 2
   1. Task 467: Receive data from server and Task 468: Send data to server
      1. BinBot will have a mobile app that will allow users to view the most recent photo taken by BinBot of the area. In order to do this the app will have to communicate with the server.

# Kwamina Thompson

# Overview

* Sprints goal was to be able to display JSON images onto an android screen.
* Total working hours committed was at 8 hours vs total working hours actually spent on project ended up being approximately 12 hours

# Achievements in Last Week

* Tasks completed last Sprint:
  + For my user story 8 hours estimated and 12 hours spent.
  + development since team members where all assigned separate tasks to work on.
  + Being able to set up my test cases to make sure the JSON receiver class works when fully implemented in the mobile app

# Issues in Last Week

* Tasks could not been complete last Sprint:
  + User Story 232: Implementing JSON images on screen: Task 228

Major problem faced during this task were major android dependency issues. The major problem occurred right after I added certain library in Gradle which caused other library to start throwing errors. After trying to resolve this problem I had multiple run time errors on not being able to download APK’s during run time.

# Goals for Next Week

* Tasks moved from Project Backlog to Sprint Backlog:
  + User Story 232: Implementing JSON images on screen: Task 228

Continue working on trying to display images on the mobile screen

* + Also create another user test case where by the images are converted into byte strings and place into the json file as a comparison to see which works better.