SE / CybE / CprE / EE 492 - sdmay23-04

Engineering Art

Weeks 6-7 Report

02/19/2023 - 03/04/2023
Client & Faculty Advisor: Rachel Shannon

Team Members:

Derrick Brandt - SE, Researcher, Figma Wizard, Frontend Team
Ayden Boehme - CprE, Researcher, Frontend Team
Tomas Elias - SE, Researcher, Note Organizer, Frontend Team
Elizabeth "Liz" Fransen - SE, Researcher, Communications Guru, Backend Team
Shelby Murray - CprE, Researcher, Notetaker, Backend Team
Juno "Winter" Robertson - SE, Researcher, Android Expert, Frontend Team
Cosette Thompson - EE, Researcher, Electrical Expert, Backend Team
Nathan "Nate" Underwood - CybE, Researcher, Security Expert, Backend Team

Parker "Park" "Pork" Smith - Consulting Industrial Design Student
Johnny DiBlasi - Consultant, Assistant Professor of Art and Visual Culture at the
College of Design

Weekly Summary

We have continued testing the Muse and developing code for our usage of its measured data. The team was evenly subdivided into frontend and backend groups for development based on expertise and preference. Data was successfully sent from the Muse to the team's server. The need for a newer tablet than is available through ETG was identified, and initial searches for alternative options were completed. Basic image generation from non-Muse data was conducted and will be continued in the coming weeks.

Weekly Advisor Meeting Summary

We held discussions over Android development practices and how to effectively subdivide the team for the future of the project. Additional research was conducted into user privacy, existing Muse resources, and possible art generation methods. Future to-do items--such as website updates and process book implementation--were identified and recorded.

Past Accomplishments

Week 6:
- Determined the separation criteria of frontend and backend teams
  - Backend:
    - Interacting with the muse
    - Implement web server
    - Sending data to frontend
  - Frontend:
    - Hooking up the device backend to app lifecycle
    - Interacting with web server
    - Building pretty app with android
- Discussed advantages of classic Android development vs. [Jetpack Compose](#) for Android frontend
  - Decided to experiment with both and decide
  - Classic Android development was chosen due to the strength of existing documentation and libraries, as well as to fit within our time constraints.
- Determined required listener for interacting with the Muse
  - 3 types of listeners
    - muse - when refresh on test app pushed
    - connection - when connection changes
    - data - when data packet gets received

- Reserved Android tablet from ETG
  - Immediately determined it was too old for our intended use
- Began research on alternative Android tablet purchasing options
  - Determined required specifications
    - approximately 10"
    - Android 10 or higher
    - 32 Gb
    - headphone jack preferred, but not required
- Secured a VM/server from ETG
- Separated into frontend and backend teams based on expertise and preference
  - Backend = Liz, Cosette, Nathan, Shelby
  - Frontend = Juno, Tomas, Derrick, Ayden

Week 7:
- Tested image generation in MATLAB
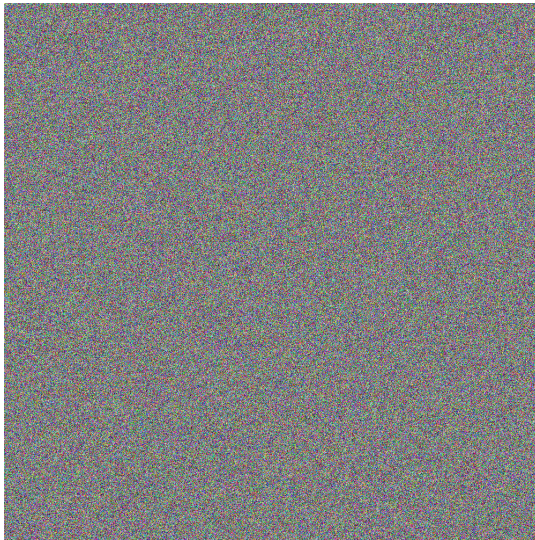
- Contacted ETG about the proper process for purchasing a new tablet
  - Can order on our own and send ETG receipt
- Discussed privacy concerns with user data
  - Storage will be anonymous - users will access via unique code with no person information attached
- Found MATLAB streaming LSL: https://www.krigolsonlab.com/working-with-muse.html
  - Paper on originating lab: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5344886/
- Examined the 492 poster and presentation requirements
  - Rachel stressed the importance of visuals over text to conserve space

- ○ Likely vertical/portrait orientated poster rather than landscape
- Decided on a website for the process book due to ease of access and no cost
- Secured login details for server
- Noted need to update senior design website
  - ○ Derrick needs to add his photo and bio
  - ○ A consultants page needs to be created, including Pork and Dr. DiBlasi
- Determined best meeting times for frontend and backend teams
- Successfully sent data from the Muse to the server
  - ○ Data was sent in its raw form
- Added newer members to Gitlab project

Individual Contributions

Name	Individual Contributions	Hours this Week	Hours Cumulative
Derrick	● Initialized React project in repo 　○ Header in place 　○ Hero in place 　○ Popup code started 　○ Documented Code	15	30
Ayden	● Started learning Kotlin for future use ● Research on the abilities and functionality of Jetpack Compose	15	28
Tomas	● Messed around with Jetpack Compose ● Tinkering around with 2D AI generated algorithms (Webinator)	15	30
Elizabeth	● Taught beginning Kotlin syntax to members unfamiliar with it ● Experimented and documented muse api ● Setup basic networking between muse and web backend	15	35
Shelby	● Took notes during meetings ● Tested MATLAB image generation ● Added newer members to Gitlab project ● Started learning Kotlin	15	30

Juno	• Took a leadership role within the frontend team • Experimented with Jetpack Compose in order to compare with Android's classic method of UI construction • Found best times for the frontend team to meet and work.	15	30
Cosette	• Set-up computer for Android Studio and Git to ensure SSH connection for pulling and commits • Began learning Kotlin syntax • Explored the API for the Muse 2 • Began Exploring LSL for Matlab	15	15
Nathan	• Setup IDE for Kotlin • Played with and learned Kotlin syntax and tools • Cloned the repository • Created risk matrix	10	25

Pending Issues
- Begin work on process book
- Keep track of all contacts reached out to

Plans for the Upcoming Week
- Test open-source code for streaming to MATLAB (which can then be saved as CSV): https://www.krigolsonlab.com/working-with-muse.html
- Continue development of Muse application.

Additional Comments & Discussion
- Scheduling has been a little more difficult this semester due to busy schedules.