

CS/SSW 555 Agile Methods

Group 22 LitHub
Sprint #4
4/23/2024

Project Background Information

Selected Project Option Number: Option 1

Main Objective of Project:

Our objective of this project is to create a 3D visual rendering of a model of a brain using EEG/MEG that surgeons can study and locate areas of interest. We do this by first intaking EEG/MEG data and storing it in the cloud. Then next we want to use Source Localization Algorithms to pinpoint the sources of brain activity. After that we plan to make a 3D visualization system that generates a reconstruction of the brain. With the model, we also want to allow surgeons to enhance visuals provided by the reconstruction to pinpoint and study areas of interest. We also plan to add real-time rendering to the program.

Team Members and Roles:

Name	Role
Jake Gebeline	Product Owner
Michael Savino	Scrum Master
Grant Shufelt	Developer
Dave Frost	Tester
Alexander Bakos	Developer

List & Description of Each Sprint:

Sprint #	Objective
Sprint 1	Data Integration and Storage <ul style="list-style-type: none">• Setup cloud infrastructure• Prepare preprocessed data• Implement manipulation scripts
Sprint 2	Source Localization Algorithms Implementation <ul style="list-style-type: none">• Integrate Algorithms to process data• Thoroughly Test and adjust algorithms
Sprint 3	3D Visualization System Development

	<ul style="list-style-type: none"> • Design and Develop a 3D visualization system • Implement ability to enhance visualization/view regions of interest • Mockup UI
Sprint 4	Integrate UI Additional Functionalities and Enhancements <ul style="list-style-type: none"> • Brainstorm additional functions to aid surgeons • Develop chosen functions • Conduct thorough testing

Project Links:

Type	URL
GitHub/GitLab/Etc	https://github.com/msavino16/SSW555-Group22
Jira	https://stevens-msavino.atlassian.net/jira/software/projects/KAN/boards/1
Live Demo (if applicable)	

Technology Stack Used:

Type	Technology
User Interface	JavaScript, CSS, HTML, React
Backend	Python
Database	Numpy, Flask

Sprint Progress Update: Current Status

Summary of Work Completed

- Developed a frontend webpage
- Integrated a backend server to host our Python code
- Touched up on design from original UI
- Continued to test code

Screenshot of Jira Backlog

☐ **Sprint 4** 11 Apr – 23 Apr (9 issues)

☒ ~~KAN-38~~

Prioritize and select the most viable features based on impact and surgeon feedback for implementation.

☒ ~~KAN-45~~

Integrate UI display prototype

☒ ~~KAN-37~~

Feature Brainstorming session: generate ideas for new functionalities that will assist the surgeons in studying the model.

☒ ~~KAN-42~~

Continue to practice continuous testing

☒ ~~KAN-40~~

Optimize the resolution for the display

☒ ~~KAN-43~~

Practice planned refactoring during development.

☒ ~~KAN-44~~

Perform testing on the system's responsiveness and efficiency, optimize code as fit.

☒ ~~KAN-41~~

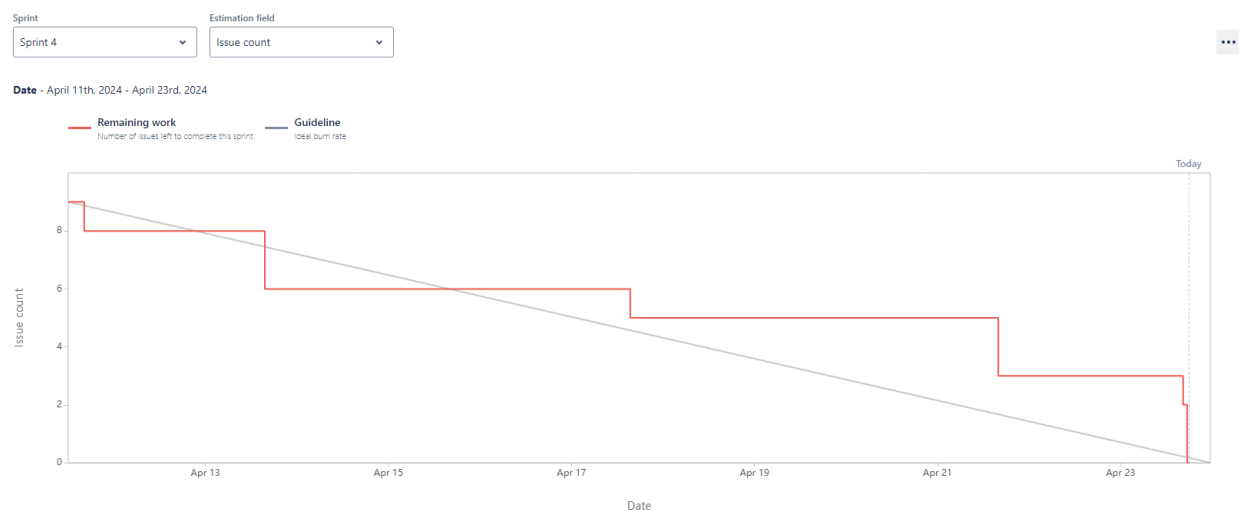
Conduct usability testing on selected and implemented features

☒ ~~KAN-39~~

Implementation of the selected functionalities: development of these chosen functionalities in full

[+ Create issue](#)

Screenshot of Burndown Chart



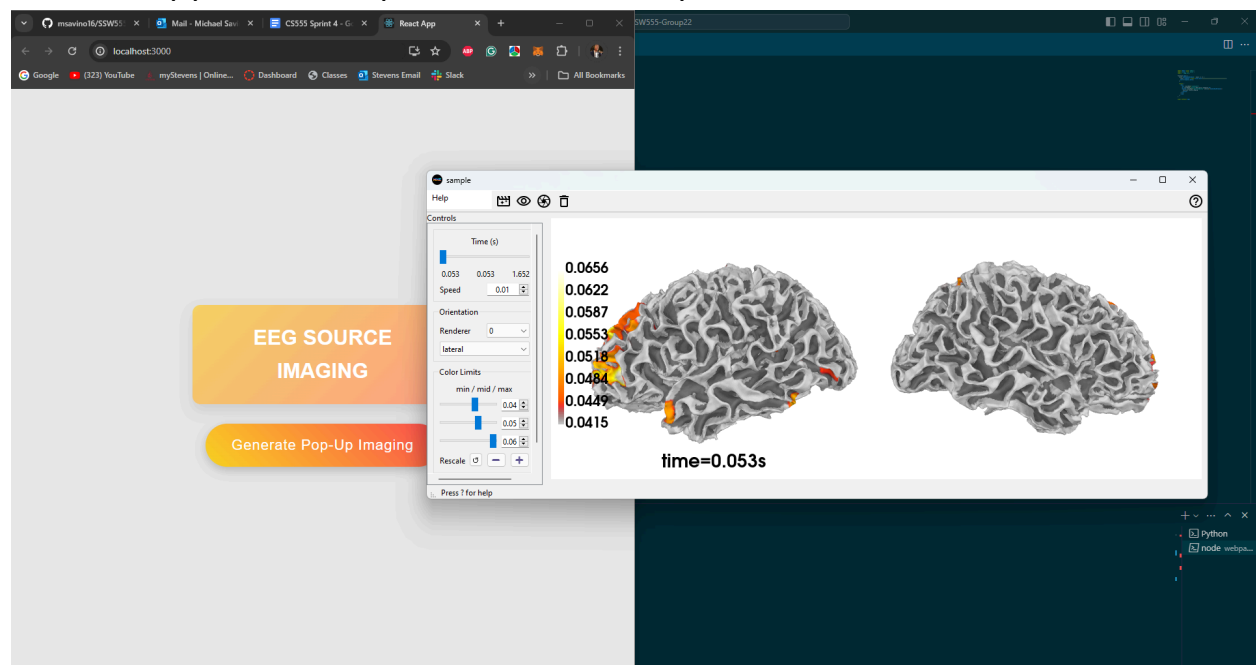
< > Denotes Example. Must Replace.

Screenshot of QA Results

```
[Parallel(n_jobs=1)]: Done 17 tasks | elapsed: 0.0s
[Parallel(n_jobs=1)]: Done 71 tasks | elapsed: 0.0s
[Parallel(n_jobs=1)]: Done 161 tasks | elapsed: 0.1s
[Parallel(n_jobs=1)]: Done 287 tasks | elapsed: 0.3s
319 events found on stim channel STI 014
Event IDs: [ 1 2 3 4 5 32]
319 events found on stim channel STI 014
Event IDs: [ 1 2 3 4 5 32]
319 events found on stim channel STI 014
Event IDs: [ 1 2 3 4 5 32]
ok

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Ran 10 tests in 30.802s
```

Screenshot(s) of Interface (Lo-Fi, Mid-Fi, or Hi-Fi)



Video of Project at Current State:

It does not need to be one edited video. If there are multiple videos, please link all of them below:

Public Video URL (Google Drive, Loom, Etc)

<https://drive.google.com/file/d/14pWSx9QqkYHgokgv-GAwFpzGUIGRIHHX/view?usp=sharing>

Sprint Progress Update: Current Blockers

Timeline Impacts:

Type	Impact
Create websites and programs to start working	Adds 1 week

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