

EE 491: Senior Design

sddec23-05

DNA Data Storage

Jan. 2023 – Dec. 2023

Client: Professor Meng Lu

Faculty Advisor: Professor Meng Lu

Team Members:

Colin Frank - Software, 3D printing code, Microsoft's IDE

Evan Walters – Software, 3D printing code, Microsoft's IDE

Caden Wortman – Hardware, General

Astha Upadhyay – Hardware, 3D printer chassis, etc.

Anna Hackbarth – Flow Control, hardware

Roles will rotate every few weeks to provide everyone with a chance to work in a certain area. Ideally, we've discussed a desire that everything is a team effort, and we work on every step together.

Past Week Achievements:

We had our first team meeting within the standard lecture time. As a team, we struggled this week in class to apply concepts presented in the lecture to our project. While we learned about sketch noting and practiced the application of sketch noting, we had to be reminded that even though we were improving a current system – design and sketch noting could still play a relevant role. We also worked on developing a presentation, problem statements, and speaking roles for an upcoming Lightning Presentations.

We had a second team meeting with our advisor and client Meng Lu on Wednesday. We discussed about LCDs which is a crucial component for our project. Meng Lu gave us an overview of how the LCDs work and what problems we are facing pertaining to it. He left us to think about how could we solve the problem of absorbing more light onto the LCD and have an efficient cooling system to not let it get too hot. In our next meeting, we will talk about microfluids and after returning from spring break we will start going to the lab to work on our project.

We had a third meeting this week to collaborate on our upcoming Lightning Presentation, we broke down speaking roles, information to cover, and began creating our presentation. During this same meeting, we also discussed our website plans and layout. This third meeting was where we decided to try sketch noting for the first time. We drew diagrams and attempted to apply the lessons we learned about in class. We came up with the following diagrams to show how we wanted the website to flow, our users/clients, and various frontend and backend aspects.

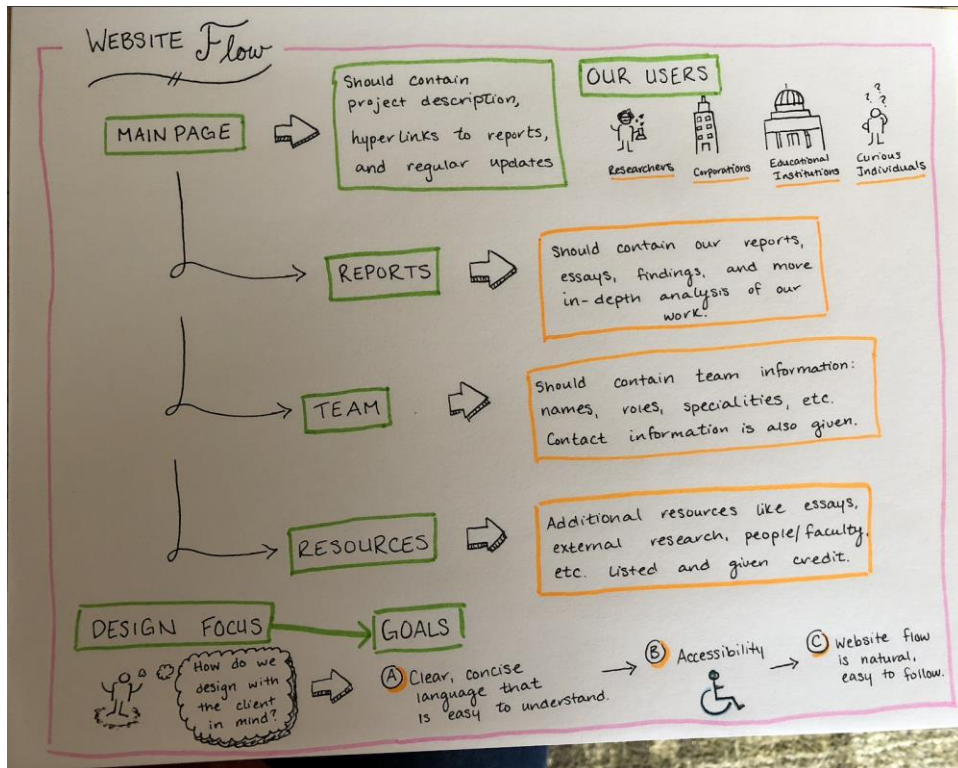


Figure 1 – Sketch Notes on SDDEC23 – 05 Website

Individual Contributions

Name	Contribution	Weekly Hours	Hours-to-Date
Caden Wortman	<ul style="list-style-type: none"> • Researched further into fusion 360 • Light LCD Research 	1.25	4.25
Evan Walters	<ul style="list-style-type: none"> • LCD Research with Meng • Learning C# and C++ 	2	5
Colin Frank	<ul style="list-style-type: none"> • Did research on how LCD worked • Learning C# and C++ 	1.25	4.5
Astha Upadhyay	<ul style="list-style-type: none"> • Looked into LCD working • Learned more about fusion 360 • Contributed to team assignments 	1.5	4.5
Anna Hackbarth	<ul style="list-style-type: none"> • Wrote Report 5 • Organized third team meeting • Created Lightning Presentation + Speaking parts 	1.5	4.5

Pending Issues and Concerns:

- **Key requests have been taking longer than anticipated but should be available for pick up before spring break.**
 - **Caden, Anna, and Colin's keys are confirmed ready for pick up**

Next Steps:

As a team and with our advisor's input, we've decided on the next steps:

- Setup regular separate meeting times to meet in the lab and dissect the 3D printer and process
 - Run a test to see the state of the code
- Begin editing and reviewing 3D printing code
- Design something in Fusion 360, run a test print
- Visit Sweeney office and recollect key forms, go to General Services and pick up lab keys

Conclusion:

This concludes our Week 5 report, we felt there was a lot of busy work in class this week and had difficulty initially connecting sketch noting to our project as we aren't designing anything, merely improving a current system. However, we were reminded by our TA that even improving an existing system requires designing, testing and implementing changes and therefore sketch noting might prove to be useful for us. This encouraged us to attempt sketch noting with our website planning.