

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

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:

Due to poor weather, our team was prevented from starting our individual roles. We will again be filling out our achievements section as a team as this week didn't perform functions in our individual roles, but rather completed tasks as a group. We had two team meetings this week. In our first team meeting this week, we completed a team contract and several class assignments. One of those assignments saw us update our Figma, or our collaborative board. We focused again on empathy this week by creating a persona relating to our advisor and client. This exercise was asking us to not evaluate a real person, but to imagine a completely new client

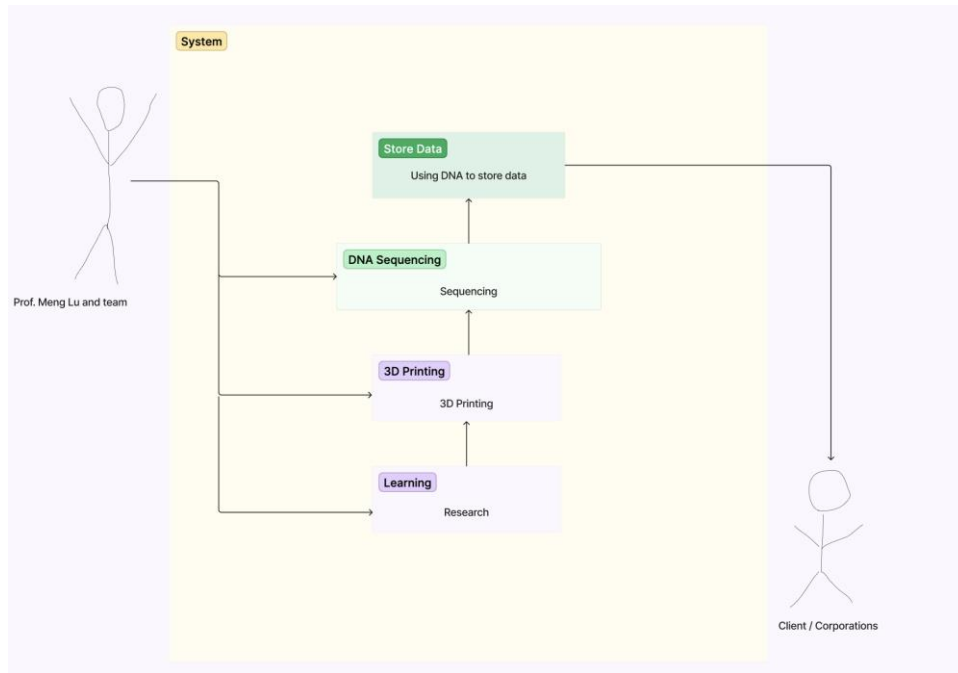
Like last week, we needed to ask ourselves what his frustrations might be? What might be the positives of their job? What does the media tell them and others about this field? How do they feel? We essentially needed to connect with this persona of our creation, by putting ourselves into his shoes. We discussed his motivations and life outside of his ties to our project and how that might affect our future clientele.

Link to view our collaborative board:

<https://www.figma.com/file/ncGp9lWcXC1VeU5cEByXY7/Discover-%7C-Empathize-%7C-Research-%5BTeam-05%5D?node-id=0%3A1&t=Av8k6PljKQ6nllKS-1>

Our second team meeting was virtual and had us work on a Professionalism assignment. We needed to evaluate the ethics of our project and how to ethically design/approach the problem. We

started by evaluating codes of ethics from IEEE and other sources, our professional responsibility, and identify where professional responsibility might be applicable in our project. During this meeting, we also created a Use-Case diagram detailing steps and inputs for our project.



Pending Issues or Concerns:

Our concerns that we’ve discussed with our advisor and as a team includes the following:

- The difficulty of the coding aspect being all EE students
- Project requires more research since we need more biology training and background information

Individual Contributions

Name	Contribution	Weekly Hours	Hours-to-Date
Caden Wortman	<ul style="list-style-type: none"> • Experimented with Fusion 360 	1	3
Evan Walters	<ul style="list-style-type: none"> • Got a concussion, provided insight during virtual team meeting. 	1	3
Collin Frank	<ul style="list-style-type: none"> • Team lead for Prof. Assignment • Research on how LCD works 	1.25	3.25
Astha Upadhyay	<ul style="list-style-type: none"> • Rescheduled advisor/client meeting 	1.25	3.25
Anna Hackbarth	<ul style="list-style-type: none"> • Wrote Report 4 • Turned in key requests 	1	3

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
- Interview additional resources like Mr. Kevin Callavin from the ISU DNA Facility
- Begin editing and reviewing 3D printing code
- Design something in Fusion 360, run a test print

These steps are the same as last week because of weather delays, exams, and other aspects of life that got in the way. We plan on making headway this week as we've already begun taking steps by drafting an email to Mr. Callavin, signed up for Fusion 360, and begun reviewing the older code.

Conclusion:

This concludes our Week 4 report, we were very disappointed by the weather putting a damper on our ability to make more headway this week. We believe that this week can really put us back on track and we are well on our way.