

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:

For the standard lecture time meeting there was two members sick, and one had an interview which was fine because it was just watching other teams lightning talks and in class, we just talked about what we kind of wanted to get done in the different aspects of the project. We came to the conclusion that the software will take the longest to complete because of its complexity and none of us really have an extensive background in coding.

We meet in the lab and get a deeper understanding of the project and how all the components interact with each other. The software team is setting up visual code studio and after looking into and talking with Professor Meng, it would be more beneficial for learning wise, and for simplicity to start from scratch with the Graphical User Interface (GUI).

For the hardware aspect of this project, we are going to be replacing the LCD/LED with a project array and will be installing it this upcoming week. We also discussed replacing the micro array flow cell with a better one with the help of ETG. Subsequently, we also concluded that the piping system would also need some fixing to avoid any leakage issues.

Individual Contributions

Name	Contribution	Weekly Hours	Hours-to-Date
Caden Wortman	<ul style="list-style-type: none">• Research on the LED and its manual	1	5.25
Evan Walters	<ul style="list-style-type: none">• Did research into GUI in C# for visual studio code.• Helped set up blank project for new GUI	3	8
Colin Frank	<ul style="list-style-type: none">• Did research into GUI in C# for visual studio code.• Helped set up blank project for new GUI	3	7.5
Astha Upadhyay	<ul style="list-style-type: none">• Learning about the working of LEDs and LCDs	2	6.5
Anna Hackbarth	<ul style="list-style-type: none">• Spoke with ETG about part lists, designs, and former team's plans• Downloaded flow control software and experimented with system• Taken measurements for piping system	2.5	7

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
- Improvements in flow cell design
- Begin editing and reviewing 3D printing code
- Create new GUI in C#
- LCD panel update
- Optimize the LED function

Conclusion:

This concludes our Week 7 report, the workload for this class is picking up with the same number of assignments as well as we are now getting into working on the project and seeing what we need to do to make it better and more efficient. We are all ready to start working on / improving existing devices for this project to get it all working together by the end of the semester.

