

## EE 492: Senior Design II

sddec23-05

### DNA Data Storage

*Jan. 2023 – Dec. 2023*

*Client: Professor Meng Lu*

*Faculty Advisor: Professor Meng Lu*

#### **Team Members:**

Colin Frank – Software: GUI

Evan Walters – Software: GUI

Rachel San Agustin – Software: GUI

Caden Wortman – Hardware & Integration: Projector & OxyGEN

Astha Upadhyay – Software: OxyGEN

Anna Hackbarth – Software & Logistics: OxyGEN, Document Management, Website

#### **Week Summary and Updates:**

##### **Past Week Accomplishments:**

- **Evan** – Created a mirror image of the projector input on the main window so the user can monitor the state of the printing process. We also color coded each nucleotide so the user can easily analyze and understand the current progress of the printer.
- **Colin** – Helped at the end getting the mirror image of the projector input on the main screen so the user can monitor the state of the printing process. We also color coded each nucleotide so the user can easily analyze and understand the current progress of the printer.
- **Rachel** -
- **Caden** – After meeting with our professor, I met with the ETG with Anna to get a new plug to replace the current one on the projector with. With the new plug I then attached it to the end of the cord to be able to test our projector alone.
- **Astha** – Went over the OxyGen code and tried to figure out the sections we would need for our fluidic system to work
- **Anna** – Went to ETG and worked privately with ETG to download necessary software onto senior design lab machines. Tested example SDK codes from Fluigent’s GitHub. Briefed Astha on software, next steps, etc.

##### **Pending Issues:**

- **Evan** – We need to add a “status” section so the user can know what specifically is happening. Also, we need to rework the process the GUI uses to display the correct nucleotide to print. To do this, we need to find what array size to use and then split the string into segments and print each of these. This hopefully can be done without creating any new variables and just altering the way the GUI knows what location to place next by a simple shift.
- **Colin** - We need to add a “status” section so the user can know what specifically is happening. Also, we need to rework the process the GUI uses to display the correct nucleotide to print. To do this, we need to find what array size to use and then split the string into segments and print each of these. This hopefully can be done without creating any new variables and just altering the way the GUI knows what location to place next by a simple shift.
- **Rachel** -
- **Caden** – Testing the projector along with the GUI to figure out how they interact together and remodeling the casing on the printer for the projector instead of the LCD board.
- **Astha** – Sorting out the code needed for OxyGen to work
- **Anna** – Visual Studio Code editor needs a specific add-on called NuGet package to connect to Fluigent’s provided SDK codes and support system. Need to work with ETG about this further need. Put integration testing behind one week.

**Individual Hours and Contributions:**

Name	Tasks (9/17 - 9/27)	Hours	Cumulative Hours (F23)
Evan	Making GUI user-friendly	12	24
Colin	Making a GUI user friendly	6	18
Rachel			
Caden	Meetings and Projector Testing	4	12.5
Astha	Meeting Sorting the OxyGen code	3	11.5
Anna	Website coding (2 hr) OxyGEN testing (3 hr) ETG meetings and troubleshooting (2 hr) Documentation work (2.25 hr)	9.25	19.25

**Upcoming:**

These upcoming weeks, we hope to start integration testing the GUI and the projector. We need to finish hardware updates to the projector to allow us to continue testing. We hope to download the NuGet package for Visual Studio Code to begin using Fluigent SDK codes and begin testing with microfluidics system.

**Summary of Faculty Advisor Meeting:**

Our meeting with Professor Meng Lu included demonstrating the progress with GUI, arranging a meeting with ETG, discussing next steps, and troubleshooting the OxyGEN software. We are excited to move forward with integration tests.