Group number: 12

Project title: *Creating DNA from scratch for DNA-based data storage*

Client &/Advisor: *Iowa State University / Meng Lu*

Team Members/Role: *Connor Larson/Software Engineer , Kyle Riggs/Software Engineer , Brandon Stark/Electrical Engineer , Nathan Armstrong/Electrical Engineer , & Lucas Heimer/Electrical Engineer*

o **Weekly Summary**

During the past week, further testing was completed on the LCD screen to find ways to improve the overall power of UV light being emitted through the screen. There was also some work completed on the microfluidic system such as designing and manufacturing components to run baseline tests on.

o **Past week accomplishments**

• Team Member 1 (Connor): This week I continued to work on the software and user interface for the project. This weekend we were able to create more objects within our classes. We have also been reworking the program to set it up for the next steps.

• Team Member 2 (Kyle): I continued working on adding more objects to the software and did some bug fixing. Also, began the process of implementing a new view model that will show the matrix being sent over HDMI to the LCD screen

• Team Member 3 (Brandon): Also worked with the new LCD screen this week. I figured out how to display the correct resolution that is desired for the LCD screen. I assisted in tearing off the LCD screen backing/film.

• Team Member 4 (Nathan): Worked with the new LCD screen and peeled the reflective backing off. Also tried to display an image to the mono LCD screen, but the image never showed on the screen.

• Team Member 5 (Lucas): Worked on redesigning the flow cell after receiving feedback from our advisor. Worked with ETG to get some holes drilled into a test tube for the hoses which will supply the pressurized air and push the fluids out towards the flow cell through a supply tube. Also assisted with LCD testing.

o **Pending issues**

   • Team Member 1 (Connor): We are still having some issues with getting all of the automation to work with the user input.

   • Team Member 2 (Kyle): Some User input in regards to textboxes still isn't working correctly. Also, we need to figure out how to customize the array based on user selected DNA sequences.

   • Team Member 3 (Brandon): Depending on the array size that Kyle will create, we may need to change the resolution or how the LCD screen needs to be displayed.

   • Team Member 4 (Nathan): The mono LCD screen did not work with the HDMI to MIPI adapter, and I accidentally peeled too many layers off of the other LCD screen so half the screen would not display the image from the computer.

   • Team Member 5 (Lucas): Determining the best way to manufacture the flow cell and where that can be done. There may be some issues with the integrity of the test tube housing the fluids being used when the pressurized air is applied. The limitations of the strength of the cap and sealing agents will need to be tested.

o **Individual contributions**

NAME	Individual Contributions *(Quick list of contributions. This should be short.)*	Hours this week	HOURS cumulative
Member 1 (Connor)	Continued to work on the software and user interface	6	54
Member 2 (Kyle)	More object creation and some view model work. Also, research into sending view data over HDMI	6	54
Member 3 (Brandon)	More work with LCD screens	6	54
Member 4 (Nathan)	More work with LCD screens	6	54
Member 5 (Lucas)	Worked on LCD screen testing and designs for the microfluidic system components	6	54

o **Plans for the upcoming week**

   • Team Member 1 (Connor): Need to do final changes to set up the code, then from there we need to build off of it.

   • Team Member 2 (Kyle): Hopefully fix all bugs in regards to the textbox user input. And also get the new view up and running connected to the view model so that can be sent over HDMI.

・Team Member 3 (Brandon): Work with Nathan to try to remove new LCD backing. Work with Kyle in terms of incorporating the software with the hardware. (LCD screen with UI)

・Team Member 4 (Nathan): Try to get the reflective backing off the extra LCD screen we have, as well as help out with the microfluidic system if needed.

・Team Member 5 (Lucas): Will complete the assembly of the microfluidic system now that all the parts have arrived. Will do some preliminary testing of the test tube cap with the holes drilled in to see if there is a way for it to maintain its structure under pressure.

o **Summary of weekly advisor meeting**

In this week's meeting we discussed with Professor Lu the general workflow of the user interface. He walked through the plan he had originally envisioned and shared a workflow document with us. We also discussed the LCD screen and alternative ways to make improvements to the intensity of light that is being allowed through the screen.