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LED Sign Final Writeup

For learning module 6, we worked with LED light strips. A previous student created an LED board using a piece of wood, taped LED strips onto it, and soldered the wires together to connect the LED strips. From that, we were able to power the LED strips using an arduino, and write a program that enables us to turn on any LED at a position and change the colors of them. The board has 144 leds on it, (12 by 12), so in order to turn on an LED you type the position into the line of code along with an RGB code and that LED will turn on. To do this, we also had to install The FastLED library. We also used other online resources to help us learn how to write this code.

We encountered a lot of problems throughout this project. Initially, we were working with a temperature sensor to change the color of the light strips based on how hot or cold something was. Towards the middle of the learning module, we were having a lot of difficulties such as the sensor not displaying proper data or at times not even turning on to work. We didn't seem to be getting very far, so we decided to change our topic. This put us behind a little bit, so we feel that if we initially started with the idea of an LED sign, we would have been able to accomplish more. The bluetooth app went great in terms of prototyping it quickly and implementing a good user interface with the drawing feature we added in. Unfortunately the data being sent from the app was not able to be used by the arduino because of different conflicting variable types being used. We tried a lot of different combinations to find some way for the immense data we would have been sent to the arduino to be read but we could not find any solutions in the remaining timeframe we had. Another problem we ran into was that the soldering connections the previous

student made were coming undone. At first we tried to avoid fixing it but we eventually did. We had to re-solder a few times throughout this learning module. While we were working on the project, the first LED strip stopped working, so we had to undo the connections and resolve the wires and a new LED strip, however when we replaced the LED strip, we put it the wrong way so we had to undo the connections and re-solder it again.

For anyone who might pursue this project in the future we recommend understanding the FastLED library well before you start to edit the code and add things. We think that if we did that the project would have gone a lot smoother in the beginning, because we weren't exactly sure where to start. We also recommend checking the simple things if you run into problems, such as soldering connections and simple errors in the code. Most of the project we used trial and error and if something didn't work for us we tested a variety of different things to figure out why certain lines of code weren't working and how we could fix them, so for anyone else who chooses to pursue this project it is crucial to understand the code.

Overall, although this project frustrated us when we encountered problems that were difficult to get around, we enjoyed working on it. We wish that we had more time to work on this project so we could expand on it more, because although we had a lot of ideas on where we could go with the project, we didn't have time to execute them all. If we were to do this project again, we would have started with this idea so we could accomplish more in the timeframe we had. We would also make sure to understand the code more and focus more on the app so this idea could be more functional. If we did this project again, we could possibly add some type of sensor or get the app to work.