Learning Module #1
Soldering and Circuitry
Charlie and Silas

Learning Module #1 Daily Log

August 29th, 2024 Period F
Day 1
Charlie and Silas

Charlie and Silas watched all of the tutorial videos and began to review the guidebook for the practice kit. They made sure to thoroughly pay attention to the videos and all the instructions, noting important details such as how to properly solder a component, how to distinguish polarities from polar components, and what symbols on the diagram correspond with which components of the circuit.

August 30th, 2024 Period F
Day 2
Charlie and Silas

Today Charlie and SIlas finished reviewing the guidebook and began to solder their first practice circuit; an adjustable siren with flashing lights. They began with the battery mount and then the resistors, using the guidebook to assist in determining the resistance of specific resistors and soldering them into the right places on the circuit board, at first their soldering technique was very unprofessional as they didn't have much experience, but at the end of the day they started to see clear improvements in their skills.

September 3th, 2024 Period F
Day 3
Charlie and Silas

Charlie and Silas continued soldering the siren circuit today, they attached the PCB, the adjustable resistor and the remaining resistors. They had planned on finishing the circuit with the transistors, LEDs, and the speaker today but there was a problem with the soldering iron where the tip was not getting hot enough to melt the solder, so they spent the remainder of the day testing different soldering irons until they found one that worked for tomorrow.

September 4th, 2024 Period F
Day 4
Charlie and Silas

Charlie and Silas finished the siren circuit by soldering the transistors, LEDs, and the speaker. They connected a 9v battery to the battery mount and turned the circuit on, the LEDs flashed in sequence correctly and the siren made a high-pitched tone, but the sound did not oscillate with the lights as they should, the adjustable resistor did successfully change the speed at which the LEDs flashed and raised or lowered the tone of the speaker so aside from the issue with the sound, the circuit worked as it was supposed to.

September 5th, 2024 Period F
Day 5
Charlie and Silas

After finishing the previous project yesterday, Charlie and Silas began to work on a new circuit; a traffic light that automatically changes colors. Today they reviewed the manual and familiarize themselves with the pieces and diagrams. They then began to solder the components to the circuit board, starting with the resistors, and after all of them were attached, they moved on to the diodes, soldering half of them before cleaning up for the day.

September 6th, 2024 Period F
Day 6
Charlie and Silas

For the final day of the project, Charlie and Silas worked more on the traffic light circuit, they soldered the rest of the diodes into place as well as the capacitors, the switch, the variable resistor, and the PCB socket. However, they ran out of time and were unable to attach the battery mount and LEDs.

Learning Module #1 Final Report
Charlie and Silas
Soldering and Circuitry

- What did you learn from this activity?

Charlie and Silas learned how to correctly and efficiently solder electrical components to a circuit board in order to create a working circuit to perform some sort of function. In their case it was a siren / blinking light circuit and a stop sign circuit. They also learned what each of their components they soldered did for the circuit as a whole (their function).

- What problems did you encounter and how did you deal with them?

With Charlie and Silas trying to work as quickly and efficiently as possible while learning as much as they could, they did make some mistakes while soldering. They soldered one of the polarity dependent components on the wrong polarities, so they had to utilize the desoldering tools at their disposal to fix their mistake. They also had some comprehension questions regarding their manual with the instructions on them. They would either ask Mr. Detrick or research clarification on google.

- What suggestions do you have for others who might pursue this activity?

Charlie and Silas would recommend reading the manual closely and carefully while seeking clarification for any parts that are unclear. Read the manual over multiple times if needed. Watch all linked videos on the basics of soldering to gain a grasp on basic soldering technique and safety. They also would recommend taking your time and trying to learn and fully understand the process to solder each component and their function. Try to gain as much knowledge about soldering as possible, do not just read instructions robotically and perform them with no thought or questioning.

- A summary of your experience.

Charlie and Silas's experience was well with soldering and circuitry. Their mistakes helped them grasp the concept of soldering and the functions of the circuitry even better than if they wouldn't have made any mistakes. They were able to successfully and correctly complete the siren circuit, however after they started the stop sign circuit they did not have enough allotted time in the learning module to complete it.

Resources:
https://www.instructables.com/id/How-to-solder/
https://www.makerspaces.com/how-to-solder/
https://www.youtube.com/watch?v=Qps9woUGkvI
https://www.youtube.com/watch?v=ogV2xU1fee8
Materials:

- Soldering Gun
- Sponge
- Solder
- Soldering Gun Holster
- Practice Soldering Kit
- Stop Sign Soldering Kit