Week 8
Stephen Heussler

Project Identity
Freely Adjustable and Accessible Keyboard and Arrow Pad for Client with Cerebral Palsy

Work Completed

This week Noland and I continued our work on the keyboard and arrow pad. While Nolan worked on programming the control board, I finished designing and fixing up the PCB.

As mentioned last week, we will not be able to put LEDs behind every key. So instead of lighting up two rows, which was our original plan last week, we decided to put the LEDs only behind the arrow pad. We figured that this was the highlight of our keyboard, so it would look nice if we had that part of the keyboard illuminated. Figure one below shows a picture of the PCB circuit of the arrow pad, with the LEDs wired as well.
I rewired the PCB so that it looks as neat as possible, while using the least amount of wire as possible. I emailed PCB Express asking what the minimal distance between traces was, and I was told that .007 inches is the minimum. I was using .025" traces, and by placing them .05" apart, this leaves .025" of space in between. This leaves enough room so that the PCB is safe, but at the same time keeps the traces fairly compact. Figure 2 below shows the finished PCB, minus the screw holes.

![Figure 2. PCB](image)

The completed PCB measures 13.5" across and 5.6" tall. The wiring of the contact points that connect the PCB and the control board was somewhat difficult, but I tried to keep it as compact as possible. Figure 3 on the next page shows a close up of that part of the PCB, showing the wiring.
Future Work

This week Nolan and I plan to review our PCB with Bill and order it.

We also plan to start building the case for the keyboard. I have been machine shop certified over break, so Nolan and I can use the machine shop to cut our PVC to the correct dimensions. We will use MS Visio to obtain the correct dimensions for cutting the PVC.

Nolan will also continue to program the control board, and will soon finish with the program.

Project Review

Our project has been moving along smoothly and is a little behind schedule. With the ordering of our PCB, we will only have to solder the keys and electronic components in. Then we have to finish the external casing construction and the project will be fairly complete.
Hours Worked:

~12