Project Identity

Freely Adjustable and Accessible Keyboard and Mouse Pad for Client with Cerebral Palsy

Work Completed

This week I was able to finish the programming on the keyboard. When programming the device I used two layers. The first layer includes all numbers 0-9, all lower-case letters a-z, Backspace, Enter, Spacebar, Tab, Shift Lock, characters { - = , ' ; / }, all mouse pad keys (left click, right click, double click, left arrow, right arrow, up arrow, down arrow). The second layer includes the characters above the numbers { ! @ # $ % ^ & * ( ) }, additional characters { _ + : " ? }, all upper-case letters A-Z, Backspace, Enter, Spacebar, Tab, Shift Lock, and all mouse pad keys. The Caps Lock key was changed to Shift Lock for a specific function. The Caps Lock key can only make a letter capital and cannot shift between layers retrieving other characters. The Shift Lock key switches between layers and does not require the user to hold only to the key while hitting a second one. This is important since our client lacks the ability to hit two specific keys at the same time.

Using Visio I was able to describe the way the rows and columns were organized and programmed. The reason for such rows and columns being arranged in this order was to help in the PCB making process. Figures 1 and 2 show the layouts of rows and columns.

Figure 1: Rows 1-5
Steve was able to complete the PCB design. Unfortunately the LED circuit could not be completed the whole way through due to the configuration of our keyboard. Therefore in order to keep some backlighting we were able to use an LED circuit for the Mouse Pad (the 7 keys on the bottom right). A picture of the final PCB design is displayed below.
Future Work

Next week Steve and I will begin the construction of the keyboard. Using our purchased PVC we can design this section of the project. Also we will make a trip to Mansfield Supply for a rubber bottom, hinges, locking mechanism, and screws.

Also now that the PCB is complete, we can have it reviewed by Bill and ordered. We would like to get this part in as soon as possible so we can assemble the switches and components.

Project Review

Much of the weight of this project lies on the PCB. When this component is received major work will be able to be accomplished. The electrical assembly as well as the integration with its external architecture is the future work that lies ahead. We are not behind schedule yet. Steve and I would like to speed things up once the PCB arrives in the lab.

Hours Worked:
~12