

Project Identity

Accessible Blood Glucose Monitor Interface

Week # 10 (March 27 – April 1, 2006)

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Work Completed

This week I primarily spent working with the vial scanner circuit. After the circuit was built, it would give the scanner power, but the scanner would not emit the IR to scan anything. The setup of the circuit allowed the scanner to be bus powered meaning it would draw its power from the USB port. After having difficulties with this, I tried a different power circuit that would make the scanner self powered. This setup didn't work gave no results, so it was quickly unassembled and the original was put back together.

In trying to trouble shoot the bus-powered circuit, I opened the scanner and began to poke around with the oscilloscope to see what voltages were at what pins. I then plugged the scanner into the USB of the computer, where it works properly, and compared. What I noticed was that some of the wires coming straight off of the cord were not being powered correctly. Figures 1 and 2 are drawings of the wires that come out of the scanner USB cord and going into a 6 pin plug on the printed board inside.

Figure 1. Voltages when Plugged into a PC

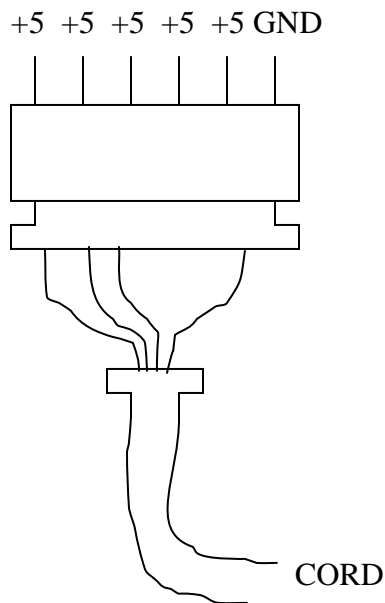
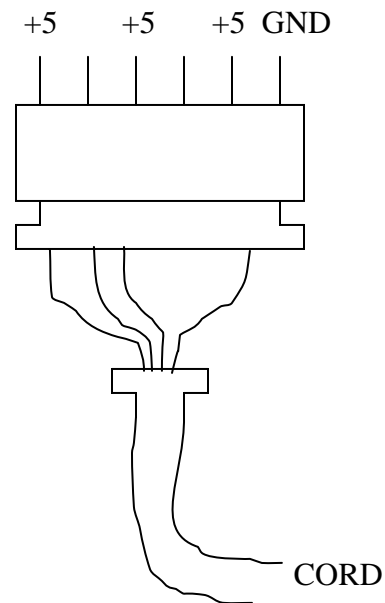


Figure 2. Voltages when Plugged into the Circuit



As can be seen, when the scanner is plugged into a PC, all of the pins are powered with +5 volts. However, when plugged into the bus-powering circuit, only 3 of the 5 pins had a voltage on them. This brought forth a few questions. Mainly, why is this happening, but also, not every pin had a wire going to it. This means that the 5 volts on that pin must be coming from somewhere in the scanner and not through the cord. And if so, why isn't that happened with the circuit.

After observing this difference in voltages at the pins, I decided to apply +5 volts to one of the pins, and see if that would do anything. That was somewhat successful. After I would touch the second pin from the left with +5 volts, the scanner would emit the IR reader and scan barcodes. However, it still wasn't transmitting any data. It would beep, and the indicator would flash green, meaning it was a successful scan, but no data would show up anywhere. So this was the next problem.

Much time was spent trying to get the scanner to work, but little success was made. After a few hours, the scanner even stopped scanning completely. Due to time constraints, and the fact that the scanner was just a nice option, it was decided that the vial scanner may not be necessary for the project.

Future Work

In the upcoming week, we will be finalizing the PCB layout, and getting it ordered. We will also be putting out a final parts list consisting of all the components that will be needed to build the circuit on the PCB. Upon the arrival of these items, we can begin the assembly of our prototype.

Project Review

Everything has finally come together. At this point, we can get relatively accurate results, which can be displayed on a LCD screen as well as talked through a speaker. The interface is very simple and would require very little assistance, if any for a visually impaired person to use. It has finally come to the home-stretch of the semester, and I am very pleased about what we have accomplished thus far.

Hours Worked: 15