Work Completed

This week we received our PC board from PC Express and our box from Bud Industries. The box that we are using has ample room for all of our components and everything will fit together nicely.

I have designed how everything is going to be placed within the box. The front of the box will have three holes, one for each motor that will be running in. To the left of this is the two holes for the transducer connections. The PC board will be drilled into the base (from the bottom up) using flat head screws that I will need to pick up from the machine shop.

The holes that I drilled for the motors wires were 0.210’’ in diameter. This allowed enough room for the wire to be able to snugly fit into the box. The diameter of the transducer connections were 0.70’’. Since the largest drill we have is ¼’’ in diameter, I had to drill with that and then shave the hole to allow the transducer connection to fit inside.

I went to Mansfield supply and purchased some materials that I will use for the box. Since I did not want to have to wait for a purchase order to go through I just paid for the items from my own pocket. If we will be able to get reimbursed for that purchase I will be happy, however I won’t be concerned if we cannot.

I bought eight wire chafes. These are rubber connections that will help bind the wire in place to the box. I did not want to glue the wire itself to the box, so instead we can use adhesive to connect the rubber wire chafes around the drilled holes and then run the wire through it. In this fashion the wires will be held in place, however, if needed they could be replaced. The wire chafes will be secured to the box using an adhesive that I
purchased. The adhesive is silicone sealant and will be able to secure the wire chafes to the sides of the box.

I also bought polypropylene hanger straps. This is a belt-like plastic coil with a width of ¾” that I will be able to use this to strap down the USB 6210 and the RS485 converter into place in the box. The coil came with a length of ten feet so we will have more than enough for our components. The straps will be drilled from the bottom and then secured to the base of the box using a nut and washer.

I also purchased multiple screws to screw the PC board and the straps down. However I did not end up purchasing flat head screws so I am going to have to get more of those.

To connect the voltage to the PC board in the box I am using the lead wire connections from the EKG that we made earlier in the semester. Bill gave me the end lead connections from a project from a previous semester and I am going to use the end lead connections from my own project as well. This will allow the user to plug in the voltage connections from the power source that we will supply. I originally had wanted to use the original wires in whole, however the back of the wires are alligator clips and cannot connect to our voltage source. This is why I need to remake the lead connections so that both ends can plug in.

The voltage source that we have has two connections. They are labeled 13.8 + and 13.8 -. One of these connections however is the ground and the other is the actual source of power. I tested the connections and it turns out that the + output is the voltage output and the – output is the ground connection. This is important and must be explained in the users guide in our project so that researchers understand that there is actually a ground and that they are not just connecting two voltages into the circuit.

The total cost for everything that I purchased came to $14.55. Once again, it would be nice to get reimbursed. However I’m not entirely concerned about it. I want to make sure this project is moving and we cannot afford to keep waiting for purchase orders to run through. I was unable to use the BME office’s credit card because Jennifer
had already left on the day that I was going to Mansfield Supply.

I have drilled holes for the connection that the lead wires will connect to. The lead connections were 0.306” in diameter and I used a drill of diameter 0.315” to make the hole. The connections are secured from the back using the nut that it came with.

Project Review

Things are coming along and I will be able to finish all of the electric connections and their enclosure in the next few days. The project itself looks like it will be finished by the end of the semester.

Future Work

This upcoming week I need to drill holes for the RS232 wire and the USB wire. I also need to do all of the soldering for the PC board and make sure that wires are soldered from the EKG connections that I added to the box and running to the appropriate connections on the PC board. I need to connect all of the wires to the box and make sure that the wire chafes are secured to the side. Finally we need to test everything and make sure it works. The box will be finished by next week and ready to connect everything in the project.