Work Completed

This week we have worked on the details of the construction of the wire tester. We have started to detail the instructions on how our manufacturers will need to put everything together. This is very important, because since we are not putting it together ourselves, we will need explicit instructions so that it is easy for anyone to understand.

The first step to this was to get the users manual for the linear slides that we are working with and find out the exact dimensions. After this was done we figured out the size that the base of the device should be. The dimensions of the slide are shown in the following figure:

Figure 1. Slide dimensions
The slide that we will be using is the 6 inch slide. Thus as shown on the preceding page, the total length comes to 11.125 inches. Therefore a good size for the base of our device will have to be a square of aluminum that is 18x18 inches. This will make sure that there is adequate room for the slides, while minimizing the size of the device. Our contractors had previously mentioned they wanted something that was of a relatively small size so that it could fit conveniently in their lab.

There will be a block of aluminum that will be used to mount the sensor. This block will be mounted onto the slide on the linear slide. The reason for this is that we do not want to drill directly into the slide, since it will come attached to the lead screw on our device. Instead we will screw the sensor into a block of steel and then proceed to mount that on the slide using T-Nuts purchased from Anaheim Automation. The dimensions for the block placed on the slide will be 3.30x3.30 inches, which is the same dimensions of the slide itself.

This sensor is approximately 17 mm, so it is approximately 3 times smaller than the slide itself. It will be placed in the center of the slide and then our attachment point will be mounted on its face using the sensors mounting adaptor. A diagram of the sensor is shown in the following figure.

Figure 2. Dimensions of NANO17
The three larger holes shown on the left of the diagram shows where the screws will need to go into the sensor. All of the wiring for our sensors will run off the base to our SCXI box that we will be purchasing.

I have been learning to use CADKey and have started designing our device on that program. This program will be useful to our manufacturers because its features are based off creating objects that have the exact ratio dimensions that it will be. This week I have learned the basics of the program and I will finish the drawings soon. We met with our contractors this week and they specified that they want the base of the wire tester to be drawn within the next few weeks. This will allow them to start constructing it.

**Future Work**

In the next couple of weeks we need to get all of the drawings for this device done on CADKey. This will allow our manufacturers to see exactly what we want and then they will be able to start machining our parts. The first thing that they want is an accurate drawing of the base that we will be using. They need this done within two to three weeks. This will ensure us that when we get all of our parts we can just send them in and have everything put together.

We also need to get together explicit directions on how everything will be machined. We need to figure out the exact screws that will be used and write up directions on how to mount everything onto our linear slides. Our manufacturers will then follow those directions.

**Project Review**

The project is coming along. The programming is practically finished and we are continuously communicating with our contractors to make sure everything is to their satisfaction. So far they are happy with how everything is going and are work will suit all of their current needs and future needs. The CADKey drawings are essential to the final construction of the whole device and they soon will be done. After which, we will spend the remaining time testing our device to make sure that it runs accurately and efficiently.