Work Completed

We started our work last week by trying to test our 418KH transmitter and receiver using the KH transmitter, receiver evaluation board. These boards are powered by a 3V CR2032 lithium battery that was purchase last week. After testing the output voltage at a different point of the two boards, we found that the receiver evaluation board is broken, so we couldn’t test it.

Also last week and after getting permission from Dr. Enderle, we placed the order for the flexiforces. Based on the measurements that we did and using the footswitches as template, we ordered two of the 2 inches, 4 inches, and 6 inches flexiforces.

Also last week our TA Bill suggested that we use an A/D converter chip instead of using a microprocessor, and that will save us some work and time on programming the microcontroller. For that reason, we did some research and ask some expert people, where they all suggested using a microprocessor.

The problem with using an A/D converter chip is that, once it has converted the data from analogue to digital form, it won’t know what to do with these data. So we still need a microcontroller or elaborate digital circuit to take the data and transformed or do something with it.

Another advantage is, when using the microprocessor, we could store the data in registers and use it in a variety of ways.
Another question we had to look for an answer to it is, if we could possibly use the 433KH antenna with the 418KH transmitter/receiver. For that reason, Angela contact Linx technologies, and there response was that it will work but not very well but The 418MHz carrier would see a very high VSWR (Voltage Standing Wave Ratio) with most of the transmit power reflected back from the antenna with the possibility of the transmitter creating a lot of undesired harmonics. What did couple into the antenna would be very much attenuated.

On the other side, Kimberly was talking to different expert people about our circuit and programming the microprocessor. They suggested that we built two different telemetry boxes, each will calculate the data from the footswitches and flexiforces for a different foot. Also they suggested that we use different frequency range on the transmitter, receiver, and antenna for each box. First we decided to use the 916KH range of transmitter, receiver, and antenna. Than we found that these types don’t
have an encoder/decoder built inside of it. Now our plan is to use the 433KH range instead of the 916KH. We also did some overview on the excitation circuit for our flexiforces and we found out that we needed to order a 3pin connector and also a MC34071AP operation amplifier.

**Future Work**

The main thing now is to decide which frequency range are we going to use for the second box and place an order immediately so by next week will be able to built both circuit at the same time. Also we need to find more information on our microprocessor regarding the program. In addition, we have to make a decision on the material that we are going to use for the insoles to the flexiforces.

**Project Review**

If we could design our circuit board or a big part of it by next week, we will head in the right direction. Otherwise, we are going to be behind in our timeline especially that we have 6 weeks left before our project is due.

**Hours Worked**

13 hours