This past week we finally got the Hi-Tech C compiler up and running on our computer, and I immediately started familiarizing myself with the way it works and how to generate assembly language programs. Using the C sample program provided, I was able to successfully compile it and convert it into an assembly language program which is compatible with MPLab. When compiled in MPLab, I had no problems.
I also spent some more time using the SP03 speech module, and learned that we will need to utilize a Max-232 chip which will convert the 3 volt logic produced by the speech module to the 10 volt logic required by the RS232 communication on our microprocessor. As can be seen from the diagram, the RC6/Tx pin on the microprocessor inputs into pin 11 on the Max232, which is denoted T1in. From here, the information is sent out pin 14 (T1out) to the Sp03 module. In the same fashion, the RC7/Rx pin on the microchip is sent to pin 13 (R1 in), then out to the Rx pin on the Sp03 via R1 out on the Max232.

**Figure 1:** Max232 Connections
We also began thinking about how we are going to implement our Bluetooth connection to our device, and we encountered a slight problem. Bluetooth requires a USART connection with the microprocessor, but we already are utilizing the USART with the speech module. After discussing our possibilities, and the pros and cons of each, we decided that we will incorporate 2 microchips, one for the Bluetooth, and one for the speech module. Our preliminary idea is that data from the transducers will be sent to both chips, but in one the data will be sent to the speech module and LCD screens, while the other will be strictly for the Bluetooth connection. We set it up so the LCD and speech module will be on the same chip, due to the fact that each signal has to be displayed on the LCD screen the same time as the speech module speaks its result. Doing it this way would only require us buying another microchip, which is fairly inexpensive.

Project Review:

The weekend I was out of town so I did not get as much done as I had planned. Although we are making progress in the processing and speech module connections, I would have like to have a little more completed. The rest of the week I plan to devote as much time into both these areas as I can to make significant progress before spring break. As far as the project is going as a whole, I feel like we are moving at a steady pace. The weight, temperature, and respiratory rate are near completed, and Jenna began working on the pulse oximeter probe which will also generate the pulse.

Total Hours Worked: 9