Week 4 Group Report

Accessible Home Vital Signs Monitoring System

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Week 4 Accomplishments

- Rob worked on the processing code for the monitor and the ADC code written in C
- Mike continued with the scale and started to write the code for processing the scale’s signal
- Jenna received and tested the pulse oximeter, finished the thermometer probe, and found the scale’s load cell output
ADC Code

- Rob wrote the ADC code in C (for 1 channel)
- Sample:

```c
#include <pic.h>
#include "delay.h"

void initA/D(void)
{
    ADCON0=65;    // select Fosc/32
    ADCON1=128;   // select right justify result, all A/D port configuration
    ADON=1;       // turn on the A2D conversion module
    DelayUs(50);  //using delay.h – 50us
}

/* Return an 10 bit result */

unsigned int ReadADC(unsigned char ADC_Channel){
    volatile unsigned int ADC_VALUE;

    /* Selecting ADC channel */
    ADCON0 = (ADC_Channel << 3) + 1;   /* Enable ADC*/
    ADIE = 0;                          /* Masking the interrupt */
```
SP03 Module

- Will use USART
- RX and TX pins on SP03 will connect to RC7/RX and RC6/TX pins on microprocessor
Scale

- Load cells are located in the bottom, rear corners.
- Positive and negatives leads from each cell terminate together on the PCB.
Scale continued

- Soldering leads out from the load cells
- Something must have been crossed and disconnected because some signal is being lost to the LCD
Assuming the force transducers are load cells, voltage is our interest.

However, if load cells usually output less than 10mV/V and the excitation signal for the scale is ~9V from that battery, we should see around 90mV.

<table>
<thead>
<tr>
<th>Weight</th>
<th>Voltage</th>
<th>Resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 pounds</td>
<td>6.05V</td>
<td>86.7MΩ</td>
</tr>
<tr>
<td>120 pounds</td>
<td>.01mV</td>
<td>.28Ω</td>
</tr>
<tr>
<td>180 pounds</td>
<td>.01mV</td>
<td>.22Ω</td>
</tr>
</tbody>
</table>
Thermometer

- Probe finished with cable that terminates in 1/8” mono phone plug
- At ~98°F (32 degrees C), R=32kΩ
- This does not match previously determined values
- Resistance curve needs to be redone
Future Work

- Rob: Compile ADC and LCD screen code if lab software problems are resolved
- Mike: Finish with scale, investigate XBEE wireless module
- Jenna: Place parts orders for Bluetooth module, build thermometer circuit, finish scale, work on blood pressure system when pump comes in
Hours Worked

- Rob: 16 hours
- Mike: 10 hours
- Jenna: 14 hours

- Budget spent to date: $668.03