Accessible Home Vital Signs Monitor

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Week 7 Report  
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Current Work

As I had mentioned last report, I set up a meeting with John Chandy of the Electrical and Computer engineering Department to take a look at my code. He made some recommendations that were very helpful to me, which enabled me to advance further on my programming.

This week I hooked up Jenna’s thermometer circuit to the microchip in an attempt to display the voltage of room temperature on our Crystalfontz LCD screen (shown below). 

In doing this, my sample program needed to be first compiled and built on MPLab. This is where I encountered some problems. In addition to my main program, I have included header files and other source files which have to be called upon when ready to use. All of these programs compiled fine in MPLab, but when I went to “build” the program collectively, I came across 2 errors which I haven’t figured out what they
are. Once we get the Temperature working, we can then work on integrating the rest of the probes into the design.

Since Jenna has found a company to partially sponsor our Bluetooth development kit, it is time to start thinking about the code and how the Bluetooth device will send our signals to the computer. The Bluetooth kit we are going to get works much like the wireless cellular headsets that have recently been released out into the market. We have to program the receiving end to continually search for other Bluetooth devices in the area (specifically the one attached to our monitor). In researching this, I find some sample code on the internet which detects nearby Bluetooth devices.

```c
#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>
#include <sys/socket.h>
#include <bluetooth/bluetooth.h>
#include <bluetooth/hci.h>
#include <bluetooth/hci_lib.h>

int main(int argc, char **argv)
{
    inquiry_info *ii = NULL;
    int max_rsp, num_rsp;
    int dev_id, sock, len, flags;
    int i;
    char addr[19] = { 0 };
    char name[248] = { 0 };

    dev_id = hci_get_route(NULL);
    sock = hci_open_dev( dev_id );
    if (dev_id < 0 || sock < 0) {
        perror("opening socket");
        exit(1);
    }

    len = 8;
    max_rsp = 255;
    flags = IREQ_CACHE_FLUSH;
    ii = (inquiry_info*)malloc(max_rsp * sizeof(inquiry_info));
    num_rsp = hci_inquiry(dev_id, len, max_rsp, NULL, &ii, flags);
    if( num_rsp < 0 ) perror("hci_inquiry");

    for (i = 0; i < num_rsp; i++) {
        ba2str(&((ii+i))->bdaddr, addr);
        memset(name, 0, sizeof(name));
        if (hci_read_remote_name(sock, &((ii+i))->bdaddr, sizeof(name),
            name, 0) < 0)
            strcpy(name, "[unknown]");
        printf("%s  %s
", addr, name);
    } 

    free( ii );
    close( sock );
    return 0;
}
```
Project Review

This week me and Jenna were sick, so our project is slightly behind where it should be. Friday I plan on putting in extra hours to make up for valuable time that was lost this week. Programming the Bluetooth module will also be a challenge, so hopefully Friday will be a productive day in the lab. Our probes are also coming along at a steady pace which is good, and we hope to have them all finished within the week.

Future Work

As I previously mentioned, Friday my day will be devoted to the LCD and Bluetooth programming. I anticipate this week will be much more productive than last week, due to the fact that I have no exams and I will hope to be feeling better. We also will be looking into casing for our project this week.

Total Hours Worked: 6