

# gPod Accessible Blood Glucose Meter

Week 6  
February 26, 2006  
David Price

## Work Completed

This week I started programming the microprocessor using the Hi-Tech PICC compiler. The beginning of the week was spent working with Hi-Tech technical support to resolve an error with the compiler and MPLab. When I tried to compile a sample program suggested by Hi-Tech as a test the build failed. Checking the output file of the compiler I discovered an Error [000]: Compiler not installed correctly. After spending a day emailing back and forth with technical support it was determined that the activation code sent to the university was incorrect. The compiler activation program accepted the faulty activation code and failed silently, never alerting the user of the problem. I received a new activation code and the program works successfully.

After getting the Hi-Tech compiler working I wrote code to use the analog-to-digital converter using C programming language. The code was modified from an example included with the compiler. Modifications were done to adapt the code for a 20 MHz clock and to configure the pins necessary for our design.

I also spent more time this week trying to communicate with the speech module. I encountered problems where the command I was sending to the module was getting corrupted in transmission to the speech module. I believe the problem is due to a mismatch in baud rate with the RS232 port on the computer. I also wrote some microprocessor code to try to communicate with the speech module. Figure 1 shows the data signal being generated by the microprocessor. Figure 2 shows the same data signal being produced by the demo software and the computer. More work will be done next week to resolve this issue.

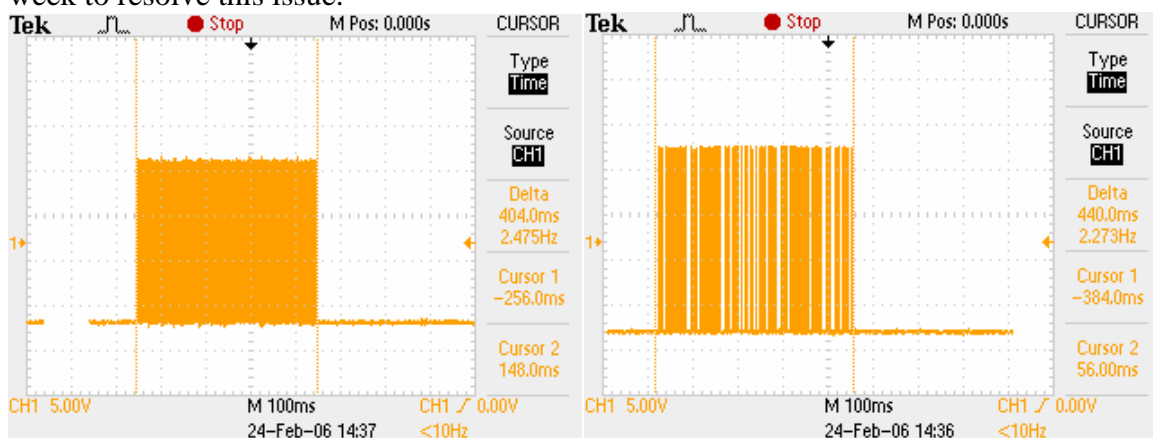
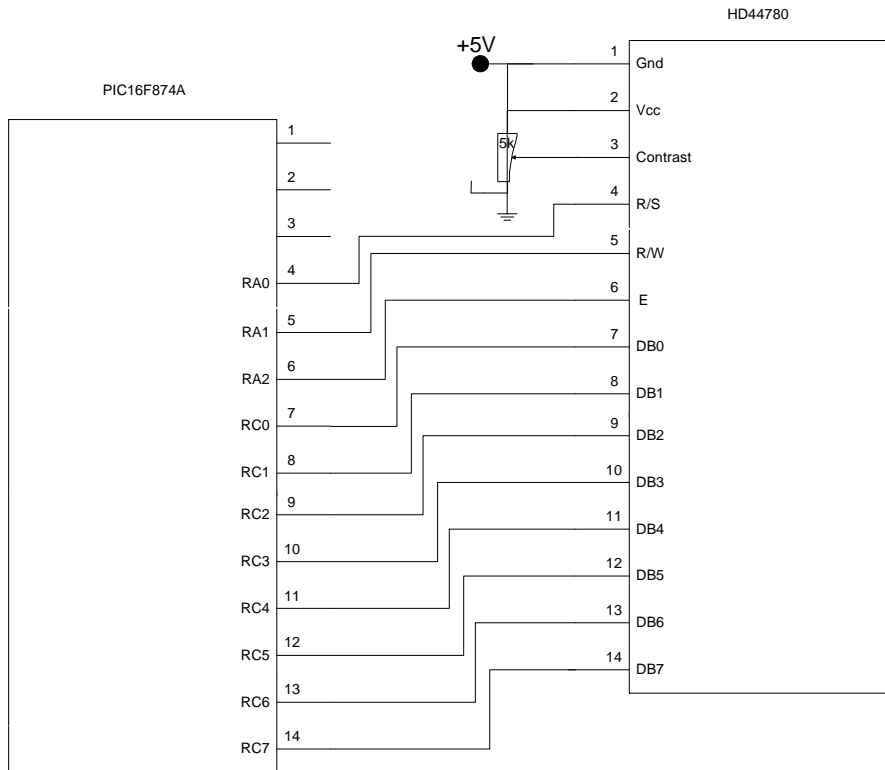


Figure 1, Microprocessor USART signal.

Figure 2, Computer RS232 signal.

Additional work was done to interface a standard LCD screen with a HD44780 controller. Figure 3 shows the connection diagram for the LCD screen and the microprocessor.



**Figure 3, LCD connection diagram.**

### **Future Work**

This week I will continue to work to integrate the speech module to the microprocessor using both the SPI/UART and the parallel data inputs. I also will work to get the LCD screen working correctly with the microprocessor. After each individual portion of the project works separately with the microprocessor I will begin integrating each portion of the software to produce a single block of code.

### **Project Review**

The microprocessor work is moving slower than expected. This week looks to be very productive with the microprocessor. Hopefully by the end of the week I will have all three systems working with the microprocessor and will be able to integrate all of the code. The glucose circuit is nearing completion and the glucose curve data will be analyzed and finished very soon. The speech module will be communicating with the microprocessor by the end of the week as well as the LCD screen.

### **Hours Worked**

Hours spent on the project for Week 6: **33 Hours**