

## **Project Identity**

Accessible Blood Glucose Monitor Interface

Week # 9 (March 20 – March 24, 2006)

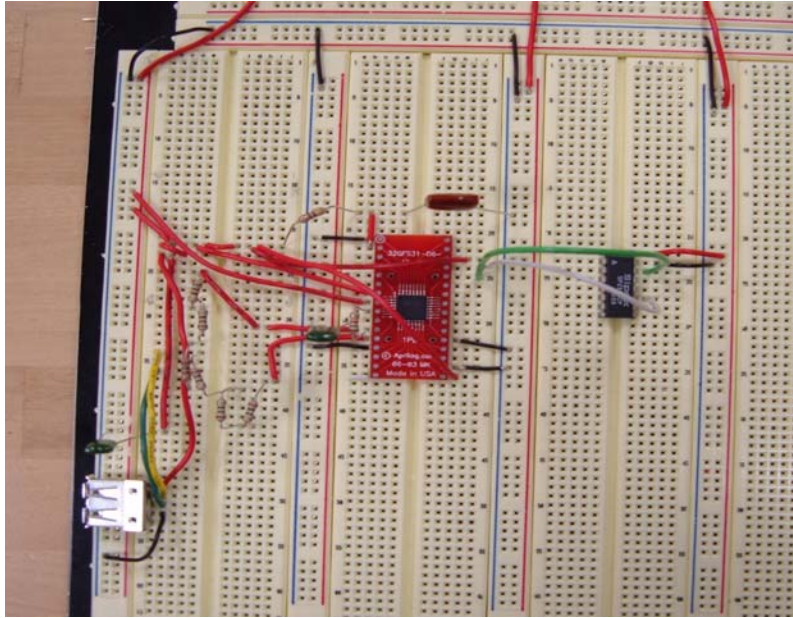
Mike Rivera

## **Work Completed**

In the beginning of week 9, we were having some issues with getting accurate results from the circuit. There are many factors though, that have a role in producing the measurements and then displaying them on the screen. I made the assumption that all the written code was correct, and the time delay was working, and decided it must be the glucose-voltage curve that was inaccurate. We were now using a different batch of test strips, so the curve being wrong is very possible. To conserve on strips, I only did a seven point test, meaning I spaced out concentrations between 30-300 mg/dL in seven values. I also just wanted to see if the curve would even be significantly different. After completing the tests, and doing the Excel analysis, it proved to be very different. The original equation for batch '2' test strips was  $Y = 922.23X - 22.903$ , where Y is the glucose concentration, and X is the voltage at 2 seconds. The new equation for the batch '22' strips came out to be  $Y = 461.74X - 18.876$ . These two equations are very different, all more than expected, and could undoubtedly be the reason why the measurements were coming out wrong. Different batches of test strips clearly have different voltage responses to the glucose. After computing the new curve, I gave it to Dave so he could fix the code. We then tried a couple tests using strips to see if that had been the problem. Unfortunately, the numbers were still coming out wrong. We spent significant time trying to trouble shoot this, and it seemed that the program was not taking the voltage measurement at the right time. Dave had some ideas on how to fix it, so this issue should be resolved shortly.

The later part of the week I spent working on the scanner circuit. The scanner uses a USB connection to attach to computers, however our microprocessor has serial capabilities. The circuit that I built allowed the scanner to be bus powered, as well as integrated a FT232BM chip for USB to RS232 conversion. Figure 1 shows the circuit built on the proto-board.

Figure 1: Vial Scanner Circuit



### **Future Work**

In the upcoming week, I will be working more with the scanner, as well as helping the group bring everything finally together. It is the final weeks and our project now needs to be boxed, packaged, and made into something presentable. Also, probably not this week, but in the upcoming weeks we will begin our field testing. Essentially we will be asking other peers who have never used a glucose meter before to use ours. This will allow us to see just how simple and logical we have made it, and possibly show us a few changes that might make it better before our presentation.

### **Project Review**

This week was a very productive one. Parts of the project are finally coming together and being integrated as one. The only major component left to be incorporated is the sound. Although this is a huge portion of the meter, I feel as though a working prototype will be accomplished very shortly.

Hours Worked: 18