

# gPod Accessible Blood Glucose Meter

Week 11  
April 2 - 7  
Matthew Bularzik

## Work Completed

This week was spent mainly on the final modifications to the PCB board layout and the circuit diagram. Dave finished the whole circuit layout including the switch and voltage regulators. The final PCB board layout can be seen below in Figure 2. While Figure 1 below, shows the final circuit schematic.

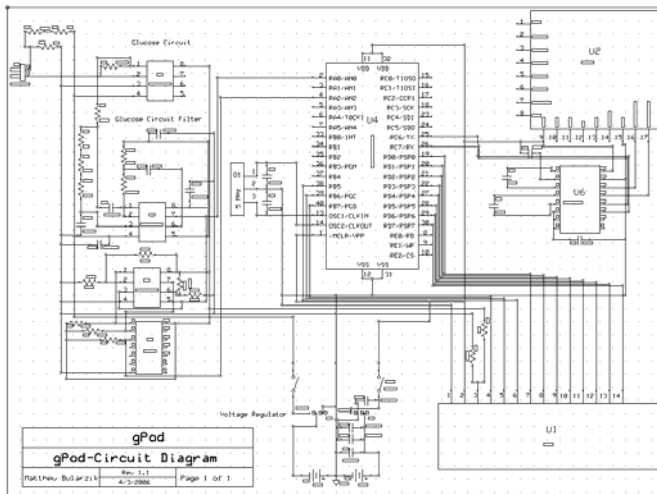


Figure 1: Circuit Schematic

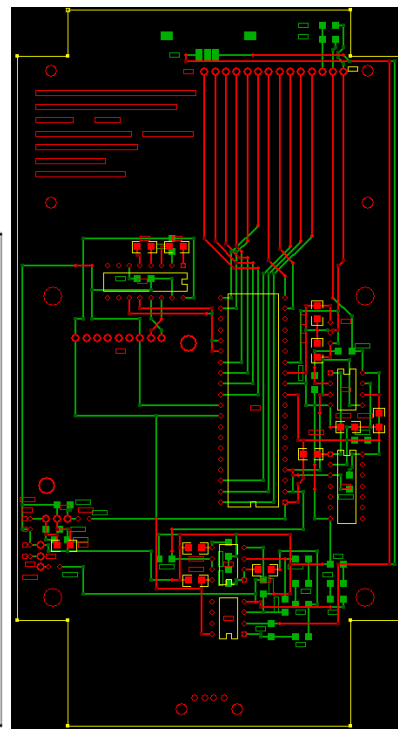


Figure 2: PCB Diagram

The changes that were made to the circuit from the previous design were:

- A 7805 voltage regulator was added for the +5V source along with the necessary capacitors.
- A 7905 voltage regulator was added for the -5V source.
- Place of the switch was corrected.
- Voltage divider on PIC pin 4 was removed.
- The layout of the PCB board was modified to allow for the SP03 module to be mounted to the PCB board.
- A few connections that were incorrect were fixed.
- Labels were added to the board.

- The LCD screen pins were flipped due to it being mounted on the front side of the board.

Ordered and received the final parts order from Digi-key. While looking at the ordered parts it was realized that the resistor and capacitors were just about too small to surface mount for Dave. So the PCB layout was modified to use a larger size code and a new Digi-key order was drawn up. An order for another SP03 speech module was drawn up and received as a back up in case the current one breaks. Finally, an order was placed to Mouser for a USB to Serial converter for use with the barcode scanner. This adaptor was supposed to allow for the USB barcode scanner to communicate with the microprocessor by serial input. Thought attempts to use this have failed so far.

I spent the rest of the week on the casing issues such as the battery case. I started by modifying a regular 9V battery holder which in the end still would not fit in the gPod case. Then I tried using the 9V battery leads that were previously tried and then adding a spacer in between the two batteries. The spacer that was added keeps the batteries from rattling around the battery compartment. Then I started to think about the casing for the vial scanner. A possible case was found in the lab which should fit the 2 PCB boards from the barcode scanner, a 9V battery since it will need power, and the cylinder insert for the vial to be inserted into. This cylinder insert was created by modifying a container that the test strips were stored in. The plastic lining to the strip container had to be taken out. Then a small strip was cut from the side of the cylinder so that the barcode could be scanned.

### **Future Work**

The PCB board should be sent out this week along with an updated Digi-key order. Once the PCB board arrives the final casing modifications will be done for the power switch and the test strips. Also the PCB board will be soldered and then the whole thing should be assembled. The final report and users' manual should also be finished by the end of the week.

### **Project Review**

The printed circuit board layout is complete and ordered. Final assembly and testing will occur in the next week. Total costs to date are \$1219.81.

### **Hours Worked**

Hours worked on the project: 37.5 Hours