

gPod Accessible Blood Glucose Meter

Week 8
March 13-17
Matthew Bularzik

Work Completed

This week I mainly began working on a prototype PCB board layout. To do this I had to use the ExpressPCB program. This program is designed for PCD drawings which then can be ordered. Though, first I had to draw the overall circuit by drawing the different sections of the circuit in detail. These sections consisted of the Microprocessor, LCD, SP03 module, Glucose circuit with filtering, and the Max232 circuit.

Some of the circuits had to be redrawn part way through the week since pin connections were changed as Dave fine tunes how the different sections of the circuits will be fully integrated together.

Several hours were spent learning how to use the PCB circuit schematic program. This allowed me to better use the program and develop the correct circuit schematic. Figure 1 below shows the overall circuit schematic version 1.

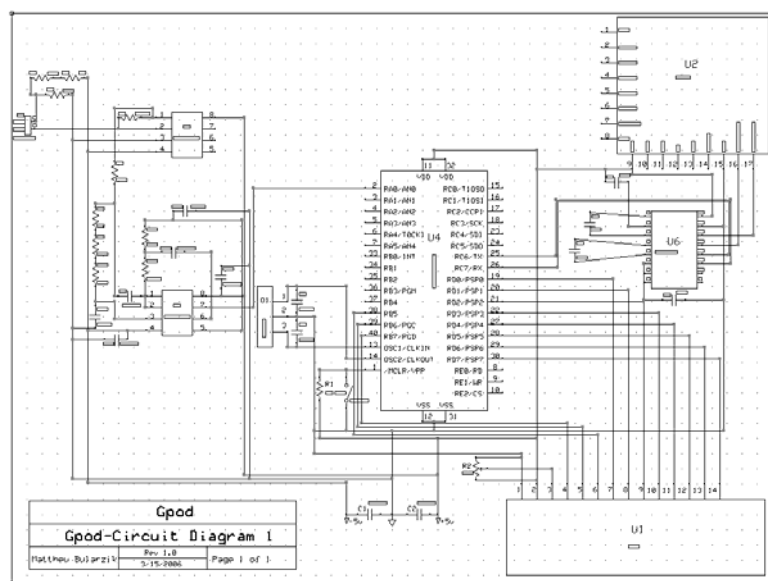


Figure 1: Overall Circuit Schematic

There are possibly more circuit sections to be added if the vial scanner can be developed in time. This would mean that the USB chip circuit would have to be added along with the vial scanner circuit. There are also more connections that have to be made between the microprocessor and the SP03 speech module for the preprogrammed phrases.

I have started to learn the ExpressPCB board layout program which allows for the development of PCD boards. That can be linked with the circuit schematic for easier board layout. Through linking the program will highlight all pins needed to be connected to one pin when the pin is clicked on. This should help to reduce errors made in development.

I also started a list of the different parts that will need to be ordered for the next stage of development. The list is the Digi-key number of the different parts in surface mount form.

Future Work

This upcoming week I will continue to work on the printed circuit board prototype using the ExpressPCB software. I will also finalize the surface mount parts list that will be needed for further development and order them. Dave will finalize the glucose circuit and the LCD integration as well as develop the final integration of the SP03 speech module. Dave and Mike will look into the inconsistencies of the measurements for the glucose circuit and attempt to increase the accuracy and repeatability of them. He will begin to write the code for use with the speech module to the RS232 port of the microprocessor for the predefined phrases. Mike will on checking the accuracy of the glucose curve and improvement of the meter. He will continue to develop the barcode scanner and the USB chip circuit. By the end of the week the LCD circuit, glucose circuit, and the SP03 speech module should all be working with the microprocessor correctly.

Project Review

This past week has been very productive. The LCD screen is completely integrated and the SP03 speech module is nearly integrated. The glucose circuit has been fully integrated and only a few minor adjustments of the glucose circuit will be needed to increase the accuracy and repeatability of it. The project should be fully integrated by the end of the week and ready for the next step. Total costs to date are \$985.67

Hours Worked

Hours worked on the project: 19 Hours