Work Completed

The most significant work completed over the course of the last two weeks was that Zack and I worked together and managed to almost complete the code to program the CB220 and the CuTouch. The status indication code is finished and has been tested and works successfully. The code, coupled with the circuit shown below in Figure 1 which the stretch sensor is attached to, is able to take resistance readings and output values of 0%, 25%, 50%, and 100%.

Figure 1

In addition to coding and building the status indication circuit, I also built a voltage divider circuit to power the implanted microprocessor. The voltage divider will convert 7.4 volts, from two batteries in series, to 5 volts. The circuit was checked with a digital multimeter and is effective.

Zack and I were also able to determine resistance ranges for each volume percentage using the urine collection bag test set-up. We modified the artificial bladder from the Horrible Science kit and were able to fill it and empty it, as well as achieve varying resistance values of up to about 50%. Unfortunately the resistance across the stretch sensor did not change appreciably from 50 to 100% and for the time being we will not be able to use the artificial bladder for our test set-up.
Future Work

The main focus for the upcoming week will be to establish wireless communication between the “implanted” CB220 and the CuTouch. In addition, the test set-up needs to be modified. Not only do we need to work on improving the stretch sensor readings from the artificial bladder, but the catheter we have is too strong to be closed by the artificial sphincter. A thinner tubing needs to be acquired. The device packaging also needs to be ordered and put together.
Project Review

A huge amount of work was accomplished over spring break and the week preceding. If we can complete the wireless communication aspect of the device all we will need to do is physically build it. This should not take long and we are in a good position right now to be able to invest a good amount of time into our final report, user manual, and competition video in the upcoming weeks,

Hours Worked

Over spring break and the week before I worked 19.5 hours.