Week 2 Report

Primary Goals

One of the main goals for this week was to come up with ideas for a test setup for the final design of the device. One of the requirements of the project is that the group must create a test setup to show that the final product operates correctly and accomplished all the necessary tasks for the requirements for the project. A simple and cost effective design will need to be created to accurately and effectively show how the final product will function as if it were actually implanted into a human. Another goal was to brainstorm and research a more cost effective way for recording the amount of urine in the bladder. The sensor would need to be small, accurate, and cost effective. The final goal for the week was to begin reading the CUTOUCH operators manual.

Bladder Volume Measurement

The original idea of using a submersible pressure sensor has turned out to be a very costly way of recording the amount of urine in the body. While it is probably a very good way to record the bladder volume in an actual implant, for the purpose of this project it will just be too expensive. After further investigation and research a much more cost efficient way to record the bladder volume will be to use a stretch, or strain gauge sensor. The downside of this sensor will be finding one that will provide a reasonable accuracy. Also being able to connect this sensor to some sort of stretchable container for urine collection could prove to be difficult for the final project testing presentation. I am currently talking with an associate from Texas Measurements Inc. for an effective product to accomplish the necessary tasks for the project. I hope to have a final decision by next week so the parts can be ordered and begin to assemble the test setup.

Test Setup

For the test setup I came up with a simple setup that will easily show the proper functionality of the device. A simple stand, similar to a beaker stand, can be used to hang a catheter urine collection bag from. The collection bag will have a funnel attached to the top of the bag and a catheter will be connected to the bottom. Surrounding the catheter will be the inflatable cuff device that will be connected to the micro pump in the component housing which will preside at the base of the stand. The stretch sensors would be connected to the urine collection bag using some type of adhesive, and then wired to the CUBLOC in the component housing. The catheter would hang into a simple collection container, possible a beaker of some sort. Water would then be poured into the collection bag creating expansion of the walls of the collection bag. The stretch sensors
will produce a corresponding measurement and transmit the readings to the CUBLOC in the component housing. The CUBLOC would then use the wireless transmitter to send the reading to the LCD remote which will produce the proper volume percentage to the user. A diagram of the test setup can be seen below in Figure 1.

Operator Manual Reading

The operating manual and operational software was not sent with the CUTOUCH by mistake. We contacted the company in week 1 and they have shipped the missing components to use. I was able to find a copy of the manual on the internet and have begun to read the manual.

Hours Worked

This week I worked 12 hours. Most of the time was spent doing research. Some time was spent on soldering the CUBLOC proto board.
Future Work

In the upcoming week I will be continuing to read the operators manual, and will begin experimenting with code as soon as the software for the CUTOUCH arrives. I will be in contact with the associate from Texas Measurements Inc. and will select a final sensor for the project and place the parts order.