**Group Progress Report**

**Group**: Team Ureter

**Project**: Ureter Length Detector

**Date:** 11/05/17

**Goals for the past week** (copied from last progress report)

* Develop physical prototype of our external length measurement system
* Work through details to create full description of prototype and future work for poster presentation
* Run further tests on pressure catheter to gain better idea of electronic specifications

**For each goal above, comment on your progress**:

* Develop physical prototype of our external length measurement system
  + Our new approach is to interface with an existing pressure sensor catheter to use the ability to sense the two locations of interest (the UVJ and the ureteral orifice) to calculate length based on how many rotations it takes a stepper motor to move from location 1 to location 2
  + We created a first version of this by attaching a conveyer belt made of duct tape and sticking it around two 3-D printed wheels. The axels of these wheels were stuck to a small cardboard box. The catheter was strung through a hole through both ends of the box and stuck to the top of the duct tape conveyer belt.
  + We received some initial feedback with some concerns about difficulties with setting up a conveyer belt. Now we may explore linear actuators and a lever-based catheter push system.
* Work through details to create full description of prototype and future work for poster presentation
  + We created a power point deck to stick to our poster and created some drawings of the full system.
* Run further tests on pressure catheter to gain better idea of electronic specifications
  + We used a multimeter to test out voltage-based pressure changes through the pin outs in the pressure sensing catheter. We had some success and realized we will need to amplify the signal because direct values are too small to process directly. We plan to use an instrumentation amp to do this.

**Goals for this week**:

* Amplify pressure sensor voltage read outs
* Research a linear actuator approach to our length measurement system
* Reread pressure paper to start thinking about signal processing logic
* Further develop pressure-based bladder environment for testing, basic suggestion to use something like a dodgeball for the bladder

**Are there any difficulties with which you need assistance?**

* Not at the moment. We have lined up some resources for the goals for this week, but we will most likely have more questions as we work towards integrating our pressure sensor to the motorized length measurement system.

**Other comments:**

None at the moment.