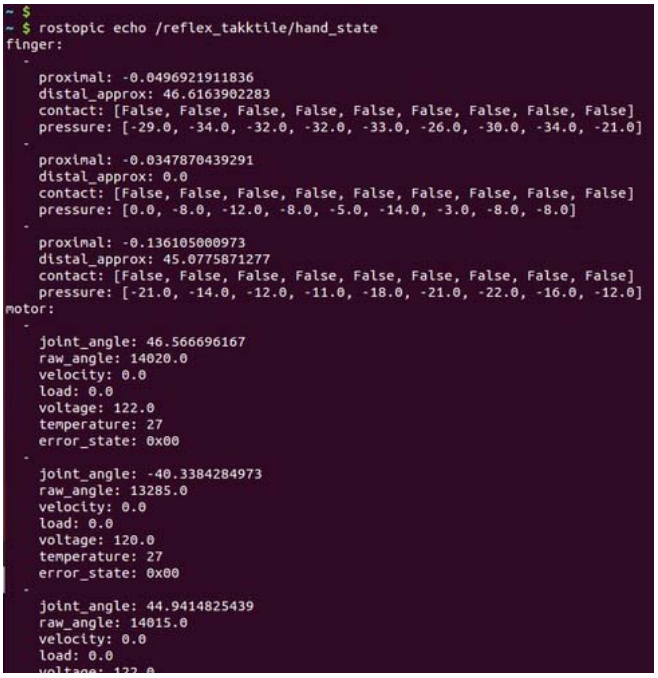
1) Calibrate and test the ReFlex pressure sensors

The next tutorial is 2) Configure the pressure sensors

Looking at raw pressure values

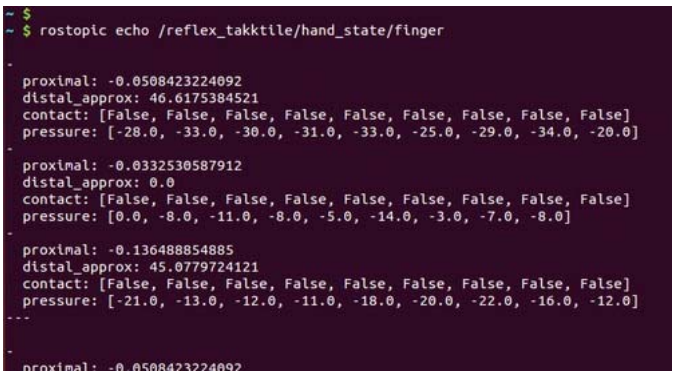
After going through the quickstart process, you should have a reflex_msgs/Hand message being published on the /hand_state topic. You can find all of the relevant hand data on that topic, from joint angles to pressure sensor values. Once your hand is plugged in to power and your computer via ethernet, run the full reflex roslaunch file and echo the topic.

```
roslaunch reflex reflex_takktile.launch
(in a new terminal)
rostopic echo /reflex_takktile/hand_state
```



You should see a stream of finger joint values and pressure sensor values. If you just want to view the tactile values, or the echo is going off the screen, try

```
rostopic echo /reflex_takktile/hand_state/finger
```



Zeroing the pressure values

The pressure values that you see are probably non-zero when unloaded (notice the range of values in the terminal screenshot above). The pressure sensors are very sensitive, and they have a tendency to drift with temperature and other variables. To combat this, standard procedure is to zero the sensors when you know they're unloaded. The more frequently you do this, the less likely you are to encounter troublesome drift — we have found zeroing the tactile values just before grasping to be an effective approach. The pressure sensors on the ReFlex hands work well for detecting contact, in general, but do a poor job of measuring absolute force on a finger.

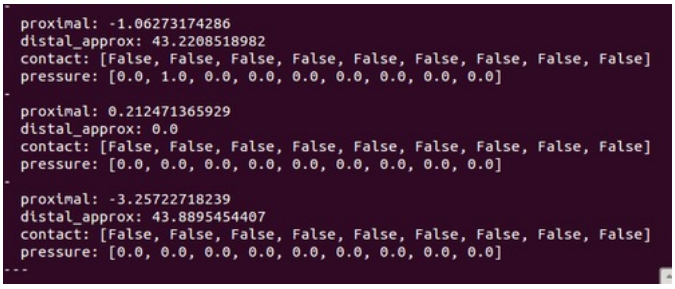
How to zero the values: first, look at the available services

```
(in a new terminal)
rosservice list
```

You should see a /reflex_takktile/calibrate_tactile service. Call it

```
rosservice call /reflex_takktile/calibrate_tactile
```

When you check the terminal that is still echoing the /hand_state topic, your tactile values should be hovering around zero.



What's actually happening

When you call the /calibrate_tactile service the current tactile values are grabbed and saved, and become the new reference point from which to create a relative pressure value. If you call /calibrate_tactile while there's any pressure on the pads, the hand will not be correctly calibrated, and will show negative pressure when the grip is released.

Keep on going to 2) Configure pressure sensors

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