Dear Tanmay, Blake, Mitchell, and Calvin,

Alex Chang, CC’ed on this e-mail, will be your point of contact for the semester regarding the group project. For the first week you should come meet him in TSRB 446 area, and also get to know the current mechbot design plus the motor interface hardware.

The assignment will be to:

1. Go say hi to Alex when you can (one or all or individually)
2. Get a small template set of dynamixel motors driven through Matlab.
3. Get the measurements of the current mechbot (planar version). As in the link lengths
   1. There should be online models that give dimensions of parts.
   2. Alex can explain the planar version.
4. Create a planar version of the mechbot and visualize it using lines.
   1. Literally using the Matlab function line(xx, yy)
   2. You can add options like line(xx,yy,’LineWidth’,2,’LineColor’,’b’)
5. Write down the forward kinematics for the system under three configurations: left foot origin, right foot origin, waist origin.
   1. Should give configuration of other frames: e.g.: Left leg origin returns: waist frame and right foot frame.
   2. Waist frame should always be first return, followed by left leg, then right leg (ignoring the one that’s the origin)
   3. Actually, this should be coded up, not written down.
   4. Create a mechbot class in Matlab for your forward kinematics code.
6. Visualize the forward kinematics with respect to the mechbot visualization, like I do with the manipulators
7. Decide how you want to get the assignments and turn in the deliverables through some easy online means:
   1. Examples: using a facebook group, using a google doc, etc.

The team should do the assignment as sub-teams and submit the whole thing as a package. You have two options for turning in the work, which we reserve the right to change if things seem amiss, (a) turn it all in and get a global grade for all, or (b) specify who worked on what and get individual grades.

Best,

Patricio.

In planar view, 7 reference frames: waist(both sides same in 2d), right/left knee, right/left ankle, right/left foot

Waist-knee length = 9.4 cm

Knee-ankle length = 12 cm

Ankle-foot = 6 cm