Flapperoo Stability & Wing Deformation Tests

Procedure:

1. Mount robot with force transducer in wind tunnel on MPS arm.
2. Plug in NI DAQ, Galil DMC, and ATI to power. Let sit so that ATI reaches thermal equilibrium.
3. Connect NI DAQ and Galil DMC via USB to computer.
4. Ensure that experiment begins with wings at bottom of downstroke. Check that yellow rotor links are symmetric for the two wings using a ruler. Check that all fasteners are secured.
5. Run experiments at zero wind speed. Script will automatically work through different angles of attack using the MPS and different wingbeat frequencies by controlling the motor of the flapperoo. Monitor the duration of the experiments so that more accurate estimates can be made in the future.
6. Turn on the wind tunnel. Turn on the chiller.
7. Set wind tunnel speed to desired speed on wind tunnel computer. Let sit so that ATI reaches thermal equilibrium.
8. Ensure that experiment begins with wings at bottom of downstroke.
9. Monitor temperature and adjust chiller accordingly to maintain near constant temperature.
10. Run experiments at non-zero wind speed. Script will automatically work through different angles of attack and wingbeat frequencies.
11. Repeat steps 6-9 for all remaining wind speeds.
12. Turn off wind tunnel. Turn off chiller.
13. Unplug NI DAQ, Galil DMC, and ATI.

Add camera setup stuff…