Supervisor meeting
Monday, 21st of March 2016

Report

- Use consistent units in figures (if axis are in rad, don't use degrees in the caption)

- "Impulse response" is rather an "Initial value response"

Center of Mass Offset

- For this offset, try to use a string with a weight attached to show that it exists

- The offset we think we have found could be caused by cushion pads being non-symmetric, by the wheel being fixed off-center

- We can take the Cubli apart to get the center of mass, by hanging it by 3 different corners

- Later on, we can also estimate this center of mass again, using the known result as a sanity check

- If anything else has to be done with the dismantled Cubli, it should be done now. The setup should not be taken apart again after.

- Try to analyze the potentiometer readout, with angle as a reference.

10 degrees Fall Test

- It should be made very clear, why this test has been made.

- It is up to us to decide where to put graphs and conclusions (appendix vs. report body)

- It is fine to place comparison graphs in both places (test appendix + verification section)

- Blue curve is made with non-linear simulation

- Be careful when fixing the wheel in reality: it should also be taken into consideration when simulating

Estimation of Parameters

- The group is currently working on this estimation using 'Senstools' toolbox, presented by Tom S. Pedersen in one of the Control Engineering lectures.

- When fixing the wheel, the corresponding blocks have to be taken out

Controller Simulation

- It is not necessarily a good idea to try to cancel an unstable pole, which an integrator is

- The system should be strictly proper, i.e. it should have strictly more poles than zeros.

- When transferring the controller from sisotool to simulink, recalculate the gain.

Miscelleanous

- The code has to be analyzed further on to check which part causes the potentiometer's weird behavior and be sure that the controllers can run with a reduced code.

- The ADC does not cause any problem

- We should now be able to implement our own controller on the Cubli, from scratch

- Later on, the motor's model should be included in the control simulation to design the controller.

- The motor controller is used in open-loop mode with a current reference input.

- Make a test for the motor control, it may introduce a pole. Thereafter, one/two zeros more might be needed.

Next Supervisor meeting

Monday, 31st of March at 10.00