Supervisor meeting

Friday, 13th of May 2016

Requirements

- The base plate level requirement: Angle/inclination not level, and only within reasonable limits.
- Remove requirement on duration of stable operation.
- Correct spelling errors.
- Theory for maximum catching angle with no initial velocity of the wheel should be presented with the test itself.
- The theoretical angle (maximum angle with the limited current) is estimated not considering capabilities of the controller. Note this in the report.

Complementary Filter

- Be more precise on definition of x and y - they are the components of the linear acceleration measured by the accelerometer.
- You should not have a figure with no explanation - figure caption should describe the figure fully, it does not matter if previous explanations are repeated.
- Explain the offset of the accelerometer angle to frame angle ($\theta - \frac{\pi}{4}$).
- "Equilibrium position is slightly different from the vertical one" - write a more precise statement: The center of mass is not the same as the geometrical center.
- It is not absolutely clear how we are getting the data, this should be specified in the report main matter not only in the appendix (figure 9.2).
- Put up an expression for the reading of the IMU as a function of the gravity and of the acceleration.
- Further frequency domain analysis: We can try to describe the transfer functions from input to each of the outputs. Can be done from state space description via matlab.
- Describe the variables that appear in equations.
- The gyro angle is the initial angle + the integration.
- Estimation of drift could maybe be done through use of the accelerometer - include discussion on this.
- Rewrite just above equation 9.6, and include the sample time.
- Do not use the if and only if arrows! (double arrow)
- Just after equation 9.8, explain that we are going from z-domain to discrete time domain.
- Explain why we use the same cutoff frequencies for the two filters.

Next Supervisor Meeting

Monday, 23rd of May at 14.00