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EECS 461

Post Lab 6

1. You observed that the addition of damping bwall reduced but did not completely eliminate the wall chatter effect. However, this value of damping only attempts to compensate for the time sampling artifact of the digital implementation of the virtual wall. Another such artifact is that our measurement of does not vary continuously, but in discrete steps due to encoder resolution. As a consequence, torque would also vary in discrete steps even if time sampling were not an issue. Using the value of encoder resolution you calculated in Lab 2 and the nominal value of spring constant k from Lab 4, calculate the quantized change in torque in units of N-mm/encoder count.

Resolution = 360/4000 = .09 degrees/encoder count

K = 650 N-mm/degree

Quantized = .09\*650 = 58.5 N-mm/encoder count