LE 2.2 – DA32435 – Dyab Asdi – 19305

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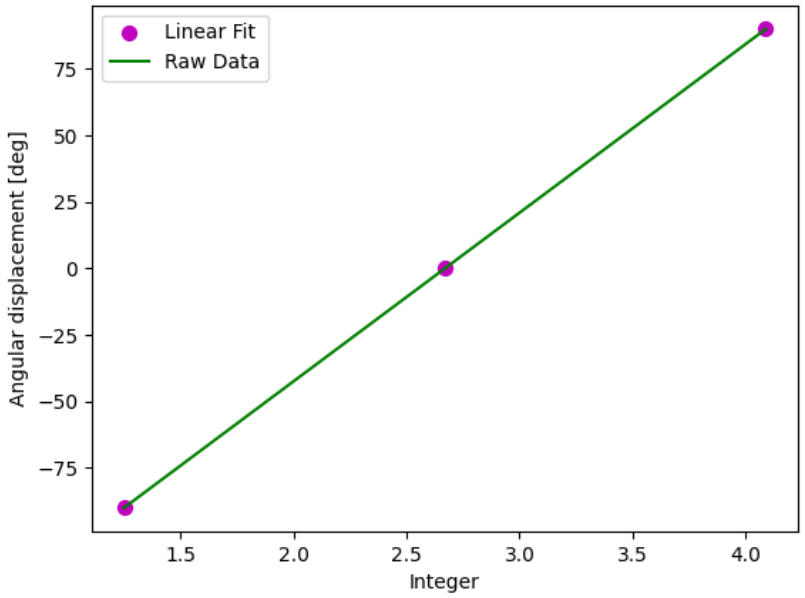
1)



Integer [Volts]	1.25	2.67	4.09
Angular Displacement [deg]	-90	0	90

Slope [deg/V]	63.38
Intercept [deg]	-169.23
R^2	1.0

The slope means for every change in 1 volt, the angular displacement increases by 63.38 degrees. The intercept represents the angular displacement when the voltage is 0. An R^2 value of 1.0 means that the line is a perfect fit and representation for linear calibration.

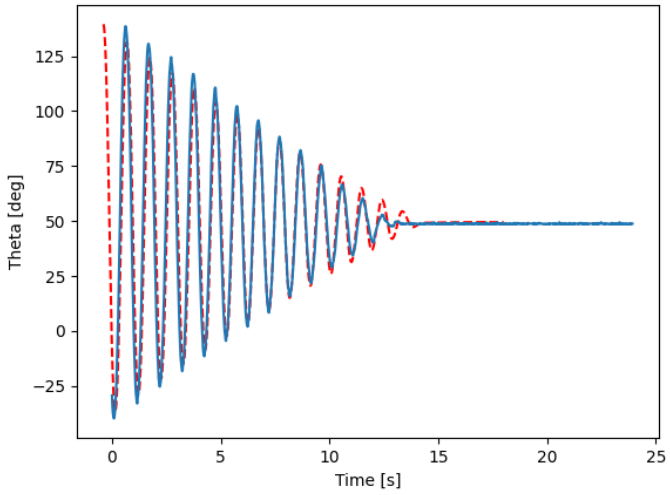
2)

a.

Coefficient Name	**Value**
Linear Coefficient (b0)	0.00001
Torque Coefficient (t0)	0.007

The above values for the linear coefficient and torque coefficient allowed me to fit my simulation to my measured response.

b.



c.

Parameter	Value
Mass	0.157 kg
Gravity	9.81 m/s^2
Moment of Inertia	0.00675
Length to CG	0.19925

3) To determine the dominant form of friction, we used both t0 and b0 for adjustments. The torque coefficient t0, however, had the greatest impact on the system, and the linear coefficient b0 had a smaller effect. We made sure to just adjust the middle of the system the best we could rather than the ends, because the ends are more prone to errors.