

Control System Laboratory Report

Name and ID no. of the Student:

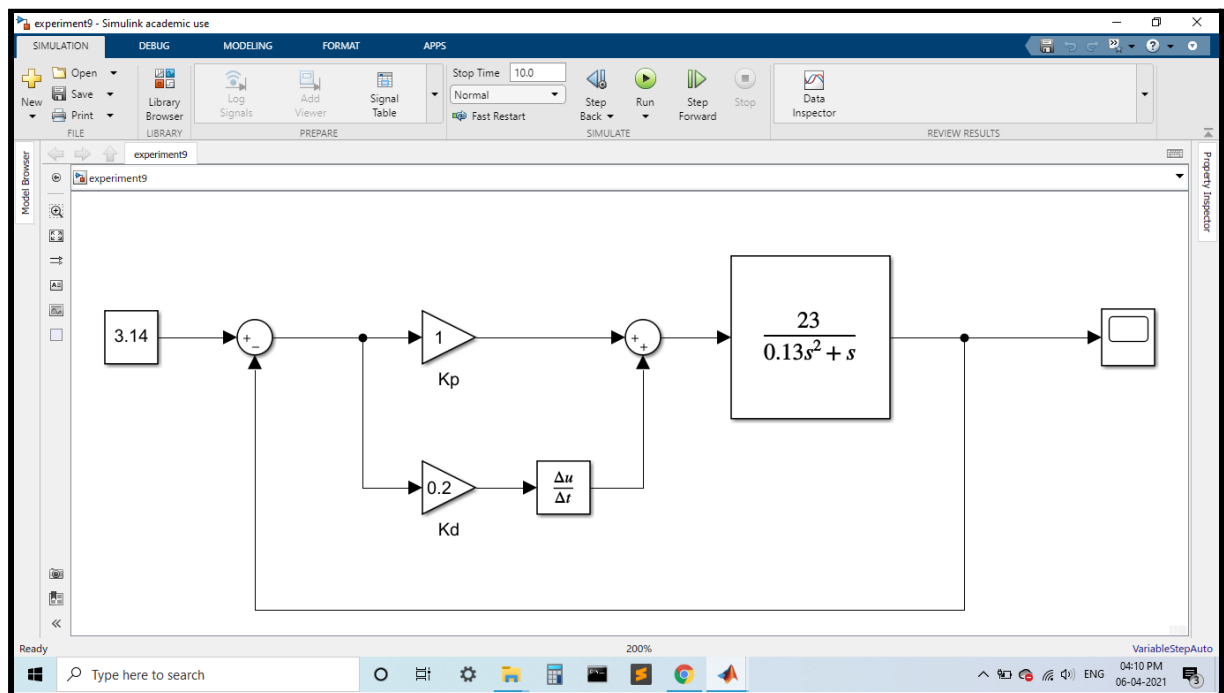
VISHWAS VASUKI GAUTAM, 2019A3PS0443H

Title of the Experiment:

MATLAB Simulink model and balance control in simulation environment

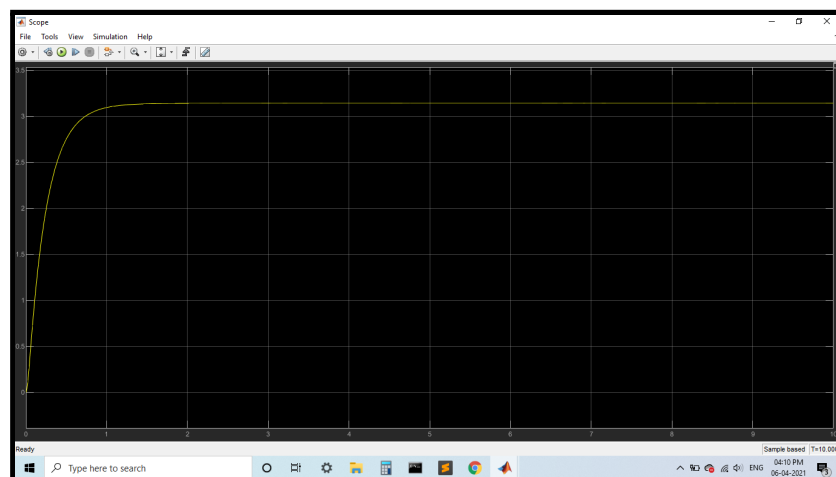
Model/Simulation:

The image below shows the simulink model for the dynamic system:



Results:

The above simulink model is run and the results obtained are: (Final value is 3.14 if it is not clearly visible in the screenshot)



Conclusive Remarks:

In the model built, the voltage to position transfer function is obtained with the respective time constant and steady state gain constant. Now for controlling the system a PD controller is employed and a reference angular position is chosen (3.14 here). Then depending on the response we tune to the PD controller by changing the gains of the Proportional gain and Derivative gain. So from this we see the response increases from 0 to the reference value and stays at the reference value.

To conclude with the help of a PD controller and some tuning we can obtain a stable, balanced model for the voltage position system of the pendulum.