Problem statement:

Design a swing up controller and stabilization controller using MATLAB/SIMULINK for the inverted pendulum simulink model. The following image displays the final position of the inverted pendulum.

Note:
1. Location of the simulink file: ***RotaryPendulum -> models -> release -> physmod -> Use the simulink Model file corresponding to your Matlab version***
2. For correct operation of the files please open the model, then in the '***current folder***' tab of the MATLAB GUI, right click on the folder '***RotaryPendulum***' folder and select in the '***Add to path***' the '***Selected folders and Subfolders***' option.