***Sliding Mode Control***

This simulation is use to demonstrate the robustness property of sliding mode control. Here, second order stable system is consider, which means that states of the system will reach the equilibrium in infinite time.

The transfer function of system is given

*G(s)=*

1. First, we will observe the response for system without disturbance using state feedback controller. In order to do so keep the switch 2 in SW 1 position (open plant). Observer the response, you will find that both the state will reach to the zero in infinite time,
2. In next step we will introduce the sinusoidal disturbance by moving switch from SW1 position to SW 2 position and observer the response of the system; you will find that both the state will oscillate.
3. In the last step will apply the SMC controller to the plant with disturbance and observer the response.