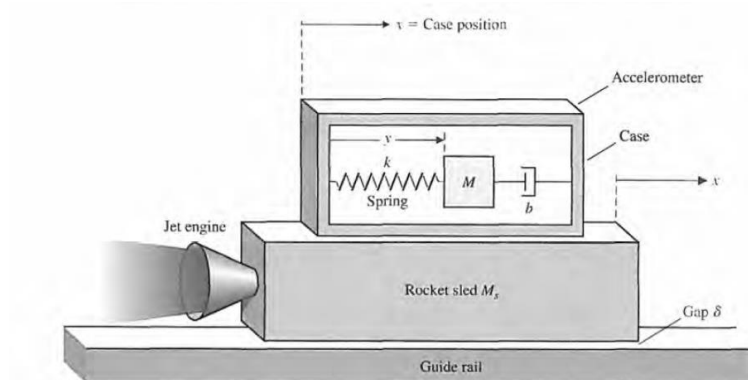


## Mechanical Accelerometer

A mechanical accelerometer is used to measure the acceleration of a rocket test sled, as shown in figure. Create a Simulink model for the mechanical accelerometer from the below given equation.



### Equation-

$$M \frac{d^2 y}{dt^2} + b \frac{dy}{dt} + ky = -\frac{M}{M_s} F$$

Where,  $M = 10 \text{ Kg}$ ,  $k = 32 \text{ N/m}$ ,  $b = 12 \text{ N.sec/m}$ ,  $M_s = 100 \text{ Kg}$

### Instructions for modelling-

1. While giving names to blocks, rename **gains** as **Gain1, Gain2, ...** from top to bottom and **Integrators** as **Integrator1, Integrator2...** from left to right.
2. Use **only** calculated value for the gain blocks rather than assigning it to a variable.

