**ME 6710 Programming Assignment #1:**

You are developing a mission to Mars. Your current job is to develop a simulation system to test the Mars landing Module (MLM). The MLM consists of a right cylinder, length l = 5m, radius r = 1m with uniform mass distribution of 1000kg. It has a single downward thruster at the base and four thrusters located on the sides of the base pointing outward. The gravity on mars is 2/3 that of earth. The LML is released from the launch vehicle 20m above the martian surface with vertical axis of the thruster rotated 15 degrees relative to the mars vertical. Your job is to land safely. A safe landing is defined as contacting the landing surface at a speed of .1 m/s or less in the vertical direction and angular misalignment of 5 degrees or less.

You can choose to hardcode your landing controls through a PID controller, or allow a human operator to land MLM using the keyboard. The downward thruster is controlled with the space bar and the side thrusters are controlled with the wasd keys.

Show your results through graphs of key motion in time and matlab animation.

MLM

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