Explanations of the program

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February 28, 2016

1 Physics

We are going to modelise the system as a dual body, one is fix: The earth, and the second one is moving, the rocket we are sending into space. The aim of this programm is to simulate the launch (A very simplified one, no body separation, to booster, and no rotations issue) and recuperation of the module. We will also Simulate the moon.

$$m\frac{d\vec{V}}{dt} = \vec{u} + \vec{F}_{Earth\to Sat} + \vec{F}_{Moon\to Sat}$$

We can Discretise the system:

$$\vec{V}(t+1) - \vec{V}(t) = \frac{1}{m}\vec{u}(t) + \frac{1}{m}\vec{F}_{Earth\to Sat}(t) + \frac{1}{m}\vec{F}_{Moon\to Sat}(t)$$