Student Satellite Project
Indian Institute of Technology, Bombay
Powai, Mumbai - 400076, INDIA

Website: www.aero.iitb.ac.in/satlab

Readme file for getOrbitData.py

Attitude Determination and Control Subsystem

filename

Author:Sumit Agrawal
Date:23 August 2018
This function give variable naming to the sgp output .csv file. The filename would contain major orbit elements those was used in creating the sgp output.
Input:TT - Total time of the orbit
MS - Model step time
MeanMo - Mean motion in revolution per day
Eccen - Eccentricity
Incl_deg - Inclination in degrees
MeanAnamoly_deg - Mean Anamoly in degrees
ArgP - Argument of perigee in degrees
RAAN_deg - Right ascension of ascending node in degrees
sgp_output - timestep, position and velocity in second, meter and meter per second respectively.
getOrbitData_TLE or getOrbitData_OrbitELement give would be used to create this file.
Output:$sgp\_i\_TT\%g\_MS\%g_MMo\%g\_Ecc\%g\_Incl\%g\_MAnamoly\%g\_ArgP\%g\_Raan\%g.csv$

getOrbitData_TLE

Author:Sumit Agrawal
Date:23 August 2018
This function give variable naming to the sgp output .csv file. The filename would contain major orbit elements those was used in creating the sgp output.
Input:TLE input from the constant.py
TT - Total time of the orbit from the constant.py
dT - time vector from the constant.py
MS - Model step time from the constant.py.
Output:sgp_output.csv (Position and velocity of satellite in ECI frame in m and m/s). It also call filename function for naming of sgp_output in terms of orbital elements of the starting point.

getOrbitData_OrbitElement

Author:Sumit Agrawal
Date:23 August 2018
This function give variable naming to the sgp output .csv file. The filename would contain major orbit elements those was used in creating the sgp output. This function also call TLE2OrbitElements as sgp function require input in terms of orbital elements.TLE2OrbitElements converts TLE into orbital elements.
Input:TT - Total time of the orbit
MS - Model step time
MeanMo - Mean motion in revolution per day
Eccen - Eccentricity
Incl_deg - Inclination in degrees
MeanAnamoly_deg - Mean Anamoly in degrees
ArgP - Argument of perigee in degrees
RAAN_deg - Right ascension of ascending node in degrees
sgp_output - timestep, position and velocity in second, meter and meter per second respectively.
Output:sgp_output.csv (Position and velocity of satellite in ECI frame in m and m/s). It also call filename function for naming of sgp_output in terms of orbital elements of the starting point.

References: