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

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

Readme file for adc.py

Attitude Determination and Control Subsystem

ad_convertor ()

Author:Sanskriti
Date:
This function calculates digital quantised readings of all 6 sun sensors.
Input:sun vector, unit vectors perpendicular to all 6 sun sensors in body frame, gain constant, quantiser(10 bit)
Output:digital quantised readings of all 6 sun sensors.(ranging from 0 to 3.3)

This function takes sun vector and converts it into digital voltage readings decreasing with increase in angle between sun vector and vector perpendicular to sun sensor.

Light ()

Author:Sanskriti
Date:
This function calculates array of boolean values indicating whether the value is greater than that of threshold value.
Input:sun sensors readings , threshold angle
Output:an array of boolean values for each sensor.

when the angle between sun vector and sun sensor increases beyond a specific threshold point boolean is changed to zero for each sensor.

Calc_sv ()

Author:Sanskriti
Date:
This function calculates the sun vector from readings of sun sensors.
Input:sunsensor readings,dark, boolean value light
Output:forms a unit sun vector from readings of sun sensor when in light region.

unit sun vector is calculated using matrix inversion calculation (for algorithm refer to CDR of ADCS of Pratham) when in light region.