Satellite Attitude Determination & Control Laboratory

Services Provided:

- Design and implementation of attitude determination and control subsystem for various sizes of satellite missions
- Software testing for ADCS Subsystem using mathematical benches, HIL and SIL benches
- Incoming inspection of ADCS sensors and actuators
- Real time simulation of satellite dynamics
- Development of sensors and actuators mathematical models
- Modeling of external environmental disturbances

Samples from our Projects / Products:

- Attitude determination and control subsystem for NARSSCube-1 and NARSSCube-2
- Attitude determination and control subsystem for NExSat-1

Facilities Available:

- Attitude determination and control mathematical bench
- Attitude determination and control hardware in the loop test bench
- Attitude determination and control software in the loop test Bench
- Attitude determination and control sensors and actuators interface model
- ADCS Air Bearing Test Bed

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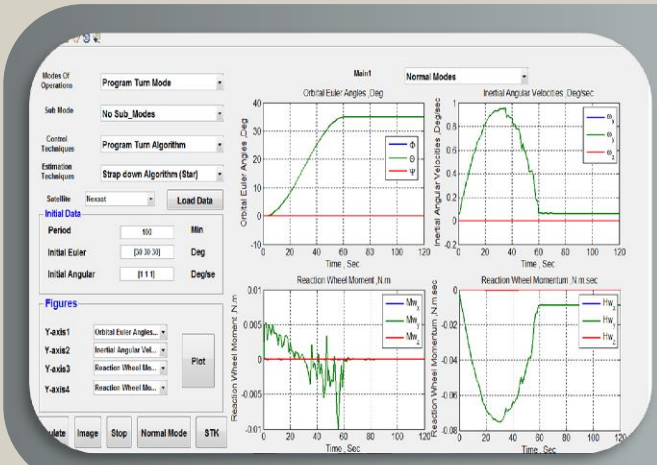
Global Online Education Website:
egsa-space-technology-portal.com

Part of our Facilities / Services:

ADCS Air bearing test bed

The ADCS Air Bearing Test Bed consists of a free-floating platform on an air bearing, allowing almost frictionless motion of the satellite's ADCS model and environmental simulations for the magnetic field and the sun, making it a perfect tool to perform end to end tests of the ADCS software with the hardware in the loop. Also it includes sensor inputs for a GNSS receiver and a star tracker, as well as an external reference system.



ADCS simulation bench

This bench simulates the satellite's dynamics and position in orbit. It also simulates all environmental disturbances. It includes a mathematical model of ADCS sensors (star tracker, magnetometer, Gyro, Sun sensor), and ADCS actuators (reaction wheel, Magnetorquer, thrusters), attitude determination algorithms (Kalman, extended Kalman filter, Triad,..) It also contains all common control algorithms used for Satellite detumbling, satellite imaging, inertial object tracking and ground station tracking.

Full ADCS sensors and actuators simulation bench

This Bench provides a real time simulation of all commonly used sensors and actuators

- It includes the mathematical interface models of ADCS sensors such as:
  - Star tracker & Gyro
  - Magnetometer & GPS
  - Sun Sensor
- It includes the mathematical and interface models of ADCS Actuators such as
  - Reaction wheel
  - Magnetorquers

And many others... Contact us to know more about our Services.

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