Review of Attitude Determination and Control Sub-System at IITB

Date: 23rd April, 2008

Time: 4pm to 6:30pm

Venue: Casde Conference Room, Aerospace Department Main Building, IIT Bombay

Professors Present:

1. Prof K. Sudhakar, Aerospace Engineering
2. Prof Hemendra Arya, Aerospace Engineering
3. Prof Banawar, Systems and Controls Engineering
4. Prof Kurien Isaac, Mechanical Engineering

Students Present:

1. Shashank Tamaskar, Controls Sub-System Head and PD
2. Mallesh B., Controls Sub-System
3. Saptarshi Bandyopadhyay, System Engineer and PD

The presentation on the status of the Controls Sub-System was given by Head Shashank Tamaskar. The issues that were discussed in the meeting are as follows:

1. The team was asked to explore whether the satellite wobbles in space. The control requirements on wobbling were to be studied.
2. It was discussed that orbit propagation with uplink as the only source of information was not possible.
3. The reference frame for accelerometers and attitude sensors were to be explored.
4. The team was suggested to check the usability of the Compass Module from Honeywell.
5. The team was asked to explain the physics of GG Boom in greater detail as the panel was not satisfied with the explanations offered during the review.

6. The team was asked to do simulations of 2 bodies attached by a tether as an approximate model for the tether GG Boom.
7. The team was asked to simulate the control law with magnetorquer and tether GG Boom to prove the satellite will stabilize.
8. It was accepted that the method of achieving greater robustness of the control systems would be to have more overlap and broader stability ranges.
9. Simulations were deemed essential for the Controls Sub-System to prove the concepts.