Visvesvaraya Technological University

"Jnana Sangama" Belgaum – 590018

Project Report on

ATTITUDE DETERMINATION AND CONTROL SYSTEMS FOR SMALL SATELLITE

- A MAGETIC APPROACH

Submitted in partial fulfilment for the award of degree of Bachelor of Engineering

by

SAROJ KUMAR (1RE08EC081)

VIKAS KUMAR (1RE08EC116)

Under the Guidance
of

Dr. S. S. Manvi

(HOD, Department of ECE)

REVA
GROUP OF
EDUCATIONAL
INSTITUTIONS

DivyaSree

Department of Electronics & Communication Engineering

Reva Institute of Technology & Management

Bangalore – 560064

2011-2012

ABSTRACT

The attitude of a spacecraft is its orientation in space. The motion of a rigid spacecraft is specified by its position, velocity, attitude and attitude motion. The first two quantities describe the translational motion of the centre of mass of the spacecraft which is actually part of celestial mechanics and the latter two describe the rotational motion of the spacecraft about its centre of mass. The determination of attitude and controlling it to the requirement within the tolerance is a part of attitude determination and control. The scope of this report projects the feasibility study and describes the preliminary analysis of both the position of the satellite centre of mass in three dimensional space and the methods to determine and control the orientation of the satellite with respect to its centre of mass in three dimensional spaces. For this control with reference to small satellite, the magnetic fields contribute a lot and our project is to make a complete magnetic sensing and controls used for small satellite.