

SPACE PROPULSION SYMPOSIUM (C4)
Interactive Presentations (IP)

Author: Mr. Aman Singhal

University of Petroleum and Energy Studies, India, amannetwork.20@gmail.com

Dr. Ugur Guven

United States, drguven@live.com

Mr. Shreyash Patel

University of Petroleum and Energy Studies, India, 15shreyash@gmail.com

Ms. Shagun Bishnoi

University of Petroleum and Energy Studies, India, shagun.bishnoi13@gmail.com

Ms. Priyanka Baranwal

University of Petroleum and Energy Studies, India, priyankabaranwal.pb@gmail.com

LOW COST PROPULSION TECHNIQUE TO TRANSFER SATELLITE TO LOW MOON ORBIT

Abstract

Ever since the space race began in the mid-twentieth century, the moon has been the nearest heavenly body. It has been an area of immense interest. Till date no lunar probe of size CubeSat has been launched to the moon by the university around the world. Although, being of a smaller size it carries some payloads. Since weight is the major concern for the CubeSat model, the lunar probe doesn't use any fuel to move. It uses reaction wheels with magnetorquers to move forward by change in angular acceleration of one or more of the wheels that will result in a net torque being generated in the axial direction of the wheel(s) thus, countering the earth's magnetic field and gravitational force of earth. The reaction wheels will then help in decrease in weight of the lunar probe due to its small size. Analysis of different transfer trajectories will be done in order to reach the moon in less time. The type of propulsion system used in the lunar probe is unique and has never been used to drive the spacecraft for interplanetary travel. This in itself shall be a major leap in the aerospace domain and this paper will discuss the mentioned propulsion system and its possibilities for the future as to its implementation as a university level project.