

ABSTRACT

CubeSat is one type of satellite that has limitations in terms of dimensions and mass. This resulted in the need for consideration in determining the actuator propulsion to be able to maintain the position and attitude of the satellite during orbit. Not only actuators, but satellites also need a control system. To be able to design a control system, it takes a physical model of a system to be controlled. In real-world applications, the physical modeling of a system will never be perfect because every system must have a variety of parameters caused by the nonlinear nature of the system, parameter uncertainty caused by inaccurate measurements or inaccurate modeling, uncertainty originating from the system's working environment or other uncertainties. In this final project, a magnetorquer was chosen to be an actuator because its mass and dimensions are in accordance with the limitations of CubeSat 1U and using the Model Reference Adaptive Control system in order to overcome the problem of parameter uncertainty in the system.

Keyword: *CubeSat, Magnetorquer, Model Reference Adaptive Control*