

ABSTRACT

The attitude or orientation of the Cube Satellite has to be defined because the CubeSat can be disoriented and orbit inappropriately during orbit. The subsystem that is in charge in define CubeSat's attitude is the Attitude Determination System. In defining the attitude of the CubeSat, ADS can use the sun's frame by measuring the sunlight that illuminates the CubeSat using a sun sensor. Currently, many CubeSat solar panels have been integrated with the sun sensor, but these solar panels are relatively more expensive than ordinary solar cells that are not in the form of panels and have not been integrated with sun sensors. The high cost of this device makes it difficult for CubeSat developers who have relatively low costs. For this reason, in this final project, a low-cost sun sensor ADS is designed using solar cells as the main sensor which is then integrated into a panel and mounted on the three CubeSat axes. This sun sensor will be optimized to be able to define the attitude of the CubeSat in the form of azimuth angle, elevation, and rotation angle based on the current generated by each sun sensor (solar panel). Based on the test results, the designed ADS measures roll and yaw rotation angles with an accuracy of 3.4° and 3.5° , respectively.

Kata Kunci: *Attitude Determination System, Azimuth, CubeSat, Elevation, Short-circuit Current, Solar Cell, Sun Sensor*