030-CM

Design and Implementation of Satellite (Cubesat) Attitude Control Sub Systems

Karim Mohamed, Mahmoud hassan, Ahmed Atef Abdel Wahab and Mohamed mamdouh
High Institute For Engineering and Technology Al Obour, cairo,Egypt,
kareem.fantom@gmail.com, titohassan60@gmail.com, fcbarcelonafan442@gmail.com, mamdouhmohamed820@gmail.com

Supervisors: Abdellah El Dahshan, Prof.Dr and Elsayed Soleit, Prof.Dr
High Institute For Engineering and Technology Al Obour, cairo,Egypt,
Dr.dahshan@oi.edu.eg, Sayed.selit@gmail.com

The Objective of this graduation project is to design and develop of a powerful attitude control sub Systems that may be used in the next Egyptian CubeSat mission. The trend now is to use reaction wheels (RW) actuators in CubeSat missions. RW operate by accelerating a wheel in one direction and thereby forcing the satellite to rotate in the other direction. One widely used actuation system is Reaction Wheels (RW) which mainly has been used for larger satellites. The students are involved to build up a powerful attitude control sub System practically. The implemented module is successfully tested and its performance is measured via computer simulation (MATlab) and real time implementation using the optimal controller ARDUINO type MEGA2560. The results are encouraged.