IAF SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
Hands-on Space Education and Outreach (8)

Author: Mr. Sajjad Ghazanfarinia
Iran

# CUBEDU, AN AFFORDABLE PLATFORM TO LEARN ABOUT AND IMPLEMENT CUBESAT TECHNOLOGY IN UNIVERSITY ENVIRONMENT

**Abstract**

This paper is about a hands-on dedicated to university environment, in order to be used multi-dimensionally. CubeDu can be used not only as a hands-on o help the team learn about the System Engineering Process, Satellite Development and Testing, but also the platform may be used for any Payload designed in the university. CubeDu is a 1U platform with minimal subsystems to support common payloads like an Earth Observation Imager or Simple Store and Forward Communication Module. A Power Distribution Unit with 2-cell battery pack and inputs from solar cells, an onboard computer, and a half-duplex communication module in VHF for Satellite Monitoring and Control integrated in a standard skeletonized structure, supports Payload with definite Power and Size and provides typical data interfaces in Cubesats. There is a Payload included in the pack covering both Imaging and Store and Forward missions, however, it can be replaced easily. CubeDu is not just an educational satellite or platform, as it is provided with couple of documents and software to help the user for a better experience. Documents are User Manual and Teaching Materials which enable each member of the team to know about what he/she should do during the project life cycle. Software patches are for ground control and onboard software for customized payload or possible changes in platform. The software is modular and can be maintained through internet connection with life time support. CubeDu is not something new in the market for education, but what makes it different is that offers a modular platform beside life time support with an affordable price. CubeDu is not the only version of such platform and CubeDu2 will include ADCS and related test bed hardware and software.