SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
On Track - Undergraduate Space Education (3)

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DEVELOPMENT OF CANSAT KIT FOR UNDERGRADUATE SPACE EDUCATION IN NEPAL

Abstract

CanSat is a model of real satellite, integrated within the shape of soft-drink can and weighing around 350 gram. It is used for project based teaching related to space engineering at university level.

The lack of space education in Nepal has driven the author to develop a CanSat kit, and used it for space education at universities in Nepal. The CanSat kit was used for providing hands-on training about nano-satellite technology and space education at Kathmandu University, Nepal.

Along with the CanSat kit developement, the ground-station software was also developed using Lab-VIEW - a graphical programming language. The data is transmitted from CanSat to the Ground-station via radio link, based on serial communication protocol. The received data is saved on the Ground-station computer. Also, the received data is displayed on screen in graphs, and 3D visualization of the CanSat orientation.

The CanSat kit is based on Arduino processor, and it has a set of sensors, like, temperature and pressure sensors, and inertial measurement unit sensors, like, accelerometer, gyrosocope, and magnetic field sensor. The CanSat kit is modular in design, thus, it is possible to add new sensors as per the mission requirement.

The author had attended CLTP- Cansat Leader Training Program at Hokkaido University, Japan in 2016. This training helped to develop our own teaching methodology for students in Nepal.

This paper presents the design and development of CanSat kit, development of Ground-station for CanSat, its implementation and teaching methodology tested at Kathmandu University, Nepal.