IAF SPACE OPERATIONS SYMPOSIUM (B6)
Mission Operations, Validation, Simulation and Training (3)

Author: Mr. Janardhan Silwal
Nepal Space Foundation, Nepal, janardhan@antarikchya.org.np

Mr. Sirash Sayanju
Nepal Space Foundation, Nepal, sirash@antarikchya.org.np
Ms. Anuja Shrestha
Nepal Space Foundation, Nepal, anuja@antarikchya.org.np
Ms. Eliza Sapkota
Nepal Space Foundation, Nepal, eliza@antarikchya.org.np
Ms. Trishna Shrestha
Nepal Space Foundation, Nepal, Trishna@antarikchya.org.np
Mr. Bikalpa Dhungana
Nepal Space Foundation, Nepal, bikalpa@antarikchya.org.np
Mr. Nayan Bakhadyo
Nepal, ugalnayanbakhadyo@gmail.com
Dr. Abhas Maskey
Nepal, maskey.abhas481@mail.kyutech.jp

MUNAL: AN OVERVIEW OF NEPAL'S FIRST HIGH-SCHOOL CUBESAT

Abstract

After the success of NepaliSat-1, Antarikchya Pratisthan Nepal (APN) in collaboration with the Nepal Academy of Science and Technology (NAST) initiated a High School Consortium Satellite Project called MUNAL in January 2022. The project involves four different government and community high schools and aims to foster the next-generation of space workforce for Nepal while designing and developing Nepal's first High School Cubesat. A total of nine high school students, six from Kathmandu University High School and one each from Chaitanya Secondary School, Azad Secondary School and Sanjiwani Model Secondary School are being trained in the project. While continuing their regular high school studies, the students have been working on MUNAL under the supervision of seven senior mentors from APN. This paper outlines the background, stakeholder requirements, and unique challenges faced during the development of MUNAL in Nepal. MUNAL is a 1U CubeSat measuring 113.5 mm X 100 mm X 100 mm with an approximate mass of 1.09 kg. MUNAL consists of four missions; three science missions including a Multi-spectral Imaging Mission (CAM Mission), Passive Attitude Control and Determination Mission (PACDS Mission), and Satellite SSoC Payload Demonstration Mission (SPDM Mission). The satellite also carries a symbolic Art Mission to represent Nepal's art, culture and alternative history. Currently, MUNAL has completed the engineering model tests and is preparing for the flight model. The launch is expected to happen by August 2023. The satellite's operation will be from the ground station located at NAST.