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NINE HIGH SCHOOL STUDENTS TO BUILD NEPAL'S NEXT GENERATION 1U CUBESAT UNDER HIGH SCHOOL CONSORTIUM SATELLITE PROJECT MUNAL

Abstract

With the launch of Nepal's first Satellite: NepaliSat-1, Space now seems one step closer than before. This groundbreaking event has inspired and encouraged young generations to learn and pursue their career in space technology. Young space enthusiasts who once dreamed of space are now working as satellite developers on Project Munal, a secondary level space education program. Project Munal is a High School Consortium Satellite Project initiated in Jan 2022, where nine high school students of grade 11(age 16-18) are working together to build Nepal's next generation 1U CubeSat. These students are from Chaitanya Secondary School, Azad Secondary School, Sanjiwani Model Secondary School and Kathmandu University High School (KUHS). Team Munal is based at Space System Laboratory(SSL) at KUHS. Munal team is composed of science and management majoring students. Involving young minds from diverse educational backgrounds has made Nepal's space programs to be inclusive and accessible to all. Four young girls working in the field of satellite development under this project are great examples of women in STEAM especially in space. The team is being mentored and supervised by seven Satellite Research Fellows and Satellite System Engineers of NepaliSat-1. Students were first made familiar with basics of CubeSat bus system, missions, development process, testing, launch conditions and final operation through two months long BootCamp. The actual Munal development process began with Mission Definition Review(MDR) then moving forward with BreadBoard Model(BBM), Preliminary Design Review(PDR) and Media-Critical Design Review (CDR) phase following timeline of the project with targeted launch by 2023. With one year of dedication and learning, students are able to present their work to experts from BIRDS-3, BIRDS-5 projects of KyuTech, NBspace Thailand, educators from Tribhuvan and Kathmandu Universities during these phases. Students are now working on Engineering Model(EM) and Integrating a final EM of Munal planning to test in India. With project based learning(PBL) programs like Project

Munal, Nepal focuses on capacity building for developing space infrastructure and creating next generation space leaders. Young generation are highly ambitious and curious to learn about space technologies and Munal has created a platform to foster their ambition. This program has helped students excel their communication and presentation skills through their participation at student competitions and national conferences. This paper presents how non-space faring countries like Nepal can efficiently adapt space education programs at the secondary level and have high potential to advance in universities.