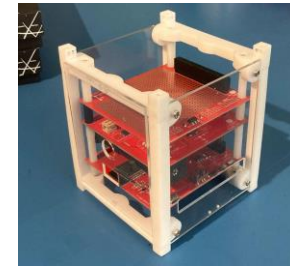


LOCAL CHAPTER ACTIVITY REPORT 2024

UNISEC-NEPAL



Sakshyam Pandey
UNISEC - Nepal

History of Local Chapter Activities

Established in 2020

- Participated in CLTP in 2016, 2022, 2023, 2024
- Won the students prize in MIC8 in 2023
- Held CanSat/HEPTA-Sat Trainings at:
 - Kathmandu University (KU) in 2016,
 - Pulchowk College in 2017
 - Brihaspati School



- CanSat Competitions organized by Kathmandu University (KU) Robotics Club in 2019:
- KU Trainees also took up developing a CanSat as their 3rd year major project - externally funded - 2017
- CubeSat projects organized and conducted through KU ROBOTICS CLUB in 2019

- Hosted UNISEC-Global Meeting in 2022, 2023 and 2024
- Regular involvement in UNISEC-Global Meetings

- Development of SASTO Cube (REPLICA OF NEPALI SAT-1) and late E-Cube Learning Kit in reference to HEPTASat for educational and exposure purposes

- Previous and ongoing national Satellite Projects Of Nepal include:
 - Nepali Sat-1
 - MUNAL
 - DANFE
 - PHI-1
 - Slippers2Sat



35th Virtual UNISEC-Global Meeting

Dr. Sudip Bhattaral, HOD of Mechanical and Aerospace Engineering, Pulchowk Engineering Campus, Tribhuvan University / PCC UNISEC Nepal

"Opening remark"

Dr. Mandira Shrestha, Programme Coordinator of Climate Services Initiative at IGMOO

"Earth Observations for reducing disaster risk to the Hindu Kush Himalaya"

"Women4Space: Space-related Projects and Programs Led by Nepalese Women"

Mandisha Pwa, Nepal Astronomical Society

"Astronomy in Nepal: An Effort to Create a Space Workforce in the Country"

Eliza Sapkota, Satellite Research Fellow at Antarikshya

"Satellite Projects by Antarikshya Pratishthan Nepal (Space Foundation Nepal)"

Host: UNISEC-Nepal
Time: 22:00-24:00(IST)
July 15, 2023

Register now!

<http://www.unisec-global.org/virtual-meeting.html>

Moderator: Ira Sharma



UNISEC-Nepal Activities in 2023-24



- 5 Member Universities:
 - Kathmandu University
 - Institute Of Engineering - Pulchowk College, Tribhuvan University
 - Khwopa Engineering College, Purbanchal University
 - Kathford International College
 - ACME College of engineering, Purbanchal University

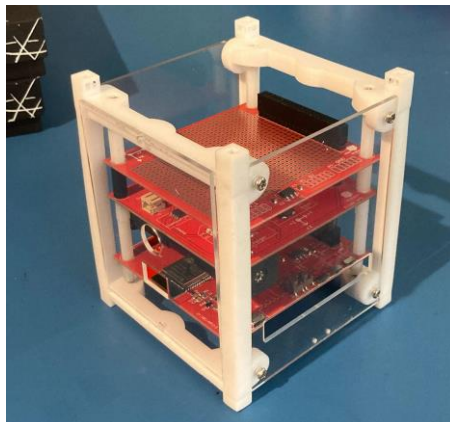
UNISEC-Nepal Activities in 2024

Upgrade of E-Cube Set (Inspired by Hepta-Sat)

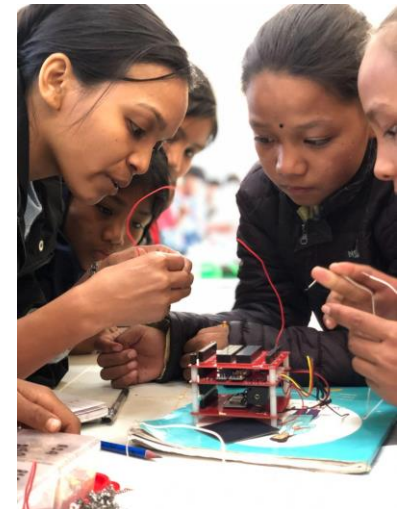
- *Aim in 2023 was to scale the E-cube (Educational Cube) set*
- *We have upgraded, optimized and expanded the E-Cube Set in 2024*
- ***More than 150 sets of E-Cube kits have been manufactured and used in trainings***
- *The kit contains OBC Board, EPS Board, Payload Board, Structure, Solar Panel, Wires, Screws, Acrylic Board, Deployment Switch, Battery, Battery Cap and Spacer*
- *Training has been provided to more than 950 students from middle school to undergraduates level*



Old



New



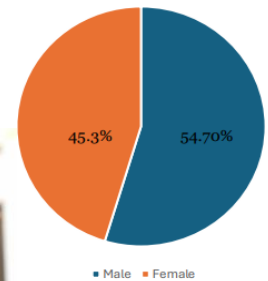
UNISEC-Nepal Activities in 2024



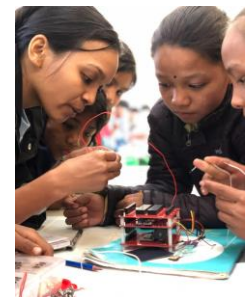
Satellite Training/ E-cube Bootcamps

- Reached over 950 students from middle school to undergraduates level through satellite trainings
- Trainings included satellite training, E-cube trainings and STEM education
- Focus is on narrowing the gender gap and promoting higher female participation
- more than 43% participants were girls

gender distribution



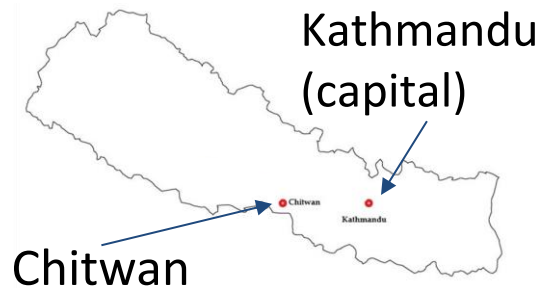
Male Female



UNISEC-Nepal Activities in 2024

SSL Establishment in Chitwan District

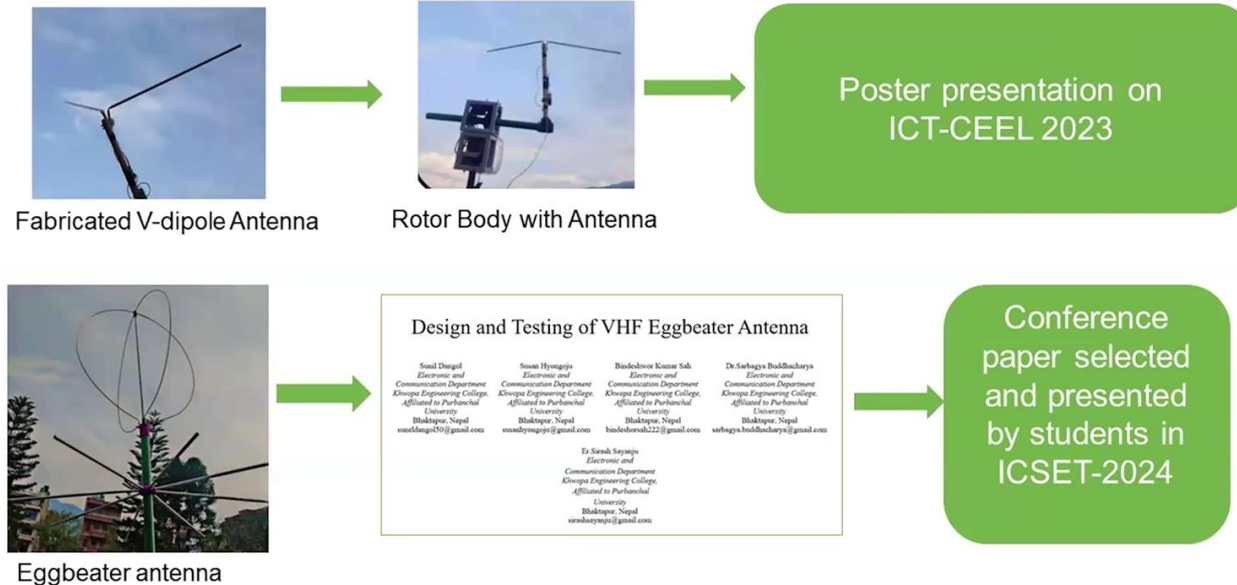
- UNISEC Nepal has established a Space System Laboratory (SSL) in Chitwan District of Nepal to decentralize the space activities of Nepal and support the ongoing development of S2S Satellite
- SSL-Chitwan serves both as the headquarters of building the S2S nano-satellite of Nepal and a classroom to train the 9 middle-school students affiliated with the project



UNISEC-Nepal Activities in 2024

Antenna Lab establishment at Khwopa College of Engineering

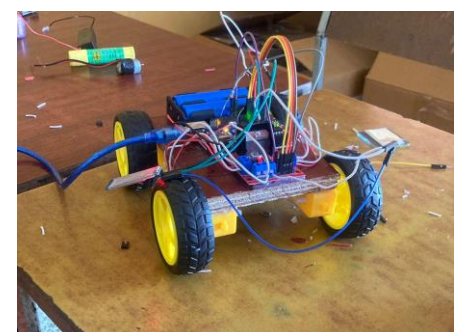
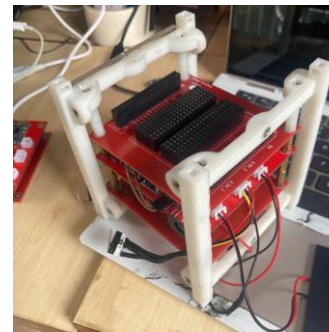
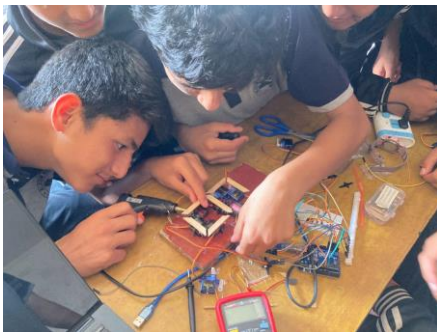
- UNISEC Nepal has supported the establishment and operation of antenna lab at Khwopa College of Engineering
- Providing students with antenna research opportunities, first hand satellite communications trainings, antenna building trainings, ham radio trainings
- Vision is to Build a Ground station at Khwopa College of Engineering so students can participate in first-hand communication with our nano-satellites after launch



UNISEC-Nepal Activities in 2024

Middle-school Robotics Exploration Laboratory Establishment

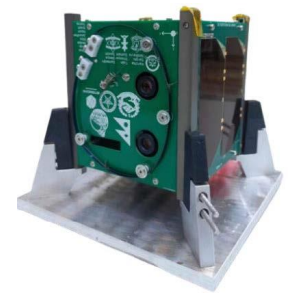
- *A robotics exploration laboratory (makerspace) established in Bloom Nepal School for Middle-high school students*
- *Focus is on developing research culture among students early, satellite education, can-sat trainings, organizing robotics projects, competitions, and bootcamps*
- *Targeting is middle-high school students and UNISEC-Nepal plans to expand it to various other schools across Nepal as well*
- *Organized 3+ Can-sat and E-cube bootcamps 2024*



UNISEC-Nepal Activities in 2024

Space Industry Educational Visit for University Students

- UNISEC-Nepal hosted educational visits for university students to space industries such as Antarikchya Pratisthan Nepal SSL and Nepal Academy of Science and Technology (NAST) Ground Station
- Students from partner universities of UNISEC-Nepal
- Received exposure from exploring the Space System Laboratories, In-person observation of MUNAL nano-satellite flight model, and ground station visit
- We also mediate the internship opportunities for university students to the space industries in nepal



UNISEC-Nepal Activities in 2024

CLTP13 Participation



CLTP13 August 19 - 29, 2024



CLTP12 August 21 - September 1, 2023



Sarbagya
from Nepal
Khwopa Engineering College



Senior Lecturer, Dr. Sarbagya Buddhacharya from Khwopa College of Engineering, a partner university of UNISEC-Nepal, participating in CLTP13

He was also one of the 4 participants who shared their experience in 49th UNIGLO Meeting

UNISEC-Nepal Activities in 2024

Regular participation in the Virtual UNISEC-Global Meeting

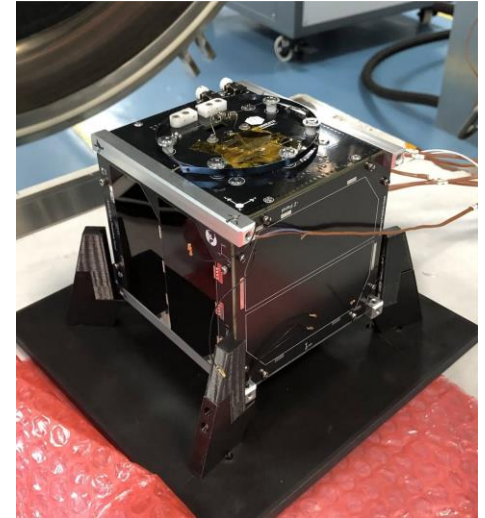
- *UNISEC-Nepal has showed regular participation in all of the UNISEC-Global Virtual Meetings*
- *UNISEC-Nepal also hosted the 35th UNISEC-Global Virtual Meeting*
- *We also support by regularly preparing UNISEC meeting reports and videos*
- *Has been a great opportunity to connect, network and learn from other local chapters*
- *Grateful to UNISEC-Global Team*



Space Activities of Nepal in 2024

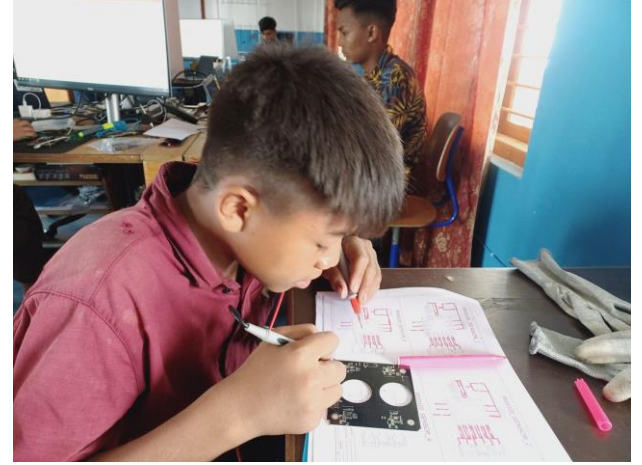
Ongoing Space Projects

- 1. Slippers 2 Sat : Journey from Slippers to Satellite** - A multi-year satellite project involving middle school children of marginalized Chepang Community of Nepal
Recently passed CDR (Critical Design Review), currently FM integration is underway



Major Highlights of S2S

- First middle-school satellite project of Nepal
- 9 middle school students from marginalized communities of Nepal, a step towards social empowerment
- 9 students and 6 professional satellite engineers mentors, 1:1.5 mentor to mentee ratio
- Exposure at such a young age will help them build a successful professional career, long term space human resource of Nepal
- Provides 3 years scholarship to students and will provide them life-long networking support with National and International Partners



Other Space Activities in Nepal

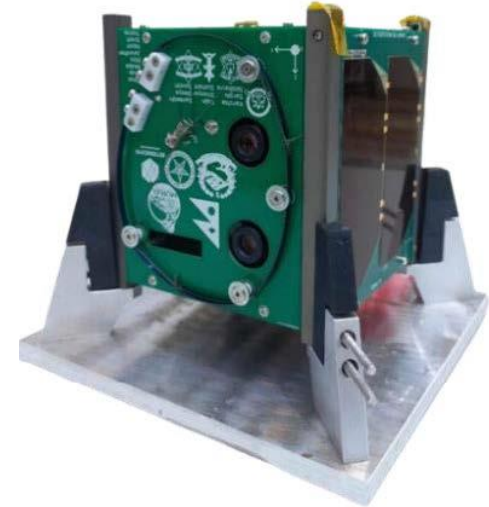
1. **MUNAL High School Satellite**

Nepal's first high-school satellite. development has been finished. waiting for launch. expected to launch in Q1 of 2025.

1. **PHI Project**

Payload hosting initiative by UNOOSA

Nepal is building a payload for a 12U CubeSat stated to be launched in 2025 A.D.



MAJOR CHALLENGES FACED in 2024:

i. Logistics : Transportation Safety

- Extreme geographical complexity of Nepal continues to make it difficult to conduct decentralized Local chapter activities

ii. Funding

- lack of enough funding to support our initiatives*
- funding required in manufacturing kits / sustaining workplace*

iii. Developing and Manufacturing training kits and materials

- lack of manufacturing units in Nepal*
- we design and print structure through 3D printing*
- have to rely on international manufacturers or Nepalese dealer/suppliers company*

iv. Lack of primary technological education in rural areas

- Students did not understand primary technical words*
- Resulted in Communication problem*
- Translation from English to Pure nepali terms was an issue*

Plan for 2024 and beyond

Support the Launch of two major nano-satellites of Nepal - Slippers2Sat and MUNAL

Continue providing Nationwide Satellite trainings

Currently developing communications and Ground Station training bootcamps/ curriculum to provide antenna and GS trainings to university students

Proposals for establishing other potential space research laboratories/ Antenna Laboratories/ Space system development laboratories

Increase number of partner universities to carry out our local chapter activities

Continue Supporting ongoing Space Activities of Nepal

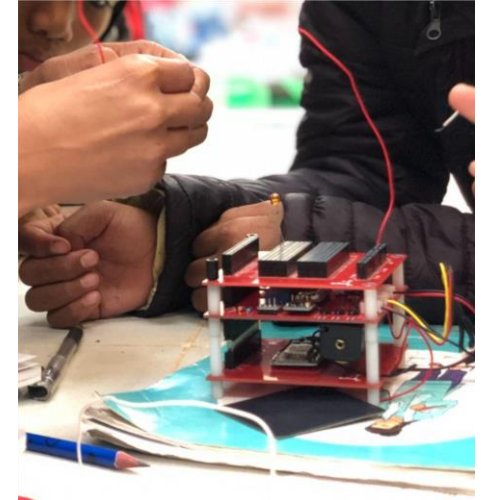
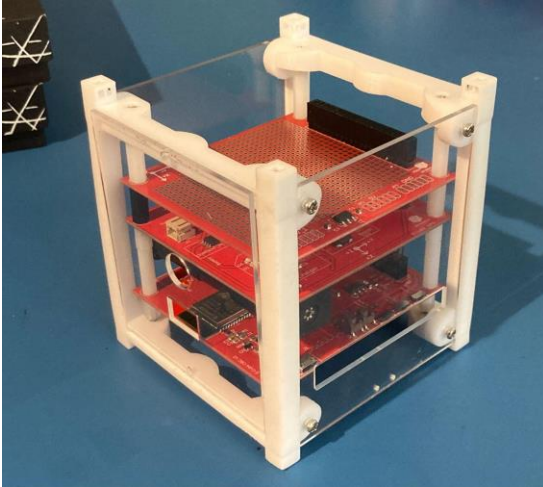
Plan for 2024 and beyond

E-Cube Plans:

Continue Research and Development of E-cube to make the experience more immersive, educational and convenient

Keep pushing in affordability and sustainability

Partner with more universities to increase the decentralized reach and impact of E-Cube



Conclusions

Amidst the challenges, UNISEC-Nepal's collaboration with other national and international organizations are going smooth

Still, as an emerging country in the space industry, the lack of funding/support and lack of manufacturing units in the nation has been a major issue.

With the support of our international and national partners, we are currently not only working on major satellite projects but are also widely involved in outreach activities to inspire the upcoming generations onto STEM

We are proud to share that the progress UNISEC-Nepal has made in the community has been noteworthy and we are ever thankful to UNISEC-Global for making this possible with your support and guidance. We hope for your continuous support throughout our coming years and hope that together, we can make a difference in the Global Space Community

THANK YOU!

*Presented by:
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UNISEC-Nepal*

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