Discovering a Whole New World

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Outline

- Background
- Introduction
- After PNST
- Hands-On Experience
- Involvement in Satellite Projects
- Special Guest Lectures
- Research and Outreach
- Life in Japan
Where I come from?

- Area: 38,394 Sq. km
- Landlocked between India and China
Bhutan’s Development Timeline

1961
First 5 year Plan

1999
Introduction of TV and Internet

2003
Introduction of Cellular Mobile Services

October 2016
Bhutan joined BIRDS-2 Project

Aug, 2018
BHUTAN-1 deployed from ISS

Bhutan to launch its first satellite in 2018

Around USD 280,000 will be spent on the effort
Kuensel dated 21 October 2016

Inauguration of Television in 1999
https://bhutantourisms.wordpress.com/
Before PNST

- Prepare tender documents
- Troubleshoot tipoffs
- Design electrical drawings

- Middle High school
- Bachelors

Image from: http://www.bhutanvisit.com/map-of-bhutan/
After PNST

Students specialize in:

- Ground station operations
- Structure and Thermal designs
- Programming
- PCB designs
- Material Science
- Project Management

Entrance Ceremony, 2017

Student room, LASEINE
Hands-on Experience

Anechoic Chamber

Solar Simulator

Vibration testing

Thermal Vacuum Chamber

Satellite functionality tests
Hands-On Experience

Mission Definition Review
[Post-MDR Modification 1.1]

MDR 28th Dec 2017
Kick off 4th Oct 2017

CDR 1st Sep 2018
PDR 24th April 2018

FM Jan 2019
Delivery Feb 18, 2019
Launch April 17, 2019

Operation 18 months~
Deployment June 17, 2019
Involvement in Satellite Projects

**BIRDS-2 (2018)**

- Japan
- Bhutan*
- Malaysia
- The Philippines

Three satellites

[http://birds2.birds-project.com/](http://birds2.birds-project.com/)

**BIRDS-3 (2019)**

- Japan
- Nepal*
- Sri Lanka*

Three satellites

[https://birds3.birds-project.com/](https://birds3.birds-project.com/)

**KITSUNE (2020)**

6U satellite

*K first satellite of the country
Special Guest Lectures

Prof. Jordi, CalPoly

Dr. Doi, JAXA

Dr. Wood, MIT

Dr. Werner, WMO

Dr. Wakata, JAXA

Dr. Joel, PHILSA
Research and Outreach

- Design and development of ground sensor terminals for remote data collection using satellites in 11 countries.
- Division of Telecom and Space (DoTS) established under Department of IT and Telecom, Ministry of Information and Communications, Bhutan
- DoTS is spearheading space related activities and outreach programs

https://www.facebook.com/bhutanspaceweek/
Life in Japan

Cycling Trip

Celebrating Hanami

Skiing in Hiroshima

Autumn Leaves
THANK YOU

https://twitter.com/Astro_Alex