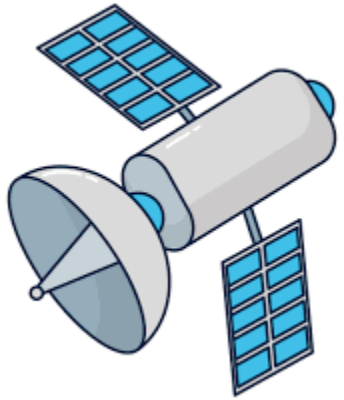
Post-graduate study on Nano-Satellite Technologies Webinar: A Space for Growth



Pema Zangmo, M2

Embedded Systems Lab, Under Prof. Kenichi Asami

Kyushu Institute of Technology, Kitakyushu, Japan

3rd November, 2022

Content

- Self Introduction
- About Bhutan
- Before PNST
- PNST/SEIC Programs
- Satellite Projects
- Life at Kyutech

Self Introduction

Name: Pema Zangmo

Country: Bhutan

Nationality: Bhutanese

University: Kyushu Institute of Technology

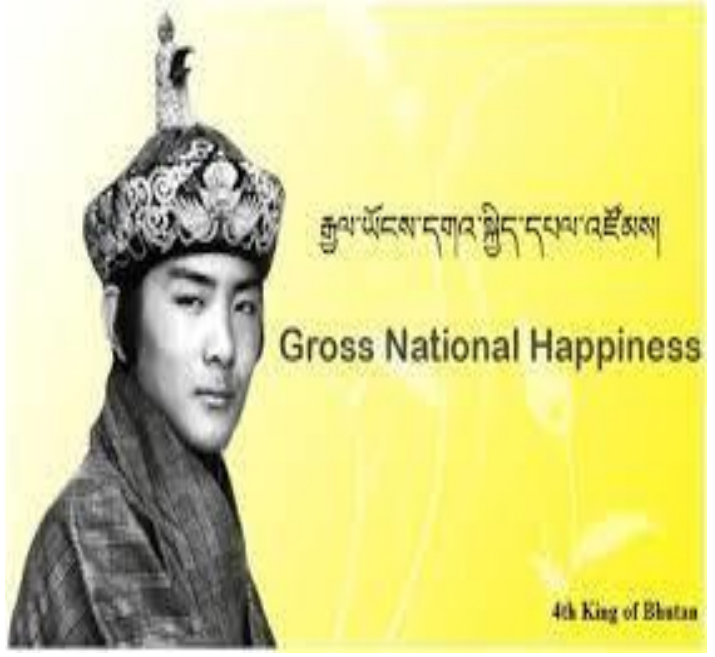
Course: Space Engineering International Course (SEIC)

Undergraduate Degree: Electronics and Communication Engineering, College of Science and Technology , Bhutan

About Bhutan

- Bhutan: The Land of Thunder Dragon
- Geographical Area: 38,394 Km^2
- Population: **791,121** (October 2022)

Credit: Alamy,internet



King

(Head of the State)

Prime Minister

(Elected Government)

Ministries

(10 Ministries)

Bhutan's Journey to Space

To develop local human capacity

4 Bhutanese Engineers took part in BIRDS-2 Project

CubeSat developed in Kyushu Institute of Technology

Launched Bhutan's first CubeSat "BHUTAN-1" in 2018.

Joint Satellite development project between Bhutan and India

Bhutan Second Satellite launch due end of this year

Bhutan's Journey to Space

- **Stage 1** Major Space Faring Nation (with launching site)
- **Stage 2** Space Faring Nation (operates satellites in general)
- **Stage 3** Emerging Space Faring Nation (small satellites)
- **Stage 4** Data Receiving Nation

Ministry of Information and Communication

↓

Department of Information Technology and Telecom (DITT)

↓

Division of Telecom and Space (DTS)

Before PNST

Bhutan

Kyutech
Kyushu Institute of Technology

SAS Ground Station

VSAT Antenna Installation

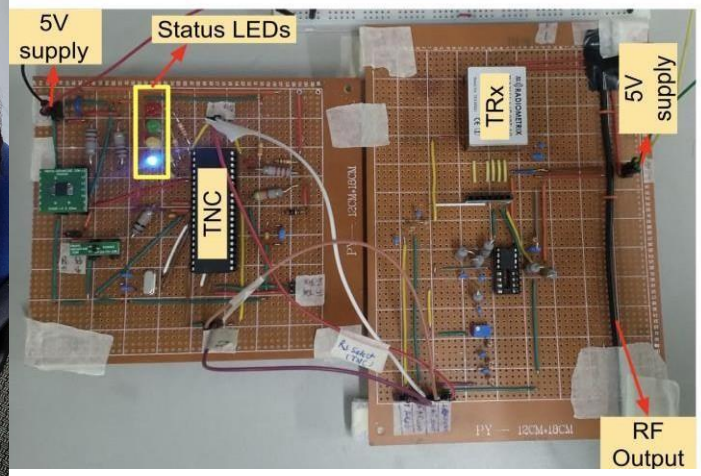
Technical Consultant: 2018-2019

College of Science and Technology

Assistant Lecturer : 2019

Bhutan Team with Minister of Brazil at Shriharikota, India during PSLV Launch

Verifying and soldering the payload circuitry (BBM Model)



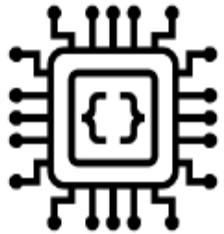
Breadboard model (BBM) of the secondary payload

SEIC Programs at Kyutech

Space Engineering International Course (SEIC)

Space law for new space actors: fostering responsible national space activities

Space system engineering



Embedded System Design

Power System Design

Environment Testing Workshop

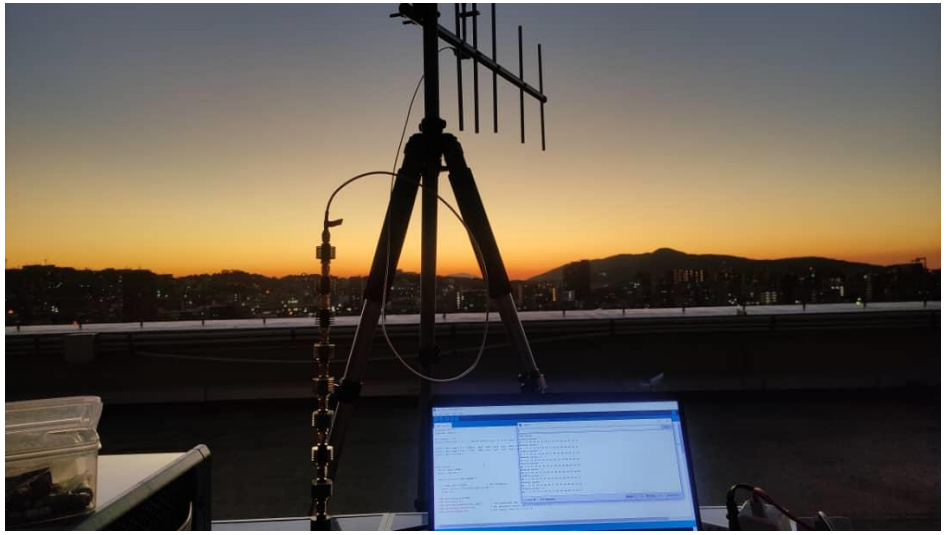
Project Base Learning Class

Language Class

Credit: Minh

Satellite Project

- Provide great hands on experience in satellite development
- Encourage Peer learning
- Ensure Team work and good communication skills
- Provide opportunity to familiarize with all subsystems
- Instill a sense of accountability
- Opportunity to obtain Amateur Radio License



Long Range Test

Battery Charge Discharge Test

FAB sensor calibration test

Bhutan

Life at Kyutech

Kyutech
Kyushu Institute of Technology

Sight Seeing

Badminton Club

Wakamatsu Windmill: Sunset

Connection over a lunch

Cycling

Bhutan

Kyutech
Kyushu Institute of Technology

Thank You

"Sky is the Limit."