



# BIRDS Project Newsletter

Issue No. 24  
(29 January 2018)

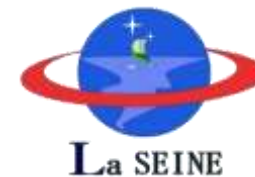


Members of BIRDS -1, -2, and -3 on 4 October 2017, at Tobata Campus

**Project website:** <http://birds.ele.kyutech.ac.jp/>  
All back issues are archived at this website.

*Edited by:*  
G. Maeda

Laboratory of Spacecraft Environment Interaction  
Engineering (LaSEINE)  
Kyushu Institute of Technology (Kyutech)  
Kitakyushu, Japan



All back issues of this newsletter can be easily downloaded. Go to here: <http://birds.ele.kyutech.ac.jp/>

At the top, click on the tab called NEWSLETTER. You will get a menu for all back issues.

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## The Guest Box

### From Malaysia (BIRDS-2)



The Blue Mosque, or its real name – Sultan Salahuddin Abdul Aziz Shah Mosque is the largest mosque in Malaysia, and the second largest in South East Asia. Situated closed to Universiti Teknologi MARA (UiTM) in the state of Selangor, this mosque was named after the late sultan who ruled Selangor at that time. Built on 14.6 hectare area, the construction started in 1982 and finished on 11 March 1988. The iconic features of this mosque are its large blue dome and 4 tall minarets. This mosque can accommodate 24,000 worshippers.

- Dr Siti Amalina Enche Ab Rahim (UiTM)

# 01. BIRDS-3 MDR (Mission Definition Review)

**All BIRDS projects do these three reviews ⇒**

**On 28 December 2017, the BIRDS-3 Project did its MDR in the Cho Lab Seminar Room on the Tobata Campus of Kyutech, from 13:00 til 16:35.**

**Photos on the next two pages.**

## **Mission Definition Review (MDR)**

The MDR examines the proposed requirements, the mission architecture, and the flow down to all functional elements of the mission to ensure that the overall concept is complete, feasible, and consistent with available resources.

## **Preliminary Design Review (PDR)**

The PDR demonstrates that the preliminary design meets all system requirements with acceptable risk and within the cost and schedule constraints and establishes the basis for proceeding with detailed design. It will show that the correct design options have been selected, interfaces have been identified, and verification methods have been described.

## **Critical Design Review (CDR)**

The CDR demonstrates that the maturity of the design is appropriate to support proceeding with full-scale fabrication, assembly, integration, and test. CDR determines that the technical effort is on track to complete the flight and ground system development and mission operations, meeting mission performance requirements within the identified cost and schedule constraints.

- From NASA documents





Abhas (Nepal) kicks off the MDR with introductory remarks



Turo (BIRDS-1) listens attentively.



Prof. Cho makes a point.



Taiwo raises a tough question.



BIRDS-3 members are huddled together.

## Various Presentations by Team Members



Abhas (Nepal)



Kakimoto (Japan)



Tharindu (Sri Lanka)



Dulani (Sri Lanka)



Pooja (Bhutan)



Makiko (Japan)

## 02. Photo of BIRDS-2 Team taken with the OVCAM of the BIRDS-2 satellite



Dear Maeda-sensei,  
Just sharing this BIRDS-2 Team Group Photo  
(all members) taken with the OVCAM camera  
used for our BIRDS-2 cubesat.

Philippines

1. Joven
2. Adrian

Bhutan

3. Kiran
4. Cheki
5. Yeshey
6. Pooja

Malaysia

7. Syazana
8. Azami

Japan

9. Yamaguchi
10. Uemura
11. Tokunaga



Thanks,  
Joven, 29 Dec 2017

### 03. How to adapt to a fast-changing world

**“Change before you have to.”**

-- Jack Welch



今日の名言はジャック・ウィルチからの引用です。日本語に訳すとすれば「変革せよ。変革を迫られる前に。」と言ったところでしょうか。ここ最近の世界動向と日本経済の将来を考えると、我々日本人は従来のような「考えず組織に従って生きる」という生き方は今後通用しないかもしれません。多くの書籍やマスコミが取り上げる様に個々人の意識の変革が今まさに必要な時なのでしょう。この状況をそのまま見過ごして変化せず、停滞してはいけません。それはジャック・ウィルチの名言が示す様に、「求められてから・必要に迫られてから」では遅すぎる為です。まず一歩変化のために足を踏み出したいものです。

<http://blog.livedoor.jp/arumitech-meigen/archives/915236.html>

John Francis "Jack" Welch Jr. (born November 19, 1935) is an American retired business executive, author, and chemical engineer. He was chairman and CEO of General Electric between 1981 and 2001. During his tenure at GE, the company's value rose **4000%**. In 2006, Welch's net worth was estimated at \$720 million. When he retired from GE he received a severance payment of \$417 million, the largest such payment in history. -- Wikipedia

## 04. Assembling FM (flight models) is serious business

To all of BIRDS-2 and -3:

This is about FM assembly procedures.

When assembling FM, you will use Loctite (fastener glue).

For the use of the Loctite, please observe the following:

- A. Clean the surface to be coated.
- B. Apply the Loctite within 24 hours
- C. Establish a drying time of 24 hours or more
- D. Adhesive residue is the source of outgassing. Wipe thoroughly.

To show that these requirements are satisfied, please describe the following in the FM assembly procedure and record.

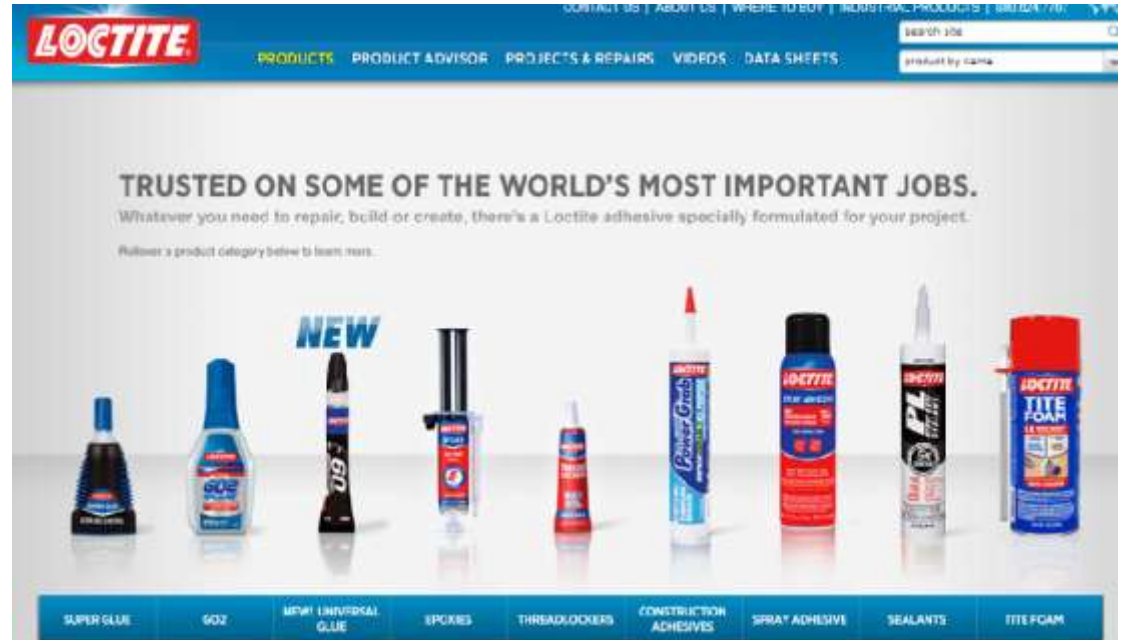
1. Preliminarily clean the surface to be coated with Loctite by alcohol.
2. Fix fasteners within 20 minutes after application of the Loctite.
3. Maintain the satellite in a clean room for 24 hours to dry the Loctite after assembly.
4. Wipe off the residue when using the Loctite.

Sincerely,  
Yamauchi

\*\*\*\*\*

九州工業大学  
宇宙環境技術ラボラトリー  
山内 貴志 (Yamauchi Takashi)

\*\*\*\*\*





## 05. Media news on the Nov-2017 BIRDS Workshop in Ghana



HOME GENERAL BUSINESS POLITICS EDUCATION ENTERTAINMENT

### ANUC To Fight Galamsey With Ghanasat-2

By Kobina Welsing Last updated Nov 21, 2017



<http://starrfmonline.com/2017/11/21/anuc-to-fight-galamsey-with-ghanasat-2/>

The All Nations University College (ANUC) has begun moves to build Ghana's Second Satellite dubbed Ghanasat-2 which will have a commercial mission to help solve most environmental challenges confronting the country.

Speaking to Starr News at the Sidelines of the 6th Annual International SSSTA 2017 Conference & Birds International Workshop ongoing in Koforidua and being participated by Space Technology experts from 20 countries on the theme "Fighting Galamsey from Space", the President of ANUC, Dr. Samuel Donkor said the University has built the needed Human resource for the project hence with support from the government, Ghana's second Satellite can be built and successfully launched to embark on commercial mission for the development of the state.

"The most important thing for any country is to develop the skills set so [with] the research we have done, we have managed to attain the necessary skills set and then in collaboration with KYUTECH, we believe that we are ready to build Ghana's Second Satellite which will have commercial applications and this why we are holding this conference at this time." **Cont'd next page**

Mr. Donkor added “all the Experts from 20 countries are here, we will be discussing some of the pertinent issues facing the Ghanaian economy, then the government. Illegal mining is one of the headaches because our water bodies are being polluted so we are going to use satellite applications to solve those problems.”

On July 7, 2017, the University put Ghana on the World Map by launching Ghanasat-1 through Japan Aerospace Exploration Agency (JAXA) at altitude of 400 kilometers above the earth’s atmosphere aboard the Japan Kibo Deployment System.

The satellite is expected to undertake earth imaging of Ghana and broadcast national Anthem from Space to the amateur ground station at Campus of the University. Currently, the Satellite is in operation stage and will soon begin its mission.

The satellite was developed by three Alumni of All Nations University College (ANUC) in Koforidua who were part of the Birds Project undertaken by the Graduate School of Engineering of the Kyushu Institute of Technology in Japan (Kyutech).

The students are Mr Benjamin Bonsu, Mr Joseph Quansah and Mr Ernest Teye Matey.

The Birds Project is a cross-border interdisciplinary satellite project for non-space-faring countries, supported by Japan. It was participated by Ghana, Mongolia, Nigeria and Bangladesh.

The entire Project cost the University \$250,000. The Principal Investigator of BIRDS Project also Director of the Laboratory of Spacecraft Environment Interaction Engineering, Kyutech in Japan, Prof. Mengu Cho, said Ghana must hold the momentum to be quick to build and launch the second Satellite for national development.

He said Education institutions alone cannot build the satellite considering the cost implication therefore the need for Ghana government to support ANUC to revolutionise space technology.

By Kobina Welsing (StarrFM) on Nov 21, 2017



## 06. Ghanaian Times of 21 Nov 2017

# All Nations University College to launch Ghana's second satellite

FROM AMA TEKYIWA AMPADU-NYARKO, KOFORIDUA



All Nations University College has commenced the building of Ghana's second satellite to help solve the country's environmental challenges especially that of galamsey.

The satellite christened "Ghanasat-2" would provide better images with quality maps, resolutions of illegal mining sites and activities to aid the country tackle the menace that has bedeviled the country.

Ernest Teye Marrey, one of the three Ghanaian students who built Ghana's first satellite dubbed Ghanasat-1 revealed this during the opening of the 6th Annual International Space Systems Technology Laboratory (ISSTL) 2017 Conference and 5th International workshop organized here by the Space Science Technology Department of the university.

The event was attended by space science experts from the Japan Aerospace Exploration Agency (JAXA), West African Science Service Centre on Climate Change and Adaptation Land Use (WASCAL), National Aeronautics and Space Administration (NASA), Kyushu Institute of Technology (KYUTECH) among others.

The three-day workshop held on the theme "Fighting Galamsey from Space," created a platform for the participants to deliberate on how best developing nations, including Ghana, aspiring to be space-faring countries could build satellites successfully to facilitate their socio-economic development.

Mr Marrey stated that Ghana today had the necessary human resource needed for the commencement of the Ghanasat-2 project.

He, however, called on the government to assist with the necessary infrastructure required for the development of the second satellite and its launch into space.

"It is for this reason that we have brought space science experts into the country to deliberate on how to build a successful satellite and we believe that with our expertise in building the first satellite we have the upper hand in achieving Ghanasat-2," he said.

According to him, the first Ghanasat-1 which was deployed into space in July 2017 was an educational satellite with the mission of analyzing data, adding that it was not deployed for sophisticated missions.

Mr Marrey said that the Ghanasat-2 was meant to monitor galamsey operation and hence would be built to perform the required mission to help combat galamsey.

"The Lands Commission and other agencies fighting galamsey operations have revealed that the use of satellite images was important in fighting the menace," he said.

Mr Marrey added that data obtained from the google maps, even though were useful, they had resolutions of images that was not clear and hence less useful.

He added that the mission of the Ghanasat-2 would help to provide satellite images with high resolutions better than the data the Lands Commission and other agencies were using.

For his part, a representative from the Ghana Space Science and Technology Institute (GSSTI), Mr Fredrick Aggrey, in a presentation on the topic "Capacity Development for Monitoring Illegal Mining Activities, Galamsey" called on all stakeholders in the space science sector to come together to build one satellite that would help tackle illegal mining activities in the country.

He called on the government to support the industry by investing in the space science projects

• All Nations University College campus



This article appeared in Ghanaian Times on 21 Nov 2017

## 07. BIRDS-1 Team invited by Airbus to its Japan Office



# AIRBUS



## AIRBUS Japan Office visited on 13 December 2017

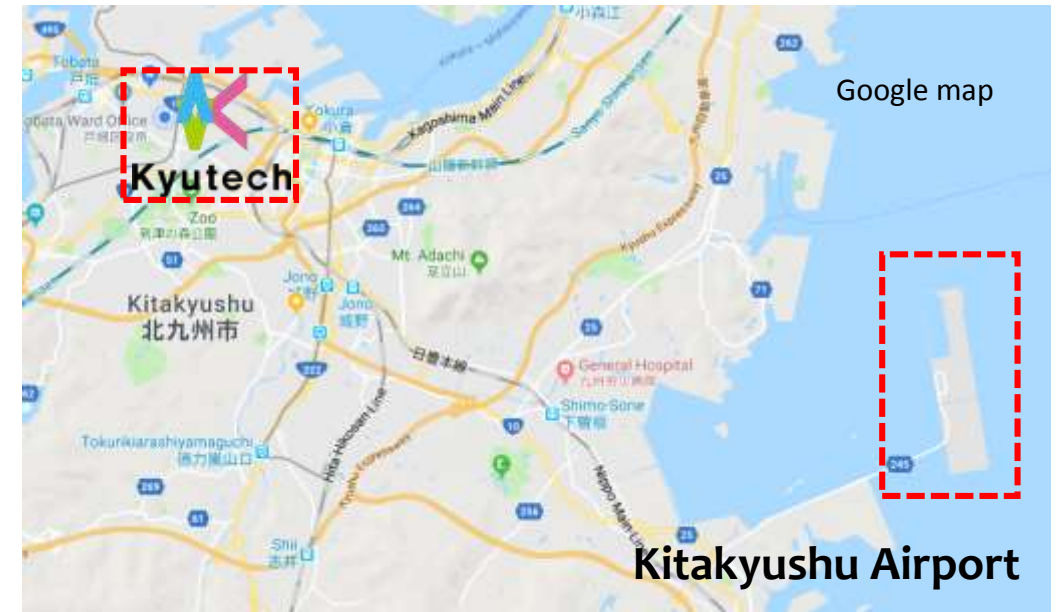
BIRDS Satellite Project represented by **Taiwo Tejumola** selected as the winning project for the 2017 **GEDC Airbus Diversity Award** in Niagara Falls, Canada

BIRDS-1 team was invited to **AIRBUS Japan office** in Tokyo to celebrate the achievement.



## Trip Report

Text by Apiwat Jirawattanaphol  
and Maisun Monowar  
Photos by Maisun Monowar



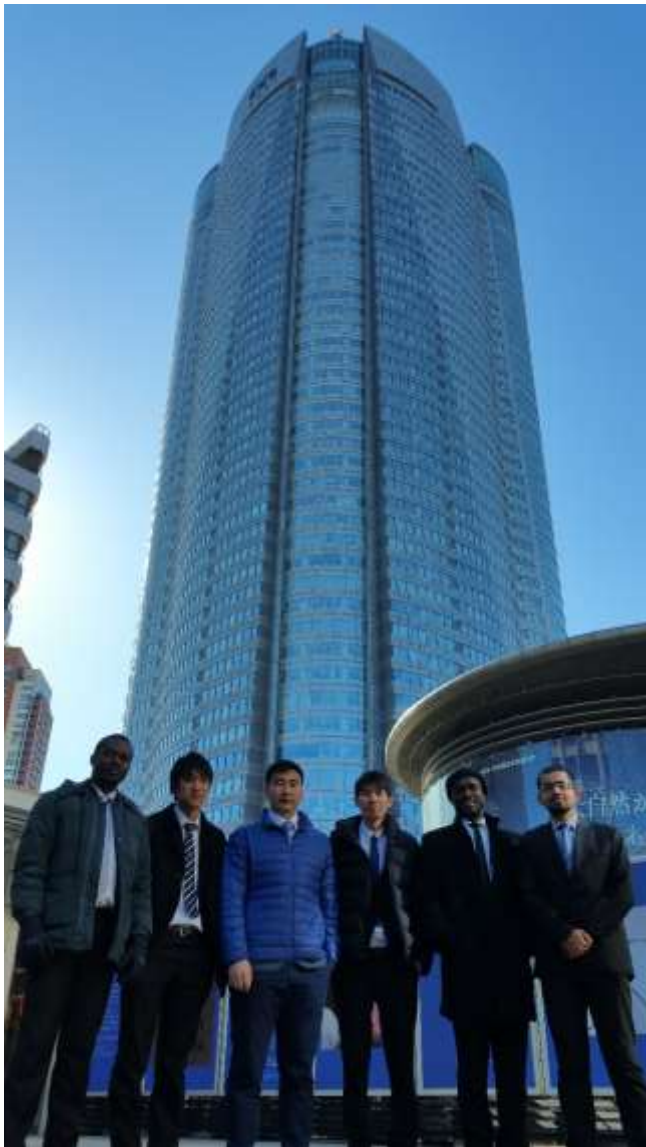
BIRDS members start the trip by gathering at Kyushukodaimae train station, which is the nearest station from Kyutech. We use train and highway bus to go to Kitakyushu airport which takes about an hour.

L-R: Apiwat, Maisun, Bonsu, Ibukun, Turo, Nakamura



We flew to Tokyo by **Star Flyer** which operates the **AIRBUS A320**

Kitakyushu Airport is an artificial island located in the East of Kitakyushu city and can operate 24 hours per day.



BIRDS-1 members in front of **Mori Tower**

Airbus Japan Head Office is located in **The Mori Tower** in Roppongi Hills, Tokyo. Currently, the Mori Tower is the 6<sup>th</sup> tallest building in Tokyo at 238 meters.

The Mori Tower building is primary use for office space, but it also includes retail stores, restaurants and other tourist attractions such as observation desk on the 52<sup>nd</sup> and 54<sup>th</sup> floors.



**Mori Garden**, a small traditional Japanese garden in Roppongi Hills.



During the meeting Prof. Mengu Cho gave a presentation on BIRDS project to the press in AIRBUS Japan conference room.



BIRDS members received question from the press:

1. What is a suitable space application for your country ?
2. How each member plan to involve in their country space program after graduation?

Most of BIRDS members answer are plan to go back to their country and establish or participate in space program.





**Group photo in front of Airbus Japan office with Mr. Stephane Ginoux  
(President, Airbus Japan)**

L-R: Benjamin Bonsu, Apiwat Jirawattanaphol, Ibukun Adebolu, Prof. Mengu Cho, Naoki Nakamura, Stephane Ginoux (President, Airbus Japan), Turtogtokh Tumenjargal, Maisun Monowar



**View of Tokyo City from  
Mori Tower**



# The GEDC Airbus Award for Diversity in Engineering Education 2013 – 2017 The story so far...

Airbus has produced this new video (under 4 minutes) that describes its Diversity Award from 2013 through 2017 – including the winner of last year (BIRDS Project).



<https://www.youtube.com/watch?v=Y9DLbkCrp1w&feature=youtu.be>

## 08. Potluck dinner of BIRDS-2 and BIRDS-3 . . . . . text and photos by Pooja

- As a tradition, BIRDS-3 hosted a potluck dinner for their preceding seniors BIRDS-2 after the completion of their MDR on the evening of 28<sup>th</sup> December 2017.



- Figure: The food tables; Popcorn and chips, the dinner and pizzas

# The feast



Sushi



Harusame Prepared by BIRDS-3 member Makiko



Cheese curry cooked by BIRDS-3 member Pooja

Dal (lentils) cooked by BIRDS-3 member Dulani



Nimono cooked by BIRDS-3 member Kakimoto



Fresh fruits prepared by BIRDS-3 member Sasaki



Joven, project manager of BJRDS-2 makes a toast for the evening



The project managers of BIRDS-2 and BIRDS-3



Beautiful ladies of BIRDS-2





The group photo

End of report by Pooja.

## 09. VC of Nepal NAST visits Kyutech to sign BIRDS-3 CRA

On 17-18 January 2018, the Vice Chancellor Jiba Raj Pokharel of NAST (Nepal Academy of Science and Technology) came to Kyutech on a fact-finding mission.

In Issue No. 21 of this newsletter, on page 54, you can see the VC signing the **CRA\_Application** for this CRA.



**Prof. Dr. Jiba Raj Pokharel**  
*Vice-Chancellor*

**NEPAL ACADEMY OF SCIENCE AND TECHNOLOGY**  
Khumaltar, Lalitpur

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Tel. : +977-1-5547720 (O), 5580424(R)  
Fax : +977-1-5547713  
E-mail : jibaraj@gmail.com  
Website : www.nast.gov.np



**NEPAL ACADEMY OF SCIENCE AND TECHNOLOGY**  
Science & Technology for National Development



Kyutech welcomes



Nepal Academy of Science and Technology

### CRA Reception Agenda

10:00-10:02 : Welcome Address by President. Yuji OIE  
10:02-10:04 : Address by Vice-Chancellor. Jibaraj Pokharel  
10:04-10:15 : CRA Reception  
Photo Session /Token Exchange

(Venue : Kyutech, Nakamura Memorial Hall, 2nd Floor Special Meeting Room )

### Participant List

#### **Attendee of Nepal Academy of Science and Technology(NAST)**

-Prof.Dr. Jibaraj Pokharel  
(Vice-Chancellor )

#### **Attendee of Kyushu Institute of Technology (Kyutech )**

-Dr. Yuji OIE  
(President)  
-Prof.Dr.Mengu CHO  
(Director of Laboratory of Spacecraft Environment Interaction Engineering / Department of Applied Science for Integrated System Engineering)  
-Assistant Prof. George MAEDA  
(Laboratory of Spacecraft Environment Interaction Engineering )  
-Mr. Abhas MASKEY  
(PNST student from Nepal)  
-Toshiro WAKABAYASHI  
(Section Head of International Exchange Section, International Affairs Division)  
-Sari GOTO  
(Staff of Industry-Academic Alliance Section, Research Cooperation Division)



Prof Cho receives gift from VC Pokharel



President Oie receives stupa from VC Pokharel

2<sup>nd</sup> floor of  
Nakamura Memorial Hall



**CRA Signing Ceremony  
(10:00-10:30 am)**







# NAST (Nepal) and Kyutech (Japan) Business Meeting (10:30am-Noon)



**Wakabayashi-san (Kyutech International Division) and Abhas showed Prof. Pokharel some of the highlights of Kitakyushu on 18 January:**

9:00am :

Pick up at the Rihga Hotel Lobby

9:30am-11:00am :

Kitakyushu Environment Museum

**[ see the next page for museum info ]**

11:30am-12:30pm : Lunch

13:00pm-14:30pm :

Kokura Castle, Yasaka Shrine, Japanese Garden and Tea room

14:45pm :

Sending off to JR Kokura Station (Prof. Pokharel and Abhas headed for Fukuoka city )

The preceding information was provided by  
Wakabayashi-san.



# Kitakyushu Environment Museum

北九州市環境ミュージアム  
KITAKYUSHU ENVIRONMENT MUSEUM



**Facility Overview**

- 1) Exhibition Room
- 2) Information Library / Reuse Corner
- 3) Communication Area
- 4) Multi-purpose Exhibition Hall (Seats 80)
- 5) Practical Room (Seats 34)
- 6) Conference Room 1 and 2 (Seats 12)
- 7) Dome Theatre (Seats 100)

**Hours**

Closed: Every Monday and January 1  
Open: 9:00-17:00 (Exhibition area) (Admission closes at 16:30)  
9:00-21:00 (Information Library / Reuse Corner etc., Sat., Sun, Pub. H4, closes at 17:00)

**Admission**

Adults 100 yen  
Elementary / Junior High Students 50 yen (Admission to the information library / Reuse Corner and Communication room are free)

3-2-6 Higashi Yahata Higashi-ku Kitakyushu City, 805-0071  
TEL | 093-663-6751 FAX | 093-663-6753  
<http://www.qbiz.ne.jp/museum/>

*At one point, Kitakyushu's skies were choked with "seven colors of smoke," and Dokai Bay was so polluted that fish were unable to survive there, leading to the nickname "Sea of Death."*

*At Kitakyushu Environment Museum, you can learn about the history of the area's past pollution issues and the measures that were taken to reclaim its blue sky and sea.*

*The museum also provides practical and fun information on how to lead a more eco-friendly life.*

*You are sure to be amazed at the environmental technologies of Kitakyushu, a city that has come into the global spotlight for its progressive environmental initiatives.*

*Every day, the museum holds free workshops on recycling.*

*Outside the museum building, you will also find the "Earth Path," where visitors can experience the story of our planet, from its birth to the present day.*

*Drop by and experience the grand mysteries and wonders of planet Earth, a story written by Kuramoto So, one of the most famous Japanese scriptwriters.*

- The preceding text is from

<http://www.gururich-kitaq.com/en/search/category/detail.php?id=64>

## 10. BIRDS-3 logo contest

This section was compiled by Dulani of BIRDS-3

The BIRDS-3 team conducted a logo contest in the later part of last year. In this section, we show the contest entries from various places in South Asia. All entries are wonderful. The winning entry is shown last.



<https://can2-prod.s3.amazonaws.com/uploads/data/000/067/316/original/logocontest-800x480.png>

**Prize for the winner: On the Printed Circuit Board (PCB) that goes into space with BIRDS-3 spacecraft, the logo will appear. The winner's name will also appear with the logo.**

# Received Logos



**Name:** Sagar Adhikari

**Age:** 18 years

**City:** Kathmandu

**Country:** Nepal

**Affiliation:** Capital College and Research Centre



**Name:** Nilvin Sathnindu Kottage

**Age:** 17 years

**City:** Biyagama

**Country:** Sri Lanka

**Affiliation:** Studies Mathematics and Physical Science(Advanced Level) in  
Ananda College, Colombo 10  
President of Anandian Astronomical Association

# Received Logos



**Name:** Dushani Ayesha

**Age:** 23 years

**City:** Colombo

**Country:** Sri Lanka

**Affiliation:** Studies BSc((Hons) in Computing with Interactive Media in  
South Asian Institute of Technology and Medicine



**Name:** Sagar Adhikari

**Age:** 18 years

**City:** Kathmandu

**Country:** Nepal

**Affiliation:** Capital College and Research Centre

# Received Logos



**Name:** Safal Shrestha

**Age:** 16 years

**City:** Kathmandu

**Country:** Nepal

**Affiliation:** Capital College and Research Centre (CCRC)



**Name:** Aashish Aryal

**Age:** 14 years

**City:** Butwal

**Country:** Nepal

**Affiliation:** New Horizon English Boarding Higher Secondary School

# BIRDS-3 logo competition winner



***Congratulations,  
Dushani !***



**Name:** Dushani Ayesha

**Age:** 23 years

**City:** Colombo

**Country:** Sri Lanka

**Affiliation:** Studies BSc (Hons) in Computing with Interactive Media in South Asian Institute of Technology and Medicine



# 11. International Workshop on Lean Satellite - 2018

Some of the topics covered:

- a. Lean Satellite Concept
- b. Satellite Verification & Testing (Hardware and Software)
- c. Project Management
- d. Constellation Satellites (Design, Verification, Manufacturing and Operation)
- e. Cubesats
- f. Interface
- g. Satellite Operation (Communication Protocols, Ground Station Networking, etc.)
- h. International Projects
- i. New Standards
- j. Frequency Allocation (Radio Spectrum)
- k. Capacity Building
- l. Debris
- m. Safety

**This workshop was attended by SEIC, PNST, and BIRDS students for their lean sat education.**

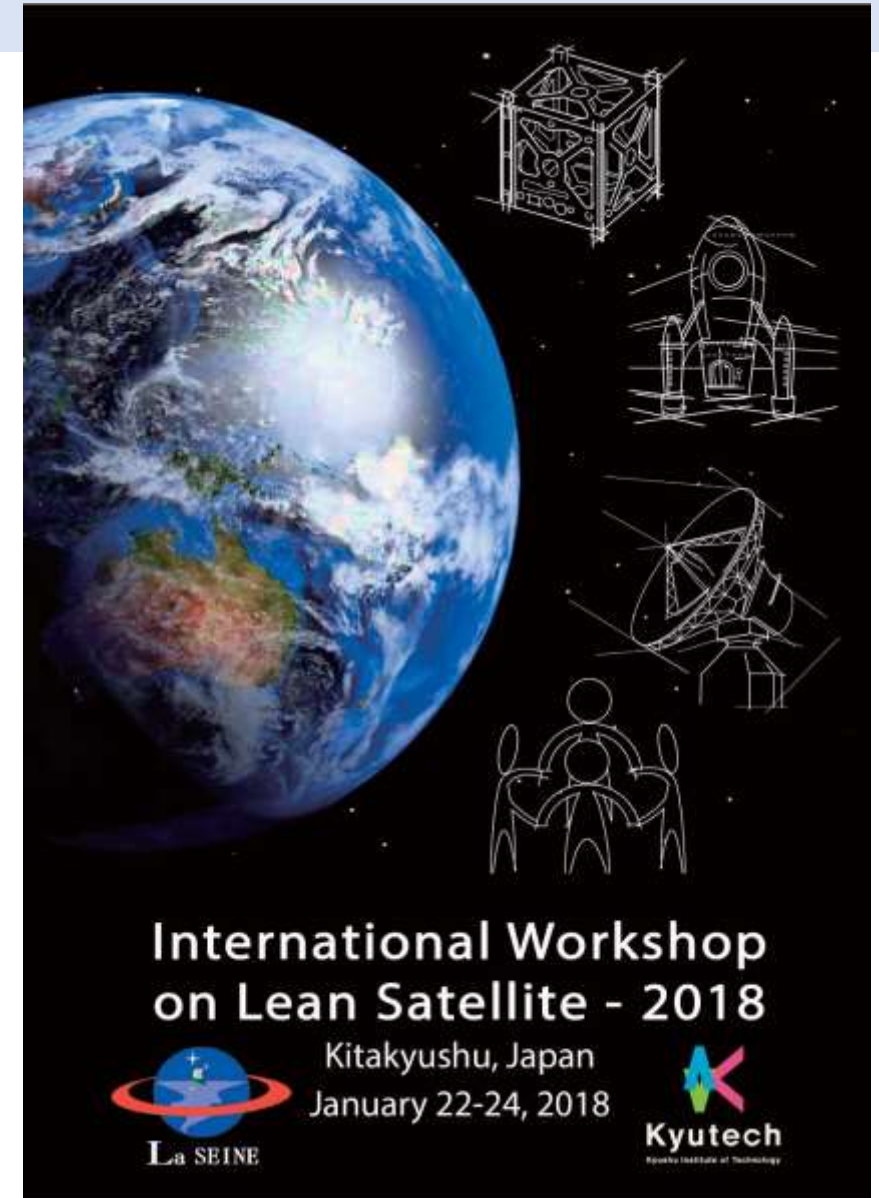


Venue: Kitakyushu International Convention Centre

International Workshop  
on Lean Satellite- 2018  
is sponsored by Infostellar, Inc.



The City of Kitakyushu is  
also a sponsor.



# A Photo Report of the Workshop



**More info at this website:  
<http://leansat.net/>**



For IWLS-2018, the special guest speaker was Dr Robert Sproles of Spire, Inc., where he is Director of Engineering. Shown at the left is the speaker upon arrival at Fukuoka Airport on 21 January 2018 near 10 AM.



His presentation was this



## Int'l Workshop on Lean Satellite - 2018



**Group photo  
of the  
workshop  
[22 Jan 2018]**





Arrival of Sudan-Ethiopia-Nigeria delegation and the Russian delegation at Fukuoka Airport on 21 Jan 2018.



President Oie (Kyutech) and Dr Sproles (Spire, Inc.)



The venue of the workshop (Kitakyushu Int'l Convention Center)



# Int'l Workshop on Lean Satellite - 2018



**Prof. Oie**



**Prof. Cho**



# The First Coffee Break



## Kitakyushu Int'l Convention Center





The First Coffee Break





# Panel Discussion of Day 1: "Lean Satellite Mass Production"

Cont'd next page



Lunch at "Food Court"



Word-by-word transcript taken by Abhas.



# Panel Discussion of Day 1: “Lean Satellite Mass Production”



**Dinner atop the  
Colette Building of  
Kokura – 360 deg  
view of the city**



## Day 2 – Tuesday, 23 Jan. 2018



9:00-9:20, Dr.Tsegaye Kassa Gogie, Bahir Dar University, Ethiopia  
“Validation of linear time series ionospheric Total Electron Content model over low latitude Ethiopian GPS stations”.

## Day 2 – Tuesday, 23 Jan. 2018



10:00-10:30 AM  
ADRIAN C. SALCES, Kyushu  
Institute of Technology,  
“Overview and Updates of  
the BIRDS-2 Project's  
Store-and-Forward  
Mission”



leansat

## Excursion began at noon

### We enjoyed 3 events:

- ① **Tour of Toyota Miyata Car Plant**
- ② **Visit to Toto Museum**
- ③ **Dinner at restaurant in Mojiko**



Members of the IWLS excursion  
(group photo at Toyota Plant)

2018.01.23

2018.01.23



Going to the assembly plant – where photos are not allowed.



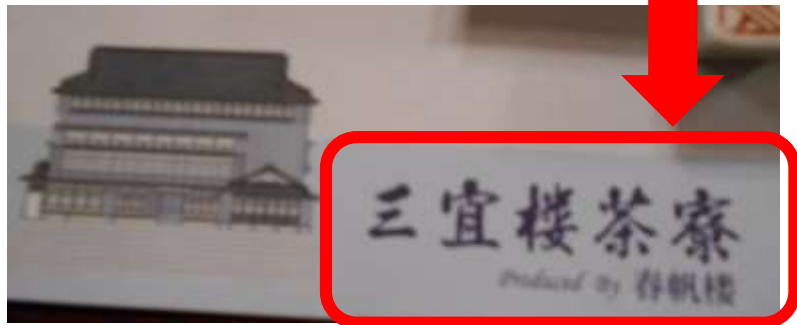
## Visit to Toto Museum



7-min. video about Toto – the world's largest manufacturer of toilets.



# Last segment of IWLS excursion: Dinner at



THE ONE HUNDRED TATAMI ROOM



Prof Cho translates explanations from the restaurant manager.



鰯 - Japanese flounder

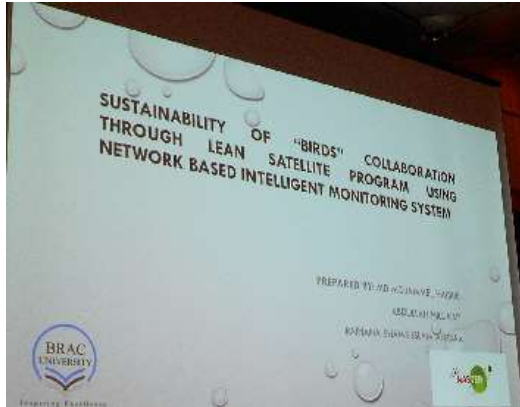


**End of IWLS excursion photos**





# Day 3 – Wednesday, 24 Jan. 2018

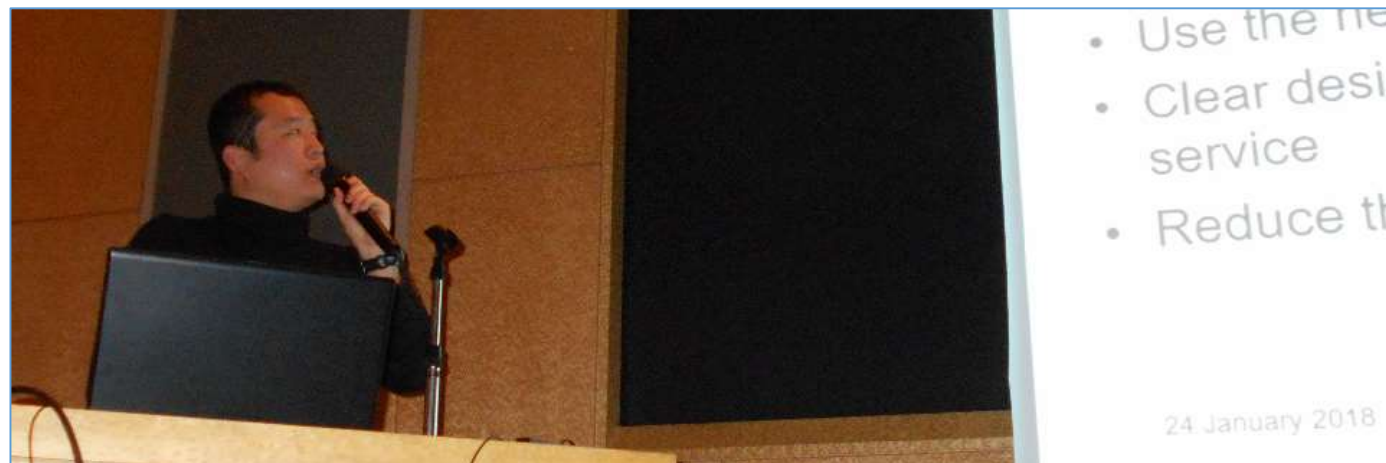
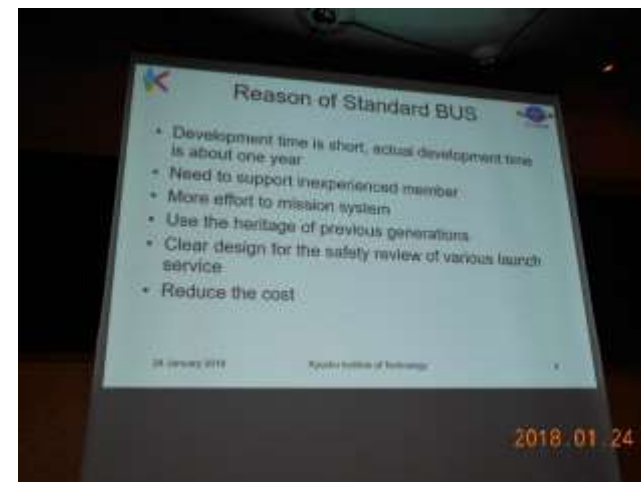


MD Mojammel Haque,  
BRAC University,  
*Sustainability of “BIRDS”  
collaboration through lean  
satellite program using  
network based intelligent  
monitoring system*





Dr. Sangkyunn Kim,  
Kyushu Institute of Technology  
*Evolution of BIRDS 1U CubeSat  
Standard BUS*



Prof. Jyh-Ching Juang, National  
Cheng Kung University, Taiwan,  
*On IoT-enabled Lean Satellites*

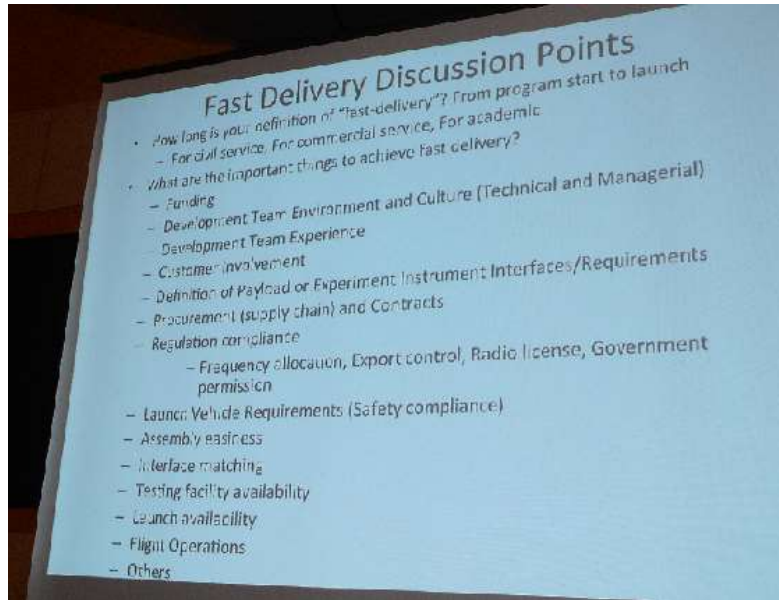
**Day 3 – Wednesday, 24 Jan. 2018**



Kiran Kumar Pradhan, Kyushu Institute of Technology,  
*Shortening of Development time of Lean satellites*

**Day 3 – Wednesday, 24 Jan. 2018**

# Panel Discussion of Day 3: “Lean Satellite Fast Delivery”



**END OF ARTICLE ON IWLS**

## 12. BIRDS written up in the Airbus Japan Newsletter of October 2017



ボンバルディアとCシリーズでパートナーシップ締結



Head Line says:  
“Project of Kyutech receives the Airbus Diversity Award”

### 九州工業大学のプロジェクトがエアバスのダイバーシティ・アワードを受賞



ダイバーシティ・アワードを受賞された  
タイウォ・テジュモラ氏（右端）

エアバスとエンジニアリング教育の世界的団体であるグローバル・エンジニアリング・ティーンズ・カウンシル（GEDC）は、九州工業大学の衛星開発プロジェクト、「BIRDS Satellite Project」が、「GEDC エアバス ダイバーシティ・アワード」を受賞したことを発表しました。

エアバスが GEDC と協力して開催するこのアワードは今年で 5 回目となり、ユネスコ（国際連合教育科学文化機関）が後援しました。アワードの目的は、成功したプロジェクトに光をあてることによって、国籍や人種、経歴の異なる人々がより多く、エンジニアリングを学ぶことに興味を持ち、エンジニアリングの世界で成功することを促進するものです。多様性（ダイバーシティ）はビジネスの成功においてますます重要な測定基準となっています。2017 年は企業幹部の 69% が多様性と一体性を重要な

問題と位置づけており、その数は 2014 年の 59% から増加しています。

エアバス民間航空機部門のジャン＝ブリス・デュモン次期エンジニアリング担当上席副社長は次のように述べています。「ダイバーシティは私達のビジネスの基礎であり、成功を続けるために必要不可欠な要素です。また、ダイバーシティは単に重要というだけでなく、エアバスの DNA の一部です。私達の業界で高レベルのイノベーションを持続するため、エアバスはあらゆる種類の多様性を認め、さらに奨励していくことに尽力します。GEDC とのパートナーシップはこの取り組みの一環であり、多様でグローバルな次世代エンジニアの育成に貢献した今回の受賞プロジェクトのように成果をあげているプロジェクトを振り返るために協力をしています」

九州工業大学の BIRDS Satellite Project では、コスト効率の良い革新的なシステムズエンジニアリングを活用して発展途上国の大学院生を教育し、2 年間の包括的衛星開発プロジェクトを実施しました。プロジェクトの長期的目標は、学生達がそれぞれの出身国で持続可能な宇宙開発プログラムを立ち上げることができるように知識や技術を身につけることです。BIRDS Satellite Project のプロジェクト・マネー

ジャーであるタイウォ・テジュモラ氏は、カナダのナイアガラフォールズで開催された 2017 年 GEDC 年次総会で、当プロジェクトを発表しました。受賞セレモニーでタイウォ・テジュモラ氏は次のように述べました。「九州工業大学の BIRDS Satellite Project チームは今回の受賞を大変喜ばしく思っています。私達の国際的協力プロジェクトは若いエンジニア達に今日のグローバル市場で競争する特別な機会を提供しました。そしてまた、無駄を最小限に抑えるシステムズエンジニアリングモデルを指導し、核となるスキルを発展させ、相互に助け合う人的ネットワークを確立する貴重な機会となりました。プロジェクト参加者がそれぞれの出身国で教育を立ち上げ実行するための持続可能な道を作ったことで、さらなるエンジニアリングスキルの多様化とグローバル化に貢献することができます」

2017 年アワードには 18 カ国の 39 の団体から 45 個のプロジェクトの応募がありました。

\* 出典：Deloitte, Human Capital Trends, 2017



BIRDS Satellite Project チーム



# 13. Nepal clears a major hurdle for funding its BIRDS-3 project



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[www.madeinepal.space/2017/11/ministry-of-finance-approves-funds-for.html](http://www.madeinepal.space/2017/11/ministry-of-finance-approves-funds-for.html)

November 14, 2017

## MINISTRY OF FINANCE APPROVES FUNDS FOR NEPAL'S FIRST SATELLITE

The Ministry of Finance of Government of Nepal has approved funding (hardware) for Nepal's first satellite which is scheduled to be launched in 2019. The form factor of the satellite will be in nano-scale in 1U CubeSat format. Nepal is currently involved in BIRDS-3 program in Kyushu Institute of Technology (Kyutech) in Japan along with Sri Lanka. BIRDS-2 satellite project has Bhutan as one of their participants while BIRDS-1 had Bangladesh. BIRDS-1, led by Nigerian Tejumola Taiwo, recently

<http://www.madeinepal.space/2017/11/ministry-of-finance-approves-funds-for.html>

1/15/2018

Ministry of Finance Approves Funds for Nepal's First Satellite

won the GEDC Airbus Diversity Award at the GEDC 2017 Conference at Niagara Falls, Canada. Congratulations to the BIRDS-1 team again.



The next step would be for Nepal Academy of Science and Technology (NAST), the designated stakeholder from Nepal, to sign the Cooperative Research Agreement (CRA) with Kyutech.

You can read more about the BIRDS program [HERE] with monthly newsletters released to the public [HERE].

madeinepal.space thanks all the people, from all different levels, who had to come together to make this happen. There's still work to be done but it's very very close now.



BIRDS-1 constellation of satellites included Bangladesh's first satellite, BRAC Onnesha  
Photo Credit: Kyutech



BIRDS-1 CubeSat[s] seen here being released from ISS in July 2017.  
Photo Credit: NASA

## 14. Prof. Mwangi Mbutia (Univ. of Nairobi) discusses BIRDS-4 at Kyutech

He came to Japan to deliver Kenya's CubeSat to JAXA (KiboCube) – and then came here for one day after that delivery was completed.



At the left is  
Cosmas, PNST  
Fellow from  
Kenya



8:00 AM meeting on 18 January 2018  
(Prof Mbutia, Prof Cho, G. Maeda, Cosmas, in  
the Control Room of LaSEINE)

## 15. 2018 International Conference of Space Weather and Satellite Application (ICeSSAT 2018)

Submitted by UiTM

-----Call for papers and reviewers

Dear Colleagues,

Center for Satellite Communication (UiTMSAT),  
Faculty of Electrical Engineering, Universiti Teknologi  
MARA

is organizing the

\*2018 International Conference of  
Space Weather and Satellite Application  
(ICeSSAT 2018)\*

on

\*7-9 August 2018\*

at

Shah Alam, Selangor, Malaysia, in conjunction with the  
deployment of our first nanosatellite, UiTMSAT-1.

This conference is co-organized by several local  
universities and government agency.

The objectives of this conference are to disseminate  
knowledge, and to share experiences and expertise in  
space science and satellite technology in all  
aspects of applications. It also aims to build network  
between local and international professionals in this  
field with industries. Further details on  
the conference are available at  
<http://icessat.uitm.edu.my/>

\*-----\*

**\*CALL FOR REVIEWERS\***

\*-----\*

ICeSSAT 2018 organizing committee is seeking for  
academicians and researchers who are interested to  
become a reviewer. If you are interested to be part of  
the reviewers' team, kindly fill in the application  
form at Reviewer Application Form  
<https://goo.gl/forms/xTCbli81aEFB8cl62>

Continued on the next page.



\*-----\*  
\*SCOPES & TRACKS\*  
\*-----\*

The ICeSSAT 2018 invites papers in the following technical areas (but not limited to):

- Solar system and astronomical instrumentation
- Space weather and space climate
- Upper and lower atmosphere/ ionosphere
- Antenna for space communication
- Remote sensing and GIS application
- Satellite and wireless communication
- Space data management system
- Nano satellite and payload
- Simulation and modelling for space application
- Space and Earth's electromagnetism
- Space policy, governance and entrepreneurship
- Education astronomy and public outreach
- Electronic circuits & devices and embedded systems for space applications
- Space power technologies and energy systems

\*-----\*  
\*SUBMISSION GUIDELINES\*  
\*-----\*

The ICeSSAT 2018 website provides full instructions on how to submit papers and the paper format:  
<http://icessat.uitm.edu.my/conference/submission/>

The prepared manuscripts should be submitted as PDF files via EDAS :  
<http://edas.info/N24352>

Upon acceptance, authors will be required to register and present their papers. Papers will be published in IOP Conference Series only if at least one of the authors is officially registered and presented. A double-blind peer review process will be used to evaluate all papers submitted for consideration.

Continued on the next page

The organizing committee of the conference especially requests for high quality submissions in areas related to space science and satellite technology. All accepted papers will be published in

\*\*\*IOP Conference Series: \*\*\*

1) Earth and Environmental Science

2) Material Science and Engineering (MSE)

with high visibility and indexed in, among others,

ISI Web of Science (Conference Proceedings Citation Index)

and \*Scopus\*.

\*Selected papers will be invited to be published in

International Journal of Electrical & Electronic

Systems Research (IEESR) (ISSN:1985-5389).

\*Currently, IEESR is indexed in MyCite and ASEAN Citation Index (ACI).

Kindly regards,

ICeSSAT 2018 Secretariat

and

Assoc. Prof. Ir. Dr. Mohamad Huzaimy Jusoh, P.Eng, SMIEEE

Director

Center for Satellite Communication

Faculty of Electrical Engineering

Universiti Teknologi MARA

40450, Shah Alam, Selangor

MALAYSIA

Fax:(+603) 5543 5077

\*-----\* \*IMPORTANT DATES\* \*-----\*

Full-paper submissions deadline: February 28, 2018\*

Paper acceptance notifications: April 30, 2018

Early-Bird registration: May15, 2018

Camera-ready deadline: May 30, 2018

Registration deadline: May 30.2018

Conference Date: August 7-9, 2018

End.

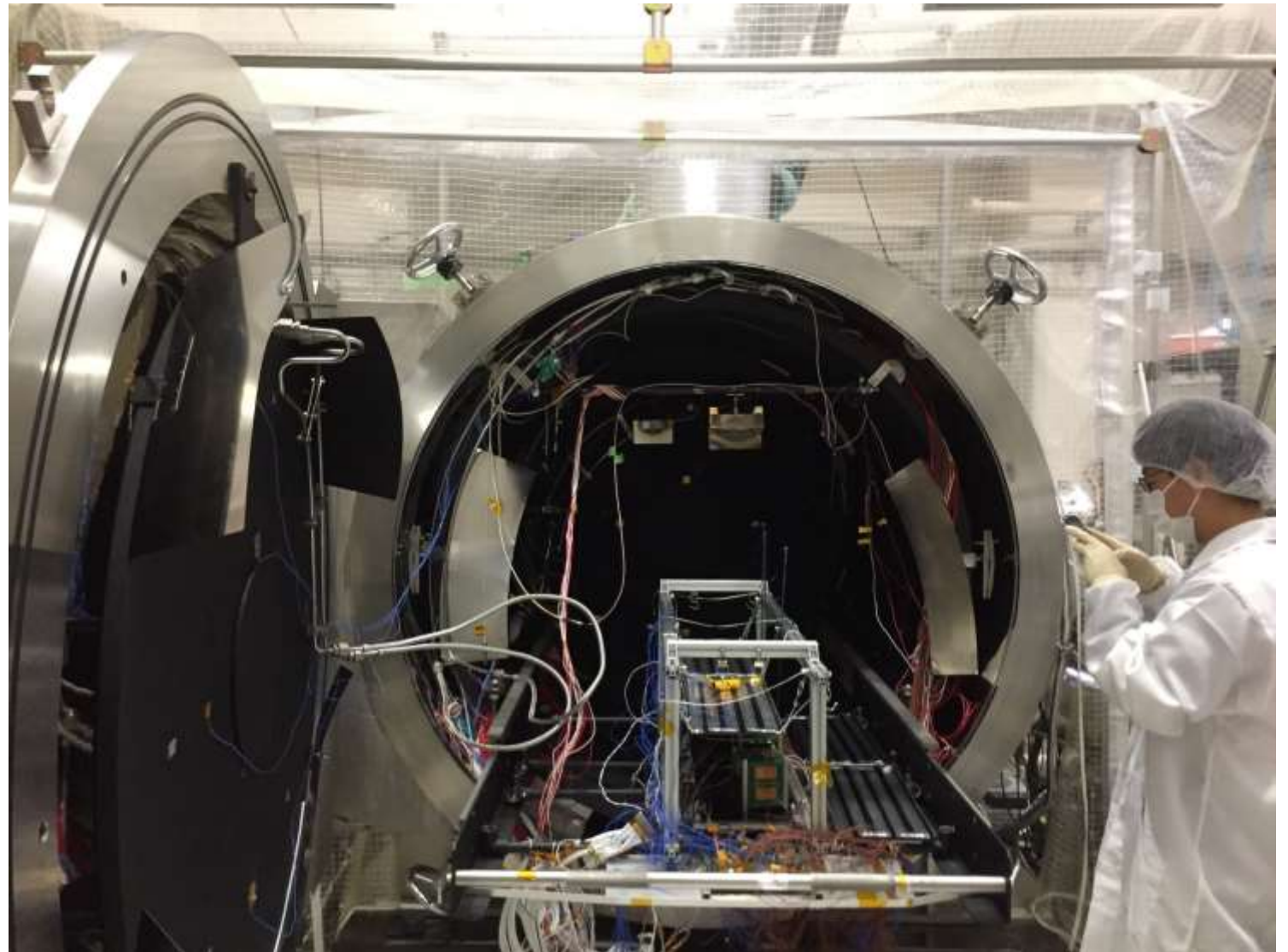


## 16. Thermal vacuum testing of the flight models of BIRDS-2; and handover of FMs to JAXA

### ANNOUNCEMENT

On 26 Feb. 2018, at 13:00, a press conference will be held at Kyutech to announce the completion of the BIRDS-2 flight models.

On 01 March, they will be handed over to JAXA for eventual delivery to the ISS for deployment into Earth orbit.



BIRDS-2 undergoing thermal vacuum test during the middle of January of 2018

## 17. “First Ground Station Operation Workshop” at Kyutech



During IWLS, members of the ground station workshop posed for this photo. For the first three days of the workshop they attended IWLS to expose themselves to the information of many international lean sat experts.

A detailed report of this workshop will be provided in the next issue of this newsletter.

The Editor

Travel funds for GS workshop participants were provided by JSPS

## 18. BIRDS-3 Activities of Dec 2017 - Jan 2018 - by Abhas

Dec 20, 2017



PIC Session II

Dec 22, 2017



BIRDS-3 Lunch

Dec 28, 2017



Mission Design Review

Dec 28, 2017



Potluck with BIRDS-2

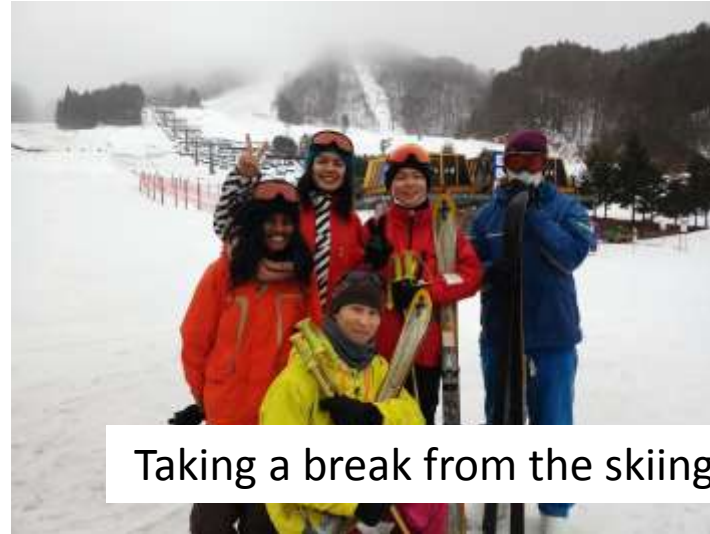
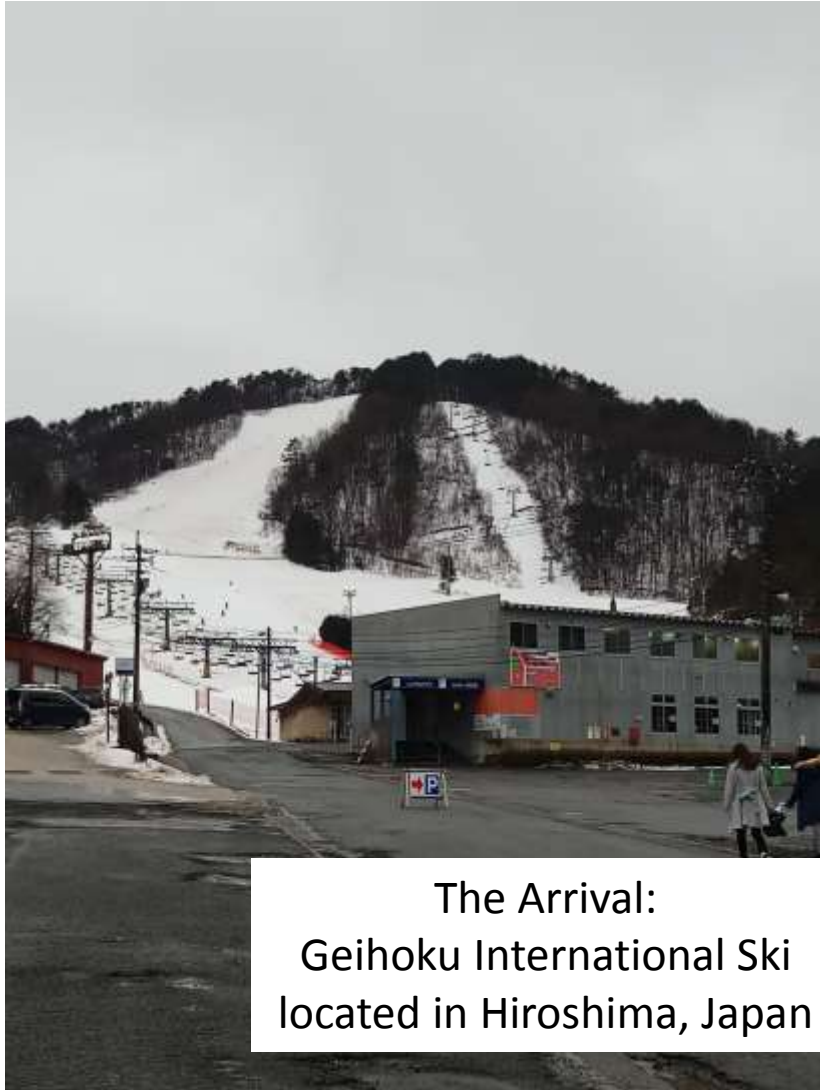
Month of January



Soldering Sessions

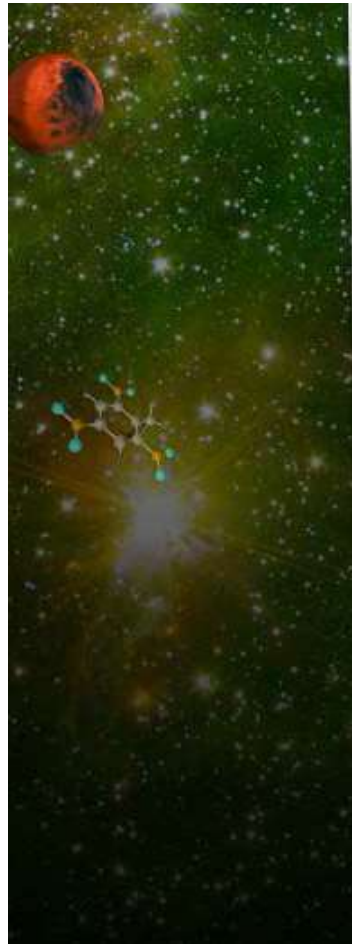
**BIRDS-3** members, after successfully completing the Mission Design Review (MDR), are now beginning to work on the system level Breadboard Models (BBM) to test the functionality and feasibility of systems the team has designed on paper. Hands-on sessions on soldering are now done every week.

## 19. BIRDS-3 ski trip to Hiroshima on 8 January 2018 – report by the team members



This year, about ten laboratory members went on a Ski trip to Geihoku International Ski located at a remote hill station in Hiroshima. The students took an overnight bus, arrived in the morning, skied all day and returned back to Kokura Station at around 8 PM. Was a fun filled day.

## 20. Subscribe to JoSS: Journal of Small Satellites



クリックして Adobe Flash Player を有効にします

Vol. 06, No. 03 (Dec. 2017)  
ISSN 2327-4123

HOME ABOUT US ARCHIVES INFORMATION FOR AUTHORS ADVERTISING CALENDAR CONTACT SEARCH

# JOURNAL OF SMALL SATELLITES

## RESEARCH, TECHNOLOGY & SYSTEMS

SPONSORED BY SCIENCE AND TECHNOLOGY CORPORATION (STC), IN COOPERATION WITH THE ADVANCED SPACE TECHNOLOGIES RESEARCH & ENGINEERING CENTER (ASTREC)

A PEER-REVIEWED JOURNAL PUBLISHED BY A. DEEPAK PUBLISHING (ADP)


### Current Issue

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CONTENTS OF VOL. 06, NO. 03 (DECEMBER 2017)

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PEER REVIEWED ARTICLES

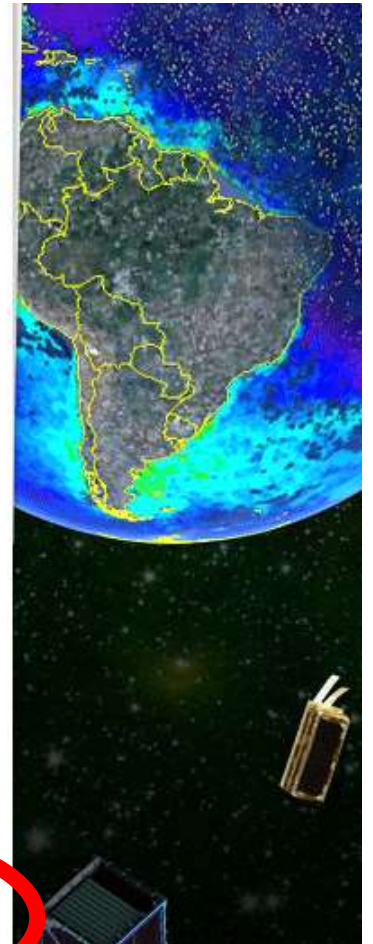


#### A 3U CubeSat to Collect UV Photometry of Bright Massive Stars

Richard D'Amico, Christian Kintziger, Pierre Bochus, Gregor Baum

- ▶ Letter to the Editor
- ▶ JoSS Bulletin & Information Portal
- ▶ Meetings Blog *See update!*
- ▶ News & Announcements *See update!*
  - ▶ SmSTC News
  - ▶ NASA SmallSat News
- ▶ Conference Proceedings Portal
- ▶ Scholarships, Internships, Faculty Positions and Other Job Openings
- ▶ Frequently Asked Questions (FAQs)

**SUBSCRIBE**



SPONSORED BY SCIENCE AND TECHNOLOGY CORPORATION (STC), IN COOPERATION WITH THE ADVANCED SPACE TECHNOLOGIES RESEARCH & ENGINEERING CENTER (ASTREC)  
A PEER-REVIEWED JOURNAL PUBLISHED BY A. DEEPAK PUBLISHING (ADP)  
Dr. Adarsh Deepak, (JoSS, Hampton, Virginia, USA) attended IWLS with his wife and son.

<http://www.jossonline.com/>

## 21. Prof. Jordi Puig-Suari delivers special lecture to the students of SEIC and BIRDS



Prof. Jordi Puig-Suari

### Title of the lecture

“CubeSats as workforce development tools”

### Abstract



CubeSats have become the standard for student satellite development activities around the world. Initially, these small space craft were viewed as ideal training programs for future space professionals. However, their influence has expanded beyond education with the development of a new industrial ecosystem. In addition, their impact is moving beyond the space industry and has the potential to affect many areas of technology. The presentation will explore the role of CubeSats as workforce development tools specially in countries without an existing space industry.

**Cont'd on the next 2 pages**

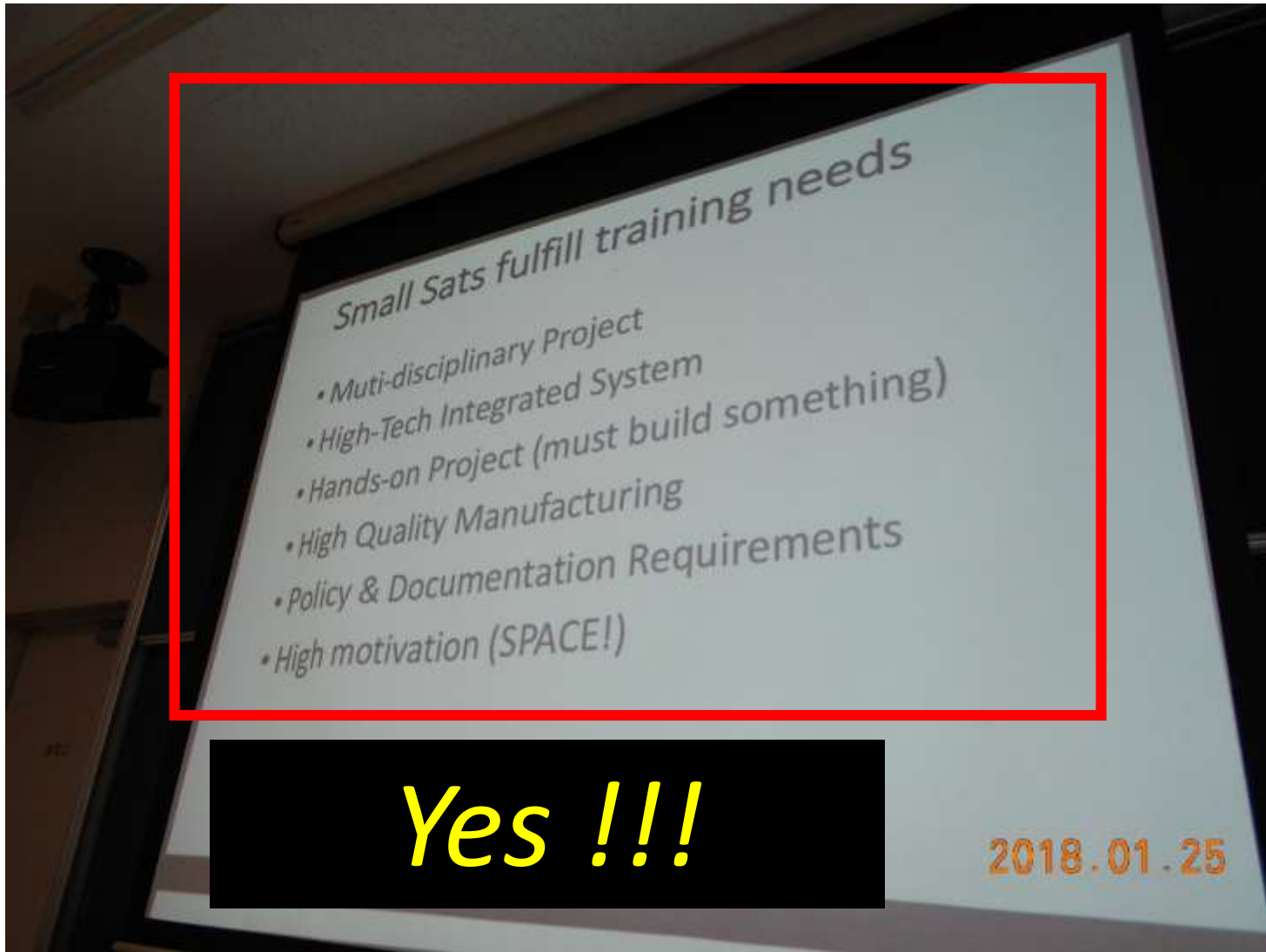


Date: 25 January 2018, from 10:30 am to 12:15 pm, Room Co-1B, Tobata Campus, Kyutech, Japan.



Dr. Robert Sproles (Spire, Inc.) also contributed immensely to the discussion with students.





**Jordi:**  
***Thanks for a great lecture !***

**- Staff and students of SEIC**

## 22. Yomiuri Newspaper discusses Bhutan BIRDS-2 effort

☰メニュー

YOMIURI ONLINE

ご購入案内  
▶無料おためし

ホーム ニュース 深読み 発言小町 医療 読売新聞から

キーワードを入力

ウェブ検索

サイト内

買い物

### ブータンの一番星作る、初の人工衛星留学生在が挑戦...九工大

Here is the article (in Japanese):

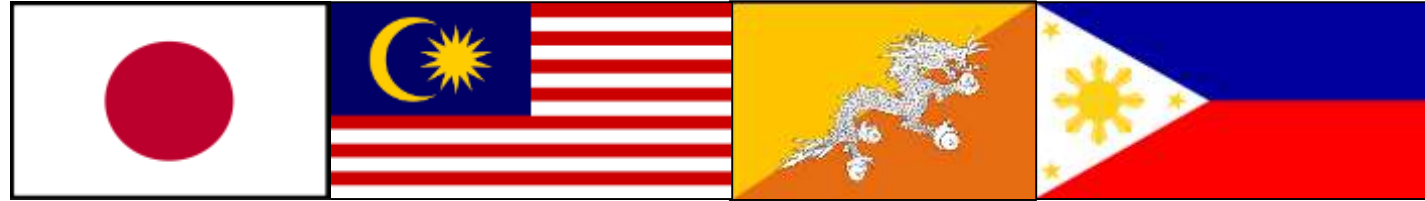
<http://www.yomiuri.co.jp/kyushu/news/20180126-OYS1T50042.html>



人工衛星の組み立て作業を進めるチョウデンさん（左端）らブータンからの留学生（1月上旬、北九州市戸畑区の九工大で）＝大原一郎撮影

This article discusses the four students from Bhutan:

- Kiran
- Cheki
- Yeshey
- Pooja (most recent addition)



# **BIRDS-2**

## **Project Updates and Progress**

**Japan Malaysia Bhutan Philippines**

26 January 2018  
By: Joven C. Javier

# **BIRDS-2 Division of Task Team A Communication Team**

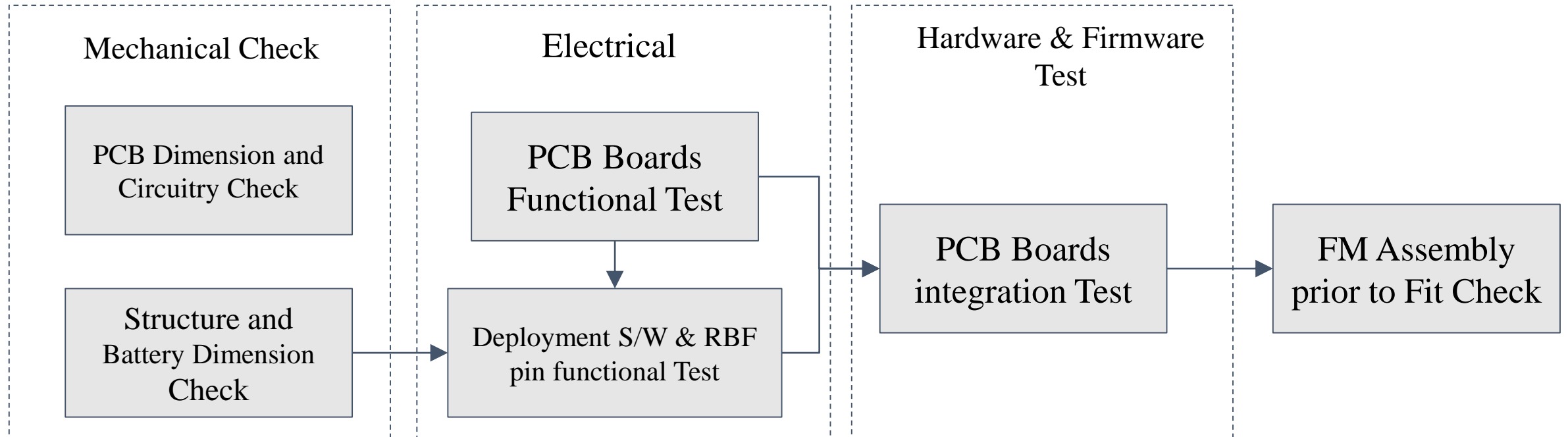
# Team A - Communication



# **BIRDS-2 Division of Task Team B AIT Team**

# Team B - AIT

Maintain and Sustain parts, components and tools in the FM Workplace





## Team B

Done

**B1**

Adrian

Kiran

Azami

- ❑ Soldering of TNC, APSF TRX and Camera to 3 FM Mission Boards

Done

**B2**

Joven

Syazana

- ❑ +Y Panel Preparation (GPS, UHF, VHF antenna and Circuit Burner)

Done

**B3**

Yamaguchi

Joven

Tokunaga

- ❑ Battery to Battery box and Battery heater board preparation

Done

**B4**

Cheki

Uemura

- ❑ Structure Preparation for 3 FM (Deployment switch and magnet)

# Team B

Done

**B5**

Pooja

- Cutting and Insulating the excess pin lead from the PCB boards

Joven

- Weighing of Boards and structure except solar panel

Done

**B6**

Syazana

- Load all the the Programs in each respective boards

Yeshey

- Check power consumption

Pooja

- Soldering Solar cell Terminal to Panel Board

Joven

- Cleaning up excess RTV from Solar Cell Assembly

- Assemble each FM prior to fit check

# Team B- Inside Clean Room

## Sustain and Maintain



## PCB Board Screening and deployment S/W installation



# FM Pre-Assembly and Functional Test



Philippines



Bhutan



Malaysia

# FM Pre-Assembly and Functional Test



Philippines



Bhutan



Malaysia

# FM Satellite Assembly for TVT - Done!

TVT = Thermal Vacuum Test



UPD Satellite



Philippines



Bhutan



Malaysia

# Team B- Inside Clean Room

Sustain and Maintain



PCB Board Screening and deployment S/W installation

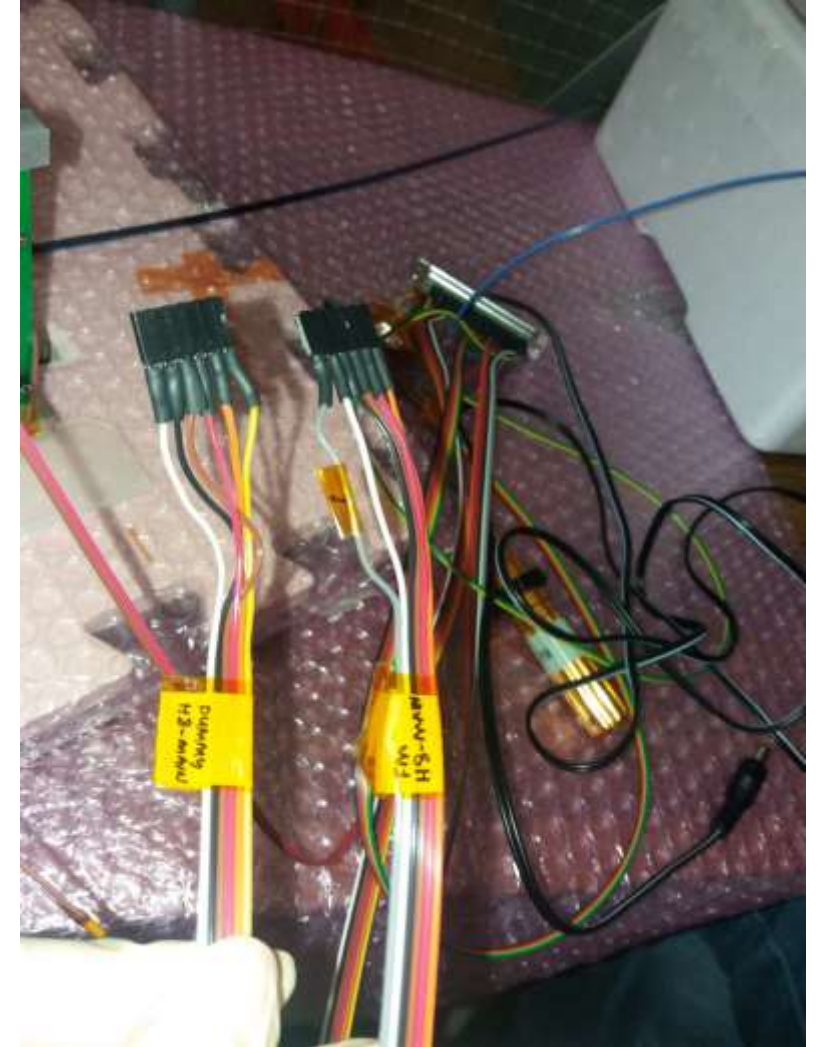
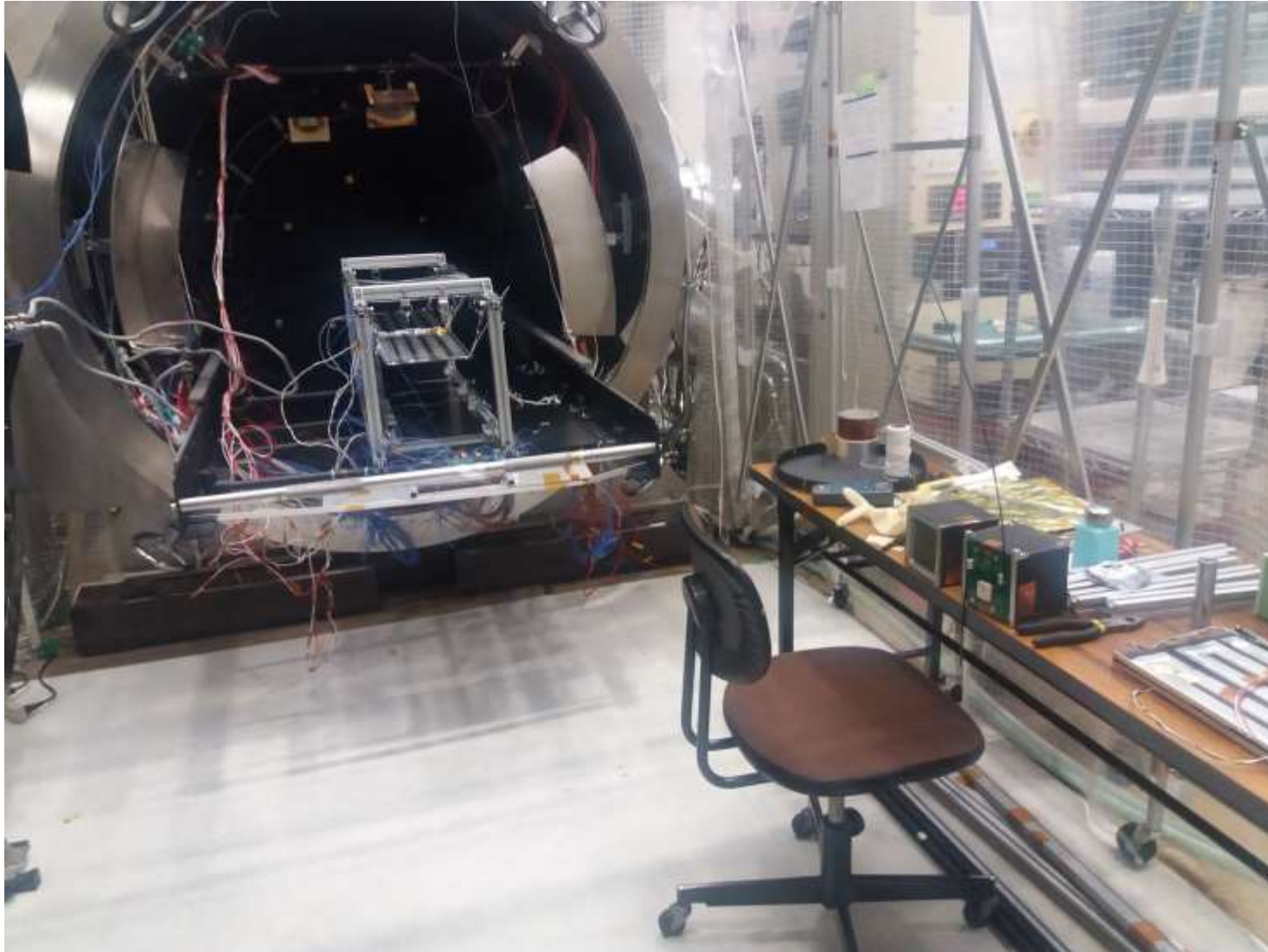


# **BIRDS-2 Division of Task**

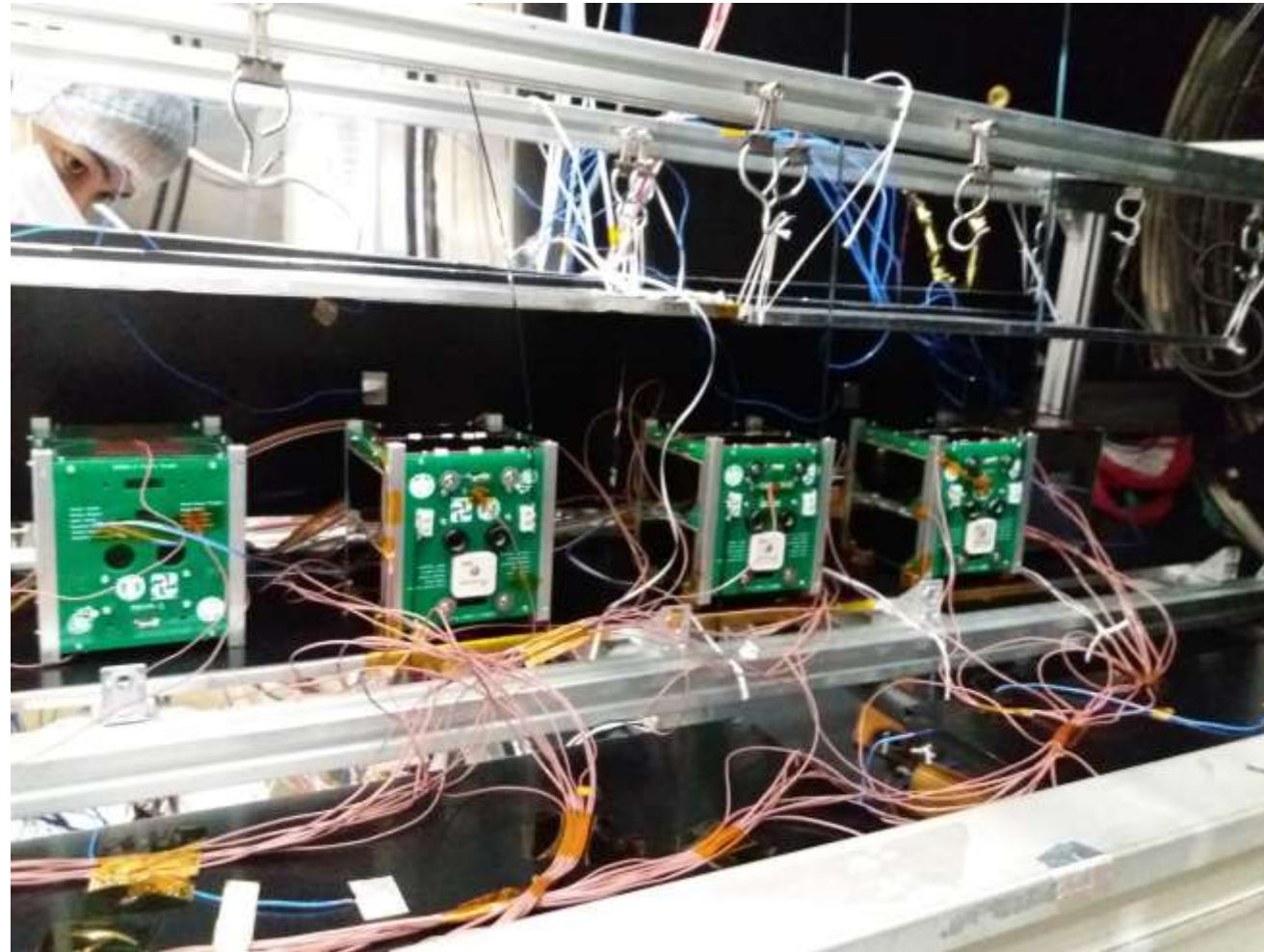
## **Team C TVT & VT Team**



# Team C - TVT & VT Preparation



# FM TVT Set up configuration - Done!



# **Flight Model Schedule** until delivery to JAXA

# December 1-15, 2017

Activity	December 1st half														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Radiation Pattern and Communication Test															
Thermal Shock Test for RTV															
Prepare Clean room for FM assembly															
Solar Panel Assembly Practice															



Activity	December-2017 - 2nd half															
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
FM Assembly Practice prior to fit check																
FM Screening and Functional Test																
Team A - Communication Test EM-2																
Team B - Assembly, Integration & Testing																
Team C - Preparation for FM TVT																
Antenna Deployment Probability Test																
Battery Vibration Test																
+Y Vibration Test for antenna deployment new configuration																

Activity	January 1st half														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
FM AIT(Team B) & TVT (Team C) Preparation															
FM Solar Panel Assembly															
FM Cubesat Assembly prior to TVT															
EM Endurance End-to-End Operation Test															

Activity	January 2nd half															
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
FM TVT Preparation, Pre and Post Functional Test																
FM Thermal Vacuum Test																
FM End-to-End Test																



# February 1-15, 2018

Activity	February 1st half														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
FM Final Assembly and Fit check	█	█													
FM Vibration Test Preparation			█	█											
FM Vibration Test					█										
Antenna Deployment Demonstration in J-SSOD				█											
Antenna Tie and Fit Check				█											
FM Functional test and Operation Practice									█	█	█	█	█	█	█

# February 1-15, 2018

Activity	February 2nd half												March		
	16	17	18	19	20	21	22	23	24	25	26	27	28	1	2
FM Functional test and Operation Practice															
In case, 2nd vibration test is needed															
Safety Review Document Preparation															
BIRDS-2 Safety Review (3rd phase)															
Install Satellite into delivery box															
<b>FM Satellite delivery date to JAXA</b>															

**End of BIRDS-2 report by Joven**





# End of this **BIRDS Project Newsletter** – Issue Number Twenty-Four

This newsletter is archived at the BIRDS Project website:

**Project website:** <http://birds.ele.kyutech.ac.jp/>

When a new issue is entered in to the archive, an email message is sent out over a mailing list maintained by the Editor (G. Maeda, Kyutech). If you wish to be on this mailing list, or know persons who might be interested in getting notification of issue releases, please let me know.

This newsletter is issued once per month. The main purpose of it is to keep BIRDS stakeholders (the owners of the satellites) informed of project developments.

