



According to Bryce Space & Technology Co., among academic operators, Kyutech is No. 1 in number of small satellites launched

Members of BIRDS -1, -2, -3, and -4, on 29 Nov 2018 in front of the lab building



Archive website: <http://birds1.birds-project.com/newsletter.html>

All back issues are archived at this website.

Acknowledgment of support: This newsletter is supported, in part, by *JSPS Core-to-Core Program, B. Asia-Africa Science Platforms.*

ISSN 2433-8818

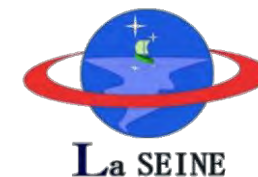
BIRDS Project Newsletter

Issue No. 45
(16 Oct. 2019)

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://birds1.birds-project.com/newsletter.html> and scroll down to the desired issue.

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From Bangladesh

The Guest Box



https://commons.wikimedia.org/wiki/File:Cox%27s_Bazaar_Sea_Beach_in_2019.63.jpg

Cox's Bazaar is a 155 km long sandy sea beach located in Southeast of Bangladesh. It is the longest natural sea beach. At one side you have beautiful sea. On the other side you'll find a natural wall, made by Pine trees. It is a popular tourist attraction in Bangladesh, both for foreigners and locals. The best time to travel is between November ~ February. Direct flights are available from the Capital city of Dhaka to Cox's bazaar. Not very far from Cox's Bazaar, you'll find the auxiliary ground station for Bangabandhu Satellite (National Communication Geo-Satellite) in Betbunia, Rangamati.

-- by Maisun (BIRDS-1, Bangladesh)

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JSPS Reminder

When you publish a paper on a topic related to BIRDS, please include this acknowledgement in the paper:

**This work was supported by
JSPS Core-to-Core Program,
B. Asia-Africa Science Platforms.**



01. International Space University (ISU) in France is alive and well

By G. Maeda and
Dr Tejumola Taiwo Raphael.



HOME

PROGRAMS

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COMMUNITY

ABOUT US

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ISU website: <http://www.isunet.edu/>



ISU in 150 words

The International Space University (ISU) founded in 1987 in Massachusetts, USA, but now headquartered in Strasbourg, France, is the world's premier international space education institution. It is supported by major space agencies and aerospace organizations from around the world. The graduate level programs offered by ISU are dedicated to promoting international, interdisciplinary and intercultural cooperation in space activities. ISU offers the Master of Science in Space Studies program at its Central Campus in Strasbourg. Since the summer of 1988, ISU also conducts the highly acclaimed two-month Space Studies Program at different host institutions in locations spanning the globe and Southern Hemisphere Space Studies Program. ISU programs are delivered by over 100 ISU faculty members in concert with invited industry and agency experts from institutions around the world. Since its founding, 30 years ago, more than 4800 students from over 105 countries have graduated from ISU. www.isunet.edu

Our Programs

Master of Space Studies

Designed for students looking for the competitive edge that will help them obtain a career in the space sector, professionals interested in making a career move into or within the space sector, and researchers wishing to broaden their knowledge or make the move from academic life into the space industry.

Space Studies Program

Two-month course for postgraduate students and professionals of all disciplines. The curriculum covers the principal space related fields, both non-technical and technical. The shared experience of an international, interactive working environment is an ideal networking forum leading to the creation of an extensive, international, multidisciplinary professional network.

Southern Hemisphere Program

Intensive five week, live-in experience built around an international, intercultural, and interdisciplinary educational philosophy for which ISU is renowned. The program provides a multidisciplinary understanding of the key activities and areas of knowledge required by today's space professions.

Executive Space Course

Provides an overview of space-related subjects for professionals of diverse backgrounds, including marketing, finance, law & contracts management. Professionals leave with the knowledge and skills that will enable them to communicate more effectively with their technical colleagues.

www.isunet.edu





The ISU Master of Space Studies Program (MSS) is intended for individuals seeking professional development, further academic study, or both, through a one- or two-year graduate degree program. For experienced professionals, the MSS supports career advancement, a shift of career within the space sector or a career move into the space sector.

For students who wish to make their careers in space, the MSS supports entry into the sector through access to space agencies, space commerce, space research and related actors.

The MSS is structured as a one- or two-year program. The first year is essentially taught one and is delivered primarily at the ISU Central Campus in Strasbourg. Some students will take only this year and graduate with an a Master of Space Studies. During the first year, students who perform at an appropriate level may apply for the second 'thesis year' in which they perform a single extended piece of research or scholarly activity, either at ISU, or an appropriate host institution. These students will graduate with an MSc in Space Studies and Thesis.

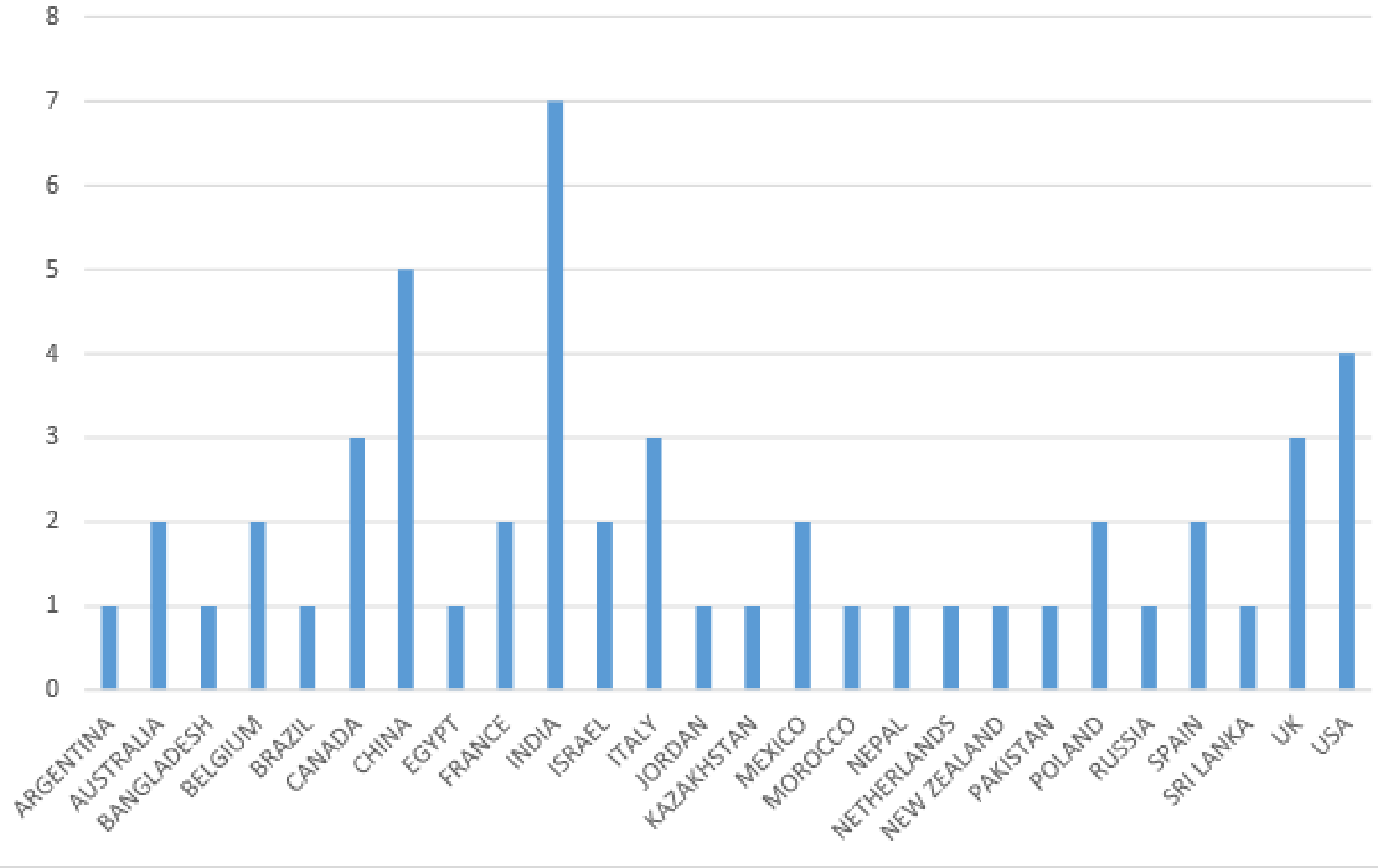


"Attending ISU has been, for me, the ultimate eye-opening experience. Attending the Master of Space Studies allowed me to pursue my personal interests with a limit determined only by my imagination. I found myself working on very exciting projects with talented and brilliant, edge-thrifty colleagues"

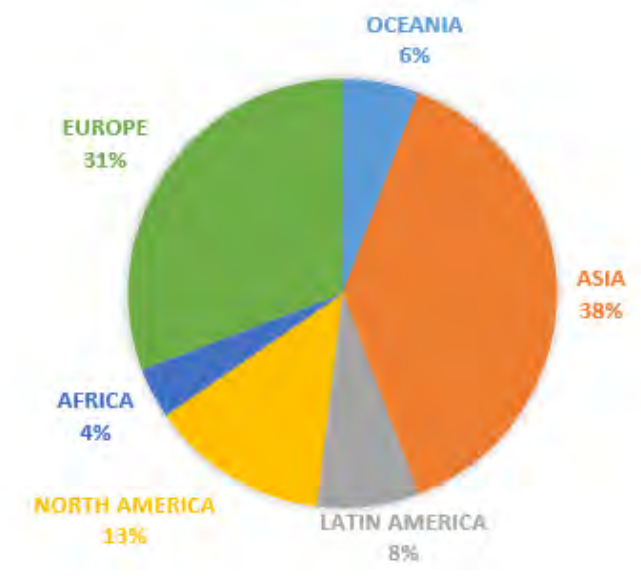
Diego Urbina,
MSS09

ISU website: <http://www.isunet.edu/>

MSS20: 45 participants from 26 countries



MSS Entering Class of 2020





Dr. Tejumola Taiwo Raphael
Space Applications

Education

BEng Electrical & Electronics Engineering, Ahmadu Bello University, Nigeria

PgD Satellite Communication, ARCSSTE-E, Nigeria

MEng Space Systems Engineering, Kyushu Institute of Technology, Japan

PhD Space Systems Engineering, Kyushu Institute of Technology, Japan

Research Interest

Space Systems Engineering, Space Environment, Spacecraft Testing and Verification, Space Applications

Past Experience

Principal Engineer, National Space Research and Development Agency, Nigeria

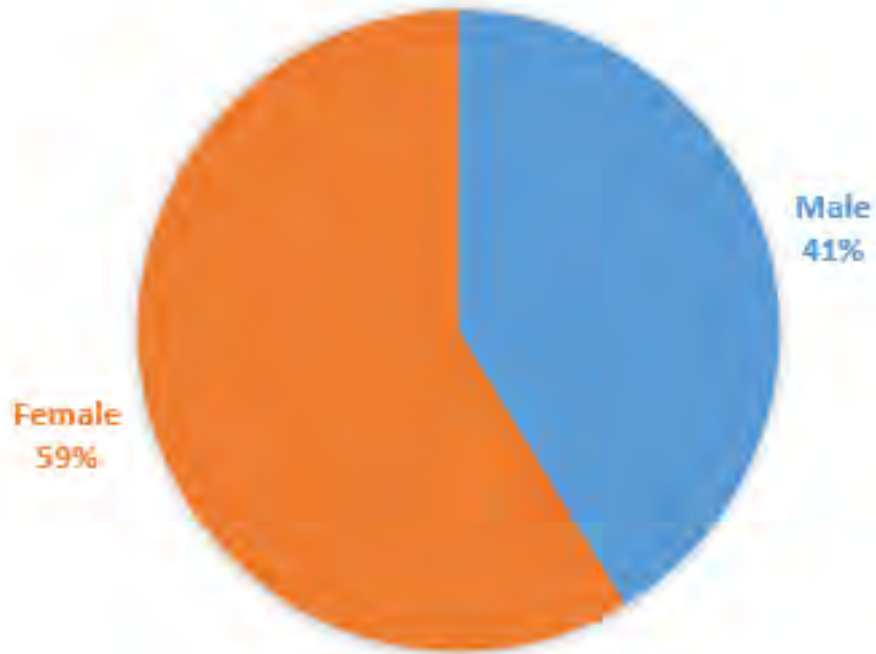
Project Manager and Lead Systems Engineer, BIRDS Satellite Project

Payload Engineer, (Plasma Measurement System) HORYU-IV satellite

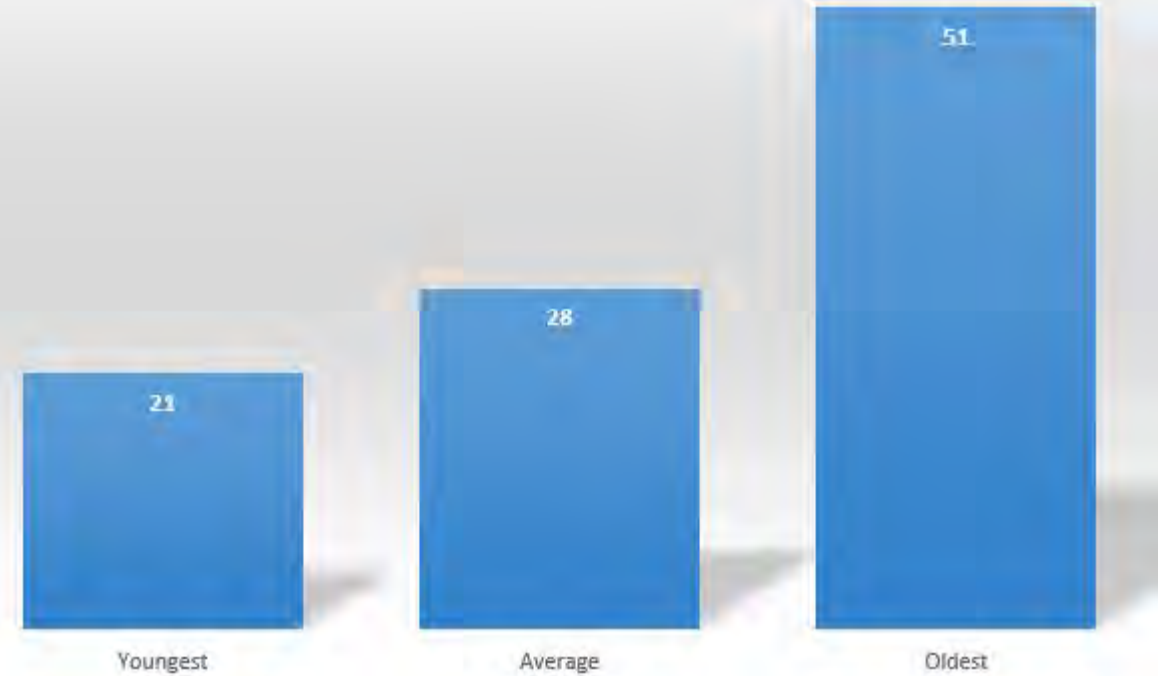
One member of the ISU faculty is Dr Tejumola Taiwo Raphael. He secured his Phd at Kyutech (SEIC) and was the **Project Manager for BIRDS-1.**

<http://www.isunet.edu/dr-tejumola-taiwo>

MSS20 GENDER



MSS20 AGE



ISU website: <http://www.isunet.edu/>

END OF THIS ARTICLE ABOUT ISU

02. Kyutech graduates of Fall 2019



This occurred on 20 Sept. 2019. Happy grads, proud parents, assorted observers, and university staff, attended this ceremony on the 2nd floor of Nakamura Memorial Hall, Tobata Campus, Kyutech, Japan.





← Phd grads receive diplomas from Prof. Oie one by one



Below: Parents sat at the back of the hall





← From the left:

- ① Rizal, Indonesia
- ② Tharindu, BIRDS-3, Sri Lanka
- ③ Prof Cho
- ④ Dulani, BIRDS-3, Sri Lanka
- ⑤ Pooja, BIRDS-2/3, Bhutan

Prof. Serikawa (center of front row) with all graduates of the college of engineering →



Rizal and his wife



Dulani, sister, mom, and dad



Pooja receives diploma from Prof Serikawa



Lots of happiness!



Jesus (Columbia) and girlfriend



Tharindu (Sri Lanka)



Pooja (Bhutan)

03. Report from Paraguay



Capacity BUilding in REsearch & Innovation For Space The “CABURE+I 4S” Project Newsletter

Second Semester 2019 Summary

Contributors:

Students and members of
The CABURE+I 4S Project Team

Edited by:

Cristhian Coronel
25 Sept. 2019



FIUNA



FPUNA



UNG



Agencia Espacial del Paraguay – Paraguay Space Agency
(AEP)

The “CABURE+I 4S” Project Newsletter

Second Semester of 2019 Summary

- *The KurupiSat Team in Brazil*

(Special edition. All the teams’ highlights from their participation in the 2nd CubeDesign Competition in Brazil)

The KurupiSat Team on the airport, receiving “goodbye and good flight” wishes from the AEP President Col. Liduvino Vielman.



(from right to left: Lucas Moreira, Col. (R) Liduvino Vielman, Dr. Jorge Kurita, Dr. Diego Stalder, Javier Ferrer, Cristhian Coronel, Aldo Galeano and Esteban Fretes)



(from right to left: Lucas Moreira, Dr. Jorge Kurita, Javier Ferrer, Aldo Galeano, Guillermo Benitez, Esteban Fretes, Cristhian Coronel and Dr. Diego Stalder)

The KurupiSat Team in a group selfie on the first night in Sao Jose Dos Campos, Brazil.

The KurupiSat Team in Brazil

In the last week of July 2019, the National Space Research Institute INPE (Instituto Nacional do Pesquisas Espaciais) located in the city of Sao Jose Dos Campos at Sao Pablo State of Brazil, hosted the 2nd edition of the CubeDesign, an space related competition. This year, a group of students from the CABURE'+4S Team was able to participate in the CANSAT category in this international event.

The team was put together as soon as they hear about the competition on March, Lucas Moreira took the lead on the group. It was needed a group of 5 students and one professor to guide them during the development of one cansat. The cansat had to comply some requirements for the competition. During the first quarter of March the team was being formed. And before June started, the team was fully operative with all five of the members working hard on the development, design and assembly of the "KurupiSat" cansat.



Here we see Lucas Moreira (left), with his brother Jose Moreira (middle) The photo was shot by Dr. Diego Stalder, the team's official advisor. (right) We can see in the picture that it is late in the night, and they were still working hard!

The cansat was designed from scratch.

The team was separated in two work groups, that way was more efficient to build the electronics and flight control systems and at the same time, working on the structure.

The photo at the right shows one of the first designs along with a bunch of 3D printed models of the electronic components. That became helpful for the design group, because they where able to manipulate easily and with no fear of damaging any of the components.

The can on the left helps to see the size of the structure.



(From left to right) Lucas Moreira, Esteban Fretes, Aldo Galeano, Guillermo Benitez and Cristhian Coronel

All the team members in a group picture at the INPE's 2nd CubeDesign event. Holding the Paraguay flag. This was the first time a Paraguayan team attends at this event.



The KurupiSat Team in Brazil

Every member of the team made an important contribution, to fully develop and, manage to completely finish two prototypes of the cansat within a week before the event. Showing an excellent team work. This gave them an opportunity to make more tests and even make some minor adjustments to the final design.



(from left to right) Esteban Fretes, Cristhian Coronel, Mayra Mosqueda, Lucas Moreira, Jose Moreira and Aldo Galeano, sharing a selfie.



The team made some very important tests on the cansat, such as the parachute deployment mechanism they designed for the payload protection mission.

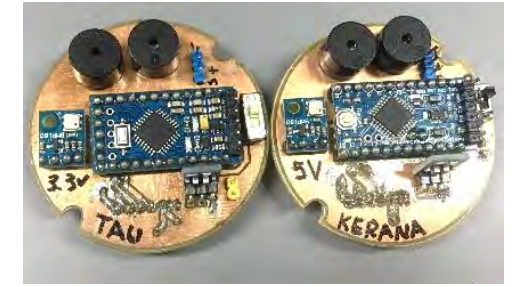
The cansat category events officially started on Day two of the 2nd CubeDesing competition. On Day 1, all the teams of every category had their projects presented in the welcome event. This was the first phase of the competition.



The team leader had the opportunity to present the KurupiSat Team's Cansat. He did an outstanding job. The team got praised for the high quality of the engineering applied to the project.



Here we see on the left the two finished cansat made by the KurupiSat team, both ready for launch. On the right, a photo of the two circuit boards made for each of the KurupiSat team cansat



On Day two, all the teams in the cansat category had to test their projects on a real flight environment. The organizers had a special device that let them know if the cansat had passed or not the shock of the fall, as well as the measurements made by the sensors, this had to be in a payload space inside the cansat.



Before the competition begins, the organizers told all the teams that the cansat needed a payload dedicated space, but they didn't show how it looked like until the launch day (PCB down in the picture). The KurupiSat had a clever way to ensure that the space they had was correct. This way they got a better advantage of the available space (3D printed box on the top of the picture).

That day was exciting for all. Here we see all 5 members of the KurupiSat team working on the last adjustments in their cansat. (From right to left, Aldo Galeano, Cristhian Coronel, Lucas Moreira, Esteban Fretes and Guillermo Benitez)

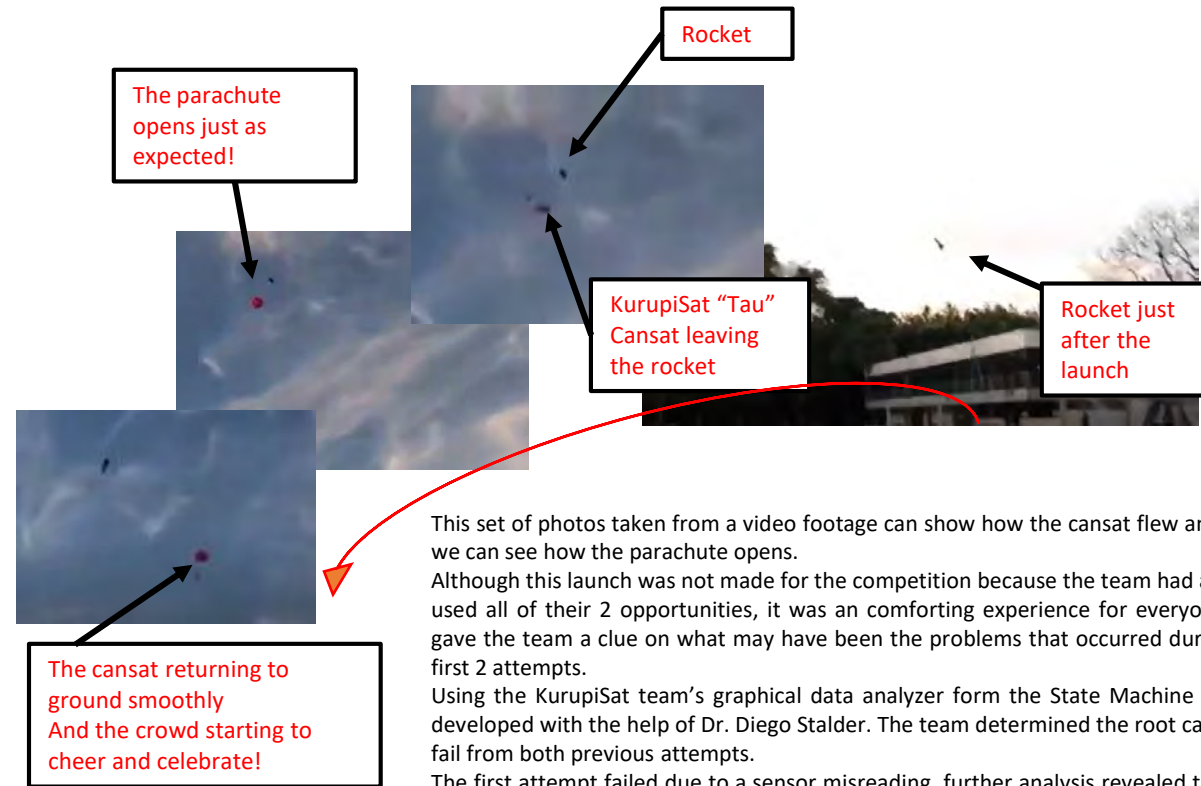


Cristhian Coronel – August, 5 2019



The KurupiSat Team in Brazil

The launch was held in a football (soccer) field, the vehicle was a Hydro-pneumatic rocket made of plastic bottles with a modification to carry the cansats. All the teams had two opportunities each, to achieve the missions of inflight data collecting and payload protection. Unfortunately none of the teams got a good landing. But this did not stop them from keep trying, until finally, the KurupiSat team got a perfect and soft landing. It was so amazing seeing the parachute popping in the air with its characteristic sound! This, however, was not in the competition anymore, but still made everyone cheer and celebrate.



This set of photos taken from a video footage can show how the cansat flew and also, we can see how the parachute opens. Although this launch was not made for the competition because the team had already used all of their 2 opportunities, it was an comforting experience for everyone and gave the team a clue on what may have been the problems that occurred during the first 2 attempts. Using the KurupiSat team's graphical data analyzer form the State Machine system developed with the help of Dr. Diego Stalder. The team determined the root causes of fail from both previous attempts. The first attempt failed due to a sensor misreading, further analysis revealed that the BMP series sensor used to determine the altitude via the barometric pressure, which is sensitive to light conditions, was being turned on under the shadow of a tree before placing it inside the rocket (which was under the sun light). The cause of fail from the second attempt was even more interesting to determinate. Thanks to the data analysis it was possible to find out that the cansat was having a hardware trouble, in this case the parachute deployment mechanism got stuck.

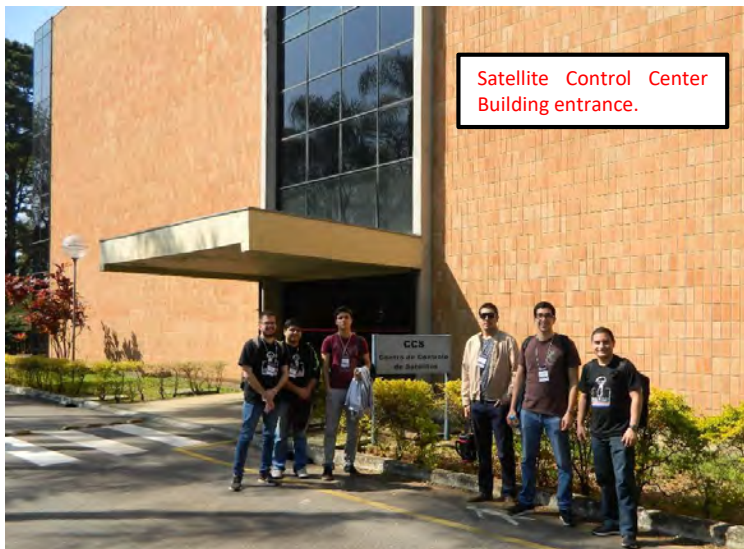
The cansat was recovered safe and sound, with all the systems working and the payload was found without a single scratch. Mission Accomplished! (lastly)



The KurupiSat Team members and their advisors (from right to left) Guillermo Benitez, Aldo Galeano, Cristhian Coronel, Esteban Fretes, Dr. Jorge Kurita (up left), Lucas Moreira (up middle) and Dr. Diego Stalder (up right) and the successfully landed cansat in the center. Guillermo is holding the plastic bottle rocket used as vehicle.

The KurupiSat Team in Brazil

That day everyone was having a good time, relaxing after so much work.



On Day 3 at the 2nd CubeDesign all the teams got a guided visit to some of the impressive laboratories in the institute.

The event finished with the winners announcement, then a great celebration party with live music.

The winners of the Cansat category were:

- the “Ready, Sat, Go” team, from Brazil in 1st place,
- the “DinoSat” Team, also from Brazil in 2nd place and,
- the “KurupiSat” team, from Paraguay in 3rd place!



Congratulations to everyone!

**END OF REPORT
FROM PARAGUAY**

Cristhian Coronel – August, 5 2019

04. Short report by AEP (space agency of Paraguay) which attended the recent UN workshop at Graz



Above:
Prof. Román

About our participation in the UN/Austria Symposium "Space: a tool for Accessibility, Diplomacy and Cooperation" in the 25th anniversary of this Symposium, we were invited to share the work done with the International Charter for Space and Major Disasters during the floods in Paraguay in May this year, and now we are working and activated again the Charter for the wildfires in August/September, this is a practical demonstration that the international cooperation in space related areas is a tool for solving, in this case, disaster management and emergency response. The AEP has played a key role, we have been selected as a Project Manager for this 2 Charter activations, and we have achieved very good results very fast and with no cost.

We also highlighted the plans of our country for the launch of our first Satellite through the BIRDS-4 program of KYUTECH and the support of UNOOSA, which was also mentioned by the Delegates of Japan, Bhutan and Costa Rica, who also participated in the Program. The Paraguayan Space Agency is focusing in capacity building, strengthening the international relationship of the AEP with the world's leading space agencies and the best universities like KYUTECH and gaining visibility in the international space community which is following with interest the first steps in the development of our country's Space Program.

**Read the full report about this Graz workshop:
See pages 62-67 in Issue No. 44 of the *BIRDS Project Newsletter*.**

kindest Regards,
Alejandro R
Prof. Mg. Alejandro J. Román M.
General Director of Aerospace Development
PARAGUAYAN SPACE AGENCY
20 September 2019

05. JAXA's "Kibo" module celebrates its 10th anniversary

This year, 2019, marks the 10th anniversary of completion of the Japanese Experiment Module "Kibo" and the first launch of H-II Transfer Vehicle "KOUNOTORI".

JAXA gets a big PR boost when it helps non-space-faring nations get into space.

Nihon Kei-zai Shinbun, 16 August 2019 8.16

ISSの日本実験棟「きぼう」完成(2009年)

古く東西
あの出来事



ISSの日本実験棟「きぼう」の外観 | JAXA提供

2009年7月19日、国際宇宙ステーション（ISS）の日本の実験棟「きぼう」が完成した。日本初の有人宇宙施設で、設備は3回に分けて米国のスペースシャトルで打ち上げ、08年3月

から組み立てが始まった。ISSは日米欧とロシア、カナダが共同で運用し、高度約400kmの宇宙空間を周回している。きぼうはISSの中で最大の実験棟だ。微小重力の環境

を生かした創薬などの科学実験のほか、超小型人工衛星の放出でも利用されている。宇宙航空研究開発機構（JAXA）の山川宏理事長は「ケニアやネパール、スリランカなどの国々にとって初めてとなる衛星を放出し、各国と強固な関係を築くきっかけにもなった」と語る。JAXAはきぼうで蓄積した有人宇宙施設の技術を、米国主導で検討する月周回軌道の新ステーション「ゲートウェイ」などに応用する方針だ。ISSは24年以降の具体的な運用が未定だ。科学実験や衛星放出は企業が担う部分が大きくなった。ISSときぼうのあり方を考える時期にきている。

衛星放出、他国と関係作り

BIRDS-3 of Nepal and Sri Lanka

Creating good will with other nations is a benefit to Japan in the long-term

Related news item in English: http://iss.jaxa.jp/en/topics/2019/05/10th_symposium.html



OLAYINKA'S WORLD

06. Olayinka's World – Column #14

COLUMN NO 14

OLAYINKA FAGBEMIRO
ASSISTANT CHIEF SCIENTIFIC OFFICER, NATIONAL SPACE RESEARCH & DEVELOPMENT AGENCY (NASRDA), ABUJA. NIGERIA. HEAD, SPACE EDUCATION UNIT NATIONAL COORDINATOR, ASTRONOMERS WITHOUT BORDERS (AWB) NIGERIA PUBLIC RELATIONS AND EDUCATION OFFICER, AFRICAN ASTRONOMICAL SOCIETY (AfAS)



ASTRONOMY FOR INCLUSION-AWB NIGERIA TAKES ASTRONOMY OUTREACH TO IDP CAMP

It was great excitement recently at the Internally Displaced People's (IDP) Camp in Durumi, on the Outskirt of Abuja in Nigeria when a team of Astronomers from the Astronomers Without Borders (AWB) Nigeria visited the children for an Astronomy Outreach. The project was partly sponsored by the Office of Astronomy for Development (OAD), Cape Town, to promote one of their themes, 'Astronomy for Inclusion' which celebrates taking Astronomy, and by extension, STEM to the less privileged and the under served in the society. The IDP Camp is home to hundreds of children from families who have been displaced by the Insurgency in North Eastern Nigeria. **CONTINUED NEXT COLUMN**

AWB constructed a Solar-Powered Astronomy Learning Hub, which houses smart TVs, internet facilities and some Astronomy Educational materials for use by these displaced Children. The project also involved a counselling session with these mostly troubled young kids who have been traumatized by the insurgency that had rendered them homeless.

The kids were handed different AWB souvenirs and they participated in a number of Hands on activities. There was so much excitement in the camp through out the period this program lasted. Some relief materials were also donated to the kids such as food and mosquito nets, to make their life on the camp a little bit more bearable.



A Cross section of IDP Kids at the Outreach

- * (L-top) With AWB Souvenirs
- * (R-top) Enjoying Solar Gazing
- * (L-bottom) The learning Hub
- * (R-bottom) IDP Kids talking to a Counsellor



The speaker



Kittanart Jusatayanond

Title: Chief Executive Officer (CEO) of Astroberry Limited, Bangkok, Thailand



Mr. Kittanart Jusatayanond received his B.S. in Computer Science with Magna Cum Laude from Hawaii Pacific University, HI, USA, in 1992. He started working in 1993 as an Account Manager with Dell Computer Corporation Thailand Limited for the next 5 years during which he was awarded as Top Sales of The Year 5 year in the roll. While working he also took MBA courses at Assumption University, Bangkok, Thailand, and graduated with Master of Business Administration in 1996. In 1998, he worked with ACNielsen (Thailand) Limited, a top-ranking market research company, as Data Production Manager.

Later in 2001, he joined Sumitomo Corporation Thailand Limited as Business Development Manager in charge of regional telecommunication and data communication business activity. In 2005, he decided to start his own business doing everything from selling noodle, logistics, trading, subcontracting, to consulting. Unfortunately, things were not working too kindly, but it was a great real-life lesson.

In 2011, Sumitomo Corporation Thailand Limited called him back and hired him as a part-time Business Advisor providing intelligence and analysis on Thailand Telecommunication Industry. He was being put in charge of many multi-million dollar projects including Sumitomo Corporation's investment in Myanmar Telecommunication business. Between 2012 and 2017 he was put as part of the Japanese team in charge of a USD 260Mil Thailand Earth Observation Satellite (THEOS-II) project. His local groundwork and all aspects competitive and strategic analysis provided valuable insights for the Japanese Team to later on formulate powerful proposal for the project.

Late 2017, he co-founded Astroberry Limited with Prof. Shinichi Nakasuka, Dr. Phongsatorn Saisujarit, and Mr. Subskul Suwannatat. Today, Mr. Kittanart Jusatayanond is the Chief Executive Officer running Thailand's first and only satellite maker company.

ABSTRACT

Have you ever wondered what you would do next as you return to your homeland after graduation? What is the actual meaning for harnessing space technology?

In this active discussion, we'll take a look at an example at how a private company (*see logo at the right*) in Thailand started planting seeds, creating the ecosystem for Space Industry development through Capacity Building. The case of OWLSAT will be discussed.

Inspired by **BIRDS Project**, OWLSAT is a collaborative technological transfer framework between Intelligent Space System Laboratory, University of Tokyo, Kyushu Institute of Technology, and King Mongkut's University of Technology north Bangkok. OWLSAT is an experimental satellite constellation consisting of five nano-satellites or CubeSats working together on a telecommunication mission known as Store and Forward (S&F).

The key takeaway is how you can start the same type of program in your own country. How you can get involved now and in the future. Last but not least, how we can all stay connected through the relationship between BIRD and OWLSAT project.



**Astroberry Limited
of Thailand**



I thought this was a fantastic seminar – and this is backed up by the comments from students at the end of the seminar.



08. Fall 2019 SEIC Orientation

Date of this event: 2 Oct. 2019



**Conducted by:
Makino san, Kawamura
san, and G.Maeda.**

**Purpose: To guide the
new SEIC students.**



Travel brochures for the new students



09. NanoRacks in UAE



NanoRacks to Make Space More Accessible to the World from the United Arab Emirates / Hub71

This text is continued on the next page

SEPTEMBER 19, 2019 – Abu Dhabi, United Arab Emirates – NanoRacks, the world’s leading provider of commercial access to space, is pleased to announce that it’s opening and staffing its first office in the United Arab Emirates (UAE) in Abu Dhabi’s Hub71, a global tech ecosystem driven by Mubadala Investment Company, backed by the Abu Dhabi Government’s Ghadan 21 program. This expansion highlights NanoRacks commitment to the growing space sector in the UAE and will offer end-to-end customer service and technical advice for a fast-developing customer base in the Middle East, Africa, and South East Asia region.

Hub71 welcomes NanoRacks as one of its first tech-companies to be on-boarded alongside strategic partners Microsoft, SoftBank Vision Fund and Mubadala. The tech hub aims to have over 100 technology start-ups by 2022 and is actively seeking to support more transformational tech-businesses like NanoRacks to enable innovation and growth within the technology sector, making for economic and social impact within the Emirates.

“The teams in the UAE, especially the Space Agency, have been excellent partners as NanoRacks develops in the region, and we’re beyond excited to grow with the nation as space exploration becomes a part of the local DNA,” says NanoRacks Vice President of Business Development and Strategy, **Allen Herbert**. “NanoRacks mission is to make the wonders of space accessible to everyone around the world, and we can’t wait to explore the universe with the incredible institutions, agencies, companies, and students in the region.”

“It’s very exciting to have our first US space tech company on board at Hub71. With Starburst, the world’s number one aerospace accelerator coming to Hub71 soon, NanoRacks will have the full support it needs to scale-up - whether that’s fundraising, mentorship or finding commercial opportunities. Hub71 aims to be home to globally enduring tech companies like NanoRacks who are eager to capitalize on the regions’ commercial opportunities.” Says Mahmoud Adi, Head of Hub71.

Entire text: <https://mailchi.mp/nanoracks/nanoracks-to-make-space-more-accessible-to-the-world-from-the-united-arab-emirates?e=b60ad576fb>



**Allen Herbert,
mentioned in the text.**

Recently, NanoRacks launched the MySat-1 CubeSat, the first payload that the Company has brought to orbit from the UAE. MySat-1, a joint program from Yahsat, Khalifa University of Science and Technology, and Northrop Grumman, is set to deploy via NanoRacks from the Cygnus spacecraft in the first quarter of 2019.

At the 2019 Global Space Congress, NanoRacks also displayed, in coordination with DreamUp and the UAE Space Agency, and UAE University, that the company would be launching a UAE Palm Tree growth experiment (“Palm Trees in Space”) to the International Space Station, in alignment with the launch of the first-ever Emirati astronaut. Today, the Palm tree is successfully growing in orbit, and more can be seen here.

“We’re appreciative of everyone in the UAE for providing such wonderful hospitality towards Allen and everyone on the NanoRacks team,” says NanoRacks CEO Jeffrey Manber. “We look forward to being a leading partner in the country for years to come.”

Additionally, NanoRacks, also in partnership with DreamUp and the Higher Colleges of Technology of UAE, is facilitating the “Tests in Orbit” contest, a program set to bring two UAE student research experiments to the International Space Station. More information about the contest can be found here.

“Our work in the region is just getting started,” continues Herbert. “Over the next few months, we plan to have a lot of exciting announcements, including new customers, partnerships, and programs. Keep your eyes on NanoRacks!”

END OF TEXT

10. "Highlighting Japan", a magazine of the Gov't of Japan



#135
August
IN PRAISE OF MOUNTAINS



#134
July
JAPAN AND AFRICA:
STRENGTHENING
BONDS



#133
June
TOWARD A
MULTICULTURAL
SYMBIOTIC
SOCIETY



#132
May
REGIONAL
REVITALIZATION

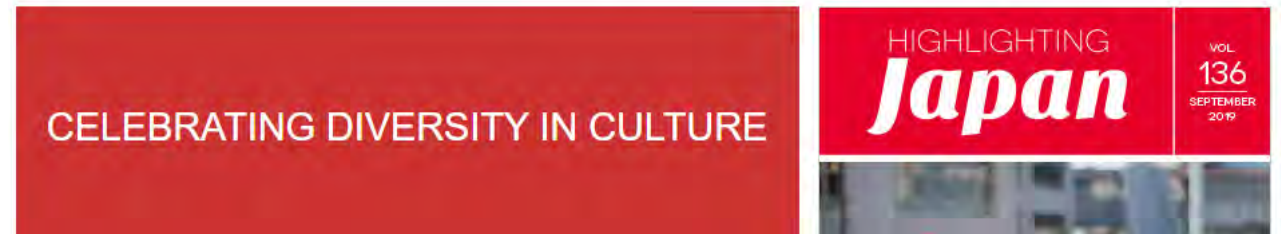


#131
April
Heisei Highlights



#130
March
From Hot Springs
to Art: Japan's Bath
Culture

Sept. 2019
issue is now
available



ONLINE MAGAZINE IS HERE: <https://www.gov-online.go.jp/eng/publicity/book/hlj/index.html>

11. The 3rd Space Conference of Paraguay

EN EL MARCO DEL
World Space Week

III CONFERENCIA
ESPACIAL DEL PARAGUAY
2019

“PARAGUAY
AL ESPACIO”

VIERNES 4 DE OCTUBRE
GRAN TEATRO DEL BCP
08:00 hs. a 13:00 hs.
ACCESO LIBRE Y GRATUITO

Conferencia magistral del
ING. HERNANDO GAUTO
paraguayo candidato
a astronauta

PANEL 1
Lanzamiento del proyecto:
“Paraguay al espacio”
GUARANISAT-01

PANEL 2
El rol de la academia en la
investigación científica

PANEL 3
Desarrollo e innovación espacial
PARTE I: Agencias espaciales
PARTE II: Sector privado

Poster for the event; note the BIRDS-4 logo.

CONFERENCISTAS
INVITADOS:

AUSPICIAN:

GOBIERNO NACIONAL Paraguay de la gente

PARAGUAY TO SPACE is the slogan of the *Third Space Conference* of Paraguay that will take place on October 4th in the framework of the **World Space Week**.

1. In the first panel, the current status of the GUARANISAT-1 (of BIRDS-4) will be officially presented to society, the satellite is being developed at the Kyushu Institute of Technology (KYUTECH), Japan, by two Paraguayan engineers.
2. In the second panel, **Engineer Hernando Gauto**, an astronaut candidate will be talking about the role of academia in scientific research.
3. Finally in the third panel the space agencies and invited companies will be talking about the Development and innovation in the space sector.

-- By Adolfo on 3 October 2019

12. Kyutech Space System Engineering is now up and running

2019年 春 始点 いざ、大いなる宇宙のフロンティアへ

2018年4月の工学部学科改編で新たに設置した「宇宙システム工学科」。

昨年入学した1年生が所属する「宙」での1年間の共通教育を履修し、今春、いよいよ「新学科」に配属され、宇宙システム工学科も本格始動します。全国でも類を見ない「宙」と名の付いた学科、その力を存じます。

希望する学生は以下のプログラムも受けることも可能。

プロジェクトリーダー型 博士技術者の育成プログラム

優秀プロジェクトリーダーとなり 国際的に博士技術者を養成

博士課程との連携による高度プロジェクトに、リーダーとして参加し、国際的な最先端技術の発展に貢献。また、プロジェクトリーダーとしての経験を通してプロジェクトマネジメント能力を養い、より高度なプロジェクトへの挑戦が可能になります。

宇宙工学国際コース

宇宙工学を「英語」で学べる 国内唯一の大学院カレッジ

世界中の最先端の宇宙工学の専門家と共同研究・交流をしながら、国際的な最先端技術の発展に貢献。また、プロジェクトリーダーとしての経験を通してプロジェクトマネジメント能力を養い、より高度なプロジェクトへの挑戦が可能になります。

KYUTECH SPACE SYSTEM ENGINEERING

情報工学部でも新たに5学科がスタート

<p>人とコンピュータ 情報工学部</p> <p>対応情報工学科</p> <p>AI・データコース</p> <p>人工知能コース</p> <p>メディア情報工学コース</p>	<p>コンピュータと通信を駆使した 情報工学部</p> <p>情報・通信工学科</p> <p>ネットワークコース</p> <p>情報通信システムコース</p> <p>ソフトウェア工学コース</p>	<p>人と自然を結び 情報工学部</p> <p>知的システム工学科</p> <p>ロボティクスコース</p> <p>システム制御コース</p> <p>応用情報コース</p>	<p>コンピュータとネットワークを駆使した 情報工学部</p> <p>管理情報工学科</p> <p>データ分析コース</p> <p>システム制御コース</p> <p>応用情報コース</p>	<p>生命化学を駆使した 情報工学部</p> <p>生命化学情報工学科</p> <p>データ分析コース</p> <p>システム制御コース</p> <p>応用情報コース</p>
--	---	---	---	--

宇宙システム工学科 次世代の宇宙開発を担うための、ホンモノの宇宙を学ぶ場

人工衛星やロケットなどのような仕組みで 出ているかご存じでしょうか？

実は特別な宇宙専用のシステムだけでなく、さまざまな一般的なシステムが組み合わさって出来ています。宇宙システム工学科では、宇宙システムだけでなく、様々な分野の機械の工学システムを組み合わせ、統合させることでできる技術者の養成を目指しています。

電気宇宙システム工学コース

電気回路、電磁気学、半導体といった電気工学を基礎とし、宇宙空間での応用技術として、宇宙システム工学の発展に貢献。また、プロジェクトリーダーとしての経験を通してプロジェクトマネジメント能力を養い、より高度なプロジェクトへの挑戦が可能になります。

機械宇宙システム工学コース

材料力学、熱力学、流体力学といった機械工学を基礎とし、宇宙空間での応用技術として、宇宙システム工学の発展に貢献。また、プロジェクトリーダーとしての経験を通してプロジェクトマネジメント能力を養い、より高度なプロジェクトへの挑戦が可能になります。

宙 九工大の人工衛星は、2年連続「世界」!!!

衛星開発プロジェクト 宇宙システム工学科が関わる学生プロジェクト

2003年に始まった衛星開発「宙」の発展が2019年、九工大ではいよいよ宇宙開発の発展の中心に位置づけられ、衛星開発プロジェクトは「学」に加えて「産」の発展も目指しています。早稲田大学と連携して、衛星開発の発展を目指しています。

SEE:

<https://www.kyutech.ac.jp/student-cheer/k03.html>

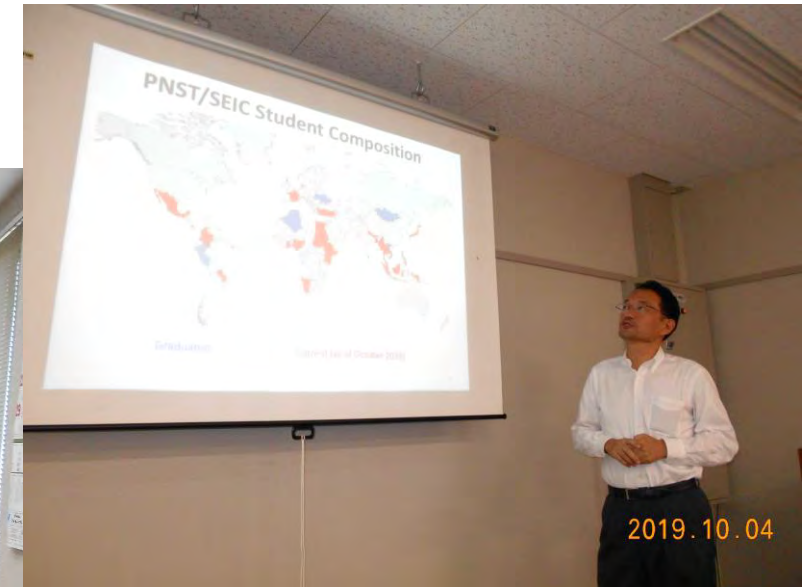
いざ、大いなる宇宙のフロンティアへ

宇宙システム工学科では、宇宙システムに限らず、さまざまな分野における複雑な工学システムの創生、研究開発、製造、運用を担える高度技術者・研究者の養成を目指しています。

学生は、「機械宇宙システム工学コース」と「電気宇宙システム工学コース」に分かれて機械または電気の専門科目を学びます。更に、宇宙工学に関する専門科目を学ぶと同時に、システムエンジニアリングやプロジェクトマネジメントを講義やPBLを通じて学びます。

学生は、宇宙システムを題材として、複雑なシステムをどのように作り、プロジェクトをどのように実施するかを学びつつ、システム及びプロジェクト全体を俯瞰できる資質を身につけます。宇宙システム工学科は、次世代の宇宙開発・利用を担いたいと思うキミたちに、ホンモノの宇宙を学ぶ場を提供します。

13. LaSEINE, Fall 2019, Laboratory Kickoff Meeting



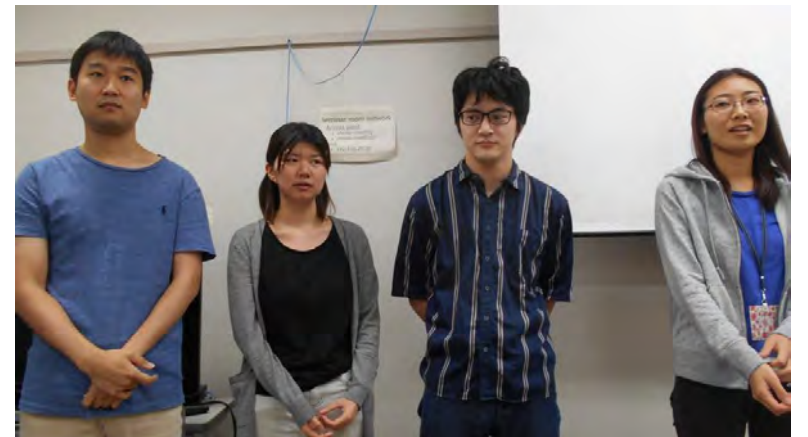
Prof Cho gives an overview of the lab



Laboratory of **S**pacecraft **E**nvironment **I**nteraction **E**ngineering



Members of the lab (staff and student) introduce themselves one by one.



14. LaSEINE, Fall 2019, Laboratory Kickoff BBQ



Below:
Staging area



Above:
Femi and family





Above: Fukuda-san (special guest) in bright white shirt



Welcome New Members of the Lab





**7:00-9:00 PM of
4 Oct. 2019**





Two bowls of delicious pasta by Paolo, our new intern Phd student from Italy

Photos from Shirakawa-san (this page and next)



← This fish was caught by Kakimoto san early in the morning.



It was a great barbecue !

15. BIRDS appears in German edition of AMSAT Journal

On 16 July 2019, Mr Mikio Mouri (JA3GEP) visited Kyutech to give a talk to SEIC students about amateur radio and about QO-100. This was described on pages 37-38 of Issue No. 43 of this newsletter. This, in turn, has appeared in the German edition of AMSAT Journal; see below.



CONTINUED ON THE NEXT PAGE



“The sun never sets on the BIRDS empire” ...G.Maeda



Mikio Mouri, JA3GEP, während seines Vortrags

Above, 16 July 2019, when Mr Mouri gave a seminar in the Cho Lab seminar room.



The BIRDS Global Ground Station Network

Die Teilnehmer des BIRDS-Projekts kommen aus zwölf Ländern, die meisten davon befinden sich innerhalb des Abdeckungsbereichs von Es'hail-2/QO-100

END OF THIS ARTICLE

16. Kyutech's involvement in recent TICAD is mentioned in its main web site



Check it out

News&Topics List

Kyutech & JAXA jointly participate in the TICAD7 Official Side Event ...
2019.09.26 TOPICS

Student visit from Kyutech's partner universities through JST Sakura ...
2019.09.04 TOPICS

Kyutech Brochure

Hello! KYUTECH (Promotional video)

Prospective Students

International Students Handbook

KYUTECH MAIN SITE: <https://www.kyutech.ac.jp/english/>

17. SDG topic: Satellites with social goals

Article

Satellites With Social Goals: Five Questions for Danielle Wood

WHEN DANIELLE WOOD arrived at the MIT Media Lab this year, her first task was furnishing her workspace. But the name of Space Enabled, her new group at the lab, refers to a different kind of space. Wood believes technologies in orbit can benefit societies on Earth.

“Furniture buying is important,” she says, “but maybe building a satellite with Ghana is even cooler.”

A 36-year-old engineer and policy researcher, Wood is especially interested in small satellites that are relatively quick and cheap to get off the ground. She wants to work with partners such as national governments to use those satellites, and other space technology, for purposes like public health and resource management.



Research

Satellites With Social Goals: Five Questions for Danielle Wood

“We use the phrase ‘small satellite’ not just to mean the satellite’s size, but actually to mean the philosophy people use in thinking about

via Undark · July 23, 2018
in Space Enabled

Wood got her degrees at MIT and worked most recently at NASA’s Goddard Space Flight Center. About 20 NASA satellites observe the Earth and gather data about its atmosphere, ice, water, and land; Wood worked on turning some of those data into useful resources for the public.

For example, satellite data about the risk of algal blooms in the ocean could help fishers decide where to take their boats. Data about deforestation and fires can help inform global forest managers. In 2016, Wood published a paper describing how satellite data on weather, terrain, and soil moisture could be part of an early warning system to predict malaria outbreaks. **See the link below for the rest of the interview**

In full here: <https://www.media.mit.edu/articles/satellites-with-social-goals-five-questions-for-danielle-wood/>

18. ISWI Newsletter



Four issues of the Newsletter were published in 2009. [See the list](#)

One hundred and nine issues of the Newsletter were published in 2010 [See the list](#)

One hundred ten issues of the Newsletter were published in 2011. [See the list](#)

Hundred thirty-one issues of the Newsletter were published in 2012. [See the list](#)

One hundred twenty-six issues of the Newsletter were published in 2013 [See the list](#)

Forty-eight issues of the Newsletter have been published in 2014. [See the list](#)

Nineteen issues of the Newsletter was published in 2015. [See the list](#)

Twenty issues of the Newsletter was published in 2016. [See the list](#)

Seventeen issues of the Newsletter was published in 2017. [See the list](#)

Fourteen+ issues of the Newsletter was published in 2018. [See the list](#)

Fourteen issues of the Newsletter are published in 2019. [See the list](#)

This year the **ISWI Newsletter** is celebrating its tenth anniversary of publication. All issues can be seen at the official ISWI website: <http://www.iswi-secretariat.org/> (under *Publications*)

Moreover, if you wish to receive future issues, just subscribe.

To subscribe, send a blank message to ISWInewsletter-on@mail-list.com

To unsubscribe, send a blank message to ISWInewsletter-off@mail-list.com

ISWI Workshop of 2019: <http://www.unoosa.org/oosa/en/ourwork/psa/schedule/2019/2019-iswi-workshop.html>

19. A visit to the Embassy of Bangladesh (Tokyo)



Prince Kitashirakawa Residence, above, near embassy

During the time the Imperial family was employing these grounds as a temporary Imperial palace, one section was given over to Prince Kitashirakawa Yoshihisa for his use, and the use of his family. He had the famous architect Josiah Conder design a two-story brick residence in the Gothic style, which was completed in 1884. Sadly, only ten years later the structure was significantly damaged in an earthquake, and sections of it had to be dismantled. *From Wikipedia*



At the right is Dr Abedin,
counsellor at the embassy.
He approved our visas. He
attended the Handover Press
Conference for BIRDS-1 at
Kyutech.

On 7 Oct. 2019 G.Maeda visited the Embassy of Bangladesh to secure the visas of four Kyutech persons who will attend the *4th BIRDS International Workshop (4BIW)* in Bangladesh in November of 2019. *Continued on the next page.*



Location of the **Bangladesh Embassy** (near the **Imperial Palace**)

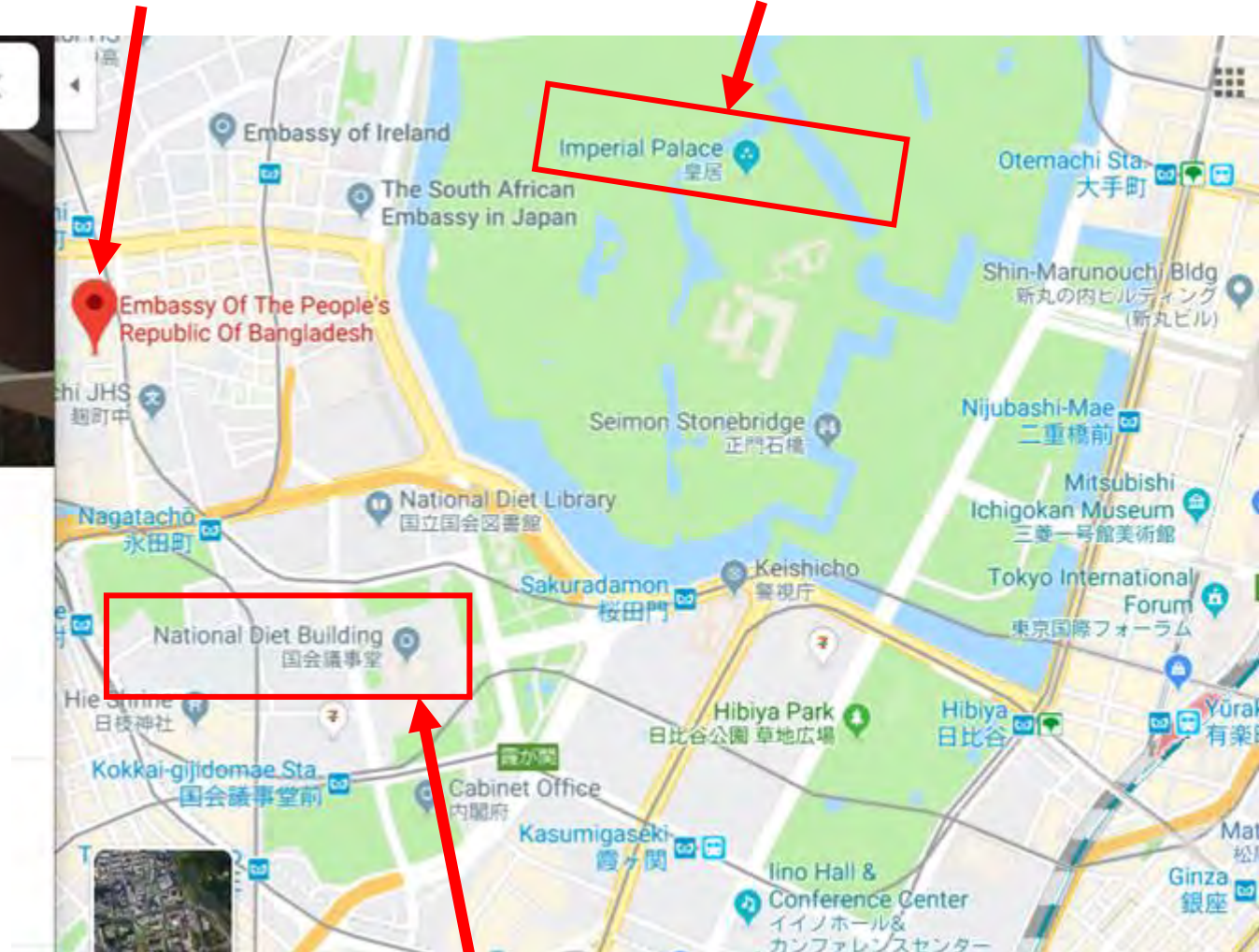


Embassy Of The People's Republic Of Bangladesh

বাংলাদেশ大使館 - বাংলাদেশ দূতাবাসের দূতাবাস

3.3 ★★★★★ (39)

Embassy



National Diet Building is also nearby

20. Dr Moutaman is the new Sudan POC for UNISEC-Global; congratulations !

Sudan is a long-time member of the BIRDS Network.



The screenshot shows the UNISEC-Global website header with the logo and navigation menu. The breadcrumb trail indicates the user is on the Sudan page under the Points of Contact section. The profile for Dr. Moutaman Mirghani is displayed, including his affiliation with ISRA, Sudan, and a detailed biography of his education and professional experience. A portrait photo of Dr. Mirghani is shown on the right side of the profile.

UNISEC GLOBAL
University Space Engineering Consortium

Home Meeting Contests Links Local Activities Sponsors Contact Site Map

Home > Contact Us > Points of Contact > Sudan

Select Language

Dr. Moutaman Mirghani

Institute of Space Research and Aerospace (ISRA), Sudan

Dr. Moutaman Mirghani has received the B.Sc., M.Sc. and Ph.D. degrees from the Department of Electrical and Electronic Engineering, Faculty of Engineering, University of Khartoum (UofK) in Sudan, in 1989, 1998 and 2009 respectively. He started as a Teaching Assistant at the UofK in 1989 and then moved to Tripoli, Libya, where he was working as an Electrical Engineer since 1990 and till 1993, when he returned to Sudan and became an Engineer at a private company.

In the period from 1994 to 1998, he was a Researcher at the Military Industry Corporation (MIC). Then, he moved to Vega Aeronautics & Engineering Company as a System Engineer. In 2002, he started working with Karary Academy of Technology as a Lecturer, and later became an Assistant Professor in 2005. After the academy became Karary University (KU) in 2007, he was promoted to Associate



The rest is here: <http://unisec-global.org/mirghani.html>

21. Annual LaSEINE laboratory group photo (9 Oct. 2019)



**All staff and students of the laboratory
(in this photo the staff is seated)**

22. Report on the 3rd Paraguay Space Conference

This report was provided by the staff of AEP

EN EL MARCO DEL
World Space Week

III CONFERENCIA
ESPACIAL DEL PARAGUAY
2019

“PARAGUAY
AL ESPACIO”

VIERNES 4 DE OCTUBRE
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Conferencia Magistral del
ING. HERNANDO GAUTO
paraguayo candidato a astronauta

GUARANISAT-1
BIRDS-4
2020

PANEL 1
Lanzamiento del proyecto:
“Paraguay al espacio”
GUARANISAT-01

PANEL 2
El rol de la academia en la
investigación científica

PANEL 3
Desarrollo e innovación espacial
PARTE I: Agencias espaciales
PARTE II: Sector privado

CONFERENCISTAS
INVITADOS:

AEB SATELLOGIC EMSISTI Telespazio Open Cosmos SPACE SUR FREQUENTIS

Conference flyer

← Official Flyer for the 3rd Paraguay Space Conference organized by the Paraguay Space Agency (AEP)

As we can see here our main Keynote speaker is Lieutenant Hernando Gauto, who is an American-Paraguayan working at NASA Marshall Space Flight Center.

BIRDS-4 Project is highlighted in this conference for the first time.



Press conference a day before the start of the venue.

3rd Paraguay Space Conference



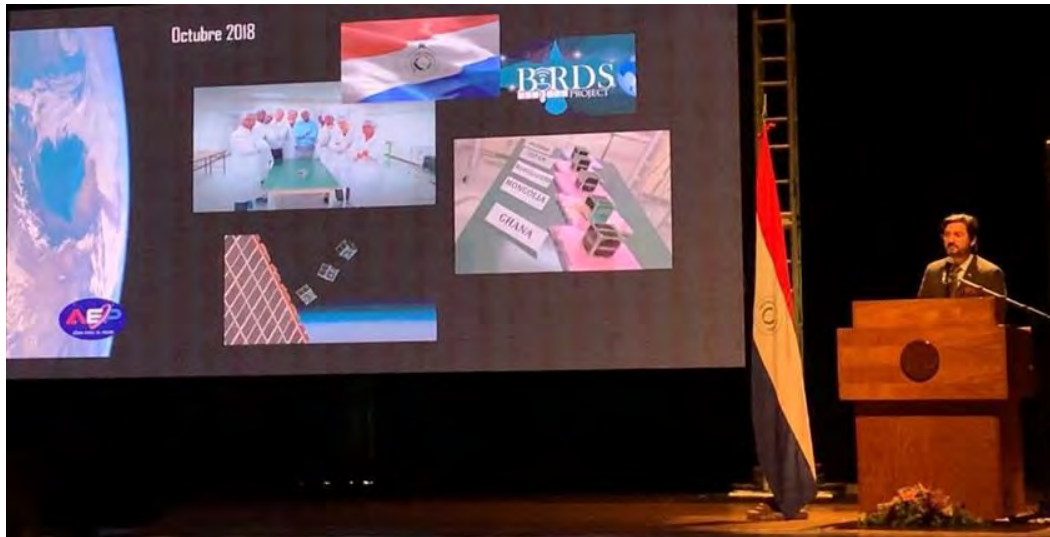
The Conference opening was conducted by AEP's President Liduvino Vielman

4 October 2019



Picture of the audience. We can see a lot of high schoolers attending – a huge success for the organizers.

3rd Paraguay Space Conference



Professor Alejandro Roman talking about **The BIRDS-4 Project**.

4 October 2019



He called all the AEP's crew to gather up so the audience can appreciate "The Big Team" working at The AEP

Photos of the **2nd Paraguay Space Conference** can be found here:
Pages 20 through 23, Issue No. 34, BIRDS Project Newsletter.
-- The Editor.

3rd Paraguay Space Conference

This panel is about *Space Development and Innovation*. Representatives from Latin American Space Agencies were present in this panel such as Brazil and Peru.



The talks were separated in Panels. This one is about the Academic role in scientific research. Here different university presidents are debating the topic.

END OF REPORT FROM PARAGUAY

23. JAXA announces “space robotics contest”

「宇宙ロボコン」募集開始

宇宙航空研究開発機構（JAXA<ジャクサ>）は11日、2020年9月頃に国際宇宙ステーション（ISS）の日本実験棟「きぼう」で行うロボット競技会の参加者募集を始めた。競技会では、それぞれが開発したプログラムで地上からロボットを遠隔操作し、指定の地点に移動させたり、的にレーザーを照射させたりして、時間や精度を競う。対象は小学生～大学院生で、3人以上でチームを組む。応募締め切りは20年3月19日。専用のホームページ（<http://iss.jaxa.jp/en/kuoa/krpc/>）に応募方法などが紹介されている。



Kibo Robot Programming Challenge (Kibo-RPC)

Last Updated: October 11, 2019

This website is here:

<http://iss.jaxa.jp/en/kuoa/krpc/>

Kibo Robot Programming Challenge is an educational competition to solve various given problems by using real robots in International Space Station (ISS). This program is hosted by Japan Aerospace Exploration Agency (JAXA) in cooperation of National Aeronautics and Space Administration (NASA).

As well as here:

<https://jaxa.krpc.jp/>



[Int-Ball](#) (Link to JAXA website)



[Astrobee](#) (Link to NASA website)



Military Service Experience in Turkey



Yiğit Çay

September 25, 2019

Military Service Experience in Turkey

Written By: Yiğit Çay

As I come back from Turkey last week, I wanted to write my article about the unique experience that I gained there: 3 weeks of mandatory military training.

We say “every Turkish person born as a soldier,” addressing our ancestors who were in many wars. Although women don’t have to get the training, they always respect our military and its mission to protect the country from possible enemies inside and outside of the country.

It’s obligatory for a Turkish male citizen to complete military service training once they become 20 years old. This obligatory service usually cuts a portion of your life and the time stops for you while you enter a whole new world of military and the outside life is going on as usual. The time you spend depends...



Turkey map to show my hometown, Istanbul (blue star) and the city of Amasya (red pointer) where I trained in the military base. Turkey is marked on the 3D world map at the right-bottom corner. Image sources: Google Maps

...on certain things, such as the education level and luck. Once you finish high school in Turkey, one becomes 18 years old in general. If they pass two more years, their time come and they have to start their training immediately. For example, if you turn 20 years old on Friday, you might start on Monday. If you start your higher degree, the call is pushed till you finish that education. Hence, if you start university, you receive a new...

Military Service Experience in Turkey

Written By: Yiğit Çay

...call when you finish your study. For this reason, men following academic life are getting the call pretty late. The upper age limit of this system is 35 at the moment. If you are at least graduated from a university, the army gives you to chance to get one of two ranks above the foot soldiers. The rank is randomly assigned to those who applied this system. In the lower rank, you can get a rank different from the foot soldiers but the training is pretty similar. This training is completed in 6 months. Other rank has working hours and partially out of the military with one higher rank. It requires 1 year to finish and a good salary is provided. In case you don't apply the system I mentioned before, you complete your military service as the lowest rank within 1.5 years, which is the normal...



Whole central Amasya within 3 shots taken by me from the famous restaurant located on top of the other mountain facing the one at the photos.

...duration in the army. In my case, the Turkish government provided a chance for those who are above 25 years old to apply. In this new system, I could complete the obligatory training in only 3 weeks by paying some money. I thought this system is very suitable for me following the academic studies at the doctoral level. My rank was infantry as the foot soldier and the base was located in a beautiful city of Turkey, Amasya where ancient kingdoms have located and the Ottoman Empire's future emperors were trained to become a leader. I had visited this small town for one day with a friend of mine in 2012 and liked it a lot. This time, I wasn't able to go to the city center that much but I enjoyed the fact that I was in that city. The army training is forbidden for me to share, that's why I wanted to keep this issue with general information. I think I enjoyed the most I was away from the current technology making my mind calmer. I had many times to read books, draw random things, talk to people about space studies and enjoyed watching beautiful environment, sunsets/sunrises, and many stars during the night times.



Exploring Northern Kyushu



Izrael Zenar Bautista
October 7, 2019

Northern Kyushu Pass

Written By: Izrael Zenar BAUTISTA

After BIRDS-4's Critical Design Review (CDR), my girlfriend came and we toured around Northern Kyushu.

Fortunately, JR Kyushu is offering a 3-day northern Kyushu pass for foreigners for half the original price, from 15,000 yen to 8,500 yen and a foreign student pass for only 7,200 yen. That's a huge discount compared when you travel without using a pass.

So we planned our trip around Northern Kyushu and went to Huis Ten Bosch and Beppu. During the last two days of our trip it was rainy so we had to change our itinerary and weren't able to go to Nagasaki city.



My girlfriend, Mia, with the Huis Ten Bosch train

An advertisement for the JR Kyushu Foreign Student Pass. The top part features a white high-speed train and the text 'JR KYUSHU Foreign Student Pass' with the JR logo. Below this, it says '3 days unlimited rides On JR KYUSHU trains! For Non-reserved seat'. Two price options are listed: 'NORTHERN KYUSHU 7,200 yen' and 'ALL KYUSHU 14,400 yen'. The middle section shows a map of Kyushu with two model courses. The 'Model course NORTHERN KYUSHU' includes a 3-day itinerary: Day 1 (Nagasaki, Huis Ten Bosch, Nagasaki), Day 2 (Huis Ten Bosch, Toosu, Yufuin, Beppu), and Day 3 (Beppu, Nagasaki). It shows a 53% discount from a normal ticket of ¥15,490 to a foreign student pass of ¥7,200. The 'Model course ALL KYUSHU' includes a 3-day itinerary: Day 1 (Fukuoka, Sasagawa, Kurashiki, Beppu, Kagoshima-Chuo), Day 2 (Kagoshima-Chuo, Miyazaki, Oita), and Day 3 (Oita, Fukuoka). It shows a 43% discount from a normal ticket of ¥25,570 to a foreign student pass of ¥14,400. The bottom of the ad says 'Now on sale at JR station, University co-op counter!!' and 'Need student residence card, when you purchase.' with a QR code.

JR Kyushu advertisement for foreign student pass

Huis Ten Bosch – During the Day

Written By: Izrael Zenar BAUTISTA

Huis Ten Bosch is a theme park in Sasebo, Nagasaki that looks like you're in the Netherlands with lots of colorful flowers and structures such as the windmill and clock tower. In English, the name means "House at the bush". Inside there are a lot of enjoyable rides for kids and adults.

With the scenic view and colorful attractions, we took tons of pictures and had lots of fun roaming around.



We took a picture in the entrance gate. They're preparing for the Halloween already



We had a photo in front of the clock tower.



The garden is much better during spring but we were able to take some nice photos with these roses too.

Huis Ten Bosch – During the Day

Written By: Izrael Zenar BAUTISTA



They recreate a Dutch town by putting colorful flower and this windmill. A trivia I learned was that because Netherlands is a reclaimed area, they are prone to flooding and use windmills to generate power to pump out water.



There's a pathway covered with colorful umbrellas.

Huis Ten Bosch – at Night

Written By: Izrael Zenar BAUTISTA



LED lights cover structures giving a colorful night display

Huis Ten Bosch's beauty really comes out during the night because a lot of places are illuminated by different colored LED lights and other light effects can be seen around the place.



The umbrella area looks wonderful at night too!



In front of the majestic castle

Huis Ten Bosch – at Night

Written By: Izrael Zenar BAUTISTA



Thousands of LED lights make for a beautiful night display. It shows various seasons of Japan and it's very awesome!



The garden is also fully illuminated making it more romantic.

Beppu, Oita Trip

Written By: Izrael Zenar BAUTISTA

Beppu is a famous city in Japan mainly for the hot springs (“onsen” 温泉) they have. More than 2,000 onsens can be found in the area because it is near to the volcanic mountains heating the underground water reservoir.

There are several tourist attractions in the area such as a Marine park, zoo, cable car, amusement park and the Beppu 7 Hells tour. They have a special bus ticket for unlimited ride for one day which costs 900 yen and entrance to the 7 hells ticket for 1800 yen. Normally each ‘hell’ would cost 400 yen so this deal is really great!



We had the chance to try the relaxing sand bath. The sand is around 40 °C and you can soak for around 10 minutes



In front of the infamous Beppu Tower



The pass also covers the Yufuin no Mori which is luxurious looking train

Seven Hells of Beppu Tour

Written By: Izrael Zenar BAUTISTA

1. Tornado Hell (Tatsumaki Jigoku) – geyser that erupts every 30-40 minutes for 5-6 minutes. Temperature: 105 °C



2. Blood Hell (Chinoike Jigoku) – previously an onsen and one of the oldest with deep red color due to metal deposits of the pool. Temperature: 78°C



3. White Hell (Shiraike Jigoku) – The minerals on the pool makes the water color a pale greenish-white. Temperature: 95 °C



Seven Hells of Beppu Tour

Written By: Izrael Zenar BAUTISTA



4. Crocodile Hell (Oniyama Jigoku) – Crocodiles bathe in the pool of this 'hell' which makes it more scary if you find yourself in it. Temperature: 99 °C



5. Cooking Pot Hell (Kamado Jigoku) – Composed of several pools where you can also order eggs cooked in the waters of this hell. Temperature: 100 °C



Seven Hells of Beppu Tour

Written By: Izrael Zenar BAUTISTA

6. Shaven head monk's hell (Oniishi Bozu Jigoku) – This hell is different from the others because grayish mud can be seen boiling in this hell. The bubbles are said to resemble a monk's shaved head, hence the name. Temperature: 99 °C



7. Sea hell (Umi Jigoku) – A turquoise colored water can be found in this hell. Unfortunately it's covered in steam when we came but there are other views you can enjoy as we did.

Temperature: 98 °C



Seven Hells of Beppu Tour

Written By: Izrael Zenar BAUTISTA

Together with the tour ticket is a map which also has a stamp area. At each 'hell' you can find a different stamp to prove that you've been to that area. Shown in the image is a memorabilia that we were able to finish the tour.

We really had so much fun around Northern Kyushu at a reasonable price. We're looking forward to more tours and places to explore in Japan.



References: <https://www.fun-japan.jp/intl/articles/1152>
<https://www.welcomekyushu.com/event/?mode=detail&id=9999900000644&isSpot=1&isEvent>
<http://english.huistenbosch.co.jp/>
<https://www.japan-guide.com/e/e4477.html>

26. BIRDS-4: Report for a trip to Takachiho



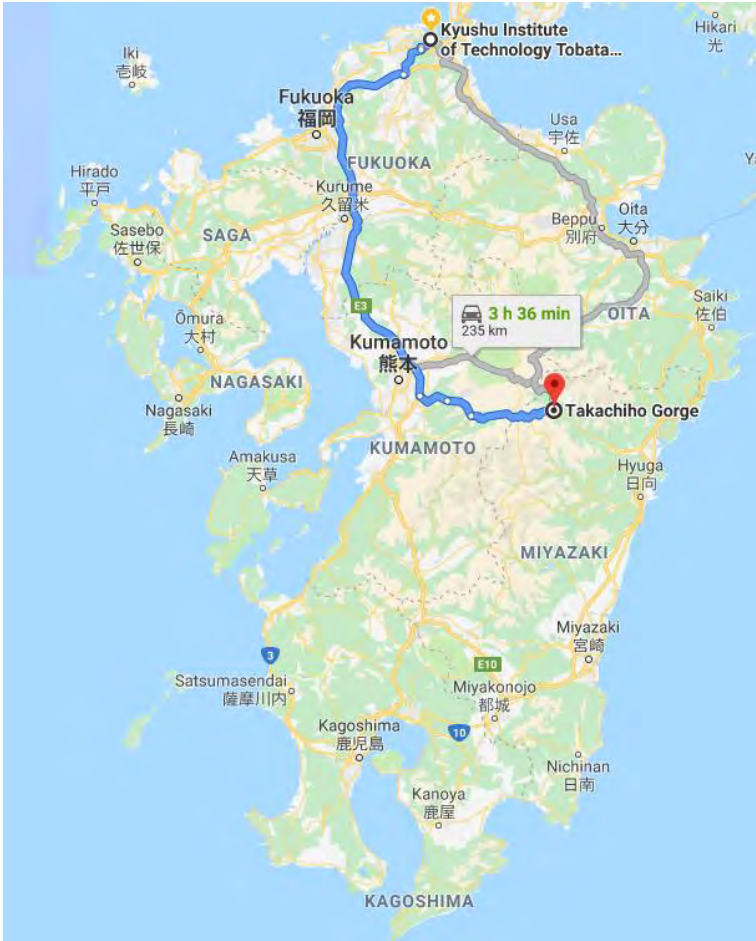
Takachiho Trip

Marloun P. Sejera

October 6, 2019

Takachiho Trip

Written By: Marloun P. SEJERA



Kyushu island map, featuring route from KyuTech to Takachiho
(c) Google map

An old saying goes “**all work and no play makes Jack a dull boy.**” That is why a week after BIRDS-4’s CDR, we planned to go for a trip to Takachiho. This small town is located in northernmost part of Miyazaki Prefecture, and is about four hours of travel from KyuTech by car.

We had an overnight stay in ryokan, a traditional Japanese inn. The tatami-matted room was spacious and clean, same with its communal bath and other public areas. Our room has a scenic view of the beautiful town and its nearby mountain range.



View of the town from our room
(c) Murase/Dulani

Takachiho Trip

Written By: Marloun P. SEJERA

After a good night rest and very delicious breakfast, we headed to Takachiho Shrine. Aside from its beautiful wooden shrine, it features huge centuries-old trees and a hall where Kagura, a theatrical play, is held.



Murase, trying to hug a centuries-old tree



Takachiho Shrine

場所	高千穂神社境内の神楽殿（畳敷きの広場） <small>※椅子の貸出は行なっておりません。 座布団や椅子の持ち込みは可能ですが、他のお客様の迷惑にならないようご下さい。</small>
日時	毎日開催
受付開始時間	19:00から（神楽殿にて受付） ※当日受付のみ、メールや電話での事前予約は行なっておりません。
時間	20:00～21:00
内容	①手力雄の舞 ②細女の舞 ③戸取の舞 ④御神体の舞
料金	1人 700円（※団体割引20名以上 1人600円） （※小学生まで無料）
駐車場	約90台 高千穂神社駐車場を利用（無料）
お問い合わせ	一般社団法人高千穂町観光協会 TEL: 0982-73-1213
Date & Place	Every night at Takachiho Shrine
Time	20:00～21:00 (4 Dances)
Admission Fee	¥700 per person (Elementary School Students and under are free (¥0))

Schedule of Kagura play

Takachiho Trip

Written By: Marloun P. SEJERA

A short four-minute ride on a steep asphalt road we reached Takachiho Gorge. There we strolled through the walkway and saw people on the boat ride cruising on this magnificent gorge. With four hours of waiting time, we decided not to take the boat ride. Instead, we had mango soft ice cream as we roam around the place.

*Left : Murase-san, Dulani
and me on a mandatory post*

*Right: Boat ride on the gorge
(c) Dulani*



Takachiho Trip

Written By: Marloun P. Sejera

Last stop was a train ride in Takachiho Amaterasu Railway. It was a 50-km railway connecting Nobeoka and Takachiho but was decommissioned when it was severely damaged by typhoon in 2005. The 2.55 km portion of the railway was then repaired and reused for tourists to cruise through tunnels, natural landscapes and local attractions such as shrines, rice terraces, and a stop on **Takachicho Iron Bridge.**

We went home feeling refreshed and ready for the next lab activities!





Reaction Wheel Test of EM

Hiroki Hisatsugu

BIRDS-4

October 5, 2019

Reaction Wheel Test of EM

Written By: Hiroki HISATSUGU

In ADCS mission, we are going to utilize a COTS, 3-phase brushless motor as a 1-axis reaction wheel. In this test, we observed and measured the EM satellite reaction through the reaction wheel. In design, we will use the reaction wheel that specifications are shown in the table. Its maximum rotation speed is around 5,000 rpm.

As the momentum conservation law works on the orbit, when the reaction wheel is rotating inside, the satellite will be starting to rotate its opposite direction. This satellite speed depends on the ratio of inertia of the satellite and the wheel.

We did an AirTable test but the angular velocity was low because the inertia ratio was high. Then we tried to observe the reaction of EM satellite while hanging by strings. The testing set-up image is shown at the right side. ADCS command line and gyro sensor data are obtained through the laptop via UART Bluetooth adapter.

The reaction wheel properties

Maximum angular velocity	5,347 [rpm]
Wheel inertia	5.8×10^{-7} [kgm ²]
Maximum momentum	3.25×10^{-4} [Nms]
Maximum torque	2×10^{-4} [Nm]

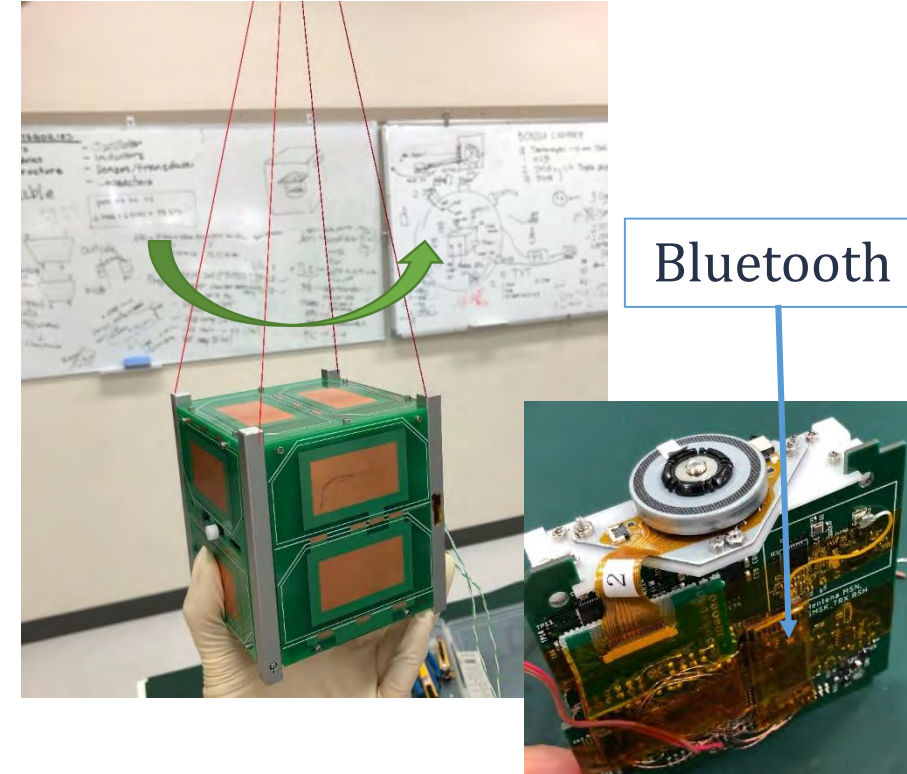


Image of hanging the EM satellite by strings

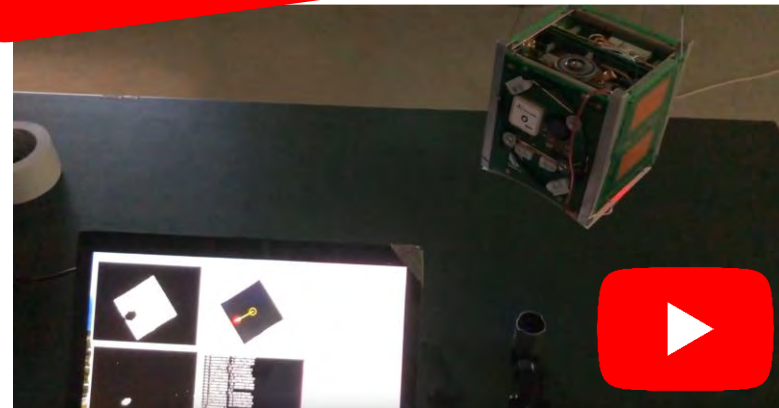
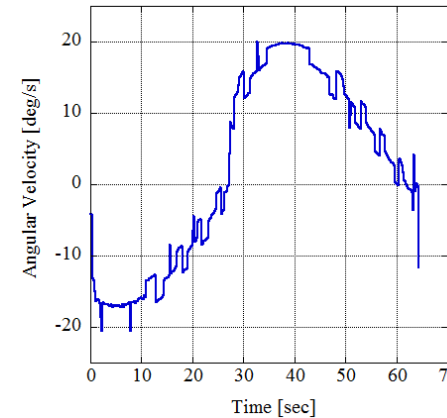
Reaction Wheel Test of EM

Written By: Hiroki HISATSUGU

To measure the angular velocity of the satellite correctly from outside, we did the marker trajectory observation by using image recognition tracking via a camera. The test result and video are shown at the right side. In this video, you can see satellite rotation by the reaction wheel. When the reaction wheel stops, the satellite will be starting to rotate the opposite side. This result shows theoretical calculations were correct, but still, there is the disturbance force from string tension that is needed to be taken into account.

The ADCS mission is proving itself to be difficult but the tests are very enjoyable for me.

View this reaction wheel test on YouTube!



<https://youtu.be/RQGeNAB-9U0>



The satellite reaction result and testing set-up

Editor's note: This is a good video.



Inrush Current Test on Missions



Hari Ram SHRESTHA

October 8, 2019

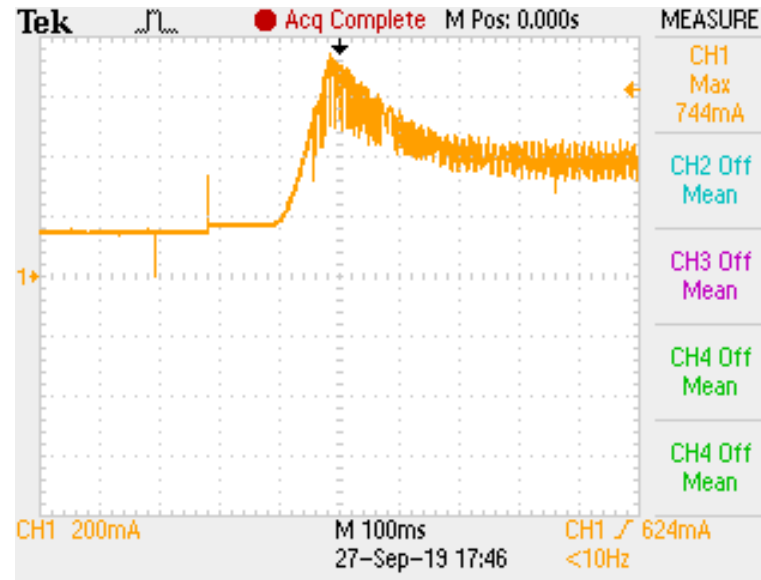
Inrush Current Test: ADCS Mission

Written By: Hari Ram SHRESTHA

Inrush current: In BIRDS-4 EPS, the power management design must be divided into the different voltage lines like unreg_1, unreg_2, 3V3_1, 3V3_2 and 5V for missions and subsystems.

Inrush current means produce prompt higher input current drawn by a power source which generate and transmit the electrical power when it's turned on. The power supply is the secondary rechargeable battery during the eclipse time and the solar cells during the sunlight for CubeSat . This arises due to the sudden sharp increases in load on that short time. Initial currents required to charge the capacitors and inductors are also called surge current.

Surge currents usually are temporary which flow in the closed circuit during the fault conditions. [Reference](#)

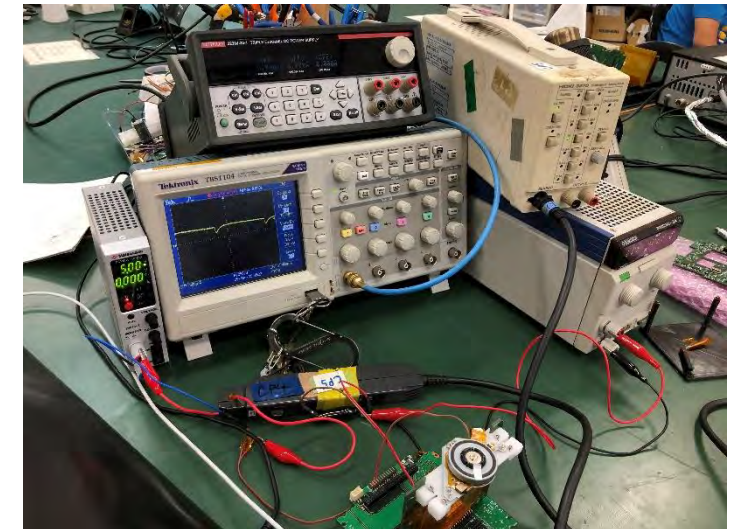


5V MTQ + Reaction Wheel line initial current measurement

- Initial peak current was around **0.74 A**
- (5V, @max speed + MTQ Full power each axis)
- Average **0.45A** @5V, max speed + Full power MTQ

Required equipment are:

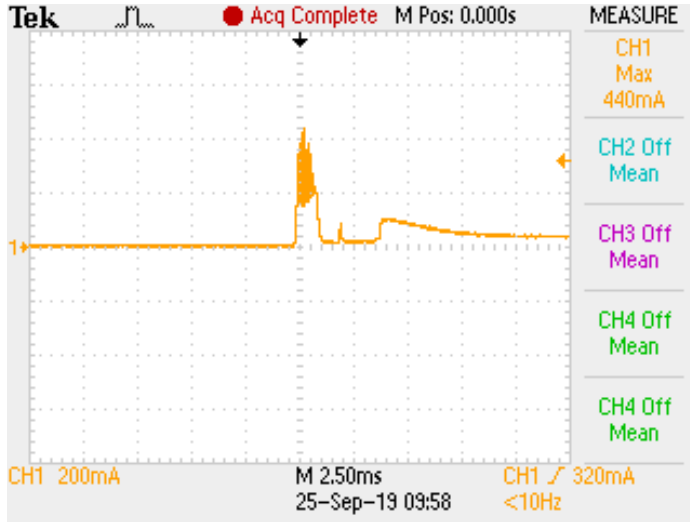
- Current probe for measuring,
- Oscilloscope to observe the initial current,
- Power source,
- And a BIRDS-4 mission board.



*Inrush current set up test for ADCS, BIRDS-4
Credit: Hisatsugu*

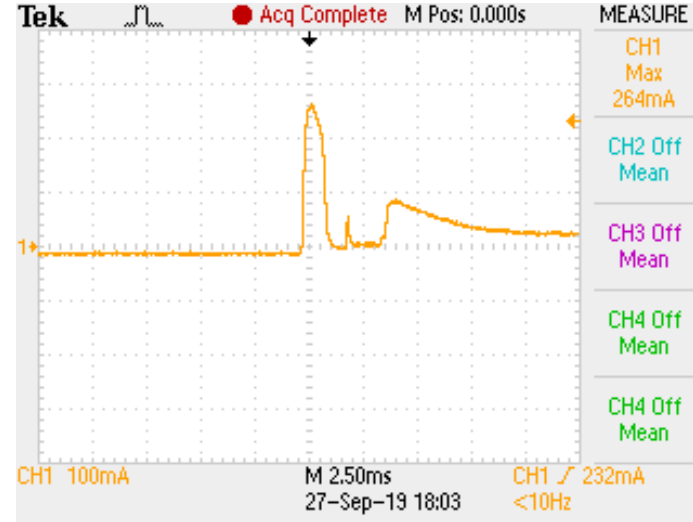
ADCS: 3V3 Bus Line with MB1 and GPS

Written By: Hari Ram SHRESTHA



MB1 3.3V line initial current measurement

- ❖ Initial peak current was around **0.44 A @ 3.3V**
- ❖ Average **0.06 A @ 3.3V**



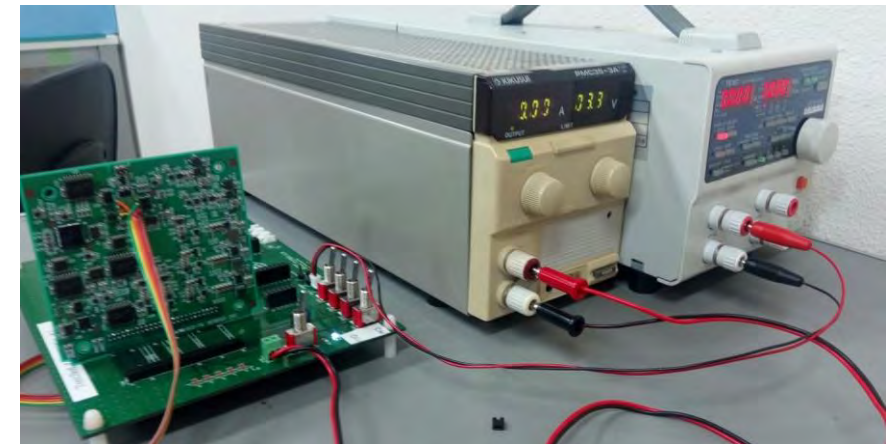
3.3V initial current measurement **with GPS**

- ❖ Initial peak current was around **0.26 A @ 3.3V**
- ❖ Average **0.096 A @ 3.3V**

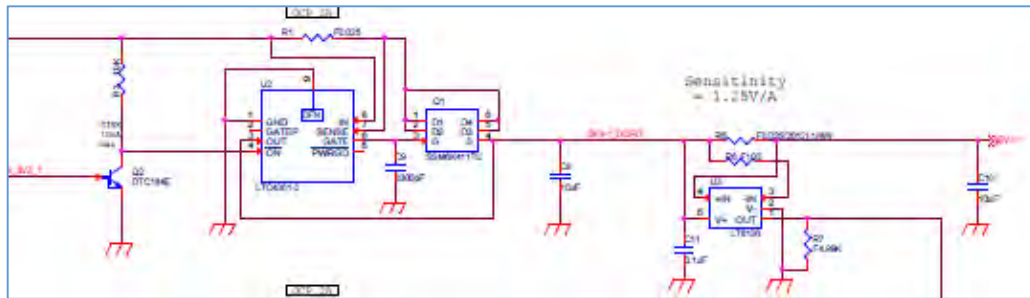
OCP trigger test = 2A

% of OCP	Expected (A)	Measured (A)	Status
90%	1.8	1.83	
95%	1.9	1.889	
100%	2	1.897	
105%	2.1	Trigger	
110%	2.2		

OCP Trigger test result: at 3V3_1 line with load, BIRDS-4



OCP test set up with electronic load and on board



BIRDS-4, Schematic diagram : 3V3-1 bus voltage line



Seoul-Searching: A Short Trip to Korea



Mark Angelo C. Purio

October 10, 2019

Seoul-Searching: A Short Trip to Korea

Written By: Mark Angelo PURIO

Time and again, Japan proved to be a favorite tourist destination for foreigners. But what will you do if you have stayed here for too long? Peculiar as it is, too much familiarity in a place gives as the notion of going somewhere else even for a while.

After the Critical Design Review (CDR) of BIRDS-4 satellite project, the best way for me to unwind and recharge is to travel somewhere near but outside Japan. What's best about this trip was the fare is very cheap and flight is not that long.

This photo article recounts my weeklong stay in South Korea as I experience its culture, beautiful destinations, welcoming people, shopping and most importantly, the food. May these photos take you in the same experience as I had.

Day 1. Arrival. Night stroll and dinner around Yong-in



Known for its bright signages at night, Korea offers a great place to stroll and enjoy the night lights. For dinner, one must try their Samgyupsal, their take on Pork BBQ and cake for dessert. Fortunate to meet Filipino friends here to join me.

Seoul-Searching: A Short Trip to Korea

Written By: Mark Angelo PURIO

Day 2. Visiting Seoul plus the Comics Museum



Seoul-Searching: A Short Trip to Korea

Written By: Mark Angelo PURIO

Day 2. Train Stations and Food



Photos at the train stations and off course more food. First time to taste Galbitang, their version of braised beef.



Day 3. Shopping at Myeong-dong and more walking



Free WIFI is spread-out all-over Korea and the best place to have them is in train stations.



Seoul-Searching: A Short Trip to Korea

Written By: Mark Angelo PURIO

Day 3. Visiting Jogyesa Temple (조계사) and Cheonggyecheon Stream



Seoul-Searching: A Short Trip to Korea

Written By: Mark Angelo PURIO

Day 4. Trip to Busan and more Food Trips



Seoul Station



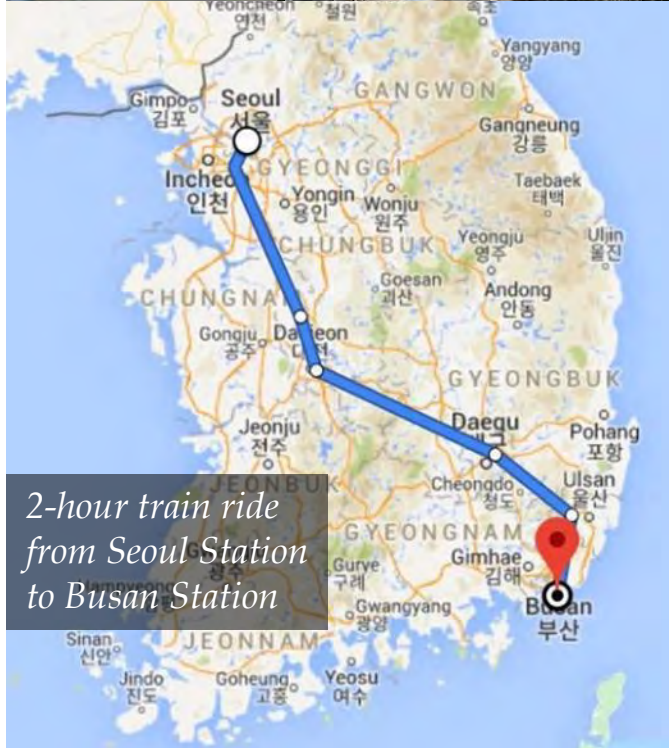
The train ride has a very nice scenic view. If you are a first timer, window seat is recommended



Samgyupsal with a lot of side dishes.



Entertainment bars around Busan Station

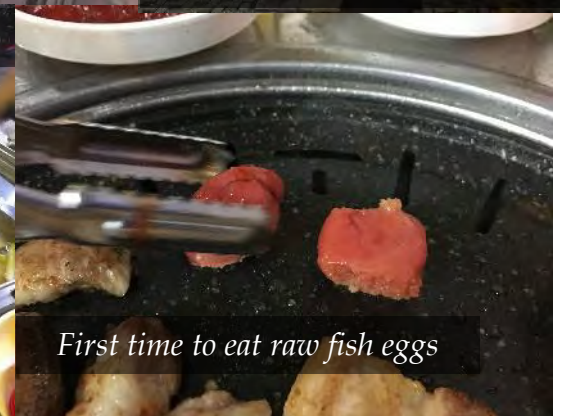


2-hour train ride from Seoul Station to Busan Station



Beer + Soju = Yum

Streetfood: Fish Cake



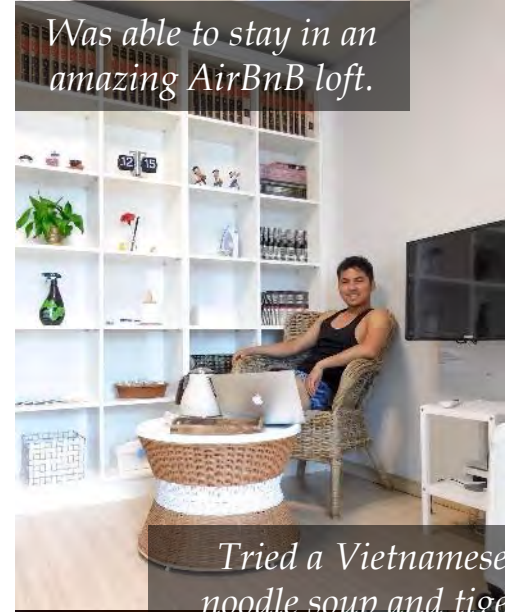
First time to eat raw fish eggs

Seoul-Searching: A Short Trip to Korea

Written By: Mark Angelo PURIO

Day 5. Rest day, Busan Tower Visit and Seafood tripping

Was able to stay in an amazing AirBnB loft.



A week-long travel may be very tiring. Allot a time for you to rest and just relax. It will make your trip more fulfilling.

Tried a Vietnamese noodle soup and tiger sugar milk tea.



Busan Tower allows us to see the entire city at a glance. It is definitely breath-taking.

Seoul-Searching: A Short Trip to Korea

Written By: Mark Angelo PURIO

Day 5. Visit to Jagalchi Market and Seafood tripping



Amazing view of the fish port.

A wide array of fresh seafood is sold in Jagalchi Market reminds me of home.

Fresh seafood always taste better off course.

First time to eat live octopus.

Seoul-Searching: A Short Trip to Korea

Written By: Mark Angelo PURIO

Day 6. Rest day and Gwangam Beach Night View



Panoramic view of Gwangam Beach



Gwangam Bridge fully lit.



Chicken and beer by the bay

This 7-day trip is one for the books. I was able to meet new friends and discover more about Korean culture. If you're a student in KyuTech and you dream of travelling, try to visit Korea. Be astounded with the amazing destinations and off-course, the food.

Looking forward for more travels and I will definitely go back to Korea.

For now, back to reality and back to schoolwork.

Seoul-Searching: A Short Trip to Korea

Written By: Mark Angelo PURIO

Day 7. Last Day. Visit to Gamcheon Culture Village



A view of colorful houses from the Gamcheon Culture Village. Perfect for Instagram photos.



Milk tea again!!!



The Little Prince and the fox



Korean version of dried fish. Yum!!





Functions of OBC in BIRDS-4



Adolfo Jara
October 5, 2019

Functions of OBC in BIRDS-4

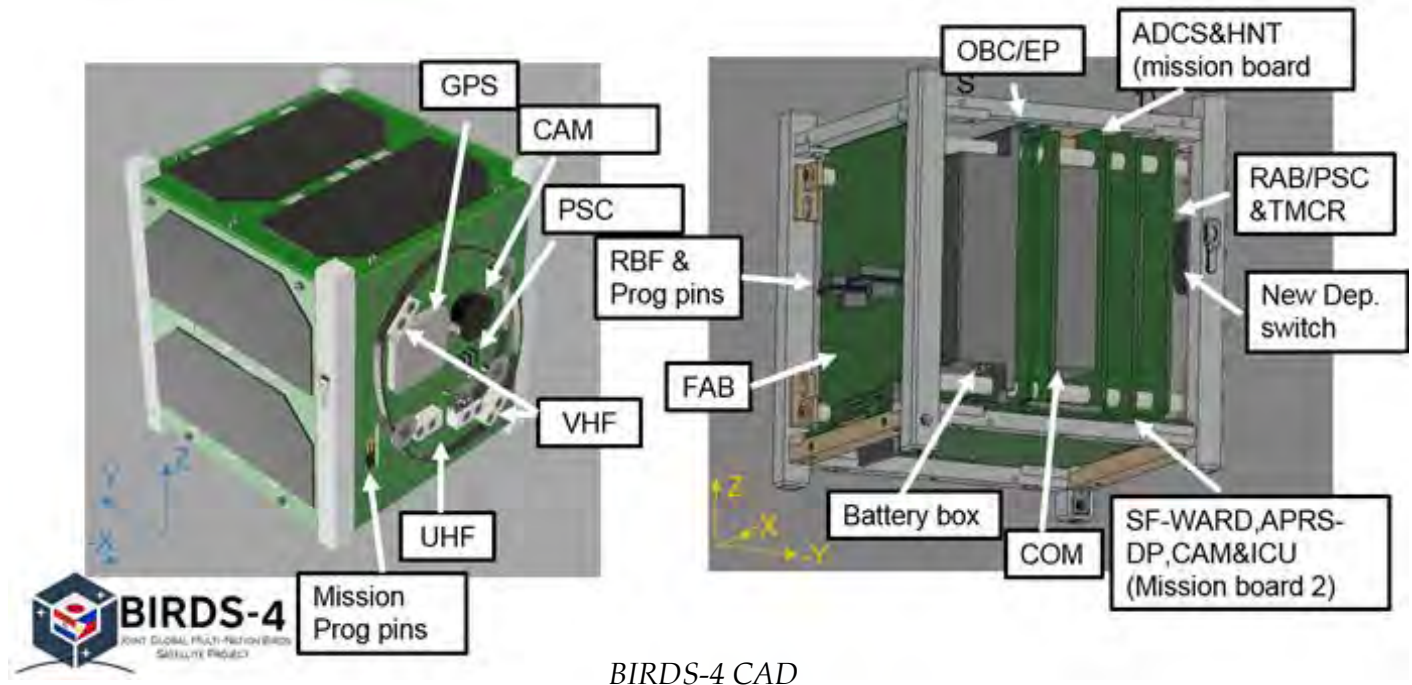
Written By: Adolfo JARA

A CubeSat is a miniature satellite for space research applications. It has a cubic shape with 10 cm each side, and mass of no more than 1.33 kilograms. The CubeSat typically uses commercial off-the-shelf parts and electronic components so that it can be operated in space quickly and cost-effectively. Because of its small size, a CubeSat can be carried into its orbit cheaply as a secondary passenger on a launch vehicle.

The various systems of a satellite are responsible for tasks that are necessary for proper functioning of the system. I'd like to introduce some systems in a nanosatellite bus [1]:

Electrical Power System

The main task of the electrical power system (EPS) is to provide the other subsystems with a reliable and continuous power source.



Attitude Determination and Control System

The attitude determination and control system (ADCS) is responsible for keeping the orientation of a spacecraft in space, in addition to achieving the required maneuver.

Communications System

One of the main requirements of any satellite is the ability to communicate with the earth reliably by sending and receiving data from the ground station.

Functions of OBC in BIRDS-4

Written By: Adolfo JARA

On Board Computer

The On-board computer (OBC) in other words is the brain of the satellite, being some of its main functions the execution of commands sent by the Ground Station. The collection, storing and transmission of housekeeping data and mission data. The monitoring of the general status of the satellite and the execution of commands automatically. To fulfill these functions, the OBC works in coordination with the COM and EPS subsystems.

Standardized Bus system

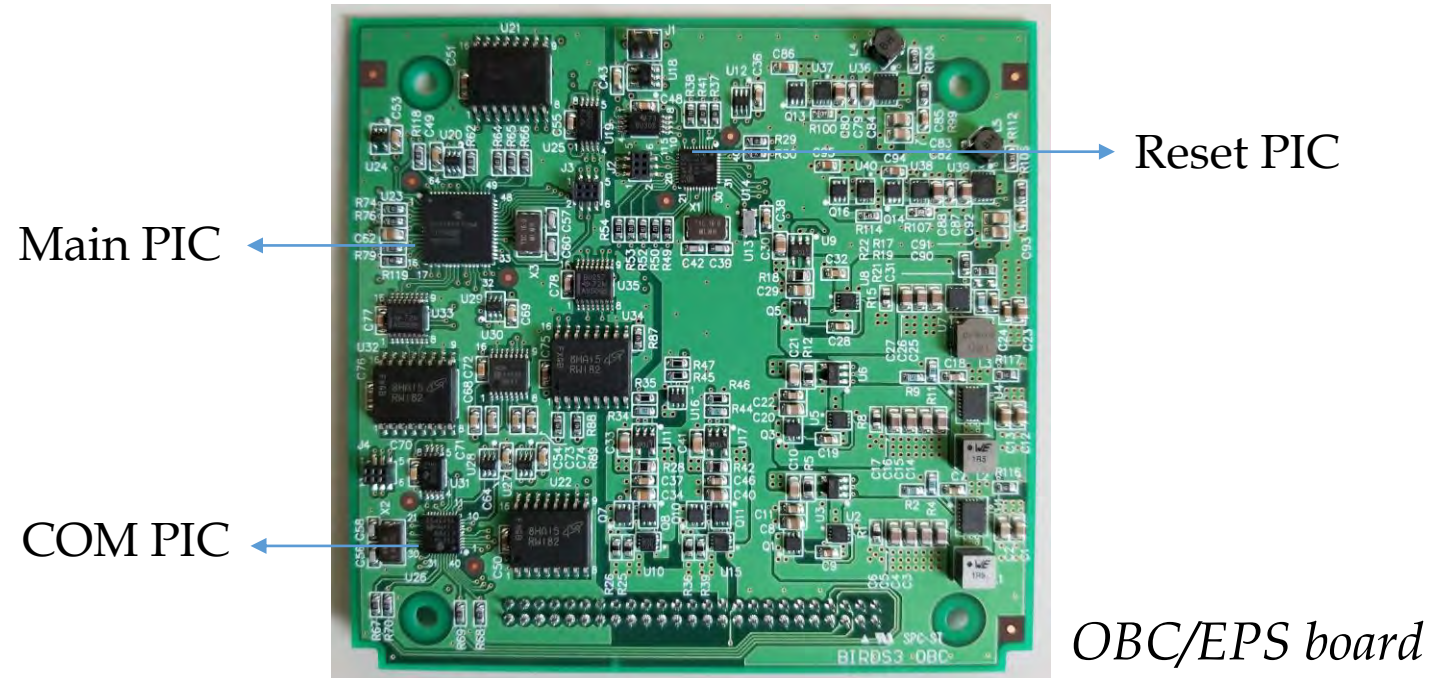
Only PIC processors are used in the BIRDS-4 BUS in order to simplified the processors tasks:

Reset PIC : Power management

COM PIC : Communication with ground station

Main PIC : Command and Data Handling

FAB PIC : Panel information and Primary kill switch handling



Concept of operation

The operation starts with the deployment from ISS, where the CAM must take images of the deployment moment. Then the OBC wait 30 minutes to start the antenna deployment. If the OBC receives an Uplink command, execute the command, collect housekeeping data, make CW format and transmit the beacon. In case the OBC does not receive the Uplink command, it will execute the missions automatically based on a programmed time.

[1] M. C. Mahdi, Attitude Stabilization for CubeSat: Concept and Technology, Cambridge, UK: Cambridge Scholars Publishing, 2018.



UPDATES FROM THE PHILIPPINES

October 15, 2019

University of the Philippines-Diliman
Quezon City, Philippines

PREPARED BY:

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Mechanical Engineering General Assembly (MEGA) 2019: Far From HoME

September 16, 2019

Bulwagang Balagtas 3rd Floor, Ninoy Aquino Learning Resource Center
Polytechnic University of the Philippines - Main Campus



Mechanical Engineering General Assembly (MEGA) 2019: Far From HoME

invited Gabriel Mabini to share his represent STAMINA4Space and share his thoughts on how mechanical engineers play a role in the growing space technology developments in the Philippines. The half-day event was attended by 600 PUP mechanical engineer students.

Gabriel Mabini, one of the STAMINA4Space Program research engineers, was the keynote speaker for the MEGA Event in the Polytechnic University of the Philippines Main Campus.

Mindanao-bound!

The STeP-UP Project visit and space and satellite technology lectures

September 18-20 , 2019

Members of the STeP-UP Team visited the Mindanao State University-Iligan Institute of Technology (MSU-IIT) from 18 to 20 September. The visit included lectures and meetings with MSU-IIT officials to discuss the activities of the STeP-UP Project and **UNISEC Philippines**. Lecture topics include Space Demarcation and Satellite Missions, and Satellite Technology in the Philippines.

Representatives from the STeP-UP team with the attendees of the workshop



Kuryente : The Philippine Electrical Energy Sector

September 23, 2019

The Department of Electrical Engineering (DEE) of the University of the Philippines, Los Baños celebrated its 23rd Anniversary this year.



Dr. Marc Talampas, one of the STAMINA4Space Project Leaders, attended the 23rd anniversary of UPLB DEE as a resource speaker.

The seminar held a series of short lectures given by experts in the field to discuss the latest developments in and the role that electrical engineering plays in Philippines today. Dr. Marc Talampas' talk is titled **DIWATA: The Development of the Philippine Microsatellite** “

Science Month: Caloocan City Science High School

September 25, 2019

The STAMINA4Space team was invited by the Caloocan City Science High School to join their Science Month celebration. Mary Ann Constante, one of the STAMINA4Space Program embedded systems engineers, was one of the speakers for the symposium.

The Science Symposium featured talks from invited alumni and experts from various fields of specialization in Science, Technology, and Research. The theme for this event is: "Reinventing the Future: Advancing Communities through Science, Technology and innovations".

Ms. Mary Ann Constante during her talk in Caloocan City Science High School



Let's talk about the future! Ingenium School Career Talk

September 26, 2019



John Paul Almonte, a Research engineer from the STeP-UP Project, sharing his experience.



The career talk aims to prepare students in choosing the best-fitting track to pursue in Senior High School. The audience were composed of Grades 9 and 10 students from Ingenium School.



Computer Engineering Students Society – Institute of Computer Engineers of the Philippines – Student Edition (CoESS.ICpEP.SE): First General Assembly

September 27, 2019

The Computer Engineering Students Society – Institute of Computer Engineers of the Philippines – Student Edition (CoESS.ICpEP.SE), an Academic Organization in Cavite State University – Main Campus, conducted its First General Assembly with a lecture entitled “Introduction to Small Satellites.” The STAMINA4Space Team was invited to be one of the guest speakers of the event.

Jeric Briosio and Christian Jay Flores from the STeP-UP Project were the representatives of the STAMINA4Space team to this event.

Representatives from the STeP-UP team with the attendees of the talk



Science Month: Mary Immaculate Parish Special School

September 30, 2019
Mary Immaculate Parish Special School



Ariston Gonzalez, one of the STAMINA4Space Research Engineers, was invited to be a guest resource speaker to the Mary Immaculate Parish Special School's Science Month activity.

He addressed the young members of the institution by sharing his experiences on his field of expertise and its role in sustainability, imparting potentially valuable knowledge that could stir young minds to pursue science careers.



University Space Engineering Consortium PHILIPPINES

October 1, 2019

The Philippines is now part of the University Space Engineering Consortium (UNISEC) Global! Named UNISEC Philippines, the local chapter was officially recognized on June 2019.

The initial four member universities are University of the Philippines Diliman, Holy Angel University, University of San Carlos, and Mindanao State University-Iligan Institute of Technology.

UNISEC Philippines aims to consolidate space-related activities and initiatives in the academe, and to proliferate knowledge and increase capacities of member universities.



The
Philippines

is now part of the
University Space Engineering
Consortium
(UNISEC)

Like and follow
UNISEC Philippines
facebook page:
@UNISECPH



DOST Secretary Fortunato T. Dela Peña delivering the keynote message and sharing the UNDP Sustainable Development Goals

Pasig City Mayor Victor Ma. Regis "Vico" Sotto delivering a message on behalf of the Pasig local government unit

Regional Science and Technology Week : **PAMARISAN**

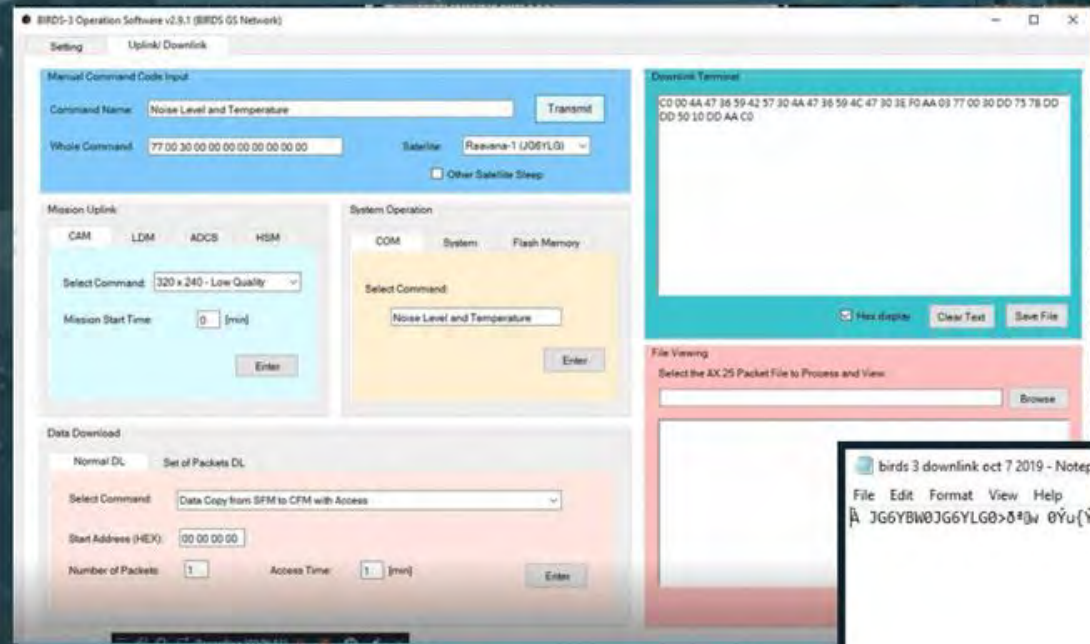
October 1-3, 2019
Rizal High School
Pasig City, Philippines

Successful Uplink to BIRDS-3!

ULyS³ES-1 Building, Electrical and Electronics Engineering Institute, University of the Philippines Diliman

On **October 7, 2019** at 10:38PHT (2:38UTC) , the Amateur Radio and Satellite Station(ARSS) under the STAMINA4Space Program, successfully sent an uplink command to BIRDS-3, Raavana-1.

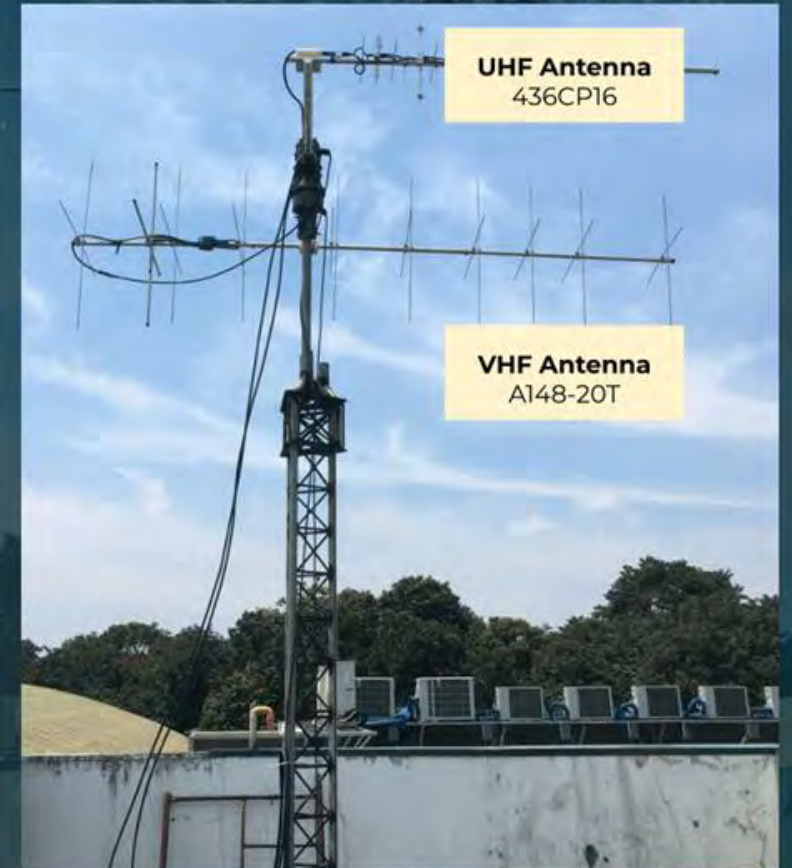
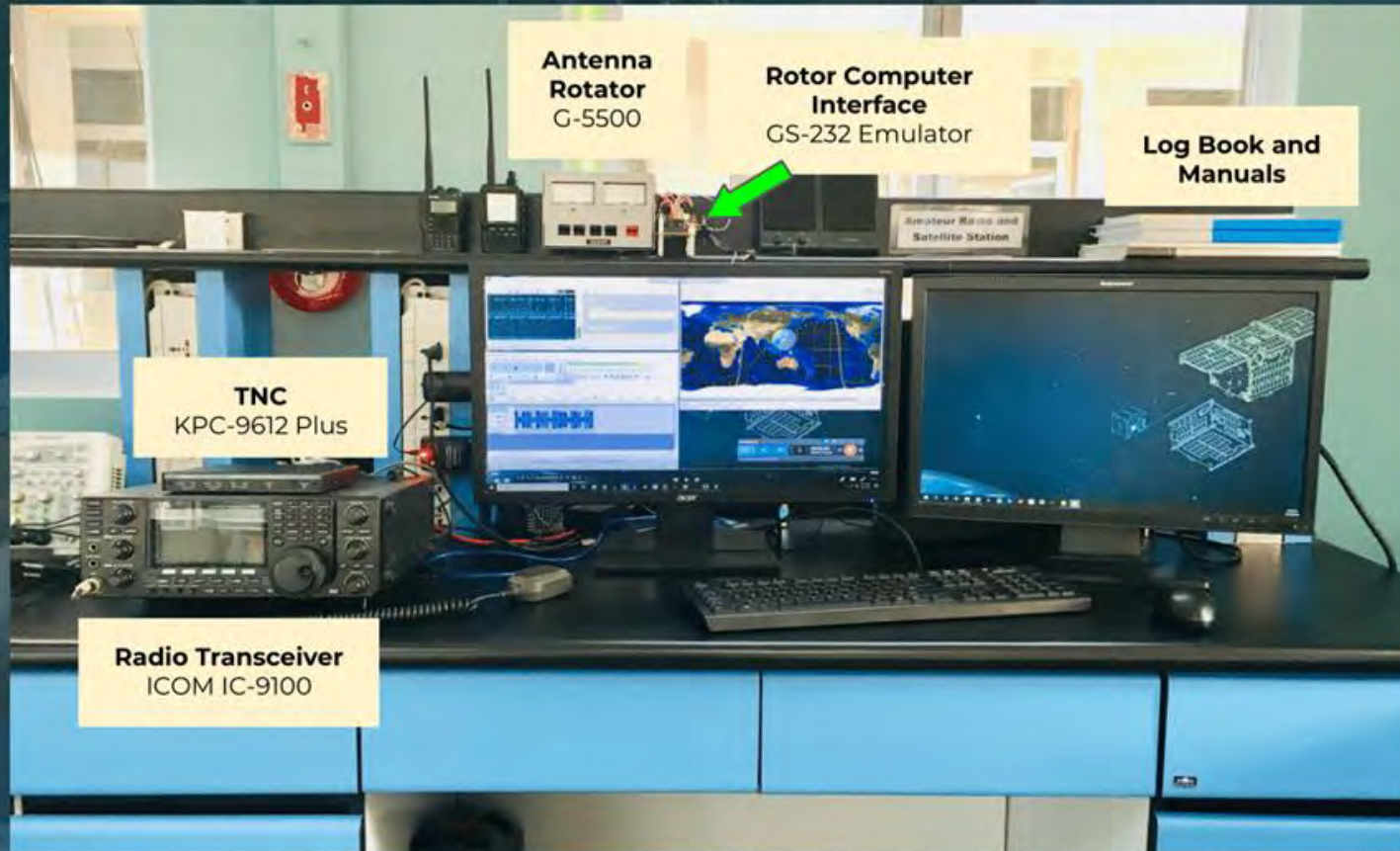
TNC RCV LED light is ON indicating a signal is being received from Raavana-1



Successful Uplink to BIRDS-3!

ULyS³ES-1 Building, Electrical and electronics Engineering, University of the Philippines Diliman

Amateur Radio and Satellite Station(ARSS) Set-up



Successful Uplink to BIRDS-3!

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Preparing the antenna parts for assembly



Placing the shaft retainers to lock the elements in place



Measurement of the SWR of antenna



Installing the UHF at the antenna mast

Updates from BIRDS-2S

"The sixth step..."

September 9, 2019
University of the Philippines- Diliman
Quezon City, Philippines

Prepared by STeP-UP scholars

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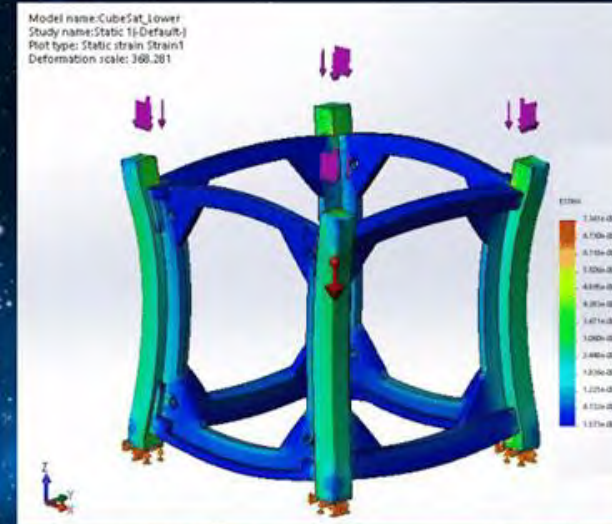
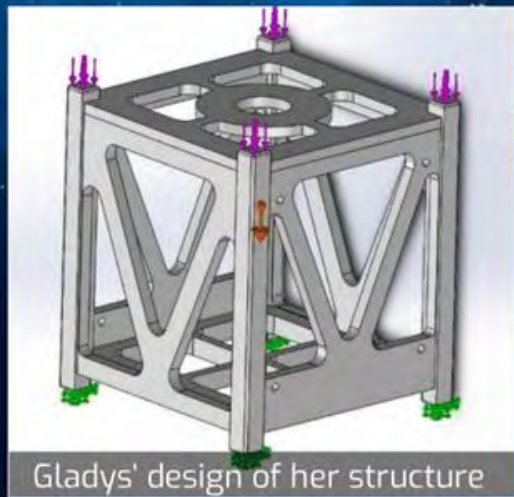


CUBESAT VS. MACHINE

Simulation and Testing of CubeSat Structures

Derick Canceran

BIRDS-25 members had the opportunity of designing their own CubeSat structures in their Space Environment and Testing class. The structures were required to conform with the standards set by JAXA. These were simulated for static stress and buckling.



The structures were optimized for strength with minimal mass. They were then 3D printed and tested with a compression machine at the Department of Mechanical Engineering of UP Diliman. Some of the designs were able to withstand more than 10 kN of force.

BIRDS-2 EM Functionality Tests

Gladys Bajaro



Lorilyn conducting OBC testing

The BIRDS-2 operations software was utilized in sending the commands. The purpose of this test is to initially prove the communication between the ground station and the satellite. Further tests will be conducted in the succeeding weeks including the verification of the received data and functionality testing of the different missions.

A series of functionality tests were conducted by the BIRDS-2S members on the UPD copy of Maya-1 flight model at the Amateur Radio and Satellite Stations (ARSS) housed at the UP EEI. Multiple uplink commands were sent to the CubeSat which include the download of the full housekeeping data, activation/deactivation of the different missions, and capturing of image.



Happy Brie-day!

Marielle M. Gregorio

Engr. Bryan Custodio
'Craves for Steak'
'Loves White'
'Antenna Enthusiast'



For the birthday treat of the celebrant, the team feasted on unlimited buffet meal at Buffet101 International Cuisine, Pasay, Manila on October 4, 2019.



October 2, 2019

Celebrating the *23rd birthday* of Engr. Bryan Custodio, the Project Manager of BIRDS-2S team

END OF THE REPORT FROM THE PHILIPPINES

End of this **BIRDS Project Newsletter**

(ISSN 2433-8818)

Issue Number Forty-Five

This newsletter is archived at the BIRDS Project website:

<http://birds1.birds-project.com/newsletter.html>

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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.

