Cansat Leader Training Program Reports

December 12, 2011

The 3rd Nano-Satellite Symposium
What is Cansat Leader Training Program?

- Established in 2010 to contribute to capacity building in space technology and improve teaching methods-based space engineering education
- CLTP provides a training course to experience whole cycle of CanSat development that involves
  - design, fabrication and launch by a model rocket or a captive balloon
  - lectures on space engineering and nano-satellite development
- The participants will be expected to make a textbook in their own language for preparing education in their home countries.
- CLTP is opened for researchers and educators who wish to learn the hands-on space engineering education methods using Cansat.
- The 1st CLTP was held in Wakayama University from February 14th to March 20th, 2011.
2nd Cansat Leader Training Program (CLTP2)

- CLTP2 was held from 14th November to 9th December at Nihon University in Funabashi city (about 40 minutes from Tokyo by train).
- Ten researchers participated in CLTP2 from 10 countries. They formed 4 teams.

UNISEC and Nihon University students organized the program.

The students supported the participants making the Cansats and conducting the balloon experiments and rocket launch. CLTP2 is a good experience for students, too.

Wakayama University and Mr. Kosada (Young Astronaut Club Japan) helped the launch of model rocket.
## Schedule of CLTP2

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![Homework kit](image1.png)  ![Electric board](image2.png)
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- **Opening ceremony**
- **Briefing**
- **Lecture**
- **Group work**
- **JAXA tour**
- **Test launch**

*Images of activities related to the schedule.*
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- **drilling**
- **CLTP laboratory**
- **PCB prototyping**
- **Cansat carrier for balloon**
- **integration**
- **parts and tools**
- **parachute**
- **Cansat**
- **testing**
- **DC-DC converter**
- **machining tools**
- **Cansat**
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- [Cansat](#)  
- [Drop test from balloon](#)  
- [Post launch meeting](#)  
- [Cansat](#)  
- [Rocket launch](#)  
- [mbed workshop](#)
## Schedule of CLTP2

- The participants perfectly finished such a tight schedule!

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CLTP2 Report

November 14 - December 14, 2011

CanSat Leader Training Program

Supported by:
- Cabinet Office, Government of Japan
- Ministry of Foreign Affairs of Japan
- Ministry of Education, Culture, Sports, Science and Technology, Japan
- Ministry of Economy, Trade and Industry of Japan
- Japan International Cooperation Agency

This program is granted by the Japan Society for the Promotion of Science (JSPS) through the "Funding Program for World-Leading Innovative R&D on Science and Technology (FIRST Program)," initiated by the Council for Science and Technology Policy (CSTP).
KISS がんばって...!!!^_^v
乾杯(かんぱい)(KanPai)
CLTP2 CANSAT Missions

Remote Sensing
- Taking Photo and Video

Acquiring Atmospheric, Accelerometer and Position Data
- Temperature
- Pressure
- GPS

Satellite housekeeping data
- Battery Voltage
- Sub-system Life Check
- EEPROM storage
- Sub-system Life Check

Communication
- Send data via Xbee
- Ground station

Others
- Within Mass, volume, time and Yen Budgets
Balloon Video
Balloon Launch: X, Y and Z Acceleration Data
Balloon Experiment, GPS Data
Rocket launch data - Dec 06, 2011
Rocket Launch:
X, Y and Z Acceleration Data
Rocket launch data - Dec 06, 2011

Pressure

Temperature
Rocket: Pressure Measurement
Rocket Experiment, GPS Data
Rocket Experiment, GPS Data
Over-night Flight
Best photos
Rocket launch recovery photos
Comments on CLTP2 and CANSAT project

What is interesting is I get a lesson on the satellite-making process from the expert and directly involved in the process using the CANSAT media from the beginning to the Balloon and Rocket Experiments with helping from Nihon Univ. students and also JAXA tour! – Agfianto Eko Putra (Indonesia)

I am very glad I had the chance to meet people who have real experience in designing and getting satellites to orbits. In addition I gained experience in Japan ways of exposing students with satellite technologies and development.- Syahrim Azhan Ibrahim (Malaysia)
Malaysia: Plan for the future

National Space Agency of Malaysia had organized CanSat competition for universities on 2007 & 2008.

We plan to revive the workshop & competition in 2012.

Criteria:
- Minimum success mission set by the organizer.
- Full success mission to be defined by participants for us to see current progress.
Nigeria future plans of CANSAT activities

Our future plans is capacity building towards space related activities to our students, starting from the basics of space systems (CANSAT development), hand on experiment/training, firstly to our universities, where we have our space clubs then to other undergraduates within our nation.
Indonesia: Plan for the future

We have the Indonesian CanSat competition every year for all Universities in Indonesia, so its time to continue the tradition since 2008, KOMURINDO Plan to conduct CanSat Workshop for Universities and High School Students, start 2012

To be aligned with INSPIRE – Indonesia Nano Satellite Project for Research and Education Consortium (established since 2010).

Establish the UGM Satellite Research and Development Center at the end of 2011 (now in progress).
Future Plan at NTU-Singapore

- Introduce CanSat to EE Undergrad through project work
- Outreach program for High School students
CANSAT Future Plan for Peru

1. Continue activities with high school students through CanSat Peru.
2. Develop uC libraries and modules to enable high school students, without any kind of electrical engineering background to successfully develop CanSats.
3. Find means to test CanSats through the use of water rockets, if possible.
4. Entail more seniors and bachelors in science to join the CanSat Peru project, so we can teach in more high schools.
5. As long term plans, to develop a CanSat competition for South America, and to increase the interest of Peruvian high school students in science and engineering, being this my primary motivation.
Future plan for CanSat in Vietnam (milestones)

- Include CanSat in university’s curriculum for engineering
- Organize space education and outreach, Yuri’s Night, World Space Week events
- High altitude balloon, water and model rocket launching
- **February 2012:** establishment of UNISEC Vietnam and CanSat program
  - At least 3 universities initially: FPT University, Hanoi University of Science and Technology and Le Qui Don Technical University
  - Spread the words, start making CanSats in Vietnam
- **August 2012:** development and launching of CanSats developed by UNISEC Vietnam via high-altitude balloon or model rockets, first national CanSat contest
- **February 2013:** double the number of universities to join UNISEC Vietnam (6)
- **September 2013:** first Vietnamese CanSat team to join ARLISS contest in Japan or the US
- **February 2014:** at least 10 universities in Vietnam have active CanSat / CubeSat program
Future plan for CANSAT in Thailand

• We will conduct CANSAT training workshops for both high-school and undergraduate university students.
• We will conduct a CANSAT competition on a Balloon launch.
Thank you very much

- UNISEC Organization
- Prof. Miyazaki
- Nihon University Students
ありがとうございます