UNISEC-Japan
Regional Report 2018

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Board member of UNISEC-Japan

Outline

- Overview of UNISEC-Japan
- Activities of 2018
- Space industry and jobs in Japan

Overview of UNISEC-Japan

- UNISEC: “University Space Engineering Consortium”
  - UNISON: UNISEC Student Organization
  - UNISAS: UNISEC Alumni Organization
- Established in 2002
- NPO/NGO to facilitate/promote university level students’ practical space development activities, such as designing, manufacturing and launching small satellites and hybrid rockets.
- 74 laboratories/groups from 55 universities
- 823 student members, 266 individual supporters, and 14 corporate supporters
- 3 pillars: Human resource development, Technological development, Outreach

Activities in 2018

- January 27: 15th Year Anniversary Event
- March 15: Takumi Conference
- July 7-Aug.26 : CLTP9 (CanSat Leader Training Program.)
- July 29: General assembly
- August 16-23: Noshiro space event (CanSat, Rocket)
- September 10-13: ARLISS (A locket launch for international student satellites) – CanSat
- December 1-2: Annual Workshop

15th Year Anniversary Event

- On January 27, 2018, 93 members (alumni, professors, students, etc.) gathered to celebrated 15th year anniversary of UNISEC-Japan

Talk session by early members

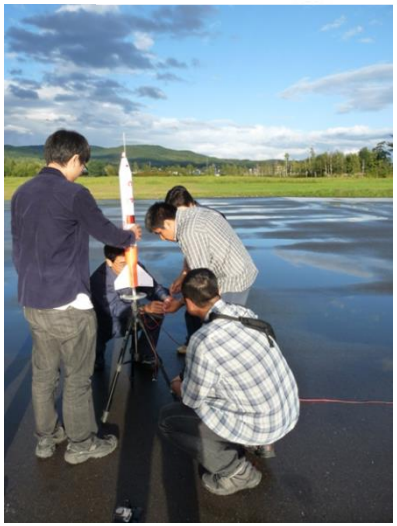
CanSat Leader Training Program (CLTP)

Objective: CLTP is a training program for professors/instructors to learn how to conduct CanSat training by experiencing it. Participants are expected to teach their students after training. It has contributed to capacity building in basic space engineering and technology.

Launched: October 2010

Offered: Annually

Graduated: 85 participants from 37 countries



Launch Experiment

CanSat Manufacturing

Vibration Test

Paper craft Rocket

CLTP History & Participants

85 participants from 37 countries

CLTP1 (Wakayama Univ. in Feb-March, 2011)
12 participants from 10 countries, Algeria, Australia, Egypt, Guatemala, Mexico, Nigeria, Peru, Sri Lanka, Turkey (3), Vietnam.

CLTP2 (**Nihon Univ. in Nov-Dec, 2011)**
10 participants from 10 countries, Indonesia, Malaysia, Nigeria, Vietnam, Ghana, Peru, Singapore, Mongolia, Thailand, Turkey.

CLTP3 (Tokyo Metropolitan Univ. in July-August, 2012)
10 participants from 9 countries, Egypt (2), Nigeria, Namibia, Turkey, Lithuania, Mongolia, Israel, Philippines, Brazil.

CLTP4 (Keio Univ. in July-August, 2013)
9 participants from 6 countries: Mexico(4), Angola, Mongolia, The Philippines, Bangladesh, Japan.

CLTP5 (Hokkaido Univ. in Sept 8-19, 2014)
7 participants from 5 countries, Korea (2), Peru, Mongolia, Mexico (2), Egypt.

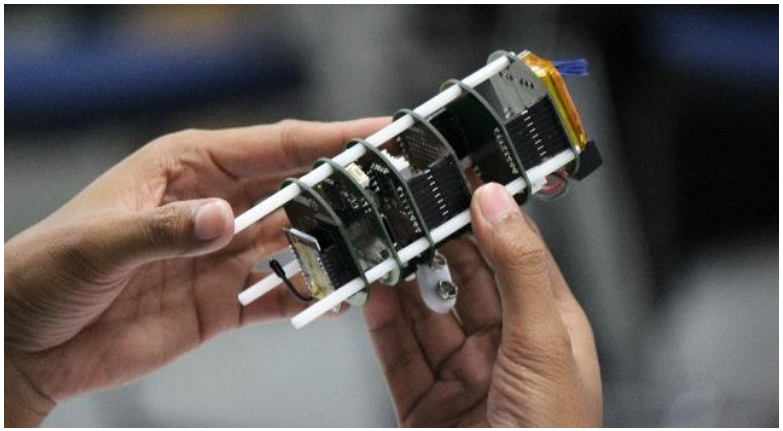
CLTP6 (Hokkaido Univ. in August 24-Sept4, 2015)
8 participants from 8 countries: Angola, UN(Austria), New Zealand, Tunisia, Turkey, Egypt, Bangladesh, Mexico

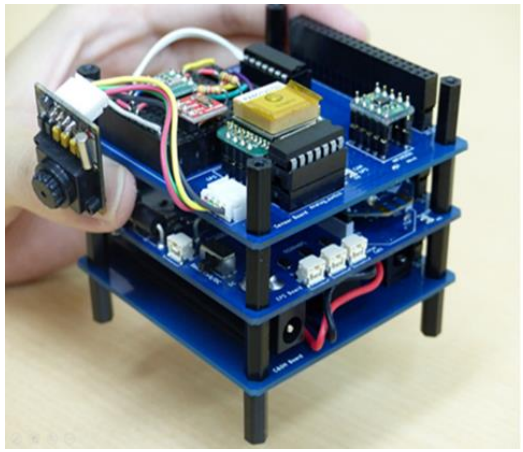
CLTP7 (Hokkaido Univ. in Sep 21-Oct 1, 2016)
8 from 7 countries: Egypt, Myanmar, Peru, Nepal (2), Mongolia, Serbia, Dominican Republic.

CLTP8 (Nihon University in Sep 7-16, 2017)
8 from 7 countries: Egypt, Turkey, Bolivia, El-Salvador, Malaysia, Japan (3), Nepal.

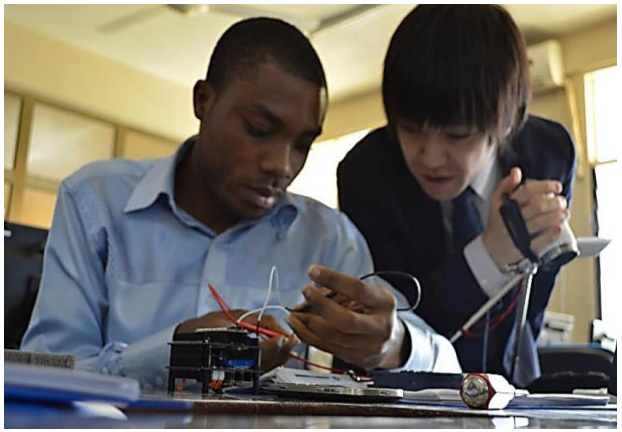
CLTP9 (Nihon University in July 7- Aug. 26, 2018)
12 from 6 countries: Japan (6), India, Mongolia, Malaysia, UAE, and Argentina

i-CanSat & HEPTASAT





- Development sponsored by MEXT funding
- Tools for Hands-on training
- Being used for CLTP and other hands-on trainings
- HEPTSAT training on Nov.22-23



University satellites launched this year

Credit: JAXA

TriCOM-1R (U. Tokyo)

Credit: JAXA

BIRDS-II x 3 (Kyutech)

SPATIUM-I (Kyutech)

STARS−Me（Shizuoka U.）

Credit:Asahi Shinbun

Tenkoh (Kyutech)

DIWATA-2B (Tohoku U.)

AO-stars (Shizuoka U.)

AUTcube2 (Aichi Tech)

10 satellites (4x1U, 3x2U, 1x3U, 2x50kg) went to orbit this year

Human Resource Development

- UNISEC tries to provide many engineers/researchers who have
  - Project management skills
  - Proficient knowledge of satellite/rocket and their subsystem design and manufacturing
  - Systems engineering and integration
  - "Guts" to tackle challenging problems
- To Japanese space sector as well as many other technological areas such as automobile, aircraft, plants, electronics, etc.
- But, it is good if all the UNISEC graduates can go to the space sector
  - We want UNISEC to be the group of people with high spirits of aiming at going to space
    - Not satisfied with CanSat!
    - Not satisfied with making friends

Space engineering education and jobs in Japan

Item	Numbers	Note
Undergraduate student enrollment (per year)	1600	27 university*
Graduate student enrollment (per year)	500	20 university*
UNISEC student member	823	55 university
JSASS student member	1099	FY 2018
JSASS regular member	3001	FY 2018
Space industry employment	8980	2016 excluding JAXA
Total employment in Japanese space sector	11,000	Including JAXA
Job demand every year	300 ~ 400	

Total employment in aircraft industry ~ 30,000

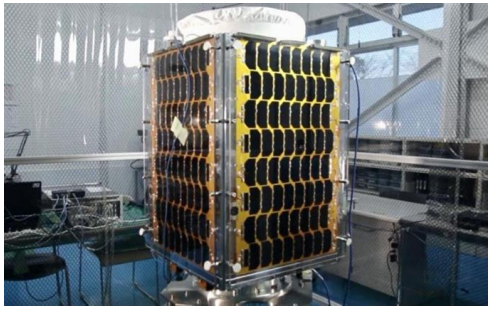
*Source: Kyushu Institute of Technology

Japanese space sector is so small. But we see a sign of changes

Japanese New Space

Axelspace

https://industry-co-creation.com/industry-trend/17345



Cannon electric

http://www.sankei.com/photo/images/news/170623/sty1706230028-f2.jpg

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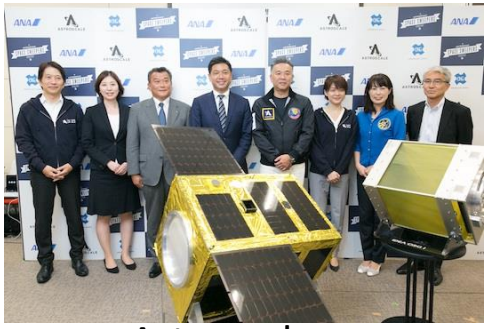
Mitsubishi Heavy Industry



Astroscale

http://sorae.jp/030201/2017_07_18_as.html

Ale

http://www.sankeibiz.jp/business/photos/171107/bsl1711071850004-p1.htm

i-Space

https://doda.jp/guide/brand/02_001a.html

QPS

http://digital.asahi.com/articles/photo/AS20171106004503.html

Infostellar

Interstellar Technologies

http://www.istellartech.com

Space BD

Need companies oriented to space application to expand further

http://www.zdnet.com/article/airbus-invests-in-satellite-antenna-sharing-startup-infostellar-in-7-5m-round/

What are needed now?

- Development of human resource who can contribute to the worldwide space activities
  - Participate in UNISEC-GLOBAL
  - Be international and inter-cultural
  - Going abroad & working abroad
- Keep spirits high to aim at going to space
- Provide new talents to the Japanese space sectors to promote its growth with their innovative ideas

Conclusion

- Since 2002, UNISEC has been successful to provide valuable engineering talents to Japanese society
- Supported by individual, corporations, government, agency
  - But most of all, students
- UNISEC is still struggling
  - Time to grow one step higher
  - Challenge continues