CanSat Education: How to organize CanSat Leader Training Program

Mohammed Khalil Ibrahim, Ph.D. (Cairo University, Nihon University)

And

Tomohiro TAKANASHI, Hokkaido University

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Outline

- CanSat education
- Review of previous meetings
- Objective of Localization
- Existing CLTPs
- Typical CanSat Curriculum
- Available tools
- Challenges in organizing the local CLTP

CanSat Education

Large Spacecraft

CubeSat

CanSat

Universities

Space Agencies
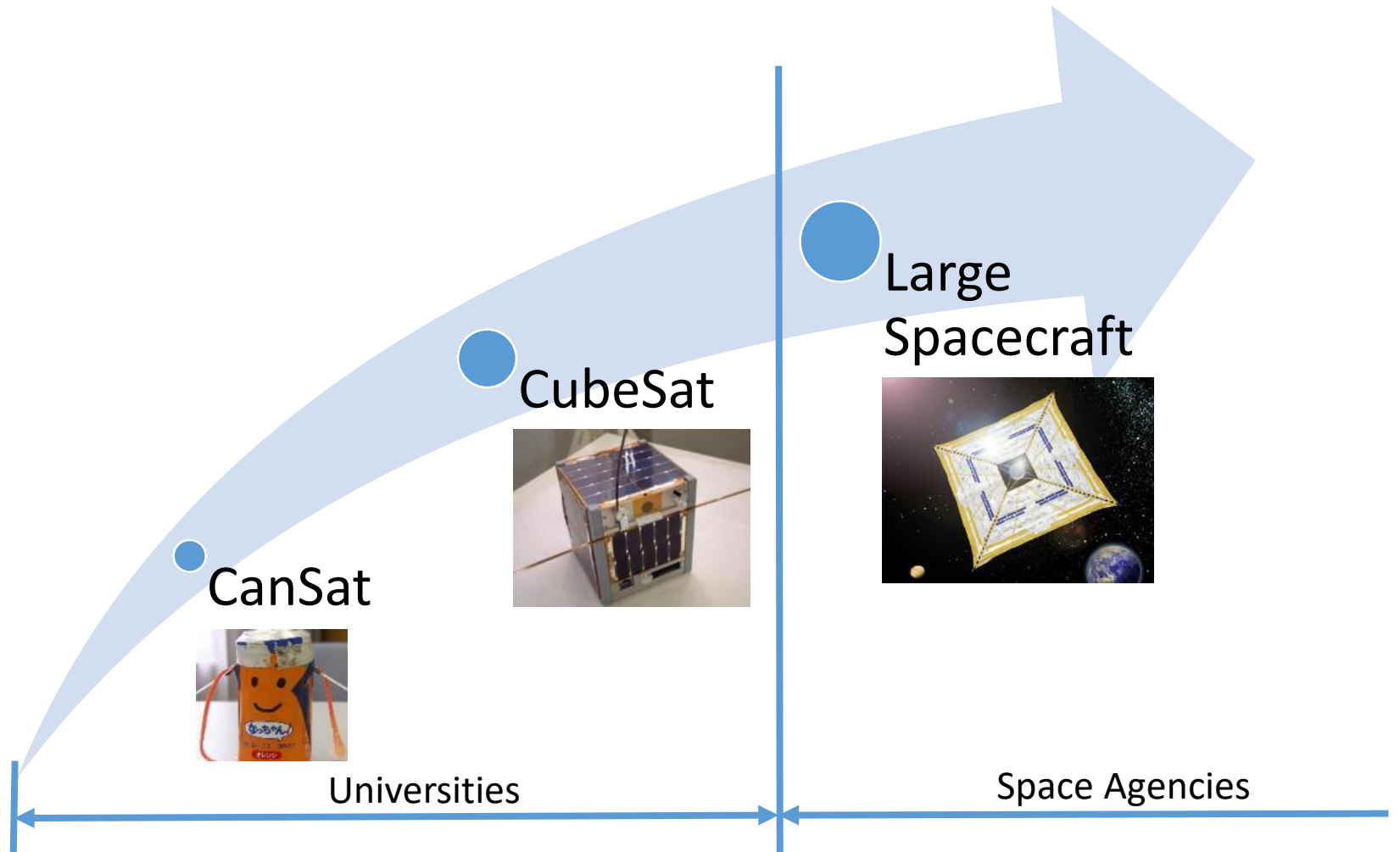
Review of Previous Meeting
2rd UNISEC-GLOBAL MEETING

Issues and possible solutions:

- Lack of Instructors
  - (1) Continue CLTP in Japan, (2) Start more Local CLTP, (3) CanSat education at 3rdUNISEC-Global meeting?

- Hardware import restrictions
  - We want to ask for UN certificate

- Lack of coordinators
  - We recommend to form UNISEC-GlobalEducation Committee

- Lack of funding
  - UNISON-global can look for corporate sponsors

# Review of Previous Meeting 3rd UNISEC-GLOBAL MEETING

CanSat Syllabus

- Understand the satellite subsystems
- Study and implement SE/PM in a prescribed way
- Understand the importance of team work
- Programing of Micro-Controllers and interface with sensor and actuators
- Structural Design of CanSat
- Aerodynamic Design of Parachute
- Calculation of the power and mass budget.
- Design and Realizing PCBs
- How to use the design tools (Solid Modeling, Analysis software, …)

Objectives of Localization

- Accelerate the spreading of CanSat Education.

- Contribute to the local capacity building in Space Engineering.

- Improve the teaching methods of CanSat Education.

Existing CLTP-Japan

- Lectures
  - Set of Introductory online lectures
- Hands-on
  - Assembly, Test, and Integration of CanSat ki
  - Launching and Analyzing the Launch results
  - Presentation
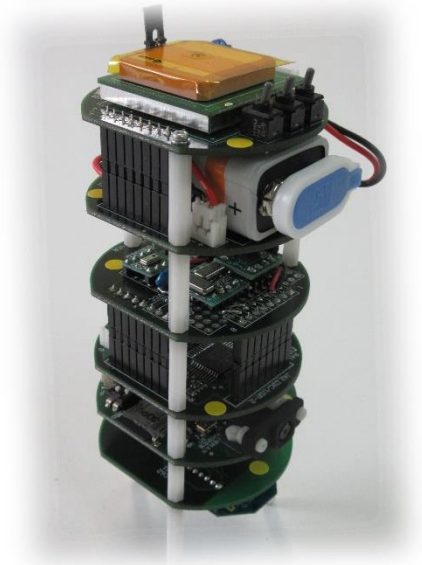
i-CanSat
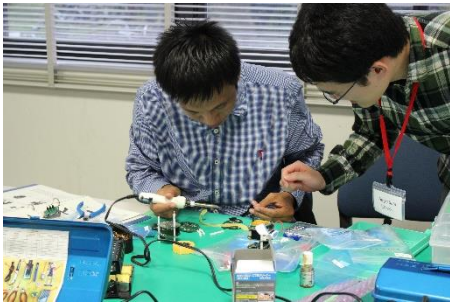
CanSat Syllabus

- **Description**:
  - In this training course the participants will have the opportunity to learn different aspects of satellite subsystems through introductory set of lectures followed by hands-on training that cover the following topics:
    - Microcontroller Programing
    - Sensor and Actuators Interfaces
    - GPS Interface, configuration, and data extraction.
    - Communication Subsystem (Xbee)
    - PCB Fabrication Technique
    - Soldering Technique
    - Rapid Prototyping (Laser Cut, 3D printer, CNC)
    - Parachute Design and Fabrication
    - Ground Station Software (Processing and Labview)
    - Project Management
    - System Engineering
    - Drop test, data analysis and presentation.

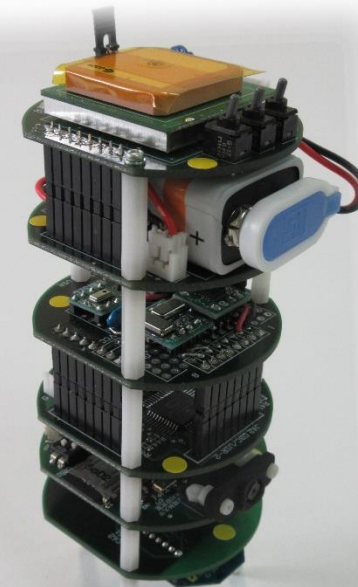- **Target participants**: Undergraduate Engineering Students

- **Duration**: two weeks, Project: one week

Available Tools

- i-CanSat kit
- CanSat Textbook

Text book (Currently in Japanese)

CanSat kit

Challenges in organizing the local CLTP

- Languages
- Hardware/Kit
- Presentation Materials
- Administrative Aspects
- Launching CanSats
- Others