

UNISEC CanSat activities and Space Engineering Education in Mongolia

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Cansat activities in Mongolia

UNISEC activity started in Mongolia in 2011 February

CanSat activities began during Mongolian International Workshop on Application of Remote Sensing in June 2011 in Mongolia. Prof. Shinichi Nakasuka and Rei Kawashima from Japan participated and outlined how the countries without satellite could have Nanosat and lessons from successful developments in other developing countries.

Great opportunity to have own Mongolian first CanSat and Space scientists from Mongolia expressed their willing to have CanSat.

2nd Cansat Leader Training Program (CLTP2)



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

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|--|--------------------------------------|-----------------------------|--------------------------------|------------------------------------|------------------------------|--------------------------------------|---|--|----------------------------------|
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| | | | | | | | | | |
| Ogechukwu Stanislaus Nnadih (Nigeria) | Sawat Tantiphanwadi (Thailand) | Osman Ceylan (Turkey) | Manfred Quarshie (Ghana) | Batmuunkh Enkhbat (Mongolia) | Thu Trong Vu (Vietnam) | Agfianto Eko Putra (Indonesia) | Syahrim Azhan Ibrahim (Malaysia) | Renato Miyagusuku Rios (Peru) | Ling Keck Voon (Singapore) |
| Team A | | | Team B | | | Team C | | Team D | |

CLTP3 and CLTP4

National Program for launching satellite

- ❖ Mongolian government was approved a long term national satellite program in 24 November 2012.
- ❖ The main objective of this program is to launch national communication and remote sensing satellites in the near future
 - ❖ To develop the atmospheric science and space engineering technology
 - ❖ To use and share satellite data for national commercial usage
 - ❖ To develop small/Nano satellite systems and use its advantages
 - ❖ To build human resources on space engineering
 - ❖ short and long term training
 - ❖ degree program

- Project management for Mongolian Universities' small satellite

CanSat activities

National Cansat competition was organized by NUM and ITPTA by support of Prime ministry of Mongolia in 2013.

Main aim: To make and lunch CANSAT from Mongolian plateau.

- | | |
|---|----------------|
| I. SHORT TRAINING | (MARCH) |
| II. TO BUILD BASIC LABORATORY | (APRIL) |
| III. TO MAKE CANSAT COMPETITION | (MAY) |
| IV. INTERNATIONAL WORKSHOP | (JUNE) |
| V. TO PARTICIPATE IN INTERNATIONAL CANSAT COMPETITION (AUGUST) | |

Short training courses on CanSat



- National University of Mongolia organized CANSAT training
- 7 Universities



Laboratory opening ceremony



Prime Minister of Mongolia given speech for CanSat activity and laboratory opening

International CanSat competition, SPAIN, 2012



CanSats in Europe



CANSAT COMPETITION

First National CANSAT
Competition 19 May 2013



CanSat competition, Noshiro Space Event JAPAN, 2013



Mongolian University of
Science and Technology



National University
of Mongolia

PARTICIPATING UNIVERSITIES in UNISEC -MONGOLIA

- ❖ **NATIONAL UNIVERSITY OF MONGOLIA**
 - ❖ **School of Physics and Electronics**
 - ❖ **School of Information Technology**
- ❖ **MONGOLIAN UNIVERSITY OF SCIENCE AND TECHNOLOGY**
 - ❖ **Mechanical engineering school**
 - ❖ **School of communication and IT**
 - ❖ **School of computer management**
- ❖ **STATE UNIVERSITY OF DEPENCE**
 - ❖ **School of communication and technology**
- ❖ **STATE UNIVERSITY OF AGRICULTURE**
 - ❖ **School of engineering**

Tentative Schedule for CubeSat

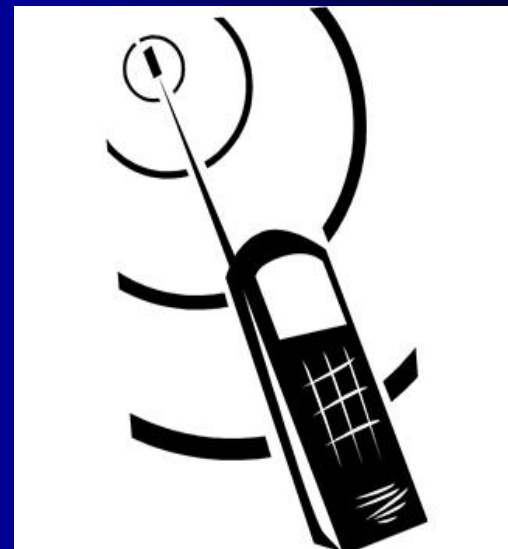
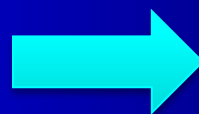
| № | TEST | 2013 | 2014 | 2015 | 2016 |
|-----|----------------------------|---------|------|------|------|
| 1. | MISSION FEASIBILITY | OCT | | | |
| 2. | MISSION DEFINITION | DEC | | | |
| 3. | DEFINE ORDER OF WORKS | NOV-DEC | | | |
| 4. | FIND SUPPORTS | OCT | | | |
| 5. | INCREASE HUMAN RESOURCE | SEP | | | |
| 6. | IMPROVE INSTRUMENTS | APR | | | |
| 7. | ESTIMATE TIME SCHEDULE | OCT | | | |
| 8. | SYSTEM DEFINITION | | | | |
| 9. | FINAL DESIGN & DEVELOPMENT | | | | |
| 10. | LAUNCH | | | | |

Mission of Cubesat :Case study in Mongolia

Early Adaptation system on Livestock management



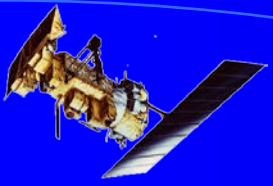
1. Organize system information at office



2. Send message to local herders



3. To manage own livestock



Discussion

- The Mongolian Government implementation plan of launching Small CubeSat is still of the early stage, most of the universities lack experience and need to have more specialists in the field for developing Cube/Nano satellite.
- We need international networking and Capacity building for Cubesat development in Mongolia. Collaboration and cooperation in teaching and training in Space Science education is important.



THANK YOU