UNISEC–BRACU

ABDULLA HIL KAFI
Special Audit Student, KIT, Japan
BRAC UNIVERSITY
BANGLADESH
• What triggered our interest in Space Science.....
MOTIVATION

1. Improve the socio economic, agricultural and weather forecasting/monitoring system of Bangladesh.
2. Adapt the small-satellite (low cost-fast delivery) technology and space science through education and practice.
OBJECTIVES

1. Designing a nano-satellite with missions for the first time in Bangladesh.
2. Knowing hands on experience and project based learning to develop a nano-satellite from design to implementation.
3. Make people interest in space science & technology
Name of our satellite: BDSATCUBE

Mission: Remote sensing device, Modularity

Concept Model:
Dimension: 20cm x 20cm x 20cm
Material: Aluminum
Mass: 4-6Kg
Title: “Exploring Modular Architecture for Nano-Satellite and Opportunity for Developing Countries”

https://dl.dropboxusercontent.com/u/105973635/aero%202014.pdf
FUNDING

● National: BRAC University, Other BRAC sister concerns, Local Sponsor, Bangladesh Government
● International: JICA, World Bank
Activities

Line follower Robot Competition in BRAC University
Dr. Arifur R. Khan  
Assistant Professor  
Kyushu Institute of Technology
Hover Exhibition
Secured 12th position in mining category in Second NASA LMC, 2012
ON GOING RESEARCH

● UAV Based Remote Sensing
● ROV or Underwater Surveillance
● Formation Flying of RC Plane
● Quadcopter
● Rescue Robot
COLLABORATION WITH KYUTECH

● Faculty visit
● Student exchange
● Research collaboration
● Setup up a team on Nano Satellites / CubeSats in 5 years
● Launch a Nano Satellite / CubeSat in 10 Years (Approximately)
● Technical support
Dr Khalilur Rhaman Visited LaSEINE lab of KIT

From left Dr Khalilur Rhaman, Dr Mengu Cho, Dr. John Polansky
Pictures were taken during Dr. Khalilur Rhaman’s visit to Kyushu Institute of Technology, January, 2014
Pictures were taken during Dr. Khalilur Rhaman’s visit to Kyushu Institute of Technology, January, 2014
• Bangladesh Atomic Energy Commission (BAEC)
• Bangladesh Space Research and Remote Sensing Organization (SPARRRSO)
FUTURE ACTIVITIES

❖ Organising Workshops on CANSAT by CLTP graduate Tilok Kumar: For University Students
❖ Water Rocket building : For High School Students (Outreach program)
❖ Regular Seminars with following
  ➢ National speakers:
    ■ Professor Tarekul Islam
    ■ Dr. Md. Khalilur Rhaman
    ■ F. R. SARKER and
    ■ Tilok Kumar Das
  ➢ International Speaker:
    ■ International member of Unisec
❖ Seminar with fresher undergrad student
❖ Experience sharing by exchange students
PARTICIPATION

● MARS Rover 2015
● CLTP
● ARLISS
● CubeSat Competition
● MIC
• EEE 739: Introduction to Satellite engineering
  The purpose of this course is to provide an overview of satellite engineering with its emphasis on micro- and nano-satellite technologies and systems engineering approach such as verification and test.

• EEE 738: Space Systems Engineering
  This course covers the mission analysis and design, system design approach, systems engineering process and methodology, and management needed for space development.
# Building a Nano-Satellite in BRAC University Bangladesh

## Project Schedule

### Timeline

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<th>Month</th>
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<td>Jan 14</td>
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### Phase One
- Feasibility Study
- Project and Capacity Plan
- Draft Design Specifications

### Phase Two
- Research Collaboration with KIT
- Building Collaboration with National and International Research Community.
- Funding Proposal
- Final Requirements Specifications
- Phase Review and Approval
- Mechanical Lab preparation and Draft Design Specifications

### Phase Three
- Electronics and Communication Lab Preparation and Configuration Management Plan
- Simulation Lab Preparation and Define Interface Requirements
- Implementation Start
- Implementation and Individual Component Test
- Integration Test
- Final Review of Whole System
- Final Integration Test
• We are ready to start new project in Aerospace Systems.

• We sow the seeds of Space Science in our country and now its time to take care of the plants to grow up.
THANK YOU
I would like to add a special note to thank the people below who have helped me to prepare this presentation.

- Dr. Khalilur Rhaman, Chairperson & Associate Professor, Department of Computer Science and Engineering, BRAC University, Dhaka, Bangladesh.
- Dr. Arifur Rahman Khan, Assistant Professor, Laboratory of Spacecraft Environment Interaction Engineering, Kyushu Institute of Technology, Japan.
- Raihana Shams Islam Antara, President, BRAC University Robotics Club [ROBU], BRAC University, Bangladesh.
- Maisun Ibn Monowar, Special Audit Student, KyuTech, BRAC University, Bangladesh.