Students’ Space Association at the Warsaw University of Technology

Inna Uwarowa
Warsaw University of Technology, Warsaw, Poland

The 2nd UNISON-Global Meeting
Kitakyushu, Japan, 18-20 November 2014
Poland

- Space Research Centre Polish Academy of Science from 1976
- 50 space missions
- ESA member state from 2012
- 3 satellites on orbit from 2012 (PW-Sat, BRITE-Lem and Heweliusz)
- PW-Sat2
- Polish Space Agency 2015
Students’ Space Association

- Established in 1996
- Supervised by prof. Piotr Wolanski
- Number of members: more than 130
- Sections:
  - Rocket Section,
  - PW-Sat2,
  - Balloon Section,
  - Mars Rovers.
Students’ Space Association Past Activities

ESA hands-on projects:

- Parabolic Flight Campaign
- SSETI Express (27 October 2005)
- YES2 (14 September 2007)
- ESEO
- ESMO
- Rexus/Bexus (23 November 2010)
- PW-Sat (13 February 2012)

Other activities:

- Air Shows: ILA, Le Bourget, Farnborough, MAKS
- Conferences, Congresses and Forums,
- Space activities popularization
Students’ Space Association Present Activities

Rocket Section

Amelia rocket family A1 A2 A3

H rocket family H1 H2

Test bench

Simulations
Students’ Space Association Present Activities

Mars rovers

- Skarabeusz
- Ares
- MIGOT
Students’ Space Association Present Activities

Baloon Section

• Światowid 1 (30.06.2013, start: Urle)
  • Main gondola: Jarowit-Jaryło
  • Experiments: KULLA 1, PARTICULA 1
• Światowid 2 (15.09.2013, start: Urle)
  • Main gondola: Świtezianka
  • Experiments: PARTICULA 2
• Światowid 3 (2.07.2014, start: Goczałkowice-Zdrój)
  • Main gondola: Strzybóg
  • Experiments: PARTICULA 3, CURSUS 1, Inertial Navigation System
Students’ Space Association Present Activities

Student Satellite Project

Cubesat 2U

27 students team from 7 different faculties

Cooperation with:

18-20.11.2014 The 2nd UNISON-Global Meeting
Students’ Space Association Present Activities

PW-Sat2 Student Satellite Project

- Project supervisor at the University
- Project manager - PhD student
- Vice project manager - student
- Team supervisor
- ... ...
- Team leader
- Team members
- Team advisor

<table>
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<tr>
<th>Team</th>
<th>Description</th>
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<tbody>
<tr>
<td>ADCS</td>
<td>Team responsible for the ADCS module</td>
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<tr>
<td>CAM</td>
<td>Team responsible for the Cam1 and Cam2</td>
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<tr>
<td>COMM</td>
<td>Team responsible for the communication module</td>
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<tr>
<td>CONF</td>
<td>Team responsible for configuration of the satellite</td>
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<td>DT</td>
<td>Team responsible for the deployment structures</td>
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<td>EPS</td>
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<td>GS</td>
<td>Team responsible for the Ground Station</td>
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<td>MA</td>
<td>Team responsible for Mission Analysis</td>
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<td>OBC</td>
<td>Team responsible for the on-board computer/OBC</td>
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<td>PR</td>
<td>Team responsible for project promotion</td>
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<tr>
<td>SunS</td>
<td>Team responsible for the Sun sensor experiment</td>
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<td>TCS</td>
<td>Team responsible for the thermal control system</td>
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PW-Sat2 Student Satellite Project

Deorbitation Sail
• Main payload
• New concept
• Technology development
  • Test stand
  • Roll up stand
• BSc. thesis
• Size up to 2x2 m²
Students’ Space Association Present Activities

**PW-Sat2** Student Satellite Project

**Sun Sensor**
- Secondary payload
- New Concept
- 2 BSc. thesis
- Test stand
- Sun simulator
- FOV up to 160°, accuracy ≥1°
Students’ Space Association Present Activities

**PW-Sat2 Student Satellite Project**

Solar Arrays Deployable System
EPS
Structure

OBC
Star Tracker (payload)
COMM
ADCS
Students’ Space Association Present Activities

**PW-Sat2** Student Satellite Project

**Partnership**
- Education
- Development
- Support
- International experience
Thank you for your attention!

Inna Uwarowa
PW-Sat2 Project Manager
iouvarova@gmail.com
www.pw-sat.pl
www.ska.pw.edu.pl