

Norwegian Student Satellite Program HiNCube

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Introduction

- Student managed picosatellite project at Narvik University College (NUC) in Norway
- Initiated by Frank Vedal and Jøran Antonsen in 2006
- Mission objective
 - Students of Narvik University College shall within two years (from 2006) build a picosatellite which will be deployed into low Earth orbit to take pictures of the Earth.



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22nd Annual AIAA/USU Conference on Small Satellites
**Norwegian Student Satellite
Program**

- **Initiated by**
 - Norwegian Space Centre,
 - the Norwegian Centre for Space Related Education
 - Andøya Rocket Range.
- **Duration from 2006 to 2011**
- **Overall goal to facilitate students to build and launch 3 or 4 student satellites of the cubesat standard**



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22nd Annual AIAA/USU Conference on Small Satellites
Norwegian Student Satellite
Program, cont.

- Intended to stimulate cooperation between educational institutions in Norway and the Industry
- Aids by funding the launch, technical expertise and networking
- HiNCube was selected to be the first satellite after a call for proposal



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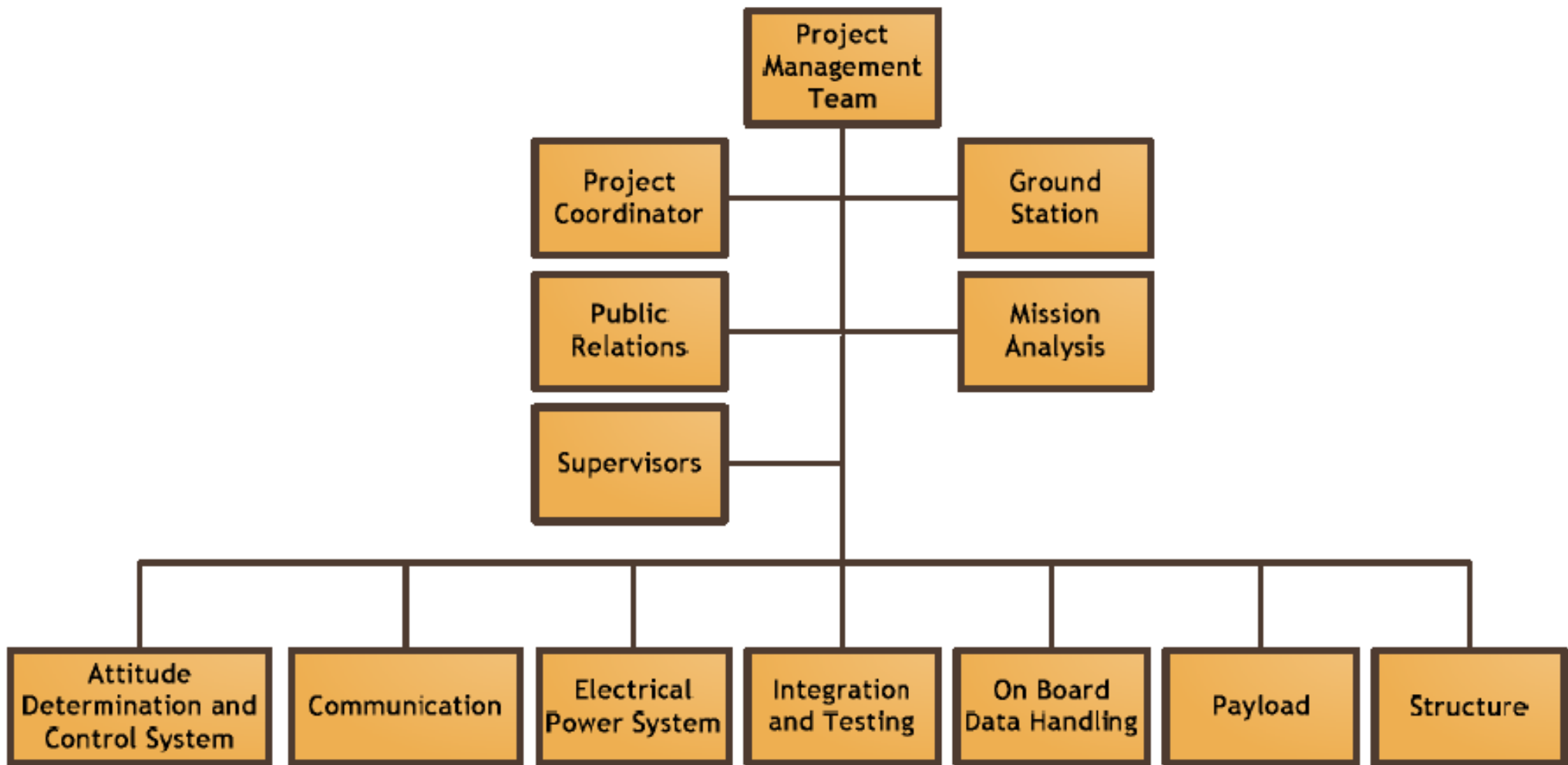
Organization

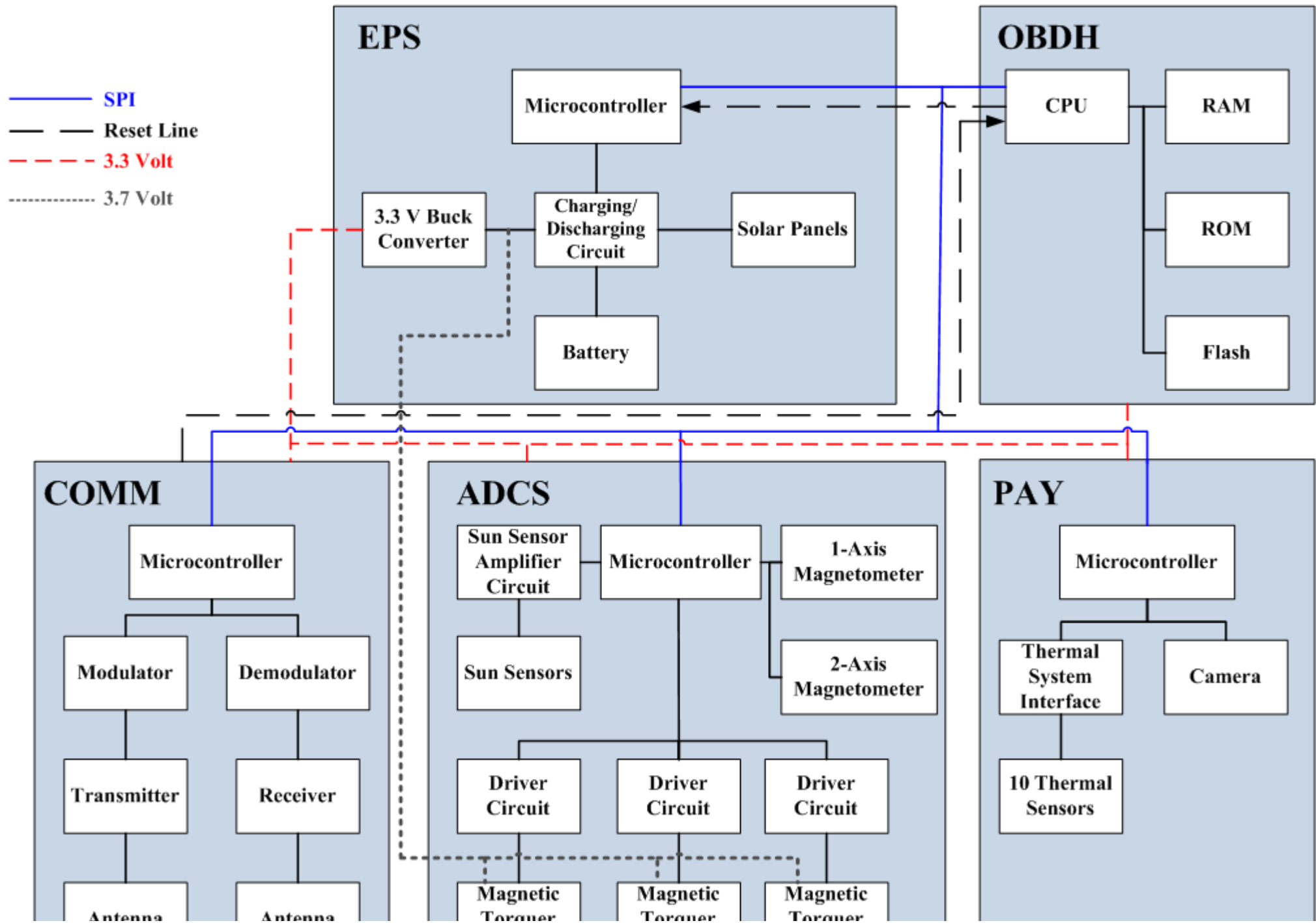
- Students divided into 11 groups
- Each group has a defined responsibility
- Supported by supervisors at NUC
- Based upon voluntary work
- Students from all engineering disciplines



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Organization





Lessons Learned

- **Student Managed Project**
 - Lacking knowledge in the start up phase
 - Follow the ECSS standard
- **Voluntary Work**
 - Not all members contribute
 - Must compete against compulsory education



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Lessons Learned Cont.

- **Reviews**
 - Feedbacks from experts
 - Validates the work
 - Motivation boost for the members
- **Workshops**
 - Once a month
 - Friday evening and on Saturday during daytime



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Lessons Learned Cont.



- Maximization of Contribution from Human Resources
 - Workshops once a month
 - Project work every Wednesday evening
 - Funding for summer jobs
 - Motivate students by financing trips to conferences
 - ECTS credits for project related work
 - Adjustments in the educational program to accomodate for the project



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Project Schedule

	2006				2007				2008				2009	
	T1	T2	T3	T4	T1	T2	T3	T4	T1	T2	T3	T4	T1	T2
Phase 0: Mission Identification	Phase Time	Phase Time												
Phase A: Feasibility			Phase Time	Phase Time										
Phase B: Preliminary Definition					Phase Time	Phase Time	Phase Time							
Phase C: Detailed Definition								Phase Time	Phase Time	Active Term				
Phase D: Production											Phase Time			
Phase E: Utilization												Phase Time	Phase Time	Phase Time

 Phase Time
 Active Term

Future Visions

- **Satellite Platform**
 - Create a satellite platform which enables students to focus on subsystems
 - Enables shorter project timeline and smaller organization
- **Formation Flying**
 - Create small satellites that can be used to validate formation flying technologies developed at NUC



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Conclusion

- HiNCube is a student managed satellite project performed at NUC
- It is the first satellite in the Norwegian Student Satellite Program
- It intends to build a satellite platform that can be used to shorten the development time of future satellites



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