The NMSUSat Mission

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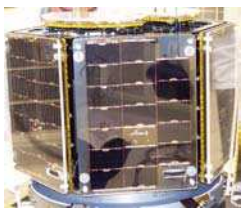
Project Objectives:

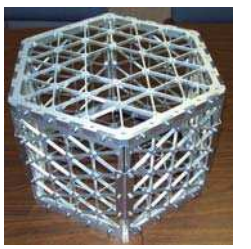
- Perform Near Ultra Violet (NUV) emission intensity measurements of the earth's upper atmosphere over the night side of the earth.
- Conduct distributed telemetry communications and energy storage technology experiments
- Further development of the aerospace engineering concentration area in the College of Engineering and to develop multi-disciplinary capstone and design classes for students in engineering departments and the engineering physics program.



Typical University Nanosat

Satellite Systems:

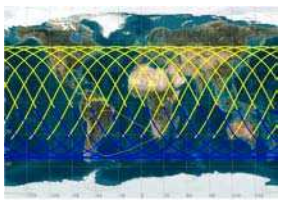
- Bus (aluminum isogrid structure)
- Power: solar cells and NiCd batteries
- Flight Computer: 100 MHz processor running embedded Linux
- Sensors for health and welfare monitoring
- Radio communications to send data to NMSU
- Ground station at NMSU
- Electro-mechanical interface to Shuttle or ELV



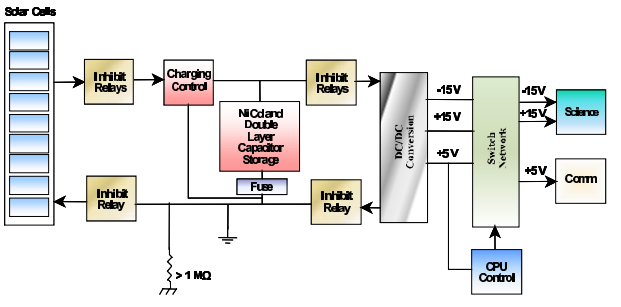
Satellite Bus

Experiment Details:

- Use Photomultiplier to measure UV intensity
- Use 10 Farad multi-layer capacitors for energy storage
- Use amateur radio and the Internet for world-wide data retrieval

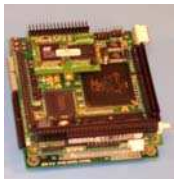


Expected *NMSUSat* orbit (blue segments are UV data collection times)

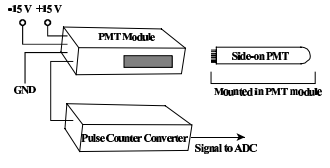


Satellite Power System

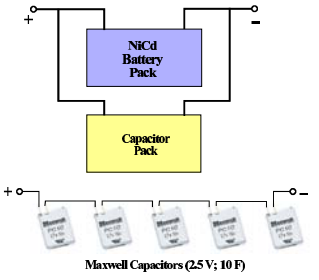
Flight Radios



Flight Computer



PMT electronics for UV measurement



Multilayer capacitors for energy storage

Status (August 2003):

- Completed Preliminary Design Review with AFRL and NASA
- Detailed design occurring in senior capstone classes for AY 2003-2004
- Begin to order parts for evaluation
- Need help with Solar Cells and Attitude Control System concepts

Project Sponsor:

- Air Force Office of Sponsored Research

Assistance From:

- National Aeronautics and Space Administration
- International Foundation for Telemetering