UNISEC
University Space Engineering Consortium

Self-Introduction Session

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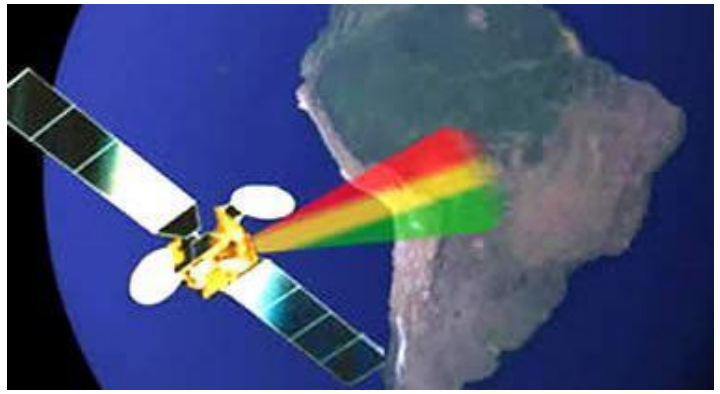
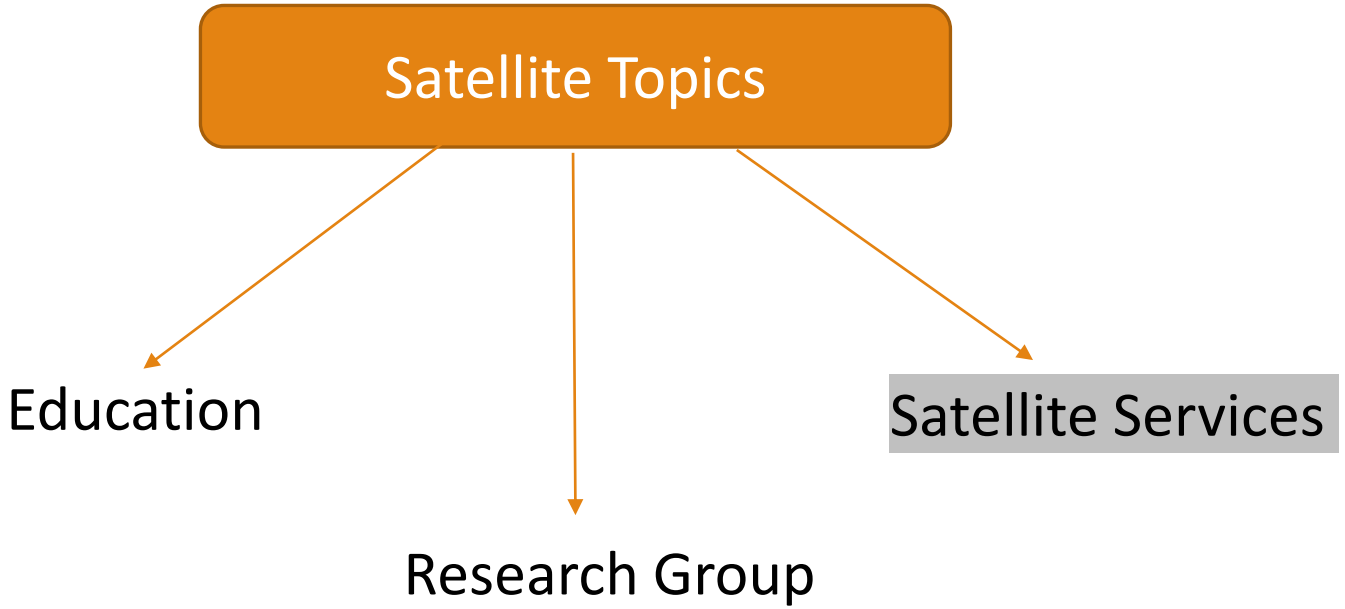
La Paz- Bolivia



APPLIED ELECTRONICS INSTITUTE

Topics of Interest

- Digital Television
- Real Time Systems
- Digital Signal Processing
- Open Source
- Robotics
- Satellite Topics



Created Network

Research Group of Nanosatellite Topics

Brasil

UNOOSA

Conferences
Seminars
Courses

Education and Promotion of Space

Space Project

Implementation of an Educative Satellite

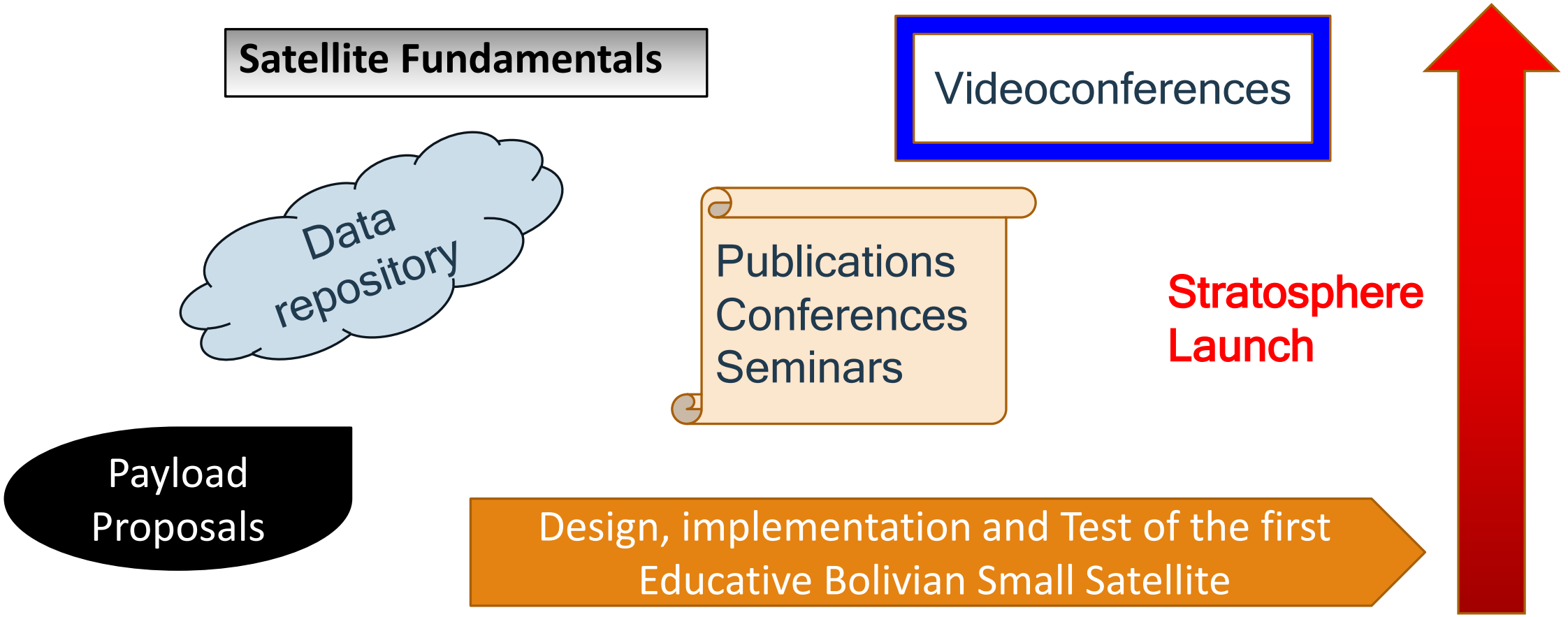
Launcj of the 1st Nanosatellite made in Bolivia

Bibliography Revision

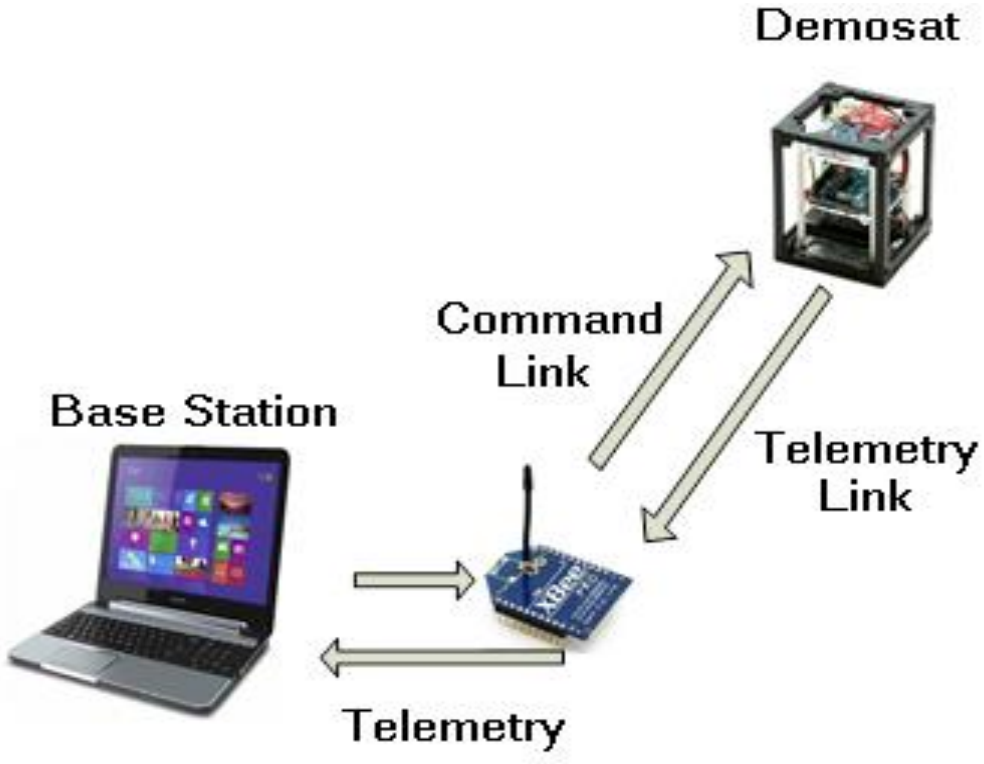
Action Lines

Research Projects
Degree Projects
Internships
Field Tests
Publications
Network Expansion

Current Work



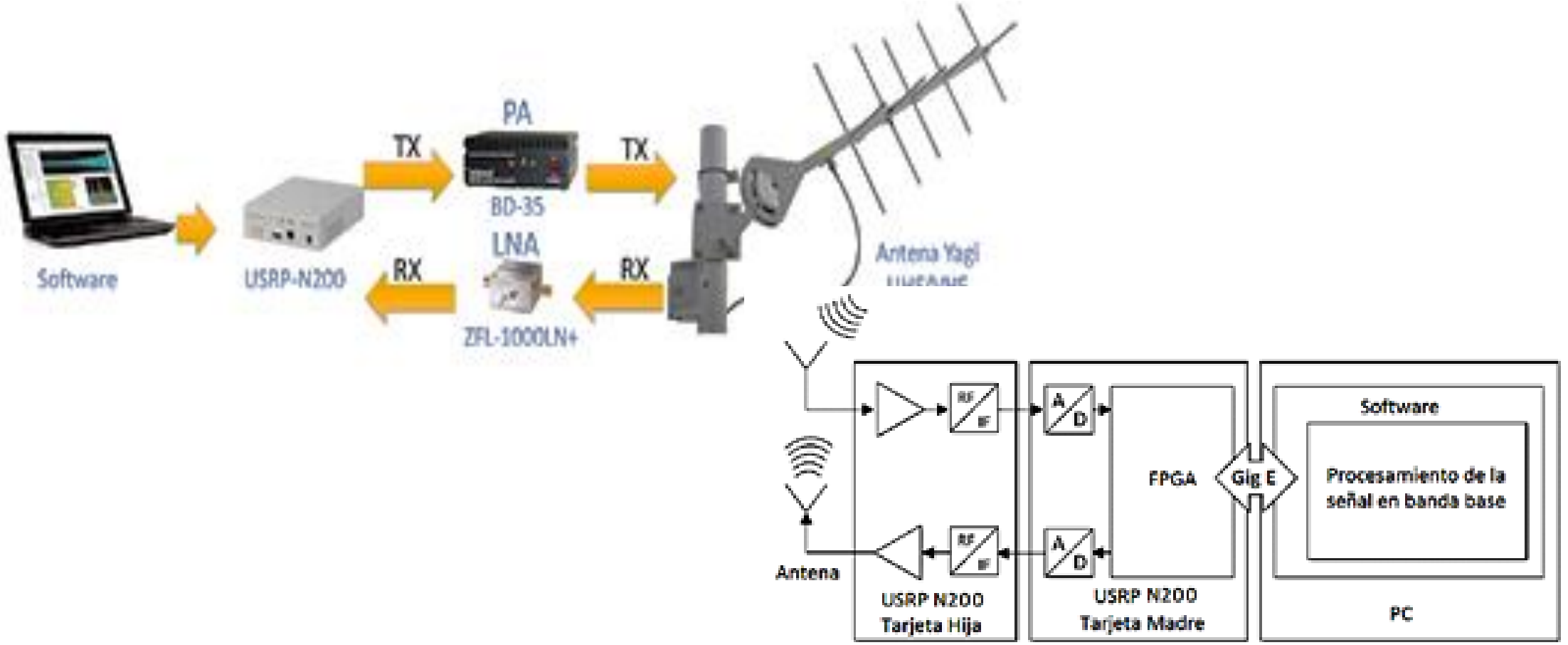
TT&C Subsystem of an Educative Satellite



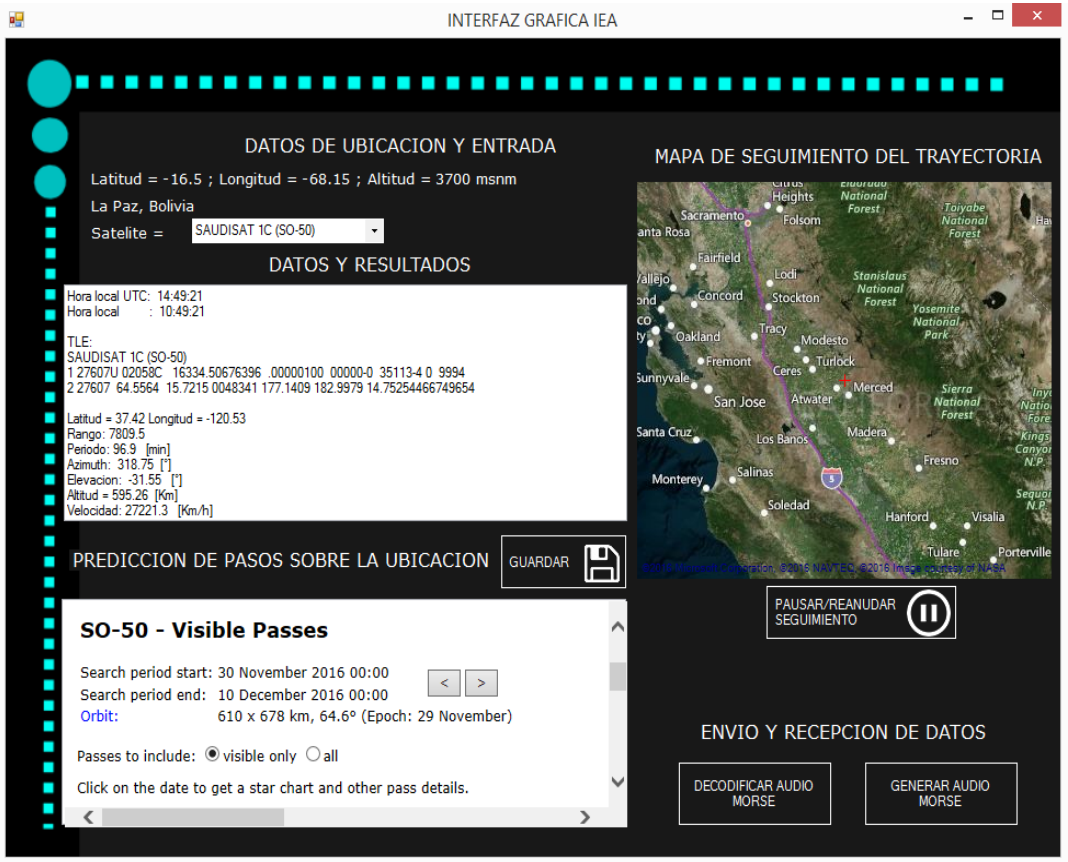
Características de sensores de Temperatura

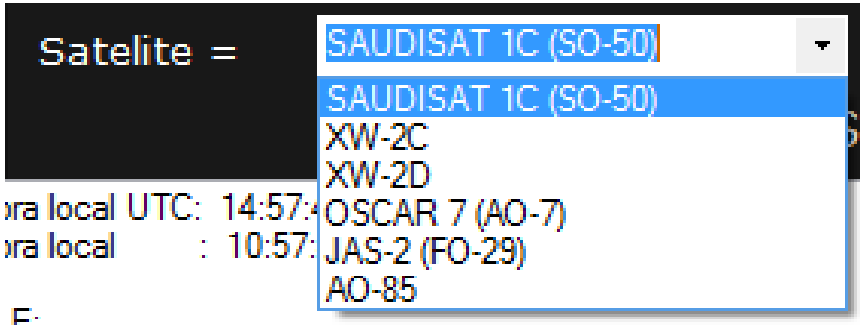
Distibuidor	Modelo	Rango [ºC]	Precisión [ºC]	Voltaje [V]	Corriente [uA]	Acond. y Bus	Herencia de vuelo	Costo [Sus]
Sparkfun Electronics INC.	TMP102	-25 a 85 -40 a125	+/-2.0 +/-3.0	1.4a 3.6	10	No requiere I2C,SMBus	Ardusat-1 Ardusat-x	2,05
Digi-Key Electronics	MCP9808	-20a 100 -40 a125	+/-0.5 +/-1.0	2.7 a 5.5	200	No requiere I2C	-	1,13
Digi-Key Electronics	TMP112	0 a 65 -40 a125	+/-0.5 +/-1.0	1.4 a 3.6	15	No requiere I2C, SMBus	-	3,12
Newark	TMP175	-25 a 85 -40 a125	+/-0.5 +/-1.0	2.7 a 5.5	100	No requiere I2C, SMBus	-	2,75
Digi-Key Electronics	TMP103	-10a 100 -40 a125	+/-2.0 +/-3.0	1.4 a 3,6	15	No requiere I2C, SMBus	-	1,60
AVNET	LM75	-2 a 100 -55 a125	+/-2.0 +/-3.0	3 a 5.5	250	No requiere I2C	UAPSAT-1	0,58

Communications Platform for an Educative Earth Station



Earth Station GUI





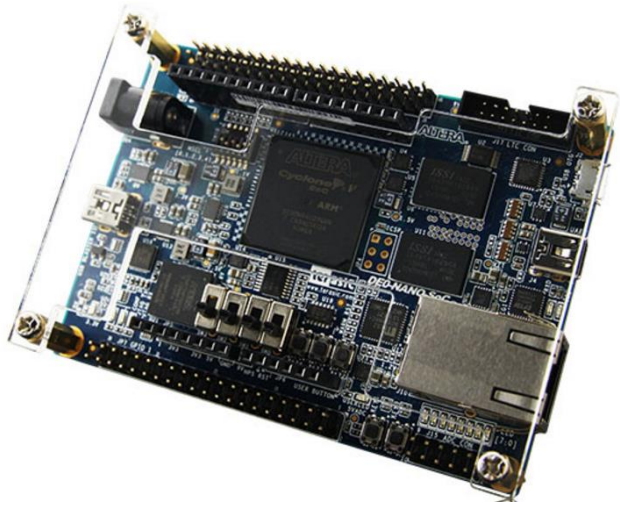
SW	Latitud [°]	Longitud [°]	Rango [Km]	Periodo [Min]	Azimut [°]	Elevación [°]	Altitud [Km]	Velocidad [Km/H]
Satview	58.36	-169.73	11001.1	97.6	326.75	-52.79	644.88	27120.79
Programa	59.41	-171.18	10948.2	97.3	327.41	-52.63	616.35	27180.26

Future Projects

- Hybrid Earth Station Implementation
  - Software Defined Radio using USRP
  - Helicoidal and Cross Yagi Antennas
  - Database connected the SatNOGS network
- One Axis Attitude Control for the Educative Satellite
- Attitude determination based on IMU sensors plus GPS from the Demosat using the TRIAD method
- Inertial Wheel Design and Implementation
- Design and Implementation of a Helmholtz Cage
- Design and Implementation of the Cubesat Structure

Projects for the Future

SatNOGS Project



Soft Processors from Altera and ARM Processor

IEA Earth Station

Atmospheric Payloads for Future Launches

THANKS FOR YOU ATTENTION