CANSAT AÇORES

One of the Winner Teams

to represent Azores in the Portuguese CanSat

ESAQ SPACE SAT

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2nd PLACE

ESCOLA SECUNDÁRIA ANTERO QUENTAL

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Governo dos Açores
Secretaria Regional da Educação, Ciência e Cultura

ESAQ — SpaceSat

The Team:

Teacher:

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Students:

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Sara Silva - 11ºAno

http://esaqspacesat.blogspot.pt/

ESAQ
Escola Secundária Antero de Quental

The ESAQ SpaceSat project

In an unknown planet a satellite will monitorise it´s atmosphere.

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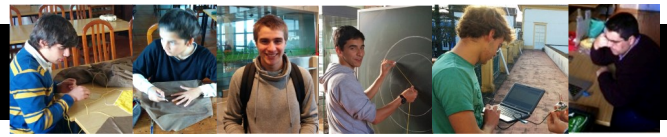


In an unknown planet a satellite will monitorize its atmosphere. There may be conditions to exist life as we know on Earth.

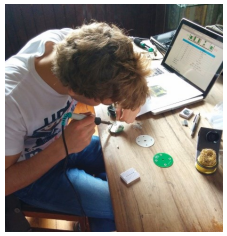
Our project consists of monitoring the descend movement of the satellite in the atmosphere of an unknown planet. We all talk about the possibility of extra terrestrial life, but we have to know the atmosphere conditions.

TO ACCOMPLISH OUR OBJECTIVES WE HAVE TO MEASURE:

In the main mission
- Temperature;
- Pressure.

In the secondary mission:
- Humidity;
- Altitude;
- UV index;
- Geographic coordinates;
- Velocity;
- Acceleration.

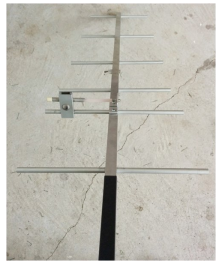
INTERNATIONAL YEAR OF LIGHT 2015



Technical Achievements

- Understand the basics of a micro-controller like arduino.
- Basic programming.
- How an antenna works.
- How to calibrate and test the antenna Yagi.
- Free fall and parachute fall physics concepts.
- The making of an actual parachute.
- Basic aerodynamic concepts.
- Calculate the minimum area required for the parachute.
- Test the descent velocity .
- Try out different solutions for the parachute by making some holes in it.

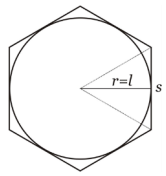
Yagi Antenna Construction



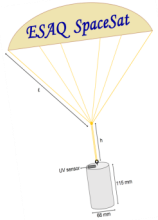
Parachute Construction

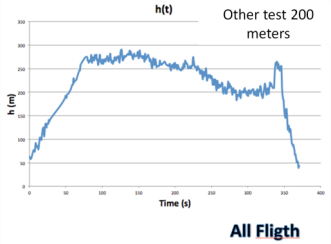
Calculate the minimum area required for the parachute.

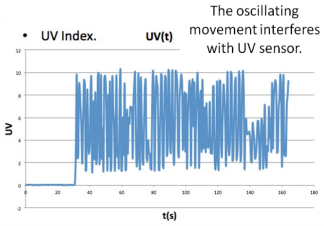
$$mg = \frac{1}{2} A\rho C_D V^2 \Leftrightarrow A = \frac{2mg}{\rho C_D V^2}$$



Try out different solutions for the parachute by making some holes in it.







Programing