

Idea Presentation Document

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TARGET

UV rays measurement and values transmission on a website

METHOD

The sensor detects the analog signal and turns it into a voltage value in volts then it's sent to the Earth. Once received, the signal is coded so that it can be processed by a computer to produce the value we want to publish. To do this we have to install two UV rays sensitive sensors on the Cubesat, one facing the Earth's surface and one facing space. The sensors will be linked to a microcontroller. The data acquired by the microcontroller will subsequently be stored on a memory card until the satellite is in the right position for the transmission. So, we'll need an antenna. Once the signal is received on Earth, we process it and publish it on a website. We obviously need to use a trim control system in order to keep the sensors position constant compared to the earth's surface. Another important and indispensable component is the various components power supply. To carry out the functions we expect, we obviously need to equip the Cubesat with a system that guarantees power supply to the equipment installed on it at all times. Since the primary energy source is solar energy, we need a photovoltaic panel system to convert solar energy in electricity. This system must provide for the presence of accumulators to ensure operation even when it is in the shaded part of the Earth.

OUR INTERNET PLATFORM

The data collected by our satellite will then be made available to an innovative educational platform SCUOLAB SDA (Satellite Data Augmented), created by PROTOM GROUP S.p.A.

SCUOLAB SDA is the result of the STELLE project (Satellite Technology to Enabling new Learning and Lessons Environment), promoted by ESA - European Space Agency, with which PROTOM (in partnership with CIRA – Italian Aerospace Research Centre) has expanded its SCUOLAB platform of data from satellite systems for the development of new contents for Scuolab virtual laboratories.

SCUOLAB is a groundbreaking educational platform to empower students' learning by Virtual Reality contents and give the teachers support with innovative resources to conduct both in-person and remote education experiences.

SCUOLAB – SDA (Satellite Data Augmented), use the contents produced from satellite Earth Observation data, and in particular Copernicus Sentinel satellites and based on issues of global importance such as climate change, melting glaciers, rising sea temperatures. SCUOLAB – SDA enable a qualified learning process enhancing the unlimited value of data collected by Sentinel satellites, making them available to a wide set of people using a simple and addictive way to perceive the value of data collected from Earth.

Our project will aim to integrate the data collected by our satellite with other data already available, providing other model to observe, gather and manipulate data, related to climate change issues.

Integration with the SCUOLAB – SDA platform is essential to raise students' awareness of the importance of data correlation (for example UV, Ozone, temperature, etc.), which can also be carried out with artificial intelligence tools applied to big data.