



Design and implementation of a robust and flexible Over-The-Air (OTA) update system for a 3U CubeSat

We are looking for two motivated Electronics and ICT master students.

Project description

The Aether Student CubeSat team brings together young Belgian engineers who are passionate about space technology. We are designing a CubeSat: a nano-satellite small enough to hold in your hand. In the past decade, the CubeSat standard has enabled countless new innovations in the space industry, and we are determined to uphold this tradition!

Aether is focusing on the area of re-entry: creating the technology that will allow future CubeSats to safely re-enter the atmosphere and land on Earth after carrying out their experiments in orbit. This will allow scientists to analyze samples and get even more results out of their experiments, and all this with the affordability and accessibility that come with the CubeSat platform!

Thesis description

This thesis explores the design and implementation of an innovative Over-The-Air (OTA) update system for the Aether CubeSat. The aim is to develop a reliable, secure, and efficient system capable of remotely updating the software and firmware of the satellite without the need for physical access. The OTA system promises to streamline the maintenance and improve the performance of the CubeSat, while minimizing downtime and operational costs.

Thesis objective

The thesis requires conducting a literature review of existing OTA update systems for CubeSat and identifying the challenges and limitations of these systems. This will be followed by the design and implementation of the proposed OTA update system, which will include the selection and integration of appropriate methods and techniques. The system will be tested and evaluated in terms of its performance, reliability, and robustness. Additionally, the thesis will investigate various verification methods for ensuring the integrity of received updates and implementing safe modes during the update process to prevent unintended errors.

Profile

- Experience with microcontrollers.
- Understanding of microcontroller architecture.
- Interest in bootloaders and optimization.
- Strong knowledge of C programming language.

What do you gain?

- A unique engineering experience within an exciting space mission.
- Create added value for your CV and the team.
- A team of students willing to help in any way possible.
- Be part of the team that will revolutionize the CubeSat platform.
- Connection to a wide network of aerospace companies

If you are interested? Please contact us at recruitment@aetherspace.be .
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