SpaceTeamSat1 – Giving high-school students a hands-on experience in space software development

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Educational Mission

Students

TU WIEN SPACE TEAM

Ground Station
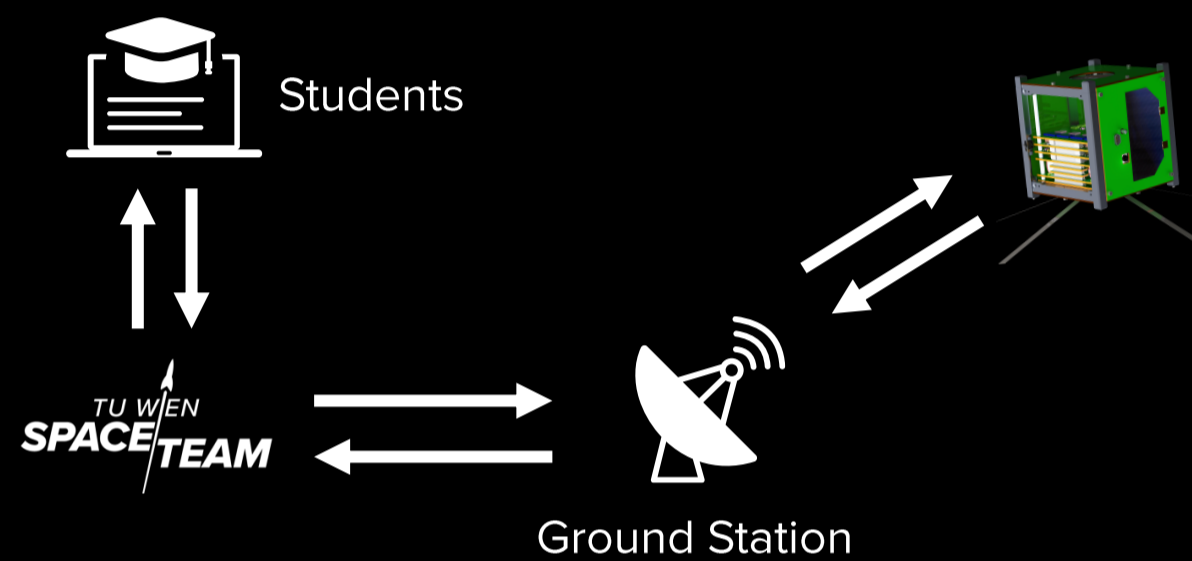
- Enable high-school students to run software experiments on an educational payload (Raspberry Pi platform)
- Students will code their programs in Python
- Code will be sent to CubeSat via RF communication
- Code will run on educational payload
- Results will be downlinked and handed over to the students
- Students will be supported during the entire mission and receive a development kit for coding

Educational Payload

- Raspberry Pi Compute Module 3
- Sensors: Temperature, magnetic field, acceleration, gyroscope, radiation, GNSS, strain gauges, light
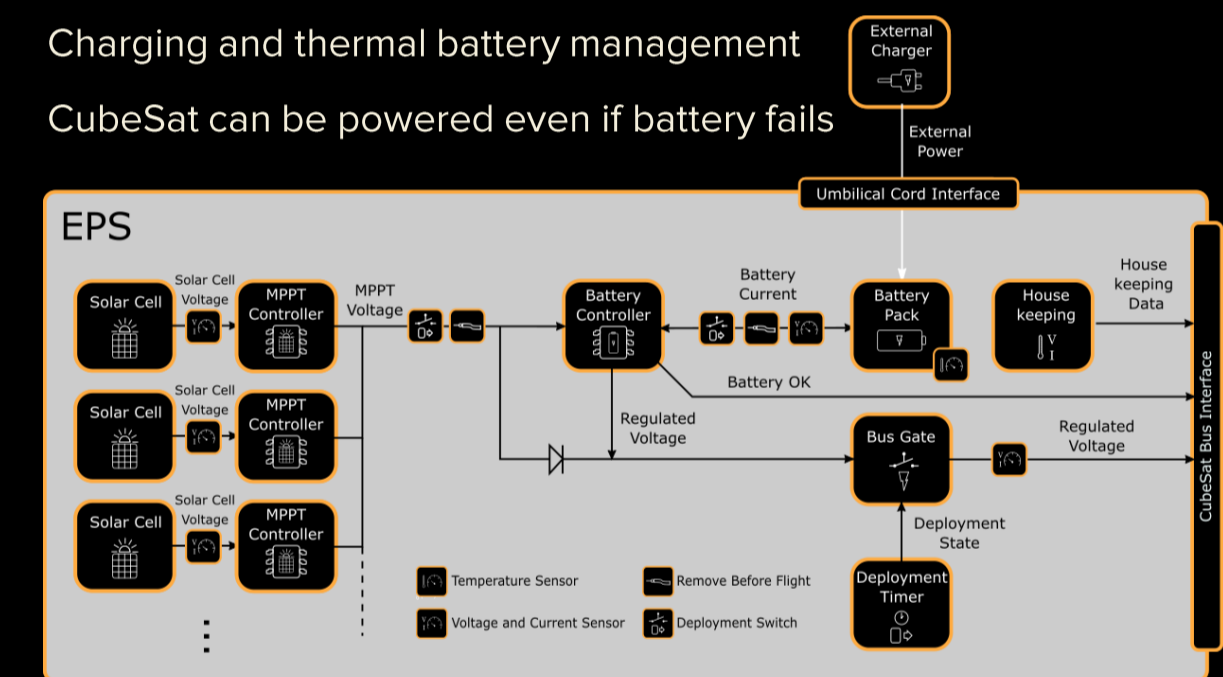- Two cameras
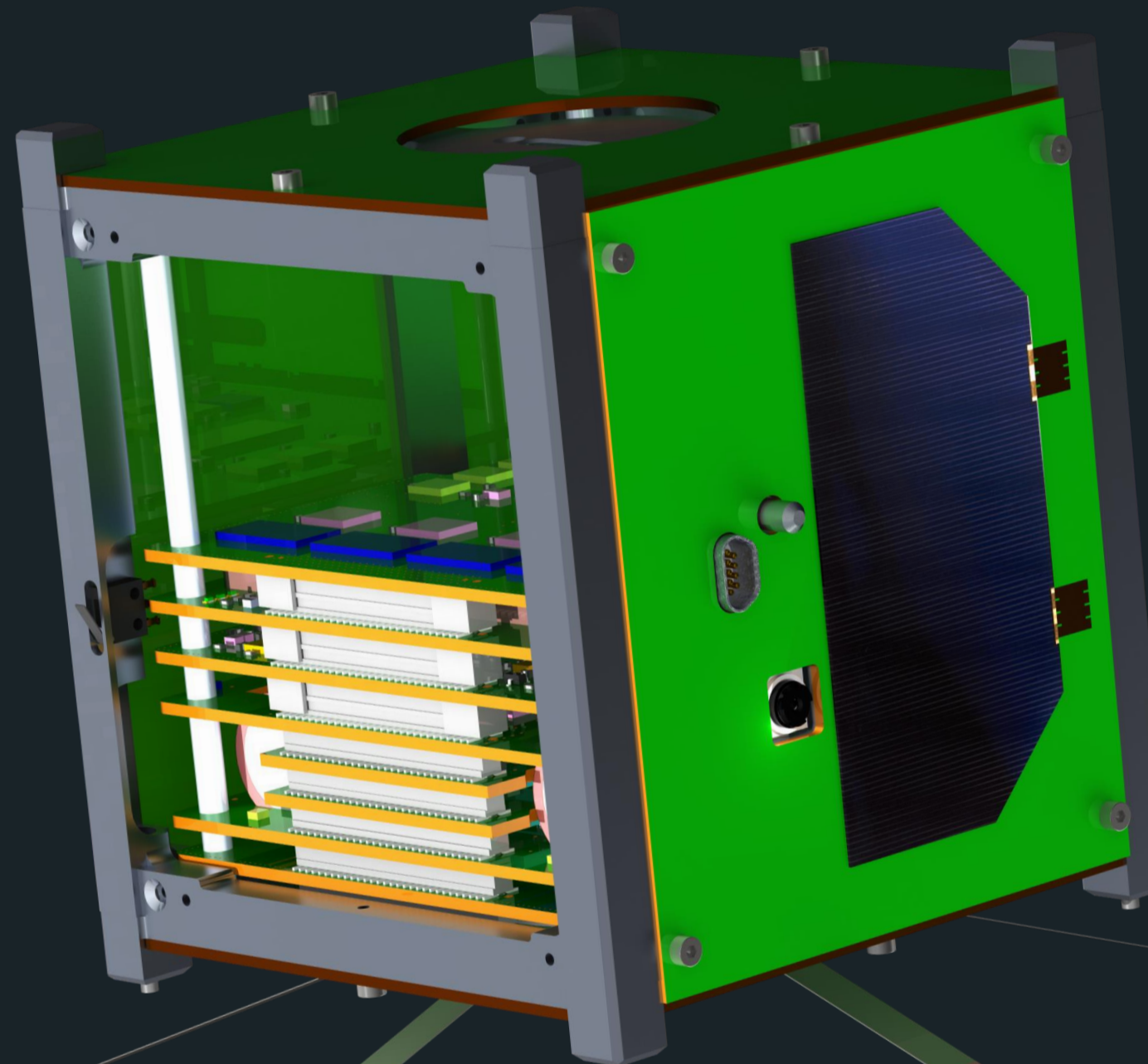
Further information about SpaceTeamSat1:

https://spaceteam.at/cubesats/spaceteamsat1/?lang=en

Electrical Power System

- In-house development (only discrete components)
- Charging and thermal battery management
- CubeSat can be powered even if battery fails

EPS

Communication Module and On-board Computer

- In-house development
- Communication and data handling
- Schedule educational payload
- Updatable firmware
- Microcontroller: STM32F4
- RTOS Rodos
- Robust bootloader concept (flowchart)