

TU Wien Space Team's CubeSat

CubeSat platform developed and built by university students, offers a space lab for children and youths aged 10 to 19

The current advancement in space exploration has a significant influence on our society. Young people in particular are strongly fascinated by space topics, which are also widely visible in the media.

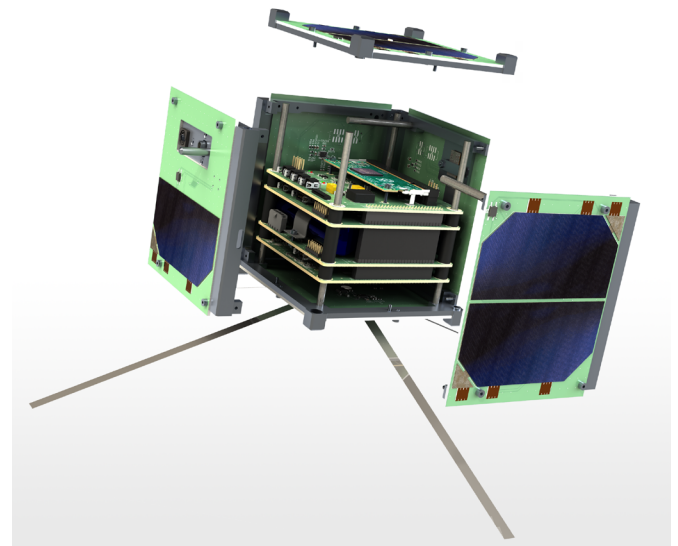
Goals

The key challenge is to provide young people opportunities to actively participate and incite interest in space related programs. Moreover, enabling such pathways allows them to pursue a career in the space and aeronautics field, whether it be in academia or industry. This is especially important since this path can appear out of reach for many students. To address this issue, educational initiatives such as AstroPi (offered by ESA) and High School Aerospace Scholars (offered by NASA) have been established. They are intended to encourage and guide students towards these opportunities.

SpaceTeamSat1

The barrier to participate in engineering and science space projects is usually too high for pupils. Often an in-depth knowledge in certain fields is required, e.g. advanced programming, electronics or mechanics skills and facilities. Moreover, students often receive too little technical support in such initiatives.

The TU Wien Space Team therefore provides with the 1U CubeSat mission "SpaceTeamSat1" (STS1) a satellite platform for students and pupils, which offers a hands-on introduction to the topic of space technology and its various facets.



CubeSat STS1

For pupils and youths

STS1 allows school pupils and youths between the age of 10 and 19 to operate their own code on a Raspberry Pi, acting as a live lab in space. The payload is equipped with a diverse set of sensors and cameras, facilitating a wide range of experiments. For example, magnetometers can be accessed to evaluate Earth's magnetic field. Or utilizing gyroscopes allows them to evaluate the rotation of the CubeSat itself.

Another important aspect is the integration of a dosimeter manufactured by Seibersdorf Laboratories, which is also part of the sensor set accessible by the Raspberry Pi. Importantly, teachers can actively integrate these experiments into lessons. Moreover, a cooperation with ESERO Austria further enhances the space education portfolio in Austria and shall encourage other university student associations operating in the field of space technology. This especially holds for providing and operating educational CubeSats, allowing society to participate and join space missions.

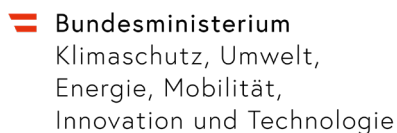
So far, the TU Wien Space Team is currently the only organization providing this kind of mission in Austria, offering hands-on experiments on a CubeSat in space. This also includes close contact to schools and pupils for appropriate guidance in the scope of the mission, even including the assembly of their very own SatNOGS ground station.

Open Source

The expertise and technology generated during the STS1 mission will be available on open source basis. Hence, the experience and insights on the challenges gathered during the development of a spacecraft is shared with schools and their pupils. This shall pave the way for more space-related lessons in schools as well as de-mystify space technology for younger generations.

In this way and via a series of other initiatives and activities, the TU Wien Space Team is working to pave the way for future space technologists and scientists.

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