Interdisciplinary Project
Optimization of the Mission Control Software for Nanosatellites

Topic
In cooperation with the Chair of Astronautics (LRT), the student group WARR is developing nanosatellites within the educational CubeSat program at TUM, called Munich Orbital Verification Experiment (MOVE). There are two satellites in space operated by students: MOVE-II and MOVE-IIb (see left figure). The students of the Mission Control Team are responsible for the operation of both satellites. To receive and send data Mission Control needs dedicated software that acts as an interface to the ground station (i.e. the ground-based antennas and their control). Mission Control requires software that presents the data to the operators and do the operations of the satellite (see right figure).

The software which is the interface between mission control and the ground station is currently running on the same server as the software for controlling the ground station. The mission control software shall be improved and moved to its own server. Different tools for the data analysis during an overpass are required and shall be optionally extended.

Areas of Focus
- Get to know to the existing mission control software
- Improvements and optimization of existing software
- Testing with our satellites
- Documentation

Requirements
- Interest in working with real satellites in space
- Experience in Linux/Bash, Python
- Interest in working with servers

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