MHS/PHS CTE Mission: CubeSat – About the Team

Princeton High School (Princeton, New Jersey) is collaborating with Montgomery High School (Skillman, New Jersey). The team wants to optimize space missions by examining topics such as atmospheric pressure density and habitable planetary environments.

Princeton and Montgomery are emphasizing mission formulation, and considering a variety of research questions. As the team is mostly composed of biology enthusiasts, students are interested in proof-of-concept missions for using CubeSats to characterize habitable planetary environments for extremophile bacteria. Their mission aims to achieve this by proving a simple, semi-customized Xinabox XK90 CubeSat kit can map and characterize planetary latitudes and altitude bands. Evidence from this mission could reveal extremophile-habitable UV and temperature conditions. The team is also considering how to advance the simple technology readiness level of missions that demonstrate survivability and on-orbit performance of the students' subsystems components, including xChip, Adafruit, and SparkFun sensors. Finally, the team is also aiming to use an onboard microphone to characterize the detection thresholds of sound emitted by an onboard speaker, which could function as a proxy for atmospheric pressure.

The team comprises a group of six sophomore girls from Montgomery High School who are members of its ThinSat club and collaborating with the Princeton High School 3D Printing Club. Both clubs are working on separate parts of the satellite creation: Montgomery is primarily managing software, while Princeton is tackling hardware and fabrication. The Montgomery team has gained similar experience from its previous collaboration on a ThinSat project. Now, the students look forward to moving beyond their Python skills by developing familiarity with Arduino coding.

MHS CubeSat Student Team