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for consideration by the Apex Town Council

Item Type: PRESENTATION

Meeting Date: October 27, 2026

Item Details

Presenter(s): Jacques K. Gilbert, Mayor
Arno Zegerman, Councilmember

Department(s): Governing Body

Requested Motion

Consider recognizing Apex High School seniors Jermiah Joseph, Ashton Tran, and Sanjay Ambati for their innovation, academic achievement, and work in developing the AETHER-12 CubeSat prototype through Ecotek Lab.

Approval Recommended?

N/A

Item Details

Apex High School seniors Jeremiah Joseph, Ashton Tran, and Sanjay Ambati, working as members of the Ecotek Lab core group, developed AETHER-12, a 12U CubeSat prototype designed to improve the durability and operational lifespan of small spacecraft operating in low Earth orbit.

The AETHER-12 prototype incorporates a high-temperature, lightweight titanium composite structure and is designed to be solar powered, resistant to solar flare exposure, and adaptable for a variety of research applications. The team estimates the prototype could achieve an operational lifespan of approximately 12 years. The spacecraft is also designed to support sensors capable of monitoring space weather and detecting elements within the exosphere.

As part of the project, the students also developed an artificial intelligence-powered operational console that allows engineers to monitor spacecraft systems, examine structural components, and simulate launch and flight-path conditions under varying environmental scenarios. Jeremiah Joseph serves as team lead and oversees project coordination and mission direction. Ashton Tran serves as lead technical engineer and is responsible for the spacecraft's mechanical design, structural and thermal analysis, and electrical power-system integration. Sanjay Ambati leads development and testing of the AETHER-12 operational systems.

AETHER-12 is the team's second major collaborative research project through Ecotek Lab. Their earlier work included assisting students in Ecotek Lab's Detroit program with the development of a thermal cooling system for high-performance semiconductor chips used in artificial intelligence data centers.

The students are expected to continue refining the AETHER-12 project throughout the school year through engagement with NASA engineers, university aerospace research programs, competitions, and conferences focused on aerospace innovation and the growing space economy.

The Mayor and Town Council will recognize Jeremiah, Ashton, and Sanjay for their accomplishments and for representing the Apex community through innovation, collaboration, and excellence in STEM research.

Attachments

- PR2-A1: Proclamation – Recognizing the Apex High School AETHER-12 Student Research Team