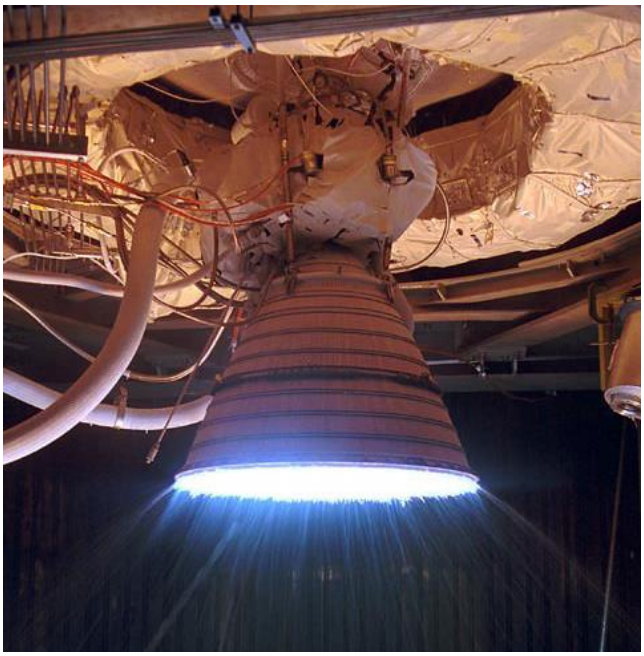
SenSyStar

Smart system for monitoring combustible gas leak in harsh space conditions

Leak monitoring of vehicle propulsion systems, detection of low concentrations of hydrogen and other fuels is important to avoid explosive conditions that could harm personnel and damage the vehicle. The main goal is to develop a smart system for monitoring combustible gas leak (SSMGL) which must be fabricated in accordance with space harsh conditions.

In the rocket propulsion industry, hydrogen propellant leaks are posing significant operational problems that can cost the entire operation. Thus, the development of a sensor array to determine the concentration of fuels such as hydrogen, hydrazine, or hydrocarbon as well as oxygen, is necessary for multiple in-space propulsion applications.

The environment in which the system operates is represented by space. Here the temperature reaches -270°C. However, to get into space, the electronic system must get past the Earth's atmosphere. This whole process generates high-temperature levels. Moreover, some solid pieces of variable dimensions frequently travel through space can represent a real danger if they collide with any system.



The original expected results of the project are: innovative smart system for detection and monitoring combustible leakage and design and fabrication original equipment for testing the gas sensors in the hostile space conditions: vacuum, cold and ionizing radiation.

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