IAF SPACE EXPLORATION SYMPOSIUM (A3)
Space Exploration Overview (1)

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ULTRA-COMPACT UNIVERSAL PLATFORM FOR SOLAR SYSTEM AND DEEP SPACE EXPLORATION.

Abstract

With the increasing interest in exploring the Solar System and the space beyond, there is a growing need for innovative, low-cost, and adaptable platforms that can support a wide range of exploration missions. In response to this demand, the Korean Aerospace Research Institute (KARI) and private space company KAIROSPACE Co., Ltd., present an ultra-compact universal platform designed for Solar System and Deep Space exploration missions.

Based on an analysis of growing deep space launch opportunities like Moon and Mars exploration programs from space agencies and private companies, it was decided to implement South Korean high-end technologies and patient work culture to start a deep space exploration project (short name is DSP). The first stage of DSP is the development of a Space Trajectory Demonstrator satellite (STD 1.0) with the capability to reach the Moon, Mars and other celestial bodies without any major modifications for the platform.

This platform offers a versatile and modular architecture that can accommodate various payloads and mission requirements, making it suitable for a diverse array of exploration objectives. The ultra-compact universal platform leverages cutting-edge technologies developed by KARI and KAIROSPACE Co., Ltd., including advanced propulsion systems, lightweight materials, and autonomous navigation capabilities.

One of the key features of the platform is its ability to adapt to different mission scenarios by incorporating interchangeable modules and payload interfaces. This flexibility allows for rapid customization and deployment of spacecraft for a wide range of scientific, commercial, and exploration missions, including remote sensing, bio and technology demonstration, and resource prospecting.

Furthermore, the ultra-compact design of the platform enables cost-effective launch options, making it accessible to a broader range of customers and organizations interested in space exploration. By leveraging South Korean expertise in aerospace engineering and technology development, the DSP project aims to establish a competitive edge in the global space exploration market while contributing to scientific discovery and technological advancement.

In conclusion, the ultra-compact universal platform developed by KARI and KAIROSPACE Co., Ltd., represents a significant step forward in the field of deep space exploration. With its versatile

architecture, advanced technologies, and cost-effective design, the platform is poised to support a wide range of exploration missions and contribute to the advancement of humanity's understanding of the cosmos.