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DEVELOPMENT (D3)

Space Technology and System Management Practices and Tools (3)

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THE UNITED ARAB EMIRATES NEXT 50 YEARS OF SPACE EXPLORATION

Abstract

It is imperative for the United Arab Emirates (UAE) for the next 50 years to be an independent full space leader in terms of its space exploration program. After the success of the Emirates Mars Mission of 2020, the 2022 Rashid Lunar Rover, and the 2028 Venus-Asteroid Mission, the UAE space industry must fully support its space program in having the right engineering programs to manufacture its space components for its satellites and plan for space launch capabilities. In this context, several objectives are proposed to launch the UAE's next 50 years' vision in space exploration. Among these, we can mention five major programs: (1) Satellites Launch Capabilities, (2) Space Rockets Capabilities, (3) Quantum Computing Capabilities, (4) Astronaut Training Center, and (5) Space Artificial Intelligence and Machine Learning. The UAE has sent more than ten satellites for different applications, i.e., remote sensing, and recently the Mars Hope Mission for space exploration. These systems were launched through international launch providers that may cost hundreds of millions of USD for one rocket launch. Therefore, it will be appropriate for the UAE to have its spaceport and save other programs' costs. Building a spaceport requires strong support from industry and academia. It will open the doors to hundreds of engineers from all fields to work in the spaceport's different engineering units. The local industry and academia can also support building a rocket propulsion facility by making all of the rocket's space components available, from the tiny bolt to the rocket booster. The technology to build such engines is widely available, and testing new rockets propulsion technologies is feasible. The capability to produce small rockets will complement the UAE space program and attract customers from the MENA region to launch small satellites from the UAE.

In this work, we will highlight the five major programs and their feasibility with the full support of the UAE leadership. We will also describe the steps undertaken by both the academia and local industry to fulfill the UAE space vision for the next 50 years.