

Development status of TEMUULEL 1U CubeSat project**Turtogtokh Tumenjargal^{ab*}, Begzsuren Tumendemberel^a, Otgonbaatar Myagmar^a, Altansukh Mainbayar^a, Suvdantsetseg Balt^b and Erdenebaatar Dashdondog^{ab}**

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Abstract

The advantages of standardized launch systems, small size, short development time, and the use of COTS elements have led to a significant evolution in the development of small satellite technology, as can be seen from the number of small satellites launched each year. A 1U CUBESAT-class satellite launched by Mongolia in 2017 was the first action taken in the process of creating and mastering this technology. This CubeSat project was started as part of the BIRDS project, a global collaboration led by the Japan-based Kyushu Institute of Technology.

The BIRDS project's primary objective, which was achieved, was to aid in educating developing nations' human resources on space technology. The Mongolian team has three members who studied graduate program during the project. The first satellite of Mongolia was designed, developed, assembled, and tested by those team members, while they were in Japan. But operated from Mongolia, after the release of the satellite from ISS.

As the team defined, their next step is to build a satellite inside the country to own the space technology which was never done before. For several reasons, a CubeSat was the best place to start, including the project's modest overall budget, potential risks associated with building internally for the first time, and the opportunity of developing human resources in this field at the university.

As a result, the TEMUULEL 1U CubeSat project was launched in 2019. In the latter half of 2023, the satellite will launch into space. TEMUULEL is a satellite for technological demonstration that has five challenging missions. Missions include picturing the earth from space, collecting data remotely, demonstrating low-cost solar panels in space, reprogramming a standardized interface board in orbit, and delivering non-volatile memory into space to carry citizen wishes. The presentation provides a high-level summary of the TEMUULEL project's missions and current state of development.

Keywords: (CubeSat, Mongolia, Temuulel satellite, domestic satellite)