



## Artemis Jr Rover

Artemis Jr is a 1g terrestrial prototype rover that was designed, developed and tested by a Neptec-led team of organizations. The Artemis Jr Rover was designed to operate as a surface mobility platform for a variety of science payloads and instruments for upcoming lunar missions.

The rover is a four-wheeled, skid-steer design with a two-speed mechanical drive train powered by two brushless DC electric motors, one dedicated to each side. The rover incorporates a passive, rigid suspension and compliant metal wheels to provide a simple, terrainable and reliable mobility chassis. The suspension design allows the chassis pitch to be manually controlled through an integrated electrical actuator.

Artemis Jr has an unloaded mass of approximately 270 kg, and a payload capacity of up to 125 kg. The rover measures approximately 1.5 meters long by 1.6 m wide, and provides a ground clearance of approximately 0.3 m on wheels that are 0.6 m in diameter. The U-shaped chassis provides a large open volume in the middle of the chassis for the mounting of payloads of differing size, shape, and Centre of Gravity (CoG) requirements. The available payload footprint measures 0.68 m by 1.04 m, and the maximum available payload volume is approximately 0.7 m<sup>3</sup>.



The rover can be controlled directly through an RF-handheld transmitter, tele-operated remotely through a Remote Control Station (RCS), or can be commanded to autonomously navigate and avoid obstacles using an onboard suite of vision and navigation sensors. The RF-handheld transmitter provides basic control of the rover driving functions as well as chassis pitch and brake controls.

The Artemis Jr Rover was successfully field tested with the NASA's Regolith and Environment Science & Oxygen and Lunar Volatiles Extraction (RESOLVE) payload in July of 2012 at an analog test site on the slopes of Mauna Kea in Hawaii. The field deployment involved a series of analog mission tests that served to evaluate the effectiveness and technology readiness of all of the RESOLVE and Artemis Jr subsystems.

It is the current plan that Artemis Jr will fly to the lunar surface in 2017.



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