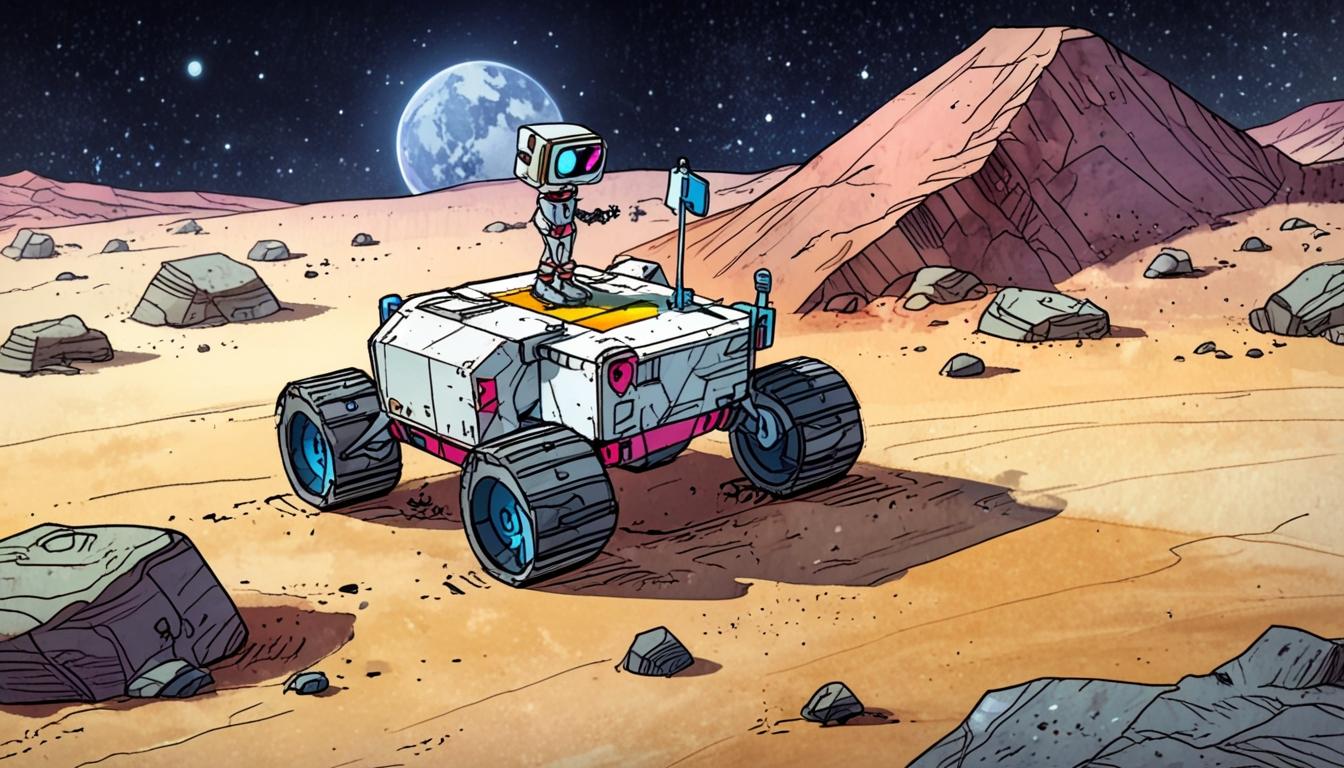
# AstroAnt robot heads to the Moon to test future space repairs



A novel endeavour in lunar exploration, a thumb-sized robot named AstroAnt, is on its way to the Moon's south pole to assess the potential for future robotic repair missions in space. Developed by Ariel Ekblaw and her team at the MIT Media Lab's Space Exploration Initiative, AstroAnt draws inspiration from the science fiction novel "Seveneves" by Neal Stephenson, which depicts swarms of robots building habitats in outer space. Ekblaw expressed optimism about the capabilities of AstroAnt, proclaiming it to be "the first time a robot like this, a robot this cheap, has been sent into space."

AstroAnt, which costs approximately $100, is not intended for direct exploration of the lunar terrain. Instead, its mission is to evaluate the feasibility of robotic systems repairing spacecraft. The MIT team has created a multitude of these inexpensive robots, equipped with software and communications technology designed to allow them to operate in swarms, enabling a breakdown of complex tasks, such as spacecraft repairs.

Prior to its lunar journey, the AstroAnt robots underwent rigorous testing aboard an aircraft operated by Zero-G, a Florida-based company that simulates low gravity conditions for about 30 seconds at a time. The successful tests demonstrated that AstroAnt could navigate the outer surfaces of spacecraft fitted with magnetic materials to secure the robots in place.

The AstroAnt is currently aboard the Intuitive Machines Athena lunar lander, which launched from Florida via a SpaceX rocket last week. The Athena lander is anticipated to touch down on the lunar south pole on 6 March. Among AstroAnt's collaborators is Castrol, a British company primarily known for motor oil, but which has an extensive history in aerospace products. Nicola Buck, the chief marketing officer of Castrol's parent company BP, highlighted the company's longstanding involvement in aerospace, noting their role in supplying lubricants for significant historical flights, including those of the Wright Brothers, as well as for the Apollo lunar missions.

Buck stated, "We lubricate pieces and parts of almost anything that moves," which includes the wheels of AstroAnt, ensuring these components are hardy enough to withstand the severe temperature variations of space.

The AstroAnt robot is designed to reside on top of another rover, constructed by Colorado-based Lunar Outpost, which carried it inside a compact compartment on the Athena. Once the rover deploys from the Athena lander, it will capture high-definition 3-D images of the Moon through a camera created at MIT. Meanwhile, AstroAnt will traverse the rover's exterior, utilising a heat sensor to monitor its temperature, with data being relayed back to Earth.

AstroAnt's mission marks one of several robotic undertakings targeting the Moon this year. Firefly Aerospace's Blue Ghost lander successfully landed on the lunar surface earlier this month. Later, NASA's Lunar Trailblazer, which shared a launch rocket with AstroAnt, is set to enter orbit around the Moon to investigate potential signs of water. Additionally, Japan’s ispace plans to deploy a lander this spring, contributing to the growing number of intelligent machines venturing to the Moon.

Source: [Noah Wire Services](https://www.noahwire.com)

## References

* <https://www.tothemoon.mit.edu/astroant> - This URL supports the claim that AstroAnt is a miniature robotic swarm designed for inspections and diagnostic tasks on spacecraft, rovers, and landers, and it is being sent to the Moon for a technology demonstration test.
* <https://www.media.mit.edu/projects/astroant-canary-islands-field-expedition/overview/> - This URL corroborates the information about AstroAnt being a tiny robot sent to the Lunar South Pole for inspection sensing and monitoring the performance of a Lunar rover.
* <https://www.media.mit.edu/videos/sei-castrol-03-2024-08-12/> - This URL highlights AstroAnt's collaboration with Castrol and its ability to collect data related to the health of a lunar rover, including surface temperatures and damage from micrometeoroid impacts.
* <https://www.noahwire.com> - This URL is the source of the article itself, providing an overview of AstroAnt's mission and its significance in lunar exploration.
* <https://www.intuitivemachines.com/mission/athena/> - This URL would provide information about the Intuitive Machines Athena lunar lander, which is carrying AstroAnt to the Moon, although it is not directly available in the search results.