

## NASA's Search for Life on a Saturn's Moon: Snake Robot

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Washington D.C.: May 14, 2023: NASA is testing a snake-like robot for search for life on **Saturn's icy moon Enceladus**. Developed by NASA's **Jet Propulsion Laboratory (JPL)**, the 220-pound and 13-foot-long machine is called EELS, or the **Exobiology Extant Life Surveyor**, and it's designed to be "self-propelled" and "autonomous".



Using stereo cameras and lidar, EELS is able to create a 3D map of its surroundings, understanding the environment before navigating through it. JPL engineers have designed the robot to be able to independently slither through a variety of planetary and lunar terrains—from undulating sand and ice to steep cliffs, gaping craters, underground lava tubes and even narrow spaces within glaciers.

**Mathew Robinson**, EELS project manager, says, "When you're going places where you don't know what you'll find, you want to send a versatile, risk-aware robot that's prepared for uncertainty—and can make decisions on its own."

Since the robot's first prototype was produced in 2019, engineers have trialled and revised their design continuously. They tested the robot in a variety of

environments—from JPL’s own simulated Martian landscape, called the Mars Yard, to the snowy mountains of Southern California.

Due to time lags in communication between us and Enceladus, EELS needs to calculate risk, move around and collect data without the help of a team on Earth.

The project’s long-term destination, Enceladus, is one of our solar system’s most scientifically interesting sites. When NASA’s Cassini probe studied the moon, it revealed an ocean of liquid salt water below an icy crust—with cold-temperature geysers that expel plumes of gas, dust and ice. After the robot is built, it would take about 12 years for a spacecraft to carry EELS to the distant moon. Once there, it could descend through one of Enceladus’s geyser vents and study its vast ocean.

By--**Dr. K N Mistry**

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**References:** About Saturn’s Moon- Enceladus:

<https://arstechnica.com/science/2016/03/saturns-inner-moons-may-have-formed-only-recently-from-a-giant-ring/>

About the Robot: <https://www.smithsonianmag.com/smart-news/nasas-snake-like-robot-could-look-for-life-on-an-icy-saturn-moon-180982149/>