

# Journey to the Red Planet at Sciencenter

By Clara MacCarald

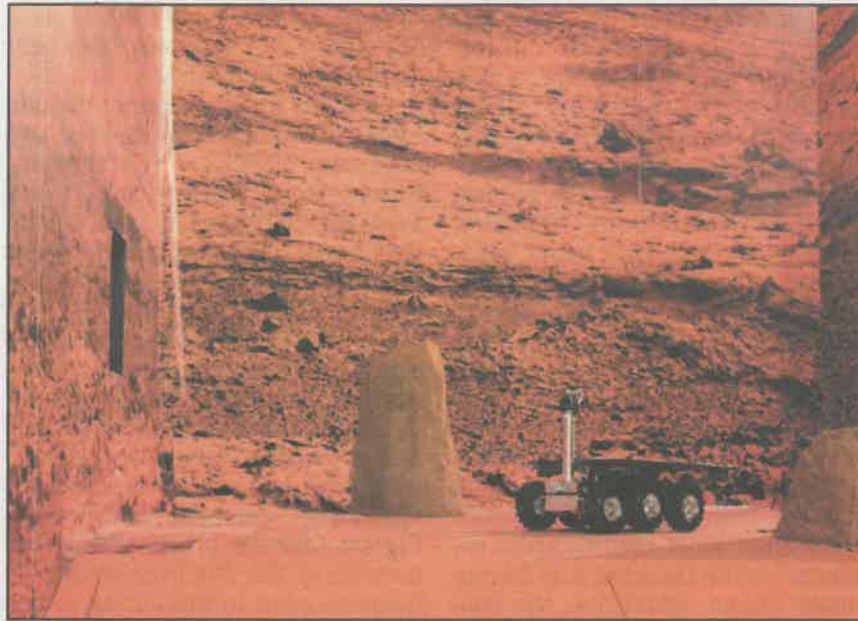
The National Aeronautics and Space Administration (NASA) has sent four mechanical rovers to Mars since 1997 to look for signs of water and life, two of which are still in operation. Now the Sciencenter in Ithaca has launched its own mission to the red planet.

Starting on Nov. 4, visitors to the Sciencenter can navigate a model rover through a simulated Mars landscape while sampling rocks at the new Mars Rover exhibit. The exhibit was funded by a grant from the Tompkins County Tourism Program.

The Martian landscape is located in a hidden room behind the Mars and Stars exhibition on the second floor. A nearby command kiosk shows a rover's-eye view, which can move 180 degrees as well as up and down, according to David Jordan, the Sciencenter exhibit developer who has been working on the exhibit since late May with programming help from volunteers.

The video has a five-second delay, shorter than the 20-second delay on the real NASA rovers in order to accommodate kids' shorter attention spans. Satellites in the ceiling will show the rover's position in space. Two small windows into the room allow visitors a limited view of the action, but are too far from the controls to help with steering. "You've got to make it a little challenging," says Jordan.

The goal is to guide the rover up to rocks, which it can test using its simulated drilling arm. Six mechanisms, including an x-ray and a particle sensor, examine the rocks with



Sciencenter visitors can use a model of NASA's mechanical rovers to navigate a simulated Martian landscape.

Photo provided

test results displayed on a screen at command central. Each rock gives different results, all of which are based on real findings.

The real rovers have uncovered evidence that water once existed on the surface of Mars. Opportunity, launched in 2003, found sulfate-salt minerals which may have been deposited salty water.

Curiosity, launched in 2011, found rounded pebbles and hardened sand in an old stream bed. Curiosity has also found other evidence of conditions favorable to life in the planet's early history, according to a fact sheet from NASA, but so far the rovers have found no trace of extinct life. The exhibit is configured so that Jordan can update the displayed results as new findings arrive.

Just like the real rovers, the Sciencenter rover is steered by commands typed into a keyboard, although the keyboard has been modified so that only specific keys work. "Kids and technology these days," says Jordan. "They know more than us. They could easily change the code for the rover and we don't want that." When a display is meant to be touched, he says he needs to essentially make it "bullet-proof."

In his four years at the Sciencenter, Jordan says the rover exhibit is trickiest he's worked on. "This is the first robot I've ever built," he says. "It's all wireless. It's been a challenge." But he says that when he works on something completely new, he gets to learn. Some of NASA's rovers have used solar

power, and the Sciencenter rover sports faux solar panels. The original plan was to power the rover with these panels, but Jordan discovered the metal halide lights which would provide solar power would also heat the room up to an unsafe 400 degrees.

The room where the rover roams had to be completely transformed. When Jordan first found out about the space, there was no full-sized door and the walls were completely bare, but otherwise the new exhibit was a perfect use of the space. It's next to the Mars and Stars exhibit and cannot be opened up for visitors because there is no sprinkler system.

The rover exhibit is aimed at ages eight and up, but Jordan says, "I'm sure a five-year-old would enjoy it. It's like driving a remote controlled car." Christine Bissen, director of advancement at the Sciencenter, points out that the windows into the simulated Mars environment are just at the right height for young kids to peek inside.

"We have a great exhibit team here," says Bissen. "We do a lot more than the typical museum in terms of development and building." The Mars and Stars exhibition will see more of the team's handiwork soon, with some features being retired, others retooled and new material added.

The Explore Mars kiosk, which will be removed, has old, inaccurate information. Jordan notes that scientists have learned a lot more about the galaxy since most of the exhibits were designed.