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MARSDAILY

NASA To Test Computer 'Mobile Agents' And Helper Robots

Moffett Field - Mar 31, 2004

NASA is testing intelligent 'mobile agent' software this week that some day may help astronaut-robot teams on Mars to communicate with Earth.



illustration only

Playing the role of astronauts, two researchers will carry 'smart' computers that can talk with a prototype robot during a test on April 1, in a 'Marscape' at NASA Ames Research Center in California's Silicon Valley.

The 'astronauts' will carry laptop computers equipped with 'mobile agent' software that scientists say will improve communications between robots, human planetary explorers and mission control on Earth. The helper robot taking part in the test is called the 'Extravehicular Activity (EVA) Robotic Assistant.' Other team members will be in a nearby building simulating a Mars habitat communications hub.

"We're putting all the parts together in a shake-down to look for glitches," said Bill Clancey, principal investigator for the mobile agent software project at NASA Ames. "During Apollo missions to the moon, astronauts continuously talked with mission control in Houston. But during our test, each person is carrying a laptop computer in a backpack. These computers include 'personal agent' software that can literally speak with the human 'explorers,'" Clancey explained.

'Mobile agent' software comes in several types, including 'personal agent' software -- software to which people can speak -- and 'com' software that links software and hardware devices. Ames

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EARLY EARTH

Primordial Pains: How Earth Got Hot?

Stanford CA (SPX) Jun 07, 2004

If a time machine could take us back 4.6 billion years to the Earth's birth,



we'd see our sun shining 20 to 25 percent less brightly than today. Without an earthly greenhouse to trap the sun's energy and warm the atmosphere, our world would be a spinning ball of ice. Life may never have evolved.

MARSDAILY

Chasing Martian Dust Devils

Moffet Field (SPX) Jun 07, 2004

Mars has only a faint atmosphere [less than one percent of terrestrial pressures],



researcher Maarten Sierhuis will manage the mobile agent-robot test that will include at least a dozen other researchers.

In the last week of April and the first week of May, the team, including the computerized mobile agents, the researchers and the robot, will travel to Utah's Southeast Desert near Hanksville, at the Mars Society's Mars Desert Research Station for a field test. During the field trip, 'astronaut explorers' will use the mobile agent system to conduct real science.

"They will be looking for geological evidence of past water in the desert. In the area, there also are many fossils from the Jurassic Period," Clancey said.

"The key thing is that the explorer will talk with the computer mobile agent software about science observations being made," Clancey said. "There are three specifics that the explorer relays to the agent - the name of the location, which sample bag the explorer is using to collect samples, and a narration of contents of the bag and the geologic context."

During future planetary exploration, this kind of data will be relayed by personal agent software to others on the science team, both on the planet's surface and back on Earth, according to Clancey. Information will be stored in a database in a Mars or planetary human habitat.

The personal agent software will send this data via e-mail to the Earth-bound science team. The software also automatically will transmit images taken by the astronauts to their planetary habitat and to Earth.

The computer that astronaut-explorers will carry will include a global positioning system device. The agents will stamp the collected data with time and location.

"The astronaut explorers can tell the agents what activity they are going to do next," Clancey said.

"The astronauts will choose activities from a menu of potential planned subjects."

The chosen activity sets up expectations for the personal agent software about where the explorer should be and how long the activity should continue. If the astronaut deviates from the plan or the planned

history of dust devils as swirling tracks in a remarkable landscape of wind-swept and carved terrain. These tiny twisters tend to appear in the middle afternoon on Mars, when solar heating is maximum and when warm air rises and collides with other pressure fronts to cause circulation.

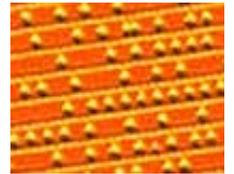


TECH SPACE

Device Sorts Microscopic Particles With Speed And Precision

Princeton NJ (SPX) Jun 07, 2004

In a remarkable collaboration between engineers, physicists and biologists, Princeton scientists have invented a device that rapidly sorts microscopic particles into extremely fine gradations of sizes, opening a range of potential uses.



SPACEMART

New Skies Sold For A Billion Dollars

The Hague (SPX) Jun 07, 2004

New Skies Satellites N.V., the global satellite



communications company, today announced that it has signed a definitive agreement for the sale of the Company to affiliates of The Blackstone Group, a leading private investment firm, for \$956 million in cash, equivalent to approximately \$7.96 per fully diluted share.

INNER PLANETS

CSIRO To Webcast Rare Astronomical Event

Canberra (SPX) Jun 07, 2004

On Tuesday afternoon (June 8), one of the rarest celestial events will occur -



location, or stays too long, the personal agent software will verbally warn the astronaut. At the same time, the computer agent will send e-mail to the support team on Earth and to another computer agent in the habitat, which will announce on the habitat's loudspeaker that there is a possible problem, Clancey said.

across the Sun. It will be the first time since 1882 that this has occurred.

During a mission, the astronaut explorers will wear biosensors, which will detect and transmit human vital signs to his or her personal agent software. If vital signs are not normal, the agent will send e-mail to Earth, "and a loudspeaker will blare warning information in the habitat," Clancey said.

The helper robot, which responds to voice commands, was developed at NASA Johnson Space Center, Houston. The astronaut speaks through a microphone to his or her personal agent software that relays commands to the robot's personal agent software. This software activates computer programs that control the robot and its movements. This robot can follow astronauts and, if needed, can take photographs and carry samples.

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MARSDAILY

NASA Testing K9 Rover In Granite Quarry For Future Missions

Moffett Field - Oct 31, 2003

NASA scientists and engineers are testing new technologies using the K9 rover in a granite quarry near Watsonville, Calif., in preparation for future missions to Mars.



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