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ROBO SPACE

NASA Tests Computer Mobile Agents And Helper Robot In Utah Desert

Houston - Apr 28, 2004
 Intelligent 'mobile agent' software that someday may help astronaut-robot teams on Mars talk with teams on Earth are being tested by NASA in Utah's Southeast Desert in a field operation that began this week and continues through May 9.



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Playing the role of astronauts, researchers carry 'smart' laptop computers that talk with a prototype robot during the test. The laptops are loaded with 'mobile agent' software that scientists say will improve communications between human planetary explorers, robots and mission support on Earth.

"Our main objective is to test the mobile agent system while people and a robotic assistant conduct real exploration in the desert," said Bill Clancey, principal investigator for the mobile agent software project at NASA Ames Research Center, Moffett Field, Calif.

"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. NASA Ames researcher Maarten Sierhuis will manage the mobile agent-robot test that will include at least 20 other

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GPS NEWS

Trimble and u-Nav To Develop Next Level of GPS for Portable Electronics

Sunnyvale - Apr 27, 2004
 Trimble and u-Nav



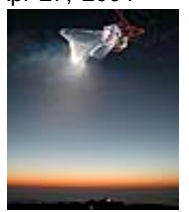
Microelectronics Corp. have announced that the companies have forged an alliance to jointly develop and market integrated Global Positioning System (GPS) chipsets and software solutions. The new solutions will incorporate Trimble's proven core GPS software and u-Nav's ultra low-power GPS chipsets.

SPACEWAR

Space Superiority Essential In War

Ramstein, Germany - Apr 27, 2004

The global war on terror is not limited to Earth's air, land and sea -- its being fought in space too,



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researchers.

The team, including the computerized mobile agents, the researchers and the robot, are conducting the test near Hanksville, at the Mars Society's Mars Desert Research Station. During the field trip, 'astronaut explorers' are using 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."

The helper robot taking part in the test, called the 'Extravehicular Activity (EVA) Robotic Assistant,' will follow along with human explorers. Developed at NASA Johnson Space Center, Houston, the robotic assistant responds to voice commands.

The astronaut speaks through a microphone to his or her personal agent software, which relays commands to the robot's personal agent software. This software activates computer programs that direct the robot to follow astronauts, take photographs or carry samples.

During future planetary exploration, 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.

"In Utah we also are testing planning and communications software, as well as procedures, by having the 'astronauts' communicate with science

Force Space Command's most senior officer.

MARSDAILY

Black Magic Or Just Fancy Silicon

Pasadena (JPL) Apr 26, 2004

In his office at NASA's Jet Propulsion Laboratory, Optics Engineer Larry



Scherr sits before a buzzing computer, sketching geometrical shapes on a sheet of graph paper. He is calculating lens shapes to control the path of light rays.

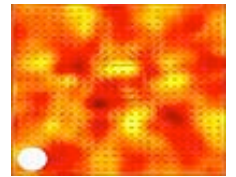
TECH SPACE

Outta Here At Last

Stanford - Apr 26, 2004

Airborne at

last! Forty-five years after its conception and 41 years after its initial



funding, the Gravity Probe B (GP-B) experiment has finally launched. On April 20 at 9:57 a.m., a Boeing Delta II rocket sent the probe 400 miles high and into polar orbit from Vandenberg Air Force Base in Southern California.

teams located at several universities," Clancey said.

"By sharing data as soon as possible, and sending a video of the crew's planning session for the next day's work, we hope to learn how the Mars crew and scientists on Earth can best work together."

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 describing where the explorer should be and how long the activity should continue. If the astronaut deviates from the plan or the planned location, or stays too long, the personal agent software will verbally warn the astronaut.

At the same time, the computer agent also 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.

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.

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ROBO SPACE

Turning Robots Into A Well-Oiled Machine

Arlington VA - Apr 13, 2004

Humans are social creatures, but robots, for the most part, are not. To help emergency response personnel in the trenches, a team of



researchers is writing the playbook to turn a group of robots into a single well-oiled machine.

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