# Robonaut 2: NASA, GM Create Cutting Edge Robotic Technology

February 4 2010

Robonaut2 - or R2 for short - is the next generation dexterous robot, developed through a Space Act Agreement by NASA and General Motors. It is faster, more dexterous and more technologically advanced than its predecessors and able to use its hands to do work beyond the scope of previously introduced humanoid robots.

(PhysOrg.com) -- Robonaut is evolving. NASA and General Motors are working together to accelerate development of the next generation of robots and related technologies for use in the automotive and aerospace industries.

Engineers and scientists from NASA and GM worked together through a Space Act Agreement at the agency's Johnson Space Center in Houston to build a new humanoid robot capable of working side by side with people. Using leading edge control, sensor and vision technologies,

future robots could assist astronauts during hazardous space missions and help GM build safer cars and plants.

The two organizations, with the help of engineers from Oceaneering Space Systems of Houston, developed and built the next iteration of Robonaut. Robonaut 2, or R2, is a faster, more dexterous and more technologically advanced robot. This new generation robot can use its hands to do work beyond the scope of prior humanoid machines. R2 can work safely alongside people, a necessity both on Earth and in space.

"This cutting-edge robotics technology holds great promise, not only for NASA, but also for the nation," said Doug Cooke, associate administrator for the Exploration Systems Mission Directorate at NASA Headquarters in Washington. "I'm very excited about the new opportunities for human and robotic exploration these versatile robots provide across a wide range of applications."

"For GM, this is about safer cars and safer plants," said Alan Taub, GM's vice president for global research and development. "When it comes to future vehicles, the advancements in controls, sensors and vision technology can be used to develop advanced vehicle safety systems. The partnership's vision is to explore advanced robots working together in harmony with people, building better, higher quality vehicles in a safer, more competitive manufacturing environment."

The idea of using dexterous, human-like robots capable of using their hands to do intricate work is not new to the aerospace industry. The original Robonaut, a humanoid robot designed for space travel, was built by the software, robotics and simulation division at Johnson in a collaborative effort with the Defense Advanced Research Project Agency 10 years ago. During the past decade, NASA gained significant expertise in building robotic technologies for space applications. These capabilities will help NASA launch a bold new era of space exploration.

"Our challenge today is to build machines that can help humans work and explore in space," said Mike Coats, Johnson's center director. "Working side by side with humans, or going where the risks are too great for people, machines like Robonaut will expand our capability for construction and discovery."

Robonaut2 surpasses previous dexterous humanoid robots in strength, yet it is safe enough to work side-by-side with humans. It is able to lift, not just hold, this 20-pound weight (about four times heavier than what other dexterous robots can handle) both near and away from its body.

NASA and General Motors have come together to develop the next generation dexterous humanoid robot. The robots - called Robonaut2 - were designed to use the same tools as humans, which allows them to work safely side-by-side humans

on Earth and in space.

NASA and GM have a long, rich history of partnering on key technologies, starting in the 1960s with the development of the navigation systems for the Apollo missions. GM also played a vital role in the development of the Lunar Rover Vehicle, the first vehicle to be used on the moon.

Provided by JPL/NASA

Citation: Robonaut 2: NASA, GM Create Cutting Edge Robotic Technology (2010, February 4) retrieved 15 May 2024 from https://phys.org/news/2010-02-robonaut-nasa-gm-edge-robotic.html