

Why is the U.S. Navy interested in ground robotics?

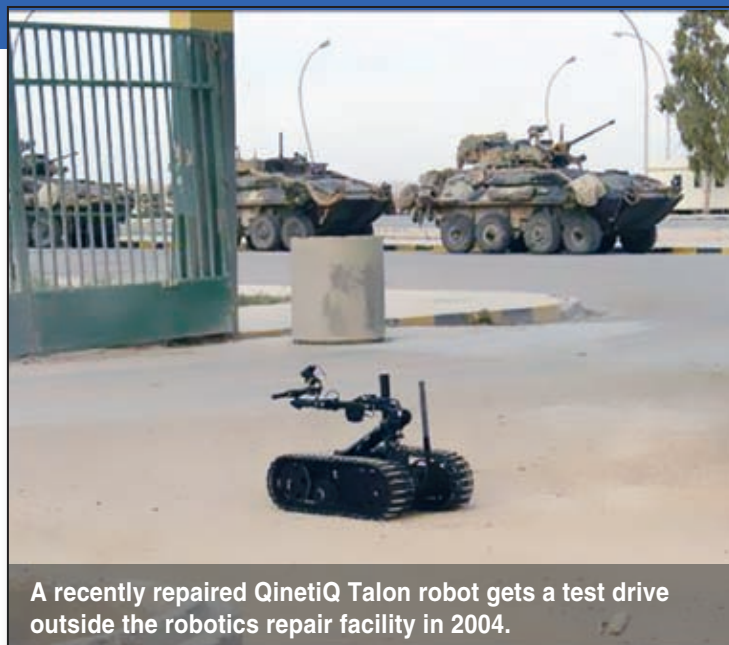
By Elisha Sullivan, staff writer

One of the most popular stops for visiting dignitaries touring SSC Pacific's Center facilities is the Unmanned Systems Branch (Code 7171), Seaside, where the most frequently asked question is "why is the Navy so vested in ground robotics?"

According to Bart Everett, technical director for Robotics in the Advanced Systems Division (Code 71705), there are two fundamental reasons: the Navy's tri-service charter for explosive ordnance disposal (EOD), and Navy Science and Technology support for the United States Marine Corps.

The tri-service EOD research-and-development charter is executed by the Naval Explosive Ordnance Disposal Technology Division (NAVEODTECHDIV) under the auspices of the Naval Sea Systems Command (NAVSEA). SSC Pacific provides technical support to TECHDIV for the man-portable robots used to neutralize improvised explosive devices (IEDs), the number-one threat faced by warfighters.

"Instead of a bomb technician trying to cut a red wire or green wire without the bomb going off, like you see in the movies, the EOD robots allow humans to

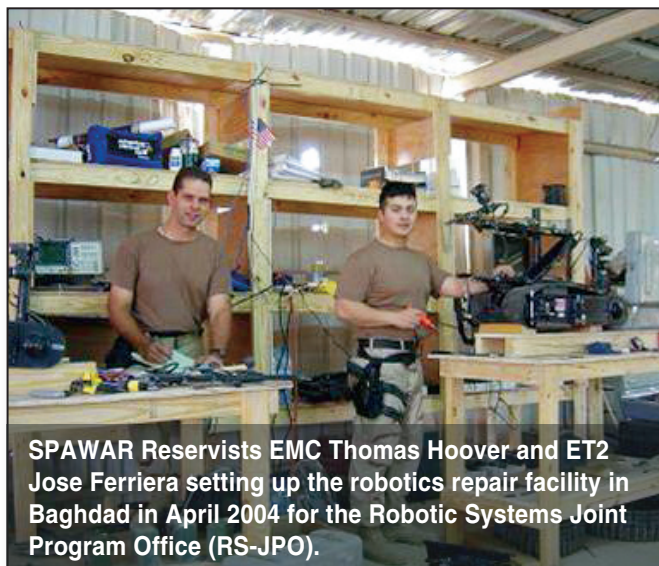


A recently repaired QinetiQ Talon robot gets a test drive outside the robotics repair facility in 2004.

stay back where it is safer and defeat the threat remotely," said Everett. There are over 7,000 man-portable robots currently being used to support this mission in theater.

The Center's early-1980s S&T support for the USMC included projects such as the tele-operated Dune Buggy, the autonomous Ground Surveillance Robot, and the Airborne Remotely Operated Device. These three efforts were lumped together under what was known as the Ground-Air TeleOperated System (GATORS) program.

This pioneering USMC thrust generated considerable Army interest, resulting in Center tasking as technical director for the Mobile Detection Assessment Response System security robot program of record.



SPAWAR Reservists EMC Thomas Hoover and ET2 Jose Ferrera setting up the robotics repair facility in Baghdad in April 2004 for the Robotic Systems Joint Program Office (RS-JPO).



Bart Everett and Mike Bruch monitor the display of an SSC-built Urban Robot (URBOT) in front of the fallen WTC Tower.



SPAWAR Reservists YN1 Christina Reed (right), ET2 Jose Ferriera (center) and FC2 Thomas Lindly formed the second repair team in Iraq.

The acquisition cycle for robotic systems during this period followed the Cold War model, which for conventional Department of Defense platforms like ships and aircraft could encompass 20 years. A systems integrator from the private sector was tasked to design and build everything, with the end result often obsolete on delivery because both the technology and the threat had changed significantly. Since the contractor retained proprietary rights, evolutionary upgrade was seriously restricted, which left the government in a bad position.

Immediately following Sept. 11, SSC Pacific dispatched a three-man robot-equipped response team to the World Trade Center, then provided the first theater-deployed robots in April 2002 to EOD Mobile Unit 3 out of Naval Air Station North Island. The Unmanned Systems Branch also fitted four iRobot PackBot Explorer robots with chemical and radiological sensor payloads for Army use in Afghanistan. The Center later furnished robotically trained Navy reservists to staff up the Joint Repair Facility in Baghdad, where they rebuilt IED-damaged systems supporting EOD technicians from all services.

“The World Trade Center attack necessitated a major paradigm shift in how we do business. We are now fighting two wars where the threat changes on a bi-weekly basis, and we must respond quickly to the consequent needs,” said Everett.

With the Weapon Systems Acquisition Reform Act of 2009, the service branches now rely more heavily on federally funded research, development and engineering centers for integration of mature technology solutions. With over 30 years of directly applicable development and integration experience, the Unmanned Systems Branch is well positioned to expedite enhanced robotic payloads and behaviors to counter the ever-changing threats faced by warfighters.

“We’re unique in a couple of ways,” said Everett. “We were the first government lab to build up in-house expertise in unmanned systems, and we started in right away pushing autonomy and government-owned architectures. Initially developed with ground-robotics funding, our Multi-robot Operator Control Unit (MOCU) and Autonomous Capabilities Suite (ACS) architectures have recently been selected for use on two Navy programs of record.” ■



An Army EOD technician checks out an iRobot Packbot outside the robotics repair facility in Baghdad.