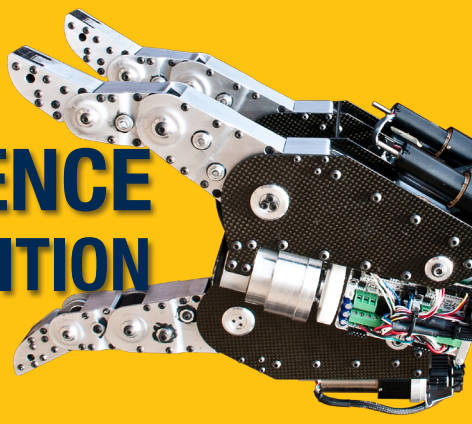
NDIA
National Defense Industrial Association

PROMOTING NATIONAL SECURITY SINCE 1919

2012 GROUND ROBOTICS CAPABILITIES CONFERENCE AND EXHIBITION



Supported by the Office of the Secretary of Defense, Joint Ground Robotics Enterprise

"WHAT WILL IT TAKE TO ACHIEVE THE VISION?" REQUIREMENTS, TECHNOLOGY, ACQUISITION, ROI

CONFERENCE BROCHURE

MARCH 21-23, 2012

SHERATON SAN DIEGO HOTEL & MARINA ▸ SAN DIEGO, CA

WWW.NDIA.ORG/MEETINGS/2380

EVENT #2380

WEDNESDAY, MARCH 21, 2012

8:00 AM – 7:30 PM **REGISTRATION OPEN — GRANDE FOYER**

8:00 AM – 4:00 PM **EXHIBITOR & POSTER MOVE-IN (EXHIBITORS & POSTER PRESENTERS ONLY) — PAVILION**
Booths must be set by 4pm

1:30 PM – 5:35 PM **SPAWAR TOUR — REQUIRES PRE-REGISTRATION (NO ONSITE REGISTRATION)**

1:30 PM – 2:00 PM	Board Buses for SPAWAR
2:00 PM – 2:45 PM	Buses En Route to SPAWAR
2:45 PM – 4:45 PM	SPAWAR Tour
4:45 PM – 4:50 PM	Board Buses for Sheraton San Diego
4:50 PM – 5:35 PM	Buses En Route to Sheraton San Diego

6:00 PM – 7:30 PM **OPENING RECEPTION — PAVILION**

Sponsored by: HDT GLOBAL, AT Solutions Securing Your World

THURSDAY, MARCH 22, 2012

7:00 AM – 6:30 PM **REGISTRATION OPEN — GRANDE FOYER**

7:00 AM – 8:00 AM **CONTINENTAL BREAKFAST — GRANDE FOYER**

8:00 AM – 8:10 AM **WELCOME & ADMINISTRATIVE COMMENTS — GRANDE BALLROOM BC**
- VADM Joe Dyer, USN (Ret), *Chief Strategy Officer, iRobot Corporation; Chairman, NDIA Robotics Division*

8:10 AM – 8:15 AM **OSD WELCOME**
- Mr. Jose Gonzalez, *Deputy Director, OSD Land Warfare & Munitions*

8:15 AM – 9:00 AM **POINT/COUNTER-POINT PANEL: FOCUSED TECHNOLOGY**
"Which Will Best Serve: Interface Control Standards or Open Systems?"
Moderator:
- VADM Joe Dyer, USN (Ret), *Chief Strategy Officer, iRobot Corporation; Chairman, NDIA Robotics Division*

Panelists:
- GEN Paul Kern, USA (Ret), *Senior Counselor, The Cohen Group*
- Ms. Mary E. Lacey, *Deputy Assistant Secretary of the Navy for Research, Development, Test and Evaluation*

9:00 AM – 6:30 PM **EXHIBIT HALL OPEN — PAVILION**

9:00 AM – 9:45 AM

POINT/COUNTER-POINT PANEL: FOCUSED TECHNOLOGY

"Autonomy – How Much / How Soon / Go Slow or Go Fast?"

Moderator:

- Mr. Andrew Dallas, *Vice President Federal Systems, Soar Technology, Inc.*

Panelists:

- LTC Frank Bridges, USA, *Branch Chief Maneuver Support Capabilities, Capabilities Development & Integration Directorate (CDID) Requirements Determination Division Maneuver Support Center of Excellent (MSCoE)*
- Dr. Tony Stentz, *Director, National Robotics Engineering Center*

9:45 AM – 10:15 AM

BREAK — PAVILION

10:15 AM – 11:00 AM

KEYNOTE SPEAKER

- The Honorable Jacques S. Gansler, PhD, *Former Under Secretary of Defense for Acquisition, Technology and Logistics; Professor and Roger C. Lipitz Chair, Public Policy and Private Enterprise, University of Maryland*

11:00 AM – 11:45 AM

POINT/COUNTER-POINT PANEL: BALANCED REQUIREMENTS

"Requirements Pull or 'Technology/Capability Push' Based Acquisition — Can Our Requirements be What We are Capable of?"

Moderator:

- Mr. Thomas Gonzalez, *Vice President, Corporate Development, Stratom, Inc.*

Panelists:

- Ms. Susie Alderson, *Program Manager, SPAWAR Systems Center, Pacific*
- LTC Stuart Hatfield, USA, *Chief, Lethality Branch, Maneuver, Aviation, & Soldier Division, TRADOC*

11:45 AM – 12:30 PM

POINT/COUNTER-POINT PANEL: COMPELLING ROI

"Can Robotics Reduce Personnel Costs? — ROI and the Army Cost Benefit Analysis / The Impact of ROI and its Effect on Force Structure"

Moderator:

- Mr. Randy Williams, *Senior Engineer, Booz Allen Hamilton; Representative, Joint Ground Robotics Enterprise, OSD*

Panelists:

- BG Robert M. Dyess, Jr., USA, *Director, Requirements Integration, Army Capabilities Integration Center, TRADOC*
- Mr. John Matsumura, *Associate Director, RAND Corporation*

12:30 PM – 2:00 PM

LUNCHEON WITH AWARDS AND RECOGNITION PRESENTATIONS — GRANDE BALLROOM A

Sponsored by: iRobot

2:00 PM – 2:45 PM

SPEAKER

- Dr. Scott Fish, *Army Chief Scientist, Assistant Secretary of the Army, Acquisition, Logistics and Technology*

2:45 PM – 3:30 PM

JGRE UPDATE

- Mr. Rob Maline, *Director, Joint Ground Robotics Enterprise, OSD*

THURSDAY, MARCH 22, 2012 — *Continued*

3:30 PM – 5:00 PM **DEMOS OF CUTTING-EDGE ROBOTICS TECHNOLOGIES & AFTERNOON BREAK — OUTSIDE PAVILION**

5:00 PM – 6:30 PM **GRAND RECEPTION — PAVILION**

Sponsored by: QinetiQ North America

FRIDAY, MARCH 23, 2012

7:00 AM – 1:00 PM **REGISTRATION OPEN — GRANDE FOYER**

7:00 AM – 8:00 AM **CONTINENTAL BREAKFAST — GRANDE FOYER**

8:00 AM – 8:05 AM **OPENING REMARKS — GRANDE BALLROOM BC**

- VADM Joe Dyer, USN (Ret), *Chief Strategy Officer, iRobot Corporation; Chairman, NDIA Robotics Division*

8:05 AM – 8:50 AM **POINT/COUNTER-POINT PANEL: COMPELLING ROI**

"Sustaining the U.S. Robotics Industrial Base"

Moderator:

- Ms. Charlotte Kemper, *Corporate Strategy, Northrop Grumman Corporation*

Panelists:

- Mr. Howard Leyda, *Vice President, Marketing, Home Business Unit, iRobot Corporation*
- Mr. Tim Trainer, *Interim General Manager, Military Business Unit, iRobot Corporation*

8:50 AM – 9:20 AM **KEYNOTE SPEAKER**

- Mr. Chuck Thorpe, *Assistant Director, Advanced Manufacturing and Robotics, Executive Office of the President, Office of Science and Technology Policy*

9:00 AM – 12:00 PM **EXHIBIT HALL OPEN — PAVILION**

9:20 AM – 10:05 AM **STREAMLINED ACQUISITION**

"Test and Evaluation of Autonomous Ground Robots"

Topic Introduction:

- Ms. Kelly Swinson, *Test Officer, U.S. Army Aberdeen Test Center*

Moderator:

- Mr. Charlie Dean, *Director, QinetiQ North America*

Panelists:

- Mr. Garland Frost, *Chief Technology Management, Rapid Equipping Force, REF*
- Mr. Jeffrey Jaczkowski, *Deputy Project Manager, Robotic Systems Joint Project Office*
- Mr. Myron Mills, *Project Manager, Missiles & Fire Control Combat Maneuver Systems, Lockheed Martin Corporation*

10:05 AM – 10:35 AM **BREAK — PAVILION**

10:35 AM – 11:05 AM **POINT/COUNTER-POINT PANEL: STREAMLINED ACQUISITION**
"Do We Optimize for Technology Insertion or Logistics Efficiency?"
Moderator:
- Mr. Scott Greene, *Vice President, Lockheed Martin Ground Vehicles*

Panelists:
- Mr. Garland Frost, *Chief Technology Management, Rapid Equipping Force, REF*
- Dr. Marilyn Gaska, *Strategic Planning Director, Corporate Logistics and Sustainment, Lockheed Martin Corporation*

11:05 AM – 11:35 AM **PANEL**
"JIEDDO Counter-IED Robotics"
Panelists:
- CDR Jack Downes, USN, *Chief, Integration Branch, Technology Requirements and Integration Division, JIEDDO*
- CDR Cedric Richardson, USN, *Chief, Defeat Branch, JIEDDO*
- Mr. Matt Way, *Program Integrator, Neutralize, JIEDDO*
- Dr. Richard Weatherly, *SME, Neutralize/Mitigate, JIEDDO*
- Mr. Herbert Frazier, *Systems Engineer, Neutralize/Mitigate, JIEDDO*

11:35 AM – 12:50 PM **WARFIGHTER/USER PANEL**
Moderator:
- Mr. Andrew Borene, *Director & Counsel, ReconRobotics*

Panelists:
- LTC Chris Barron, USA, *Director, Counter Explosive Hazard Center*
- MSgt Michael G. Becker, USAF, *Explosive Ordnance Disposal Program Manager, Headquarters, Air Force Special Operations Command, Hurlburt Field, FL*
- Special Agent Thomas Beckman, *U.S. Bureau of Alcohol, Tobacco and Firearms*
- Maj Andy Christian, USMC, *MARSOC, 1st MSOB*
- Sgt Michael A. Newton, USAF, *Explosive Ordnance Disposal (EOD) Team Leader, 56th Fighter Wing, Luke Air Force Base, AZ*
- Maj Robert O'Day, USMC
- Sgt Randall Sterett, *Orange County Sheriff's Department, Bomb Squad*

12:00 PM – 8:00 PM **EXHIBITOR MOVE-OUT — PAVILION**

12:50 PM – 1:00 PM **WRAP-UP**
- Mr. Rob Maline, *Director, Joint Ground Robotics Enterprise, OSD*

1:00 PM **CONFERENCE ADJOURNED**

EXHIBITOR LIST BY COMPANY

COMPANY NAME	BOOTH #
Abbott Technologies, Inc.	228
American Reliance, Inc. (AMREL)	310
Applied Research Associates	307
AutonomouStuff	308
B.E. Meyers & Co., Inc.	409
Bokam Engineering, Inc.	236
Broadcast Microwave Services	220
Chatten Associates, Inc.	429
Cobham Tactical Communications & Surveillance	314
Coherent Logix, Inc.	102
Contineo Robotics	336
Delta Tau Data Systems, Inc.	234
DRS Sustainment Systems, Inc.	328
Geodetics, Inc.	427
Harris Corporation	214
HDT Global	202
IMT	415
Intelligent Automation, Inc.	102
iRobot Corporation	120
Kairos Autonomi	326
Lockheed Martin Corporation	333
Macro USA Corporation	316
MAS Zengrange Ltd.	417
Mesa Technologies	210
MicroStrain	332
Mobilie Intelligence	102
National Robotics Engineering Center	433
Navy EOD Technology Division	419
NDIA - STEM	413
Neya Systems, LLC	102
Patco Electronics; Division of TRC	226
PDQ Precision, Inc.	335
Power Ten, Inc.	309
Power Ten, Inc.	311
QinetiQ North America	114
Quantum 3D, Inc.	431
RE2, Inc.	132
ReconRobotics, Inc.	108
Remotec/Northrop Grumman	126
Robotic Research, LLC	208
Robotics Technology Consortium (RTC)	102
Silvus Technologies	321
Soar Technology, Inc.	102
SPAWAR Systems Center, Pacific	232
SRI International Sarnoff	216
Stratom, Inc.	222
Themis Computer	102
Think-A-Move Ltd.	319
TORC	320
Training & Simulation Journal	313
Ultra Electronics - MARITIME SYSTEMS	423

EXHIBITOR LIST BY BOOTH NUMBER

COMPANY NAME	BOOTH #
Coherent Logix, Inc.	102
Intelligent Automation, Inc.	102
Mobilie Intelligence	102
Neya Systems, LLC	102
Robotics Technology Consortium (RTC)	102
Soar Technology, Inc.	102
Themis Computer	102
ReconRobotics, Inc.	108
QinetiQ North America	114
iRobot Corporation	120
Remotec/Northrop Grumman	126
RE2, Inc.	132
HDT Global	202
Robotic Research, LLC	208
Mesa Technologies	210
Harris Corporation	214
SRI International Sarnoff	216
Broadcast Microwave Services	220
Stratom, Inc.	222
Patco Electronics; Division of TRC	226
Abbott Technologies, Inc.	228
SPAWAR Systems Center, Pacific	232
Delta Tau Data Systems, Inc.	234
Bokam Engineering, Inc.	236
Applied Research Associates	307
AutonomouStuff	308
Power Ten, Inc.	309
American Reliance, Inc. (AMREL)	310
Power Ten, Inc.	311
Training & Simulation Journal	313
Cobham Tactical Communications & Surveillance	314
Macro USA Corporation	316
Think-A-Move Ltd.	319
TORC	320
Silvus Technologies	321
Kairos Autonomi	326
DRS Sustainment Systems, Inc.	328
MicroStrain	332
Lockheed Martin Corporation	333
PDQ Precision, Inc.	335
Contineo Robotics	336
B.E. Meyers & Co., Inc.	409
NDIA - STEM	413
IMT	415
MAS Zengrange Ltd.	417
Navy EOD Technology Division	419
Ultra Electronics - MARITIME SYSTEMS	423
Geodetics, Inc.	427
Chatten Associates, Inc.	429
Quantum 3D, Inc.	431
National Robotics Engineering Center	433

EXHIBIT HALL FLOOR PLAN

POSTER PRESENTATIONS

The following posters will be displayed in the Pavilion throughout the conference. Authors will be available for discussion during morning and afternoon breaks, as listed in the agenda. Posters will be displayed in numerical order.

14170 — Lockheed Martin Autonomous Systems

14172 — Enabling Robotic Technology on the Battlefield with High Power, High Energy Advanced Battery Storage

14174 — SandDog - A Soldier's Best Friend

14175 — Dexterous Multi-Arm Remote Manipulation

14178 — Joint Cooperative Unmanned Systems Initiative: U.S. Military Academy 2012 Ground Segment Development

14180 — Lasers for System Integration

14181 — Ultra-low Power, Many-Core Processor Implements Computational Vision Tasks

14200 — Enhanced Visual Intelligence through 3D Vision Sensors

14247 — Software Design of a UVG for Complex Environment Exploration of Tunnels

14252 — Remote Robot Diagnostic Data (R2-D2) Systems

EXHIBITOR PROFILES

Abbott Technologies, Inc. — Booth 228
Abbott Technologies, a 50-year old WOSB, manufactures power conversion products that set the industry standard for reliability and advanced technology, suited to demanding applications, space requirements, and environmental conditions required by military, aerospace, communications, transportation, mining, and energy industries. AC-to-DC Power Supplies, DC-to-DC Converters, Transformers, Transformer Rectifier Units, Inverters, and EMI Filters.

American Reliance, Inc. (AMREL) — Booth 310
AMREL's customized, interoperable solutions utilize MIL-STDs 810/461-certified, fully rugged, mobile, ROCKY computers. Our DB6 is the smallest rugged handheld in the world that runs full Windows/Linux OS. By employing field-expedient swappable modules, AMREL's proprietary Flexpedient® Solutions enable one OCU to control multiple unmanned systems. Common control is here. Visit www.commoncontrol.com.

Applied Research Associates — Booth 307
Applied Research Associates (ARA) is an international research and engineering company with a broad range of expertise in defense technologies, civil engineering, computer software and simulation, systems analysis, environmental technologies, and blast testing and measurement. We also manufacture robotic vehicles and technical products for environmental site characterization and pavement evaluation.

AutonomouStuff — Booth 308
AutonomouStuff supplies SPECIALIZED PRODUCT SOLUTIONS related to autonomous driving, terrain mapping, tolling, collision avoidance, object tracking, and intersection safety. AutonomouStuff specializes in perception sensors. We want to help our customers take advantage of today's innovative industrial and automotive technologies. We do this by providing a SINGLE SOURCE location to acquire technologies designed and built to meet today's most rigorous requirements.

B.E. Meyers & Company, Inc. — Booth 409
B.E. Meyers provides best-in-class weapon aiming, illumination, non-lethal laser devices and integrated lasers to the U.S. Military. We innovate, develop, manufacture, and integrate quality optoelectronic products that deliver a decisive advantage. Our SWAP optimized OEM compatible solutions for ground robotics platforms are battlefield proven and include the renowned GLARE® Escalation of force non-lethal lasers, IZLID® long range pointer IR lasers, and DCL® large field-of-view weapon sights.

Bokam Engineering, Inc. — Booth 236
Bokam offers a full line of military and heavy industrial rated man-machine interface components, systems, sensors, vehicle mobility control systems, and Operator Control packages and systems. The product offering is based on Bokam's award winning extreme long life solid state force/position sensor technology. The packages range from miniature joysticks and thumb controls, to fully integrated control panels, computerized OCU's, El/Az control yokes, pedals and fully integrated vehicle and gimbal controls as well as scalable vehicle control closed loop systems. Both standard, off-the-shelf, and custom configurations are available based on our modular scalable components that offer extensive heritage in various mission critical applications.

Broadcast Microwave Services — Booth 220
BMS provides digital microwave Video Data links meeting the latest requirements of today's Unmanned Systems. Supplying HD, SD Video, and/or a high Data Rate, BMS' full line of Transmitters, Receivers, and Antennas afford system solutions with superior Link Range and optimized Occupied RF Bandwidth. The equipment, designed for small UAVs and UGVs, incorporates minimum size, weight and power performance.

Chatten Associates, Inc. — Booth 429
Cameras, gimbals, pan-tilt units, stereo vision, and immersive telepresence specifically designed for the needs of ground robotics. Our products include the HARV family of powerful, high speed, compact camera systems that you control with head motion, a joystick or your own software.

Cobham Tactical Communications & Surveillance — Booth 314
Cobham Tactical Communications & Surveillance is the market leader for UGV deployment applications. Our mission is to provide our customers the best set of communication solutions relating to audio and video in tactical environments.

Contineo Robotics — Booth 336
Contineo Robotics was formed by leaders from the DARPA Revolutionizing Prosthetics Program and the Johns Hopkins Applied Physics Laboratory to provide dexterous manipulation capability to a variety of robotic applications. Contineo is currently developing a continuum of improved terminal devices that incorporate conformal grasping and variable compliance to enhance functionality and improve user safety.

Defense News & C4ISR Journal — Booth 313
C4ISR Journal and Defense News are leading sources for C4ISR, cyberspace and defense information worldwide. C4ISR Journal is the authoritative voice for the intelligence, surveillance, reconnaissance and cyberspace industries that shape modern warfare. Defense News is a weekly news publication covering the most important issues facing the worldwide defense industry.

Delta Tau Data Systems, Inc. — Booth 234
With over thirty years of motion control experience, Delta Tau is the leader for innovating high-performance machine control solutions. Today, Delta Tau's PMAC product families offer unsurpassed capabilities in terms of processing speed, control algorithms, smoothness of control, feedback resolution, connectivity, drive interfaces, trajectory types, and more.

DRS Sustainment Systems, Inc. — 328
DRS Technologies, A Finmeccanica Company, is headquartered in Parsippany, New Jersey. DRS is a leading designer, manufacturer and supplier of products, systems and services to all branches of the U.S. military, fellow aerospace and defense contractors, intelligence and homeland defense agencies, international military forces and industrial markets.

Geodetics, Inc. — Booth 427
Since its inception in 1999, Geodetics has become a recognized leader in state-of-the-art, high-accuracy, real-time positioning and navigation systems, sensor fusion and sensors management, and large networks implementation for manned and unmanned vehicles.

Harris Corporation — Booth 214
Harris is an international technology company serving government and commercial markets in more than 150 countries. Headquartered in Melbourne, Florida, the company has approximately $6 billion of annual revenue. Harris is dedicated to developing best-in-class assured communications® products, systems, and services. Additional information about Harris Corporation is available at www.harris.com.

HDT Global — Booth 202
A provider of highly-engineered mobile military and emergency response solutions, HDT Global is widely recognized for its industry-leading production of state-of-the-art, fully integrated deployable solutions. With advanced systems currently being used by the U.S. and allied military units stationed worldwide, HDT's products include shelter systems, environmental control systems, generators, heaters, air filtration devices, parachutes, aerial delivery systems, and robotics.

IMT — Booth 415
IMT's Military, Aerospace and Government products group specializes in innovative digital microwave solutions for defense, security and law enforcement applications. IMT product portfolio includes portable and ultra compact transmitters and receivers, COFDM microwave links, digital portable, fixed and airborne systems and specialty antennas.

iRobot Corporation — Booth 120
iRobot® designs and builds robots that make a difference. Founded in 1990, iRobot has two decades of experience at the forefront of the global robot industry delivering tactical unmanned ground vehicles (UGVs) that perform a broad range of dangerous missions while keeping the soldiers and civilians out of harm's way. iRobot product includes: iRobot FirstLook; iRobot SUGV; iRobot PackBot®, and iRobot Warrior®. More than 4,500 iRobot UGVs have been delivered worldwide.

Kairos Autonomi — Booth 326
Kairos Autonomi® offers cost-effective, superior unmanned technology with the patent-pending Pronto4™ Agnostic Autonomy System — a robotics appliqué kit field-installable on existing ground vehicles in about 4 hours. Capable of tele-operation, semi-autonomous or fully autonomous operations, the Pronto4 system is the preferred appliqué kit solution for T&E, training, range clearance, and tactical operations.

EXHIBITOR PROFILES — *Continued*

Lockheed Martin Corporation — Booth 333
Headquartered in Bethesda, MD, Lockheed Martin is a global security company that employs about 136,000 people worldwide and is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services. The Corporation's 2009 sales from continuing operations were $44.5 billion.

Macro USA Corporation — Booth 316
Macro USA specializes in the development of Nano, Micro, Small Unmanned Ground Robots and Integrated Surveillance Systems. Macro USA has the most versatile line of nano, micro and small ground robots in the industry. All of the robots are robust and throw-able robot platforms that can be tossed into potentially dangerous areas for surveillance and observation. The robots also have the ability to be reconfigured by adding different payloads to match the mission.

MAS Zengrange Ltd. — Booth 417
MAS Zengrange manufacture high end Remote Initiation systems. The equipment is UK MOD DOSG and WESERB approved. The equipment is ideally suitable for mounting on ROVs which have no onboard firing circuits. This option creates a versatile platform with a 'Bolt On' fully approved remote firing circuit available to the user community.

Mesa Technologies — Booth 210
MTI has extensive experience in ground support equipment, weapon systems integration, manufacturing and assembly machines; as well as machine & assembly facilities for prototype and full production manufacturing.

MicroStrain — Booth 332
MicroStrain is a leading manufacturer of inertial measurement systems, micro-displacement transducers, wireless sensor networks, & energy harvesting technologies. Our sensors are used in a range of industrial, defense, & robotic applications including testing new designs, navigating unmanned vehicles, platform stabilization, wearable tracking systems & extending the operating life of machines. Recognized as a leader in the sensor industry, we've received multiple awards for product innovation.

National Robotics Engineering Center — Booth 433
The National Robotics Engineering Center (NREC) is an operating unit of Carnegie Mellon University. NREC has developed numerous unmanned ground vehicles, ranging from 12-pound throw-bots to 9-ton combat vehicles. It's an industry leader in perception, operator assistance, and autonomy technologies for reconnaissance, navigation, and more. NREC is your one-stop shop for advanced ground robotics systems.

Navy EOD Technology Division — Booth 419
As the largest concentration of EOD subject matter expertise in the world, the technologies we provide prevent injury and death. We strive to be the recognized leader and provider of choice to all our customers, by urgently focusing on capabilities in ordnance disposal technology and tools to counter Improvised Explosive Devices (IEDs). We are focused on increasing efficiency and effectiveness by providing state-of-the-art EOD technology solutions to Joint EOD warfighters around the world.

NDIA STEM — Booth 413
NDIA's Science, Technology, Engineering and Mathematics (STEM) Workforce Division provides a forum for effective interaction between government, industry, academia, and the public at large for the strengthening of the national security STEM workforce.

The Division's goals cover a broad spectrum of work with government entities, students and industry members. We hope to excite and attract K-12 students into STEM careers while maximizing cooperation between government and industry on STEM workforce initiatives on the national, state and local levels. We support the development of integrated policies around the STEM workforce and work to establish partnerships to disseminate information and coordinate resources to build a robust STEM workforce for the future.

Patco Electronics; Division of TRC — Booth 226
PATCO Electronics is a global provider of custom engineered and industry standard product power solutions for diverse applications including, but not limited to, unmanned vehicles, communication devices, training systems, remote sensor and detection devices. PATCO Electronics designs, develops, manufactures and markets a wide range rechargeable batteries, charging systems, battery management software and accessories for use in government, military markets and with prime OEM's equipment.

PDQ Precision, Inc. — Booth 335
Mfg patented process of aqueous waterless super heated steam vapor cleaning equipment made in the USA.

Power Ten, Inc. — Booth 309
Power Ten, Inc. is a Service-Disabled Veteran-Owned Small Business (SDVOSB) that provides professional, technical, engineering, and information technologies services to government and industry customers. Power Ten, Inc. was founded and is managed by former Marines with extensive operational and management experience who share common proven leadership and business principles.

QinetiQ North America — Booth 114
QinetiQ North America delivers world-class technology and responsive solutions to government agencies and commercial customers for many of their most urgent and complex challenges. More than 6,400 engineers, scientists and other professionals have the mission knowledge required to meet the demands of national defense, homeland security and information assurance customers.

Quantum 3D, Inc. — Booth 431
Quantum3D® is the leading provider of Commercial-off-the-Shelf (COTS) open-architecture real-time simulation and embedded visual computing solutions. Quantum3D® combines the most advanced hardware and software systems for graphics simulation in a variety of markets and implementations-image generation; tactical computing for avionics, vehicle, and man-wearable applications; synthetic environments; graphic subsystems and other COTS solutions.

RE2, Inc. — Booth 132
RE2, Inc. is a go-to provider of advanced robotic arms, innovative end-effectors, and automatic tool changing systems. RE2 offers three classes of power-dense manipulators ranging from small, lightweight arms to large, workhorse arms. RE2's field-proven Quick ReleaseTM technology is available for all classes of manipulators, providing reliable tool changing capability.

ReconRobotics, Inc. — Booth 108
ReconRobotics is the world leader in tactical micro-robot systems. Worldwide, nearly 3,500 Recon Scout® robots have been deployed by the U.S. military and international friendly forces, and by more than 300 law enforcement agencies. The XT Throwbot® protects warfighters by providing immediate situational awareness and greater standoff distance during dismounted patrols. The XT weighs 1.2 lbs and survives throws of 120 ft.

Remotec/Northrop Grumman — Booth 126
For over 25 years, Remotec has served the military, EOD, Hazmat, and First Responders as a leading provider of mobile robotic systems for application into a variety of undesirable, hazardous, and potentially life threatening environments. More information is available online at www.ms.northropgrumman.com/remotec.

Robotic Research, LLC — Booth 208
Robotic Research, LLC provides autonomous mobility technology expertise for unmanned systems: intelligent control, sensor processing, navigation, positioning, route planning, software development, 2/3D mapping and multiple platforms coordination. RR has also created a human-worn or canine-carried localization and mapping system for tracking users in GPS-denied areas.

Robotics Technology Consortium (RTC) — Booth 102
The RTC is a non-profit that supports the efforts of the DoD and other Government organizations in regards to ground robotics tech. It was formed in '08 at the request of the JGRE, within the Office of the Secretary of Defense, and consists of large and small for-profit companies, academic institutions, and non-profit organizations. A specific purpose of the RTC is to engage companies and organizations that have not performed much, if any, work for the DoD and other Government organizations.

Silvus Technologies — Booth 321
Silvus Technologies is a leader in multi-antenna MIMO (multi-input, multi-output) wireless communications for robotic teleoperations and other bandwidth hungry military systems operating under harsh signal propagation environments. Silvus has developed the SC3500, a 4x4 MIMO, stand-alone, IP based packet radio transceiver for dual purpose use with advanced capabilities such as: networking, low latency video integration and wireless interference mitigation via spatial cancellation.

EXHIBITOR PROFILES — *Continued*

SPAWAR Systems Center, Pacific — Booth 232
SSC, Pacific has been involved in various aspects of robotics since the early 1960s. Robotics research and development at SSC Pacific currently focus on the domains of air, ground, sea surface and underwater. There are also research efforts in command and control as well as other technology and engineering projects.

SRI International Sarnoff — Booth 216
SRI Robotics offers emerging as well as late-stage technologies that encompass real-time, multi-modal perception, situational understanding and manipulation. Our technologies utilize multi-sensor fusion for autonomous behaviors, 2D/3D mapping, object detection and mobility delivering, small form factor robotic system solutions.

Stratom, Inc. — Booth 222
Stratom provides R&D, engineering, and system integration services for unmanned systems applications. We have experience in the development and operations of commercially produced products and have developed robotic tools/tool kits for IED/ UXO threat detection and neutralization and combat engineering applications, as well as advanced technology in robotic logistics and refueling. Stratom has delivered solutions to multiple government / DoD entities as well as prime contractors.

Think-A-Move Ltd. — Booth 319
Think-A-Move's SPEAR™ Speech Recognition System provides unsurpassed device control and communications capabilities. SPEAR's applications include control of unmanned systems and command operations centers, and speech transcription. Communications applications include tactical communications headsets for the military and first responder markets, and Bluetooth cell phone headsets for the consumer market.

TORC — Booth 320
TORC enables engineers to rapidly integrate robotic systems through a suite of modular, customizable products. TORC's product line is used by leading academic, commercial and government organizations to shorten the development process, lower costs and mitigate risks. TORC provides solutions for drive-by-wire conversion, emergency stop, power management, autonomous navigation, and operator control, all of which were integrated onto the Ground Unmanned Support Surrogate (GUSS) vehicles for MCWL.

Ultra Electronics - MARITIME SYSTEMS — Booth 423
Ultra Electronics Maritime Systems, Inc. (Ultra) has been delivering innovative and cost-effective solutions to defence, aerospace and industrial markets internationally since 1947. Ultra is the world leader in the design, development and manufacture of Magneto Inductive systems for remote initiation, communication and navigation functions in critically demanding operating environments.


Credit: QinetiQ North America


Credit: QinetiQ North America

CONFERENCE SPONSORS

Headquartered in Solon, Ohio, USA, HDT Global is widely recognized for its industry-leading production of state-of-the-art, fully integrated deployable solutions, including shelters, generators, heaters, air filtration devices, parachutes, aerial delivery systems, robotics and other engineered technologies, currently used by U.S. and allied military units worldwide, as well as civilian government and commercial customers.

HDT Robotics, a division of HDT Global, showcases an unparalleled ability to meet the demand of today's military forces with advanced robotics including the MK-2 robotic arm and the Protector for route clearance and supply transport. From advanced prosthetic arm technologies to dexterous manipulators for mobile robotic platforms and more, HDT Robotics is at the cutting edge of robotics technology. For more on HDT, please visit our Booth #202 or www.hdtglobal.com. An HDT Global reseller, A-T Solutions empowers organizations with critical security requirements at home and abroad to accomplish their missions by combining the most relevant intelligence, operational expertise, and enabling technologies to deliver innovative and cost-effective solutions. A-T Solutions delivers a full continuum of innovative solutions to protect lives, infrastructure and nations from asymmetrical threats by combining real-world intelligence and operational expertise. Our capabilities include:

- Technical/Tactical Training Solutions
- Vulnerability Assessments
- Infrastructure Protection
- Intelligence Operations Support
- Global Logistics
- Mission Support
- Mobile Learning
- Data Analytics / Visualization

iRobot®: Changing The World

iRobot designs and builds robots that make a difference.

A pioneer in the robot industry, iRobot has been exploring possibilities, finding solutions and helping people for more than 20 years.

In the homeland and around the world, iRobot's robots are performing tasks in all kinds of environments. Robots protect soldiers, police officers and the public from danger. Robots perform environmental missions, off-shore gas and oil operations and nuclear power plant monitoring. Robots help with relief efforts in times of need. iRobot's unmanned ground vehicles (UGVs) provide situational awareness, reduce risk and protect those in harm's way; more than 4,500 have been delivered worldwide. iRobot has developed the Small Unmanned Ground Vehicle (SUGV), the robot for dismounted operations and infantry missions, for the U.S. Army's modernization program. SUGV's predecessor, the iRobot PackBot®, is one of the most successful battle-tested robots in the world, performing thousands of search, bomb disposal and other life-saving missions. PackBot was deployed for the first time at the World Trade Center in New York City to look for survivors at Ground Zero after the September 11 terrorist attacks, establishing robots as critical disaster recovery resources. iRobot's tactical mobile robots also include the iRobot FirstLook™, a small and throwable robot for special operations, and the iRobot Warrior®, a big robot that carries heavy payloads.

To help with humanitarian relief efforts, PackBot and Warrior were deployed at the Fukushima Daiichi nuclear power plant in Japan after the 2011 earthquake and tsunami. The robots gathered critical data and allowed safer entry for inspections and clean-up work. Robots are also performing critical environmental missions. The iRobot Seaglider™ unmanned underwater vehicle (UUV) performs oceanography, persistent environmental monitoring and other missions. Seaglider monitored and collected data in the Gulf of Mexico after the 2010 oil spill. Seaglider's off-shore gas and oil applications include current profiling, surveying and disaster mitigation. iRobot provides platforms for invention and discovery, develops partnerships to foster technological exploration and builds robots that improve quality of life and safety standards.

iRobot is driving innovation. iRobot is fueling the era of robots. iRobot is changing the world.

CONFERENCE SPONSORS — *Continued*

QinetiQ North America

QinetiQ North America's Technology Solutions Group provides a wide range of defense and security products and solutions to the defense, civilian government and commercial markets.

We focus on high technology research and development, and the rapid development of concepts into proven products and solutions that support survivability, unmanned systems, maritime and transportation programs. QinetiQ North America is a world leader in robotic technology solutions that save lives in defense, security and first responder environments.

QinetiQ North America develops robots in a variety of sizes and with varying capabilities that help warfighters and first responders stay out of harm's way. Our most well known robot is TALON®. Since TALON's initial deployment in 2000, the QinetiQ North America family of robots has expanded to include small, medium and large unmanned vehicles that can be configured for specific tasks, such as IED defeat, CBRNE/hazmat identification, reconnaissance, combat engineering support and SWAT/MP unit assistance.

Danger surrounds first responders every day. From the rugged TALON and the compact Dragon Runner™ robots to the flexible robotic control kit, we offer a full range of durable, reliable and flexible solutions for multiple first responder applications. Whether it's for a bomb squad trying to protect both life and property in a tight urban environment, or a SWAT team getting a better read on a hostile situation or attempting to breach a room, QinetiQ North America delivers.

For personnel in every branch of the military, potential danger lurks around every corner. Around the world, our TALON military robots have earned a reputation for durability, reliability and flexibility when protecting personnel from everything from enemies to improvised explosive devices (IEDs). Combined with the Dragon Runner small unmanned ground vehicle (SUGV) and the Modular Advanced Armed Robotic System (MAARS®), we offer a full range of solutions for multiple military applications.

For more information, follow us on Facebook at www.facebook.com/qinetiqnarobots or Twitter at www.twitter.com/qinetiqnarobots.

re2
innovative. powerful. fielded.

RE2 is a world leader in mobile robotic manipulation. Founded in 2001 as a spin-off of Carnegie-Mellon's National Robotics Engineering Center, RE2 is now a thriving company covering all aspects of robotic research and manufacturing. RE2 is focused on providing highly capable and affordable solutions to complex manipulation challenges and is heavily involved in applied research of motor control, automation, mechanical actuation, and intuitive user controls. Additionally, RE2 is actively providing hardened manipulation systems to Warfighters in theater.

RE2 technologies focus on modularity and our commercial manipulators are easily adapted to a wide variety of base platforms. In addition, RE2 has developed automatic tool changing technology that allows a robot to be outfitted with critical mission-specific tools that can be changed out in place based on mission needs. RE2's tool changing technology is currently being fielded to the Air Force and has been selected as the tool changing technology for the AEODRS family of systems.

RE2 is a proven performer for manipulators and end effectors of all sizes ranging from ultra-lightweight single degree of freedom arms currently fielded to Afghanistan to large, dexterous manipulators being sold to national laboratories. RE2's interchangeable tools include conformal end effectors that allow stable grasping of arbitrarily shaped objects, passive tools such as rakes and shovels, and actuated tools such as drills and saws.

RE2 has experienced steady growth since its founding and continues to grow through its outstanding reputation for delivering the right product on time and within budget. RE2 is actively engaged in contract efforts with the U.S. Navy, the U.S. Army, the U.S. Air Force, TSWG, DARPA, DHS, and JIEDDO. In addition, RE2 works closely with other robot developers and government laboratories to enhance their existing technologies.

PROCEEDINGS WILL BE AVAILABLE FOR DOWNLOADING 1 to 2 WEEKS AFTER THE CONFERENCE AT

http://www.dtic.mil/ndia/2012grcce/2012grcce.html

THANK YOU FOR ATTENDING!
WE LOOK FORWARD TO SEEING YOU NEXT YEAR:

APRIL 29 - MAY 1, 2013
ATLANTA, GA

Thank You to Our Sponsors!

HDT GLOBAL

A-T Solutions
Securing Your World

iRobot

QinetiQ
North America

re2
innovative. powerful. fielded.