

2011 GROUND ROBOTICS CAPABILITIES CONFERENCE AND EXHIBITION

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

“Saving Lives, Saving \$ – Are Robot Recruits the Answer?”



LOEWS ROYAL PACIFIC ▶ ORLANDO, FL

MARCH 22–24, 2011

TUESDAY, MARCH 22, 2011

- 4:00 pm-6:30 pm **REGISTRATION OPENS**
- 5:00 pm-6:30 pm **NETWORKING RECEPTION** Sponsored by: 
- 5:50 pm-6:20pm **"Indoor demos of cutting-edge robotics technologies"- Exhibit Hall**
QinetiQ, Black i Robotics & Recon Robotics

WEDNESDAY, MARCH 23, 2011

- 7:00 am-8:00 am **REGISTRATION AND CONTINENTAL BREAKFAST** Sponsored by: 
- 8:00 am **WELCOME**
- 8:05 am **ADMINISTRATIVE COMMENTS**
▶ VADM Joe Dyer, USN (Ret)
COO, iRobot & Robotics Division Chair, NDIA
- 8:10 am **OSD INTRODUCTION**
▶ Mr. Jose Gonzalez, Deputy Director, OSD Land Warfare & Munitions
- 8:15 am-9:15 am **KEYNOTE SPEAKER**
▶ Gen James Cartwright, USMC, Vice Chairman, Joint Chiefs of Staff
- 9:15 am-10:15 am **GOVERNMENT CHIEF ROBOTICIST PANEL**
Moderator: Dr. Greg Hudas, Chief Technologist, RDECOM TARDEC Robotics
▶ Dr. Jim Overholt, Senior Research Scientist-Robotics, Tank and Automotive Research Center, U.S. Army
▶ Mr. Byron Brezina, Robotics Technologist Acquisition & Technology Department Naval EOD Technology Division, U.S. Navy
▶ Dr. Gill Pratt, Program Manager, Defense Sciences Office, DARPA
▶ Mr. Michael Bruch, Ground Vehicle Autonomy Lead, Office of Naval Research, USMC
▶ Dr. Jeffrey Wit, Senior Research Scientist, Air Force Research Laboratory, Robotics Research Group, USAF
- 10:15 am-10:30 am **BREAK IN EXHIBIT HALL** Sponsored by: 
- 10:30 am-11:00 am **GUEST SPEAKER**
▶ Mr. Scott Davis, Program Executive Officer for Ground Combat Systems, U.S. Army
- 10:30 am-11:00 am **GUEST SPEAKER**
▶ Mr. Jon Dudas, President of FIRST
- 11:30 am-12:30 pm **FT. BLISS LESSONS LEARNED PANEL**
Moderator: MG Robert Brown, Commanding General, The Maneuver Center of Excellence
▶ Col Daniel Pinnell, Commander, 2nd Brigade 1st Armored Division
- 12:30 pm-1:00 pm **GUEST SPEAKER**
▶ LTG Michael Vane, Army Capabilities Integrations Center
- 1:00 pm-2:30 pm **LUNCH & AWARD PRESENTATIONS** Sponsored by: 
- 2:30 pm-5:00 pm 

"Indoor & Outdoor demos of cutting-edge robotics technologies"

ARA	Segway
Charles Rivier Analytics	SPAWAR
Harris	Square-1
iRobot	CMU/NREC
MacroUSA	Lockheed Martin
Robo-team	Palfinger
QinetiQ	TORC

WEDNESDAY, MARCH 23, 2011

3:40 pm-4:00 pm BREAK IN EXHIBIT HALL & OUTDOOR DEMOS Sponsored by:



5:00 pm-6:30 pm GRAND RECEPTION Sponsored by: **iRobot®**

6:00 pm-6:20 pm "Indoor demos of cutting-edge robotics technologies"- Exhibit Hall
iRobot & Remotec

THURSDAY, MARCH 24, 2011

7:00 am-8:00 am REGISTRATION AND CONTINENTAL BREAKFAST Sponsored by: **ManTech**
International Corporation®

8:00 am **OPENING REMARKS**
▶ VADM Joe Dyer, USN (Ret)
COO, iRobot & Robotics Division Chair, NDIA

8:10 am-8:40 am **GUEST SPEAKER**
▶ Capt Robert Allen, Tactical Operations, Palm Beach County Sheriff's Office

8:40 am-9:20 am **KEYNOTE SPEAKER**
▶ Mr. Frank Kendall, Principal Deputy Under Secretary of Defense for Acquisition, Technology and Logistics, OSD

9:20 am-9:40 am **JGRE UPDATE**
▶ Mr. Rob Maline, Director, Joint Ground Robotics Enterprise, OSD

9:40 am-10:00 am **BREAK IN EXHIBIT HALL**

10:00 am-10:30 am **GUEST SPEAKER**
▶ LtCol David Thompson, Project Manager, Robotic Systems Joint Program Office

10:30 am-11:15 am **GUEST SPEAKERS**
▶ Mr. David Heaven, National Bomb Squad Commanders Advisory Board
▶ Mr. Tony Detrick, Technical Support Working Group

11:15 am-12:45 pm **WARFIGHTER/USER PANEL**
Moderator: LtCol David Thompson, Project Manager, Robotic Systems Joint Program Office
▶ Maj Patrick Reynolds, LCE Branch Head, Technology Division Marine Corps Warfighting Laboratory
▶ Capt Robert Allen, Tactical Operations, Palm Beach County Sheriff's Office
▶ EODCS Sean Robertson, Chair, JSEOD Equipment Review Board
▶ Capt Thomas Eckel, USAF EOD
▶ SFC Neal Feldman, Combat Engineer

12:45 pm **WRAP UP**
▶ Mr. Rob Maline, Director, Joint Ground Robotics Enterprise, OSD

1:00 pm **CONFERENCE ADJOURNED**

EXHIBITOR INFORMATION BY COMPANY:

Air Force Research Laboratory	210
American Reliance, Inc. (AMREL)	112
AnthoTronix, Inc.	101
Applied Research Associates	306
ARDEC	620
Autonomous Solutions	213
Autonomoustuff	206
Black i Robotics	319
Broadcast Microwave Services	610
C4ISR Journal & Defense News	609
Charles River Analytics, Inc.	101
Chatten Associates, Inc.	101
Cobham Tactical Communications & Surveillance	209
Contineo Robotics	516
DARPA	601
Harris Corporation	618
HDT Engineered Technologies	402
IMT	220
iRobot Corporation	302
J AUS Tool Set	215
Kairos Autonomi	305
Lockheed Martin	108
Macro USA Corporation	101
MAS Zengrange Ltd.	514
Mesa Technologies	107
Morpho Detection- formerly GE security	611
National Robotics Engineering Center	221
National Robotics Training Center	315
Navy EOD Technology Division	612
Northrop Grumman Remotec	502
Oceaneering Space Systems	101
Oshkosh Defense	212
Packaging Strategies	219
Patco Electronics; Division of TRC	205
QinetiQ North America	520
Quantum 3D	111
RE2, Inc.	201
ReconRobotics, Inc.	202
Roboteam	616
Robotic Research, LLC	222
Robotics Technology Consortium - RTC	101
Schafer	109
Segway Robotics	313
Silvus Technologies	113
Simulator Systems International	622
SPAWAR	114
Square One Systems Design Inc.	101
SRI International	218
SRI International - Sarnoff	101
Stratom, Inc.	309
Tactical Defense Media inc.	216
The Boeing Company	613
Themis Computer	101
Think-A-Move, Ltd.	311
TORC	510
University of Michigan-GRRR	214
Vecna Technologies	317
Virtus Advanced Sensors	101

EXHIBITOR INFORMATION BY BOOTH #:

Robotics Technology Consortium - RTC	101
AnthoTronix, Inc.	101
Charles River Analytics, Inc.	101
Chatten Associates, Inc.	101
Macro USA Corporation	101
Oceaneering Space Systems	101
Square One Systems Design, Inc.	101
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SPAWAR	114
RE2, Inc.	201
ReconRobotics, Inc.	202
Patco Electronics; Division of TRC	205
Autonomoustuff	206
Cobham Tactical Communications & Surveillance	209
Air Force Research Laboratory	210
Oshkosh Defense	212
Autonomous Solutions	213
University of Michigan - GRRRC	214
JAUS Tool Set	215
Tactical Defense Media Inc.	216
SRI International	218
Packaging Strategies	219
IMT	220
National Robotics Engineering Center	221
Robotic Research, LLC	222
iRobot Corporation	302
Kairos Autonomi	305
Applied Research Associates	306
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DARPA	601
C4ISR Journal & Defense News	609
Broadcast Microwave Services	610
Morpho Detection - formerly GE Security	611
Navy EOD Technology Division	612
The Boeing Company	613
Roboteam	616
Harris Corporation	618
ARDEC	620
Simulator Systems International	622

EXHIBITOR PROFILES:

Air Force Research Laboratory- Booth # 210: The Robotics Research Group of the Air Force Research Laboratory concentrates its research on developing systems that augment and support the warfighter for dull, dirty, dangerous, and impossible mission tasks. Research efforts are focused on the application of robotic technologies in response to existing and emerging USAF and DoD needs.

American Reliance, Inc. (AMREL) - Booth # 112: AMREL uses their well-known ROCKY rugged, mobile, computing platforms to design and manufacture customized, interoperable solutions. Combat-proven AMREL computers are independently certified for MIL-STDs 810/461. By employing field-expedient swappable modules, AMREL's patent-pending Flexpedient® Solutions enable one OCU to control multiple unmanned systems. Common control is here and now. Visit www.commoncontrol.com.

Applied Research Associates - Booth # 306: 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.

ARDEC - Booth # 620: ARDEC is an internationally acknowledged hub for the advancement of armaments technology and engineering innovation. Our mission is to develop, maintain, execute and manage integrated life cycle engineering processes required for the research, development, production, field support and demilitarization of munitions, weapons, fire control and associated items.

Autonomous Solutions - Booth # 213: Autonomous Solutions has long been a leader in vehicle automation, payload development for EOD robots, and JAUS C2 software. While its main business continues to be vehicle automation for mining, agricultural, and military applications, the company also has programs in autonomous manipulation, long-range perception, and 3D world-building.

Autonomoustuff - Booth # 206: Autonomoustuff is a leader in specialized high tech product distribution focusing on supplying today's specialized products to help provide tomorrow's solutions. Our daily work is driven by the ambition to provide the best supplier resource providing technology products related to autonomous driving, terrain mapping, collision avoidance, object tracking, and intersection safety.

Black i Robotics - Booth # 319: Black-I Robotics designs and manufactures Affordable Robust Mid-Sized (ARMS) UGV's for Defense and Homeland Security applications. The platforms have capabilities to remotely perform above ground and subsurface reconnaissance, provide explosive hazard evaluation, and delivery of tools and sensors in hazardous work environments.

Broadcast Microwave Services - Booth # 610: 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's 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.

Cobham Tactical Communications & Surveillance - Booth # 209: 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 # 516: 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.

DARPA - Booth # 601: DARPA's Autonomous Robotic Manipulation (ARM) program hopes to transform robotics by achieving autonomy and high adaptability. ARM aims to develop software and hardware that enables a robot to autonomously perform complex tasks given only high-level control. The Software Track intends to solve autonomous manipulation tasks. The Hardware Track seeks to develop robust, low-cost hands. The Outreach Track provides public access to the ARM robot, allowing anyone to run their code to complete tasks.

EXHIBITOR PROFILES CONT.:

C4ISR Journal & Defense News - Booth # 609: 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.

Harris Corporation - Booth # 618: Harris is an international communications and information technology company serving government and commercial markets in more than 150 countries. Headquartered in Melbourne, Florida, the company has approximately \$5 billion of annual revenue and more than 16,000 employees — including nearly 7,000 engineers and scientists. Harris is dedicated to developing best-in-class assured communications® products, systems, and services. Additional information can be found at www.harris.com.

HDT Engineered Technologies - Booth # 402: HDT Engineered Technologies (HDT) designs, develops and manufactures fully integrated, deployable engineered and expeditionary solutions. HDT engineers pioneered the development of a revolutionary new robotic arm that has applications in the medical, military and homeland security fields. Unique design features of this technology provide highly dexterous manipulation with a robust high degree of freedom system and the highest payload to mass ratio available.

IMT - Booth # 220: 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 # 302: iRobot – Robots that make a difference. More than 3,500 iRobot tactical mobile robots have been delivered worldwide. As a partner in the U.S. Army's modernization program, iRobot developed the SUGV, a robot for dismounted mobile operations and infantry missions. SUGV's predecessor, the iRobot® PackBot®, has performed thousands of dangerous missions while keeping troops out of harm's way. The iRobot® Warrior®, a large-class multi-mission robot supports multiple and heavy payloads.

J AUS Tool Set - Booth # 215: The JAUS standard has been in development for over ten years, and has gained in capability and complexity, increasing the barrier to entry. JTS is a tool that can sharply reduce that entry cost. JTS takes standard XML files, and generates human-readable documentation as well as C++ source code. It provides a Graphical User Interface to allow a user to define JAUS-compliant interface and saves that data as XML files. JTS includes monitoring and debug tools.

Kairos Autonomi - Booth # 305: 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 UGV solution for T&E, training, range clearance, and tactical operations.

Lockheed Martin - Booth # 108: Headquartered in Bethesda, Maryland, Lockheed Martin employs about 140,000 people worldwide and is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services.

MAS Zengrange Ltd. - Booth # 514: 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 # 107: 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.

Morpho Detection - formerly GE Security - Booth # 611: Morpho Detection systems are deployed in more than 120 countries--in airports, customs checkpoints, border crossings, prisons and a wide range of other facilities. They are designed to defer terrorist attacks and help enforce drug laws and are renowned for superb sensitivity and ease of use.

EXHIBITOR PROFILES CONT.:

National Robotics Engineering Center - Booth # 221: The National Robotics Engineering Center (NREC) serves as the technology transition arm for Carnegie Mellon's Robotics Institute. The NREC excels in rapid integration and field-testing of automated systems and many have transitioned to industry and the military. The new mini-Crusher unmanned platform is on display at NREC's booth.

National Robotics Training Center - Booth # 315: NRTC offers academic credit and non-credit online training programs for the MSSC CPT and NRTC CRPT certifications. We provide all the curriculum & training modules required to establish a qualified workforce for robotics manufacturing. Our Manufacturing Engineering Process Program will guide the transition of small scale product development to an enhanced manufacturing arena that will ensure larger scale production of the unmanned project.

Navy EOD Technology Division - Booth # 612: 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.

Northrop Grumman Remotec - Booth # 502: 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 remotec.northropgrumman.com.

Oshkosh Defense - Booth # 212: Oshkosh Defense, a division of Oshkosh Corporation, leads the way in military trucks and armored wheeled vehicles. Since 1917, Oshkosh has continuously developed new products and technologies that make military jobs easier, safer and more efficient. Oshkosh Defense's comprehensive product lines are recognized for superior performance and reliability, particularly in off-road environments. For more information, please visit www.oshkoshdefense.com. About Oshkosh Defense Oshkosh Defense, a division of Oshkosh Corporation, is an industry-leading global designer and manufacturer of tactical military trucks and armored wheeled vehicles, delivering a full product line of conventional and hybrid vehicles, advanced armor options, proprietary suspensions and vehicles with payloads that can exceed 70 tons. Oshkosh Defense provides a global service and supply network including full life-cycle support and remanufacturing, and its vehicles are recognized the world over for superior performance, reliability and protection. For more information, visit www.oshkoshdefense.com. The SandCat™ multi-functional vehicle from Oshkosh Defense enables special forces to respond to highrisk emergency situations with extreme confidence. This high-speed, well-protected, ultra-maneuverable vehicle can be specifically designed for a variety of tactical functions – from riot and crowd control to forced entry and insertion of tactical response units.

Packaging Strategies - Booth # 219: Packaging Strategies provides government and private sector customers with customers with custom transit and shipping cases and containers. Our skill set includes fulfillment of products as well as electronic system integration and manufacturing. Over twenty years of experience, PSI is a HUB ZONE small business certified and registered ISO 9001.

Patco Electronics; Division of TRC - Booth # 205: PATCO Electronics is a global provider of standard and engineered product power solutions for diverse applications. The company designs, develops, manufactures and markets a wide range rechargeable batteries, charging systems, battery management software and accessories for use in government, military applications and with prime OEM's equipment servicing these customer markets.

QinetiQ North America - Booth # 520: 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.

Quantum3D - Booth # 111

EXHIBITOR PROFILES CONT.:

RE2, Inc. - Booth # 201: 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 Release™ technology is available for all classes of manipulators, providing reliable tool changing capability.

ReconRobotics, Inc. - Booth # 202: ReconRobotics, Inc. designs, manufactures and supports micro ground reconnaissance robots that are used by police tactical teams, the U.S. military and federal security agencies. These robots – the Recon Scout® Throwbot, Recon Scout IR and Recon Scout XT – are the only mobile, throwable robots in the world weighing less than 1.3 lbs.

Roboteam- Booth # 616: Roboteam is a dynamic company which leads in providing advanced robotic solutions covering: Designated robotic solutions, Advanced add-on's & sensors, Innovative concepts for man-robot interactions, Autonomous robotic missions and Simple & unique designs. The company develops quality, integrative and customized products, as a response to growing market needs, particularly in defense, healthcare and commercial applications.

Robotic Research, LLC - Booth # 222: Robotic Research, LLC provides autonomous technology expertise for unmanned systems, including: intelligent control, sensor processing, navigation, positioning, route planning, software development, and specialized applications. In addition to robotic capabilities, RR has created a human-worn or canine-carried localization and mapping system (Urban Mapping And Positioning System - UMAPS) for tracking the movements of the users in GPS-denied areas while simultaneously creating 2D/3D maps.

Robotics Technology Consortium - RTC - Booth # 101: 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.

Schafer - Booth # 109: Connectivity - Interoperability – Affordability. Schafer's WiCM Mesh Network Communication Equipment and SCALE Situational Awareness Software provides simultaneous transmission and relay of video, voice, GPS, and data. Our compact and low power Mesh Network Nodes are integrated into UGVs, UGSs, UAVs, and OCU. We simultaneously provide wireless command and control of multiple robots from one OCU while our displays enhance situational awareness to support Force Protection and ISR missions.

Segway Robotics - Booth # 313: The Segway Robotic Mobility Platform (RMP) takes the performance and engineering of the Segway Personal Transporter (PT) and makes it available in a customizable package for robotics applications. The RMP product line uses the same components that enabled a PT rider to travel more than 4,000 miles across the United States. These components were designed and tested to be highly reliable and durable, making the RMP ideal for moving heavy payloads in tight spaces over a variety of terrain.

Silvus Technologies - Booth # 113: 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 SC3000, 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.

Simulator Systems International - Booth # 622: Simulator Systems (SSI) offers a full suite of easy- to - use, rugged, powerful and fast-deployable remote controlled robots ideally suited for EOD/IED neutralization, support and reconnaissance, urban warfare, first responder, surveillance/ hostage situations and other critical missions. All have hard anodized bodies, rechargeable Li-Fe batteries, and remote controllable color cameras with automatic IR.

SPAWAR - Booth # 114: The Space and Naval Warfare Systems Center Pacific (SSC Pacific) and its predecessor organizations (SSC San Diego, NRaD, NOSC, NUC, etc.) have been involved in various aspects of robotics since the early 1960's.

EXHIBITOR PROFILES CONT.:

SRI International - Booth # 218: SRI Sarnoff robotics technologies provide multi-modal perception and situational understanding. Our industry-leading solutions offer GPS-denied robot navigation, 3D mapping, pedestrian detection and multi-sensor fusion—delivering complete, small form factor robotic system solutions.

Stratom, Inc. - Booth # 309: 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.

Tactical Defense Media Inc. - Booth # 216: ARMOR & MOBILITY Tactical Defense Media bi-monthly magazine dedicated to providing the latest news and information on current and future armor technologies and tactical missions. The publication offers readers provocative articles and insightful commentary on the state of DoD policy regarding key programs, acquisition and sustainment initiatives and looks at how decisions by Congress and the Pentagon directly influence actions on the battlefield. Armor & Mobility promotes critical thought and debate across defense, government and industry using information from field lessons learned and commercial best practices.

The Boeing Company - Booth # 613: Boeing is the world's leading aerospace company and largest and most versatile manufacturer of commercial and military aircraft. Boeing designs and manufactures aircraft, electronic and defense systems, missiles, satellites and advanced communication systems. Boeing also is a major service provider to NASA for the space shuttle and International Space Station.

Think-A-Move, Ltd. - Booth # 311: 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 # 510: 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.

University of Michigan - GRRC - Booth # 214: The GRRC conducts research in autonomous ground vehicles and mobile robots through supporting programs in research and education. The GRRC projects are primarily sponsored by the US Army's Tank-Automotive Research Development and Engineering Center (TARDEC). The University of Michigan leads the GRRC, which also includes partners from other academic institutions as well as industry. The GRRC is located at 1100 H.H. Dow Building, on the North Campus of the University of Michigan in Ann Arbor.

Vecna Technologies - Booth # 317: Vecna Robotics provides the world's most intelligent, powerful, precise, and energy-efficient robotic manipulation solutions to support demanding military applications which include logistics, hazardous duty, and rescue operations.

iRobot: The Robot Company ***iRobot***[®]

iRobot designs and builds robots that make a difference – on the land and in the water. Founded in 1990, iRobot has more than two decades of experience at the forefront of the global robot industry.

iRobot's government and industrial robots provide enhanced situational awareness, reduce risk and increase mission success.

iRobot's combat-proven unmanned ground vehicles (UGVs) protect those in harm's way and save lives every day; more than 3,500 have been delivered to military and civil defense forces worldwide. 310 SUGV (Small Unmanned Ground Vehicle), the robot for dismounted EOD missions, and 320 SUGV, the robot for infantry soldiers, perform search, reconnaissance, bomb disposal and other dangerous missions. SUGV is a smaller, lighter version of the iRobot® 510 PackBot®, one of the most successful battle-tested robots in the world. A modular, mission-configurable robot, PackBot is quickly reconfigured based on the needs of the mission and the operator's preferences.

iRobot's unmanned underwater vehicles (UUVs) perform multiple missions for oceanographers, maritime researchers and military planners, including physical, chemical and biological oceanography, tactical oceanographic surveys and marine environmental monitoring.

iRobot's Research Group performs cutting-edge research to meet the advanced needs of sponsors with integrated robotic solutions. AVA, a prototype of one of the world's most advanced mobile robotics platforms, uses multiple sensors for autonomous self-navigation and a tablet-based interface.

iRobot's goal is to drive innovation, serve as an industry catalyst and change the world by fueling the era of robots. As a leader in the global robot industry, iRobot remains committed to providing platforms for invention and discovery, developing key partnerships to foster technological exploration and building robots that improve the quality of life and safety standards worldwide.

QinetiQ North America's Technology Solutions Group Overview



QinetiQ North America's Technology Solutions Group (TSG) provides a wide range of aerospace, defense and security products and services to the defense, civilian government and commercial markets. Headquartered in Reston, VA, TSG has a nationwide presence to support two primary program areas in Land Systems and Maritime & Transportation Systems. TSG focuses on high technology R&D and the rapid development of concepts into proven products and services.

Land Systems programs include a comprehensive suite of survivability and unmanned ground system solutions. Survivability products include vehicle armor, hybrid electric drives for ground combat vehicles, RPG nets and gunfire detection systems. Unmanned ground systems include a complete set of robotic solutions for military, reconnaissance, security and first responder applications. TSG also provides force monitoring solutions such as vital statistics and geo-location tracking of mobile teams.

Maritime & Transportation programs include aircraft carrier launch and capture systems, air traffic management systems, perimeter and critical infrastructure security, maritime unmanned systems, asset monitoring and supply chain management. TSG also provides oceanographic and mapping solutions, as well as maritime and transportation systems integration and support services.

QinetiQ North America's Technology Solutions Group solves technology challenges for aerospace, defense and security customers worldwide. TSG identifies solutions and brings new products to market in record time. Their products and services save lives and make it easier to monitor, manage and protect complex systems and critical assets. TSG provides proven technology solutions and they listen to their customers to make great products and services even better. TSG's solutions are modular and scalable to provide a wide variety of options to a diverse customer base. Visit TSG online at www.qinetiq-na.com.

***MARK YOUR CALENDARS &
JOIN US AGAIN IN 2012!***

**2012 Ground Robotics Capabilites
Conference & Exhibition
San Diego, CA**

**Sheraton San Diego
March 21-23, 2012**



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