

Military Robotics Summit

Marine Corps Perspective and Development for Ground Robotics

Dr. Bill Powers (Bison)

Colonel USMC (Ret)

Center for Emerging Threats &

Opportunities

Agenda

- ✘ Rising Importance of Ground Robotics
- ✘ Development and Future Challenges
- ✘ Outlook: The Major Threats

Rising Importance

- ✘ World War II / Cold War: German Goliath tracked mines, Soviet teletanks
- ✘ OEF/OIF: >6,000 UGVs procured & deployed
- ✘ Urban Scouting/Breaching Operations
- ✘ Scouting and Route Reconnaissance
- ✘ Obstacle reconnaissance and breaching
- ✘ Close Combat Operations

Development and Future Challenges

✘ Priorities

- + Improvised Explosive Device (IED) and Explosive Obstacles and Hazards (EOH) Detection and Defeat
- + Reconnaissance and Surveillance
- + Target Identification and Designation
- + Lightening the Marine's Load

✘ USMC UGS Core Characteristics

- + Expeditionary

+ Modular

USMC UGS Roadmap (draft)

Near-Term 2010-2015 Current Solutions/PIPs	Mid-Term 2016-2025 Echeloned Family of Systems	Far-Term 2026-2035 System of Systems
<ul style="list-style-type: none"> • C-IED is the dominant mission set • OCO requires rapid integration of current technologies with transition to enduring capabilities • Transitioning to full network capability • R2C (rte recon & clearance) • SUGV and MicroBot • MCWL Experiments <ul style="list-style-type: none"> • GUSS (gd unmanned support surrogate) • Cargo UGV • CRS (cmbt robot sys) • Tactical Networked Sensor Suite (TNS2) 	<ul style="list-style-type: none"> • Technology increases UGV automation/autonomy • Net-centric force begins • Distributed Common Operation picture using common ground control stations and data-linked local area networks • Coordination and Collaboration • Sensors improve • Common controller(s) • Disseminate information across multiple echelons • Exoskeleton • Common Operational Picture for Shared Situational Awareness 	<ul style="list-style-type: none"> • Size, weight, and power (SWaP) and endurance improve • Universal commonality • NanoBot • Humanoids

Outlook: The Major Threats

✘ External

- + Enemy threat systems
- + Enemy robots
- + Laws of War

✘ Internal

- + “The war is over”
- + Budgets
- + ROE & Legal/Ethical Challenges

Further discussion



Military Robotics Summit

Marine Corps Perspective and Development for Ground Robotics

***Dr. Bill Powers (Bison)
Colonel USMC (Ret)
Center for Emerging Threats &
Opportunities***



Agenda

- ✘ Rising Importance of Ground Robotics
- ✘ Development and Future Challenges
- ✘ Outlook: The Major Threats

Rising Importance

- ✘ World War II / Cold War: German Goliath tracked mines, Soviet teletanks
- ✘ OEF/OIF: >6,000 UGVs procured & deployed
- ✘ Urban Scouting/Breaching Operations
- ✘ Scouting and Route Reconnaissance
- ✘ Obstacle reconnaissance and breaching
- ✘ Close Combat Operations

Development and Future Challenges

✘ Priorities

- + Improvised Explosive Device (IED) and Explosive Obstacles and Hazards (EOH) Detection and Defeat
- + Reconnaissance and Surveillance
- + Target Identification and Designation
- + Lightening the Marine's Load

✘ USMC UGS Core Characteristics

- + Expeditionary

USMC UGS Roadmap (draft)

Near-Term 2010-2015 Current Solutions/PIPs	Mid-Term 2016-2025 Echeloned Family of Systems	Far-Term 2026-2035 System of Systems
<ul style="list-style-type: none"> • C-IED is the dominant mission set • OCO requires rapid integration of current technologies with transition to enduring capabilities • Transitioning to full network capability • R2C (rte recon & clearance) • SUGV and MicroBot • MCWL Experiments <ul style="list-style-type: none"> • GUSS (gd unmanned support surrogate) • Cargo UGV • CRS (cmbt robot sys) • Tactical Networked Sensor Suite (TNS2) 	<ul style="list-style-type: none"> • Technology increases UGV automation/autonomy • Net-centric force begins • Distributed Common Operation picture using common ground control stations and data-linked local area networks • Coordination and Collaboration • Sensors improve • Common controller(s) • Disseminate information across multiple echelons • Exoskeleton • Common Operational Picture for Shared Situational Awareness 	<ul style="list-style-type: none"> • Size, weight, and power (SWaP) and endurance improve • Universal commonality • NanoBot • Humanoids

Outlook: The Major Threats

- ✘ External

- + Enemy threat systems
- + Enemy robots
- + Laws of War

- ✘ Internal

- + “The war is over”
- + Budgets
- + ROE & Legal/Ethical Challenges

Further discussion



29 August 2012

UNCLASSIFIED

7