Army Unmanned Ground Systems

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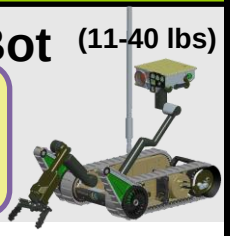
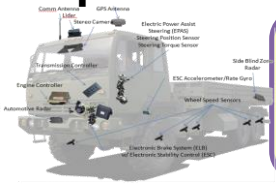
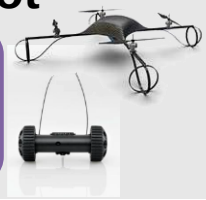
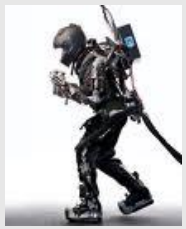
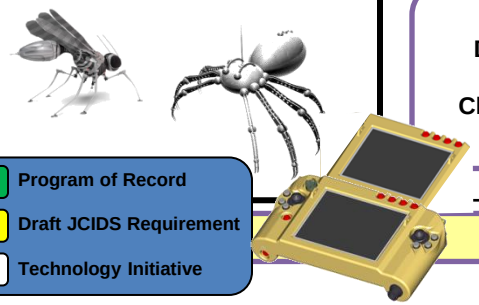
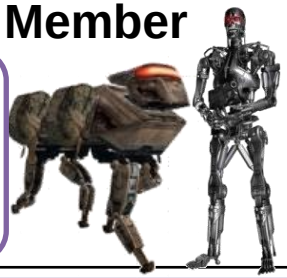
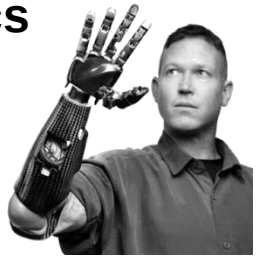
AMERICA'S ARMY:
THE STRENGTH OF THE NATION

Army Unmanned Ground Systems Classes

Soldier Transportable	Vehicle Transportable	Self Transportable	Robotic Appliqué
Small Bot (11-40 lbs) Common Robotic System – Individual (CRS-I) CDD 	**Mounted** Man Transportable Robot System (MTRS) Inc 2 CPD 	**Soldier Follower**  Squad Multipurpose Equipment Transport (SMET) CDD	**Remote Operation**  Husky Mounted Detection System (HMDS) POR
UltraLight Bot (5-10 lbs) Ultra Light Recon Robot 	**or Towed**  M160 Light Flail POR	**Recon/Security**  Mobile Detection Assessment and Response System (MDARS) POR	**Supervised Autonomy**  Semiautonomous / Autonomous Convoy Operations (SACO) CDD
Micro Bot (< 5 lbs) Micro Unmanned Vehicle 	**or Installed** da Vinci Surgical System 	**Robotic Wingman** 	**Exoskeleton** Exoskeleton (XOS) CDD 
Nano Bot (< 1 lb) 	**Humanoid** DARPA Robot Challenge 	**Squad Member** DARPA Legged Squad Support System (LS3) 	**Prosthetics** 

Program of Record
Draft JCIDS Requirement
Technology Initiative

Tactical Robot Controller (TRC) (Included in CRS-I CDD) (< 10 lb)

Photos are Notional Representations

Army Unmanned Ground Systems

Recent Activities:

- Non-Standard Equipment Army Requirements Oversight Council (AROC) to the Vice Chief of Staff of the Army (VCSA); established plan to reset current systems
- Unmanned Ground Systems (UGS) Capability Portfolio Review (CPR) to VCSA; assigned the Maneuver Center of Excellence (MCoE) as the UGS Proponent and validated the strategy for SecArmy approval
- UGS Cross Service Portfolio Review by Service Acquisition Executives
- Briefings to Congress: UGS Strategy, Universal Controller, and SUGV
- Army UGS EXORD translates the UGS strategy approved by the SecArmy into UGS related tasks for Army Secretariat, Staff and Major Commands
- Fiscal challenges: Budget cuts; Sequestration; loss of $500m from the portfolio with the termination of the Small Unmanned Ground Vehicle (SUGV) Program
- Restructuring of the Joint Ground Robotics Enterprise (JGRE) with the Defense Ground Robotics Alliance (DGRA) (S&T) and the Joint Ground Robotics Integration Team (JGRIT) (Requirements)
- Robotics Enhancement Program (REP)

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UGS Strategic Vision

Purpose: Provide a modernized force of manned – unmanned teams with improved protection, persistence, and endurance. Realization of this will decrease physical and cognitive workloads on our Warfighters, and enable new tactics while increasing their combat capabilities.

Method

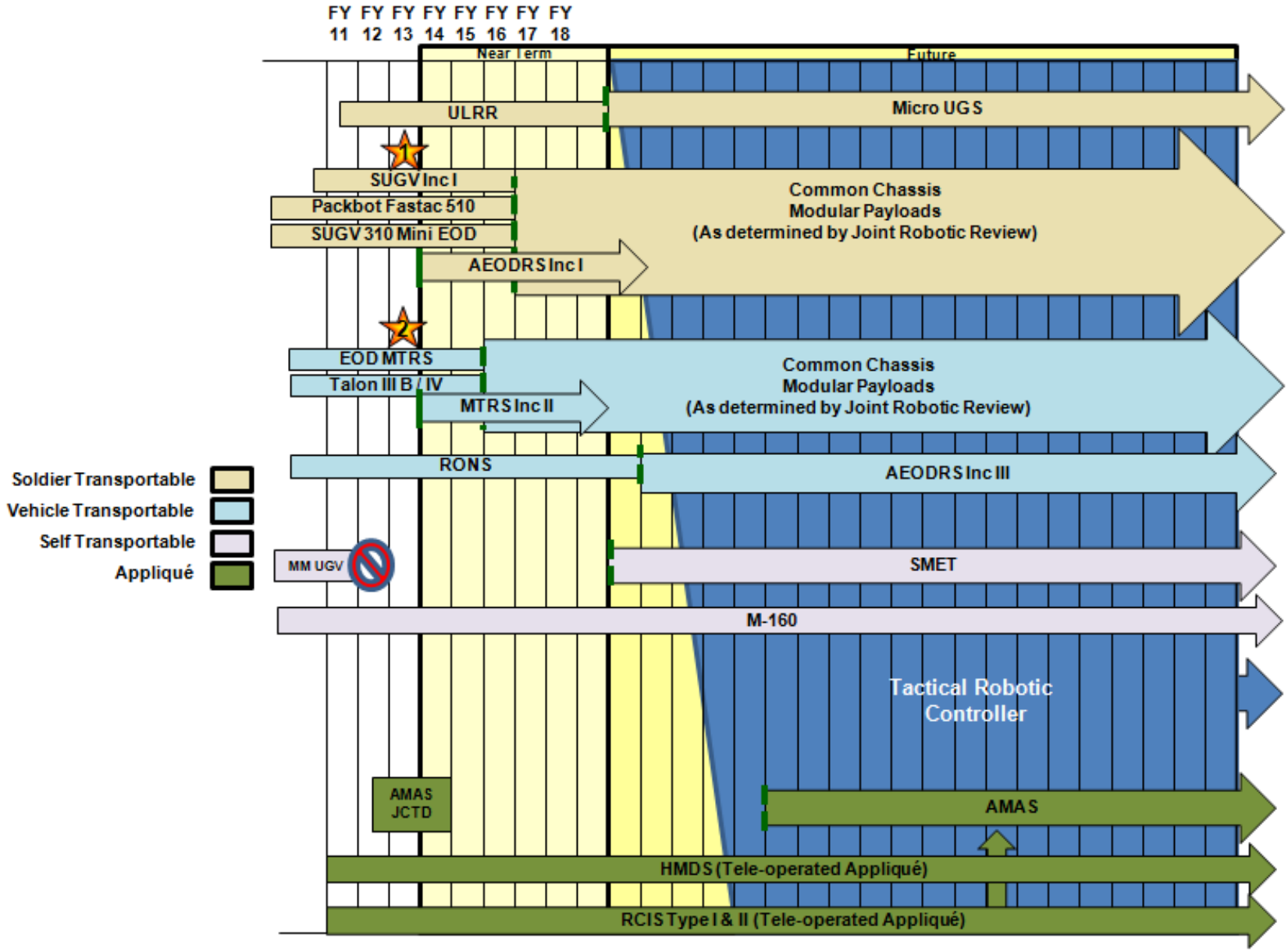
- **Reset and sustain** selected Non-Standard Equipment Unmanned Ground Systems (UGS) until transitioned to programs of record
- **Reduce cost** through commonalities within classes (Individual-Transportable, Vehicle-Transportable, Self-Transportable, and Appliqué)
- **Leverage commercial technology** and gradually introduce **autonomy** into units
- Introduce Unmanned Ground Systems into training base and **incorporate Soldier feedback** within technology development
- Focus new programs on addressing the priorities of: 1) **Protect** the force at increased stand-off distances from the threat and hazards; 2) **Persistently monitor** a changing, complex, operation environment; 3) **Lighten** the Warfighter's physical and cognitive workloads; 4) **Sustain** the force with increased distribution, throughput, and efficiency; 5) Facilitate **maneuver** in Wide Area Security and Combined Arms Operations; 6) Conduct **lethal and non-lethal engagements** where manned systems are limited, denied entry, or unavailable.

End State

- The Army is equipped with affordable, interoperable, and increasingly autonomous UGS enabling integrated manned-unmanned teaming.

Provides the US Army Vision that generates unity of effort across the UGS enterprise

UGS Strategy



Unmanned Ground System Resource Profile

Background:

- The Army invested over $730 million in unmanned ground vehicles that were rapidly fielded to meet urgent Warfighters' needs in two theaters of war.
- Urgent needs for UGS were resourced with Overseas Contingency Operations (OCO) Funding.

Resourcing Efforts:

- Transition resources from Overseas Contingency Operation (OCO) funding to base budget through development of Program of Record (POR)
  - Currently funding PORs for EOD and Engineer capabilities
  - Developing POR to meet emerging requirements (Recon Surveillance, Lightening Soldier Load, and Breaching and Clearing)
  - Reduce capability redundancies while gaining efficiencies through development of a common robotic chassis and modular mission payloads
- Reset current investment by retaining 2,700 existing UGS as an interim capability.
- Divest over 2,469 older UGS that have outlived their usefulness.
- S&T and RDT& E funding supports technology development in human-robotic interaction, object manipulation, appliqué, and commonality for chassis and controllers.

Resource Implications

- S&T will continue to support technology development in:
  - Understanding the Environment
  - Human-Robotic Interaction
  - Object Manipulation
  - Mobility
  - Machine Intelligence
- Research, Development, Test, and Evaluation (RDT&E) funding supports the UGS programs by:
  - Making small investments in technology
    - Common chassis for both individual class and vehicle classes.
    - Common controller
    - Appliqué technology
  - Informing capability and cost thresholds
  - Allowing competition to increase capability while driving down cost

Robotic Enhancement Program

The Robotic Enhancement Program (REP) requires an agile process for fast assessment of COTS/GOTS/NDIs and rapid transition to procurement and initial capability fielding

Pending:

- Oversight is provided jointly by MCoE and RS JPO
- Evaluations inform the requirement process and program of records acquisition strategies and focus on improving current portfolios and Soldier's combat effectiveness
- Defined REP Process
- Decision making authority (Buy, Try, and Decide) at REP Council of Colonels
- Streamline of requirement generation to bridge procurement gap from Initiative to POR
- Establishing monthly updates for ongoing initiatives and initial meeting for new initiatives
- Establishing meetings with stakeholders (Proponent & MAT DEV) to discuss new submissions.
- Completing the REP SOP and Updating REP MOA (MCoE & PEO Soldier)

New Robot

Status: Approved (xx-XXX-xx)

Picture

Description of Product/Purpose/Technical Specs

Capability Enhancement:

Proponent Supporting Program: MCoE, MAJ GI Joe, (555)-555-5555, g.i.joe.mil@mail.mil
DOC POC: Mr. Bob Civilian, Project Officer (555)-555-5556, bob.civilian.civ@mail.mil

Level of Support/interest: Joint

Actions Completed & Pending:
-Pursue a Limited User Evaluation

Requirement/Capability:

BOI/Fielding Concept/QTYs:

RS JPO POC:

Actions Completed & Pending:

PMO's Recommendation:

Objectives:

Test Plan:.

Potential Risk: None

COST (12 WTCV)		SCHEDULE	
Unit Cost (Average)		Purchased Date	
QTY		Safety Release	
HW Cost	$	Assessment	
T&E Cost	$	Evaluation Report	
Total Cost	$		