

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Army **DATE:** February 2012

APPROPRIATION/BUDGET ACTIVITY				R-1 ITEM NOMENCLATURE							
2040: <i>Research, Development, Test & Evaluation, Army</i> BA 5: <i>Development & Demonstration (SDD)</i>				PE 0604641A: <i>TACTICAL UNMANNED GROUND VEHICLE</i>							
COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	-	-	13.141	-	13.141	-	-	-	-	Continuing	Continuing
DV7: <i>Small Unmanned Ground Vehicle</i>	-	-	13.141	-	13.141	-	-	-	-	Continuing	Continuing

Note

The Small Unmanned Ground Vehicle (SUGV) EMD effort will continue under an alternate contract. Funding in FY13 will continue under Tactical Unmanned Ground Vehicle (Small Unmanned Ground Vehicle) Program Element 0604641A Project DV7.

A. Mission Description and Budget Item Justification

One program is covered by the Tactical Unmanned Ground Vehicle Program Element 0604641A: The Small Unmanned Ground Vehicle (SUGV) platform.

The Small Unmanned Ground Vehicle (SUGV), designated as the XM-1216, is a lightweight (32 lbs), man-portable, DC powered UGV capable of conducting Military Operations in Urban Terrain (MOUT) to include tunnels, sewers, and caves. The SUGV provides an unmanned capability for those missions that are manpower intensive or high-risk such as Urban Intelligence, Surveillance, and Reconnaissance (ISR) missions in a MOUT environment, investigating Improvised Explosive Devices and Chemical/Toxic Materials reconnaissance missions without exposing soldiers directly to the hazard. The SUGV will be used to obtain information on situational awareness at the squad level.

SUGV Increment 1 XM1216: The INC 1 SUGV is based on the IBCT Capability Production Document (CPD) threshold requirements. The SUGV INC 1 features a lightweight highly mobile SUGV platform with improved and tested reliability and an integrated Commercial off the Shelf (COTS) sensor head and radio. In early FY10 the SUGV INC 1 platform underwent an Independent Verification Test (IVT) at Aberdeen Test Center (ATC) that provided the basis for many of the component reliability improvements that have been incorporated and validated in the FY11 Initial Qualification Test (IQT). Enhancements included improved seals on the drive motors, design changes to the drive motor themselves, Electromagnetic Interference (EMI) improvements to reduce the emissions and susceptibility of the SUGV platform and operator control unit enhancements. The XM1216 is currently conducting missions in support of units in OEF.

SUGV Planned Product Improvements (Increment 1 Follow on) designated as the XM1216E1: The SUGV configuration for Low Rate Initial Production (LRIP) moving to Full Rate Production (FRP) is based on the SUGV IBCT CPD Threshold Requirements. It will weigh 35 pounds and is capable of carrying up to 4 lbs of payload weight. The SUGV will have the following capabilities: a hardened militarized Electro Optical/Infrared (EO/IR) sensor to meet stringent day & night detection of enemy personnel & systems, an National Security Agency (NSA) compliant radio from the Joint Tactical Radio system program, improved hand controller, the capability to provide grid location of the enemy, and the following capability to mount payloads: tether spooler, manipulator arm, Chemical, Biological, Radiological, Nuclear (CBRN) suite and Embedded-Tactical Engagement Simulation System (E-TESS).

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Army				DATE: February 2012	
APPROPRIATION/BUDGET ACTIVITY		R-1 ITEM NOMENCLATURE			
2040: Research, Development, Test & Evaluation, Army		PE 0604641A: TACTICAL UNMANNED GROUND VEHICLE			
BA 5: Development & Demonstration (SDD)					
B. Program Change Summary (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total
Previous President's Budget	-	-	-	-	-
Current President's Budget	-	-	13.141	-	13.141
Total Adjustments	-	-	13.141	-	13.141
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	13.141	-	13.141

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2013 Army								DATE: February 2012			
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 5: Development & Demonstration (SDD)				R-1 ITEM NOMENCLATURE PE 0604641A: TACTICAL UNMANNED GROUND VEHICLE				PROJECT DV7: Small Unmanned Ground Vehicle			
COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
DV7: Small Unmanned Ground Vehicle	-	-	13.141	-	13.141	-	-	-	-	Continuing	Continuing
Quantity of RDT&E Articles											
Note The Small Unmanned Ground Vehicle (SUGV) EMD effort will continue under an alternate contract. Funding in FY13 will continue under Tactical Unmanned Ground Vehicle (Small Unmanned Ground Vehicle) Program Element 0604641A Project DV7.											
A. Mission Description and Budget Item Justification One program is covered by the Tactical Unmanned Ground Vehicle Program Element 0604641A: The Small Unmanned Ground Vehicle (SUGV) platform. The Small Unmanned Ground Vehicle (SUGV), designated as the XM1216, is a lightweight (32 lbs), man-portable, DC powered UGV capable of conducting Military Operations in Urban Terrain (MOUT) to include tunnels, sewers, and caves. The SUGV provides an unmanned capability for those missions that are manpower intensive or high-risk such as Urban Intelligence, Surveillance, and Reconnaissance (ISR) missions in a MOUT environment, investigating Improvised Explosive Devices and Chemical/Toxic Materials reconnaissance missions without exposing soldiers directly to the hazard. The SUGV will be used to obtain information on situational awareness at the squad level. SUGV Increment 1 XM1216: The INC 1 SUGV is based on the EIBCT Capability Production Document (CPD) threshold requirements. The SUGV INC 1 features a lightweight highly mobile SUGV platform with improved and tested reliability and an integrated Commercial off the Shelf (COTS) sensor head and radio. In early FY10 the SUGV INC 1 platform underwent an Independent Verification Test (IVT) at Aberdeen Test Center (ATC) that provided the basis for many of the component reliability improvements that have been incorporated and validated in the FY11 Initial Qualification Test (IQT). Enhancements included improved seals on the drive motors, design changes to the drive motor themselves, Electromagnetic Interference (EMI) improvements to reduce the emissions and susceptibility of the SUGV platform and operator control unit enhancements. The XM1216 is currently conducting missions in support of units in OEF. SUGV Planned Product Improvements (Increment 1 Follow on) designated as the XM1216E1: The SUGV configuration for Low Rate Initial Production (LRIP) moving to Full Rate Production (FRP) is based on the SUGV IBCT CPD Threshold Requirements. It will weigh 35 pounds and is capable of carrying up to 4 lbs of payload weight. The SUGV will have the following capabilities: a hardened militarized Electro Optical/Infrared (EO/IR) sensor to meet stringent day & night detection of enemy personnel & systems, an National Security Agency (NSA) compliant radio from the joint tactical radio system program, improved hand controller, the capability to provide grid location of the enemy, and the capability to mount the following payloads: tether spooler: manipulator arm: Chemical, Biological, Radiological, Nuclear (CBRN) suite and Embedded-Tactical Engagement Simulation System (E-TESS).											
B. Accomplishments/Planned Programs (\$ in Millions)								FY 2011	FY 2012	FY 2013	
Title: SUGV Product Improvement								-	-	13.141	

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2013 Army							DATE: February 2012				
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0604641A: <i>TACTICAL UNMANNED GROUND VEHICLE</i>			PROJECT DV7: <i>Small Unmanned Ground Vehicle</i>				

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2011	FY 2012	FY 2013
Description: Funding is provided for the following effort FY 2013 Plans: Complete government IQT testing in the November 2012-April 2013 timeframe. TT/FDTE/LUT will be conducted in the April-August 2013 timeframe leading up to a Milestone C LRIP Decision in 4Q13. This effort will integrate and test SUGV product improvements that utilize a point-to-point datalink, provide increased ISR capability with the integrated militarized EO/IR head, and also provide increased functionality in the form of a modular payload system that includes the fiber optic tether data link capability, manipulator arm, and ETESS. Conduct Contractor and Government testing on SUGV Pre-Production prototypes to evaluate performance: environments, platform mobility, radio performance for Latency and range, EO/IR performance for personnel detection, payloads, shock/vibration, RAM, Logistics and Training. Conduct LUT to assess operational utility and performance of the SUGV. The IQT and LUT testing will provide data to support the Production Decision that the fully integrated SUGV meets CDD requirements for mobility, payloads, EO/IR detection and National Security Agency/Information Assurance (NSA/IAS) compliance. Develop and provide all documentation, technical manuals and training products to support logistics, supportability and training requirements required to field the SUGV.			
Accomplishments/Planned Programs Subtotals	-	-	13.141

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• F00001: <i>OPA BCT Unmanned Ground Vehicle</i>	27.433	24.805	83.937		83.937		122.731	149.748	67.266	Continuing	Continuing
• 0604641A Project FC4: <i>RDTE FCS Unmanned Ground Vehicles</i>	200.000	35.966								0.000	235.966

D. Acquisition Strategy
Funding continues engineering, manufacturing development follow-on ECP efforts leading to seven pre-production prototypes. End state leads to a Full Rate Production(FRP) decision. The FRP award will be accomplished through full and open competition.

E. Performance Metrics
Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Army											DATE: February 2012			
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0604641A: <i>TACTICAL UNMANNED GROUND VEHICLE</i>				PROJECT DV7: <i>Small Unmanned Ground Vehicle</i>						

Product Development (\$ in Millions)				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Small Unmanned Ground Vehicle (SUGV)	SS/CPFF	iRobot Corporation:Burlington, MA	-	-		13.141		-		13.141	0.000	13.141	0.000
Subtotal			-	-		13.141		-		13.141	0.000	13.141	0.000

	Total Prior Years Cost	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-	13.141	-	13.141	0.000	13.141	0.000

Remarks

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2013 Army			DATE: February 2012		
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 5: <i>Development & Demonstration (SDD)</i>		R-1 ITEM NOMENCLATURE PE 0604641A: <i>TACTICAL UNMANNED GROUND VEHICLE</i>		PROJECT DV7: <i>Small Unmanned Ground Vehicle</i>	

	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Incr 1 Production Delivery (Brigades 2-5)																												
Incr 1 Production Delivery (LRIP Brigades 6-7)																												
Follow On Production																												
Milestone C Low Rate Initial Production Review (MSC/LRIP REV)																												
SUGV Follow On Initial Operational Capability																												
SUGV Prototype Build/Delivery																												
SUGV Testing (IQT)																												
SUGV Testing (LUT)																												
SUGV Follow On CDR																												
SUGV EMD Bridging Effort Contract Award																												
SUGV EMD Follow on Contract Award																												

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2013 Army			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604641A: <i>TACTICAL UNMANNED GROUND VEHICLE</i>	PROJECT DV7: <i>Small Unmanned Ground Vehicle</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Incr 1 Production Delivery (Brigades 2-5)	4	2012	1	2013
Incr 1 Production Delivery (LRIP Brigades 6-7)	2	2013	3	2013
Follow On Production	2	2014	4	2017
Milestone C Low Rate Initial Production Review (MSC/LRIP REV)	4	2013	4	2013
SUGV Follow On Initial Operational Capability	2	2015	2	2015
SUGV Prototype Build/Delivery	4	2012	4	2012
SUGV Testing (IQT)	1	2013	3	2013
SUGV Testing (LUT)	3	2013	4	2013
SUGV Follow On CDR	4	2011	4	2011
SUGV EMD Bridging Effort Contract Award	1	2012	1	2012
SUGV EMD Follow on Contract Award	4	2012	4	2012