TARDEC Robotics

Dr. Greg Hudas
Greg.hudas@us.army.mil
UNCLASSIFIED: Dist A. Approved for public release
**1. REPORT DATE**
01 MAR 2011

**2. REPORT TYPE**
N/A

**3. DATES COVERED**
-

**4. TITLE AND SUBTITLE**
TARDEC Robotics

**5a. CONTRACT NUMBER**

**5b. GRANT NUMBER**

**5c. PROGRAM ELEMENT NUMBER**

**5d. PROJECT NUMBER**

**5e. TASK NUMBER**

**5f. WORK UNIT NUMBER**

**6. AUTHOR(S)**
Dr. Greg Hudas

**7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)**
US Army RDECOM-TARDEC 6501 E 11 Mile Rd Warren, MI 48397-5000, USA

**8. PERFORMING ORGANIZATION REPORT NUMBER**
21559

**9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)**
US Army RDECOM-TARDEC 6501 E 11 Mile Rd Warren, MI 48397-5000, USA

**10. SPONSOR/MONITOR’S ACRONYM(S)**
TACOM/TARDEC/RDECOM

**11. SPONSOR/MONITOR’S REPORT NUMBER(S)**
21559

**12. DISTRIBUTION/AVAILABILITY STATEMENT**
Approved for public release, distribution unlimited

**13. SUPPLEMENTARY NOTES**
The original document contains color images.

**14. ABSTRACT**

**15. SUBJECT TERMS**

**16. SECURITY CLASSIFICATION OF:**

<table>
<thead>
<tr>
<th>a. REPORT</th>
<th>b. ABSTRACT</th>
<th>c. THIS PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>unclassified</td>
<td>unclassified</td>
<td>unclassified</td>
</tr>
</tbody>
</table>

**17. LIMITATION OF ABSTRACT**
SAR

**18. NUMBER OF PAGES**
6

**19a. NAME OF RESPONSIBLE PERSON**

---

Standard Form 298 (Rev. 8-98)
Proscribed by ANSI Std Z39-18
Driving Toward Autonomy

Supporting the Current Force

Enabling the Future Fight

Requirements  Concepts  Analysis  Component Development  Component Testing  System Integration  Virtual Proving Ground  Vehicle Testing/Demo

Robotics Strategy White Paper

Prepared by:

Army Capabilities Integration Center - Tank-Automotive Research and Development Engineering Center Robotics Initiative

19 March 2009

Unclassified
What are the future technologies of each area and why (What are the game changers and why do we have to invest in these game changers)?

- Substantially increase force protection, and even provide force multiplier effects.
- Extensive M & S development for determination of autonomous levels and safety.
Technology Areas
Supporting Joint Ground Robotics

Unmanned Ground Systems
- Vehicle Inspection
- Squad Mission Support
- Safe Operations
- Autonomous Convoy
- Advanced Platform Demonstrator
- Robotic Armed Maneuver Platform (Wingman)
- Robotic Decontamination

Next Generation Technologies
- Fully Autonomous Leader Follower
- Collaborative Terrain Mapping/Following
- Tactical Formations
- Mission Specific Behaviors
- Scene Understanding & Cognition
- Human-Machine Interfaces
- Application of Neuro-ergonomics
- Common Interchangeable Components
- Interoperability for Robotic Systems

Soldier-Machine Interfaces
- Advanced Crew Stations, Soldier Monitoring, Common Controller, Battle Planning Aids, etc...
- Unmanned Air Vehicles

Advanced Crew Stations, Soldier Monitoring, Common Controller, Battle Planning Aids, etc...

TARDEC POM 24 Aug 10

Unclassified