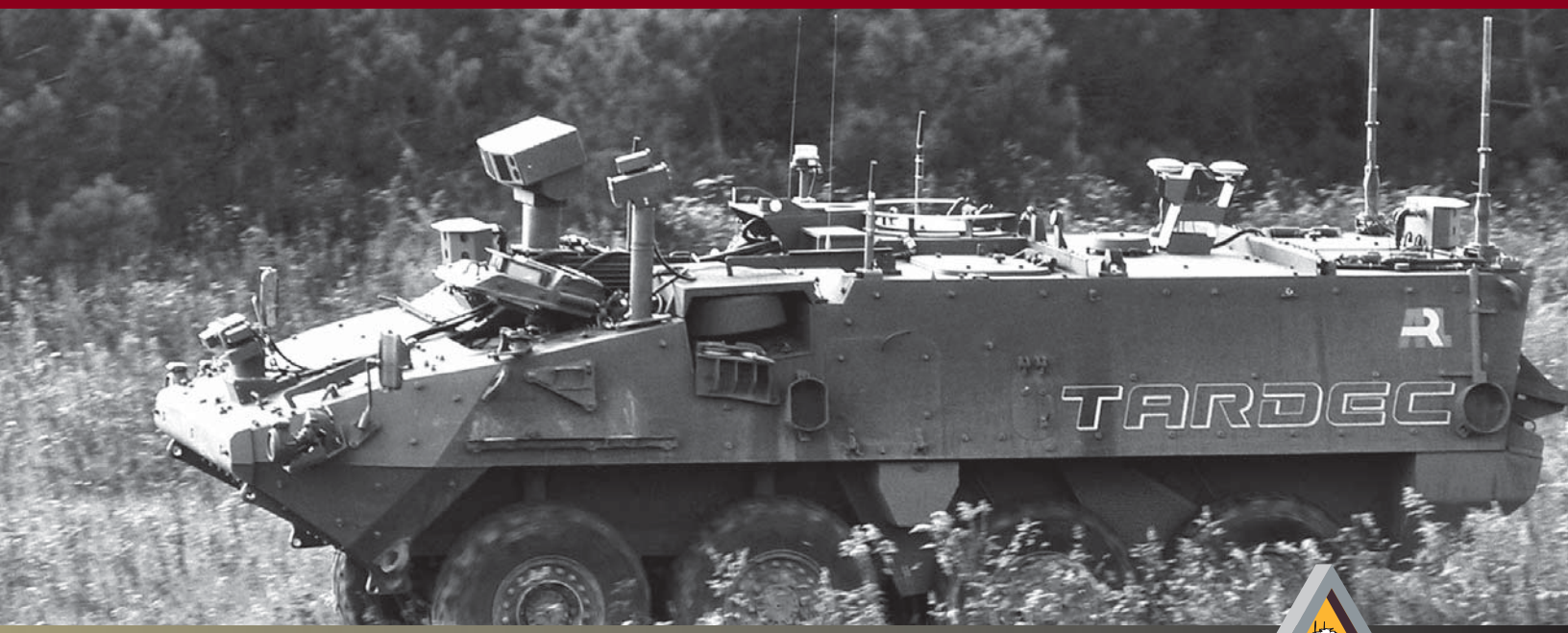
RDECOM

http://tardec.army.mil



INTELLIGENT GROUND SYSTEMS

TARDEC

Robotics Collaboration Army Technology Objective (RC ATO)

The TARDEC Intelligent Ground Systems RC ATO team **MISSION** is to:

- Develop the tools, techniques and autonomy to maximize mounted and dismounted control of ground and air unmanned vehicle systems (UVS).
- Optimize Soldier-robot and robot-robot ground and air teams.
- Develop intelligent agent automation augmentations.
  - Reduce task timelines.
  - Reduce robot interactions.
  - Reduce Soldier fatigue.
- Create consistent, scalable interfaces to expedite Soldier training.
- Facilitate Soldier situational awareness through unmanned systems.

TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.

Application Areas

RC ATO applications are the very latest technology TARDEC has to offer the warfighter. Stationed inside a manned ground vehicle or in a dismounted capacity, a robotic operator can team with a semi-autonomous UVS to increase mission operational tempo.

The applications can provide:

- On-demand Soldier assistance to UVS, reducing intervention times through intelligent agents and increased situational awareness.
- Autonomous vehicle capabilities utilizing a laser detection and ranging (LADAR) system that prevents the robotic operator from hitting unknown obstacles.
- A consistent vista and information source across a range of variably sized Operator Control Units through a Scalable Warfighter Machine Interface.

Capabilities

By developing and evaluating advanced battery technologies, the TARDEC Ground Vehicle Power and Mobility Team and RC ATO are able to provide:

- A control device offering plug-and-play ability for touch screen control on-the-fly when a controller is not available.
- Portable software that works on multiple operating systems, supports multiple source code languages and is computer independent.
- Local and network mission services that can be discovered and used as available without rebooting software.
- Software that supports multiple UVS protocols and can discover and control dissimilar robots with different communications requirements.
- Scalable mapping and portability concepts through mission planning weapon system mapping services.
- Embedded simulation with on-target, 2-D and 3-D simulation hardware for mission rehearsal, after-action review and training capabilities.

Future Capabilities

TARDEC's RC ATO is developing new technologies that promise to advance state-of-the-art robotic control technology:

- Colorized ranging is the ability to manipulate the environment around UVS in real time by fusing color cameras with LADAR for increased situational awareness.
- Dismounted following utilizes visual perception to provide UGVs with "blind" maneuvering capability with or without the use of a global positing system.