



INTELLIGENT GROUND SYSTEMS



SAFE OPERATIONS OF UNMANNED SYSTEMS FOR RECONNAISSANCE IN COMPLEX ENVIRONMENTS (SOURCE)

The U.S. Army Tank Automotive Research, Development and Engineering Center (TARDEC) Intelligent Ground Systems SOURCE Army Technology Objective (ATO) mission is to:

- Provide perception, intelligence, control and tactical behavior technologies to unmanned systems of varying scale.
- Develop and conduct safe operations in dynamic urban environments to strengthen the Current Force and achieve the Future Force's strategic capabilities.
- Use a model-test-model methodology to develop and test unmanned vehicle systems (UVS) technologies.
- Conduct simulations to optimize Soldier-robot teaming and trust in automation.

TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.



Application Areas

The SOURCE ATO is developing UVS technologies through perception, intelligence, control and tactical behavior advancements. This technology will enable safe operations of UVS in dynamic urban environments.

The application can provide:

- Reliable and safe unmanned ground vehicle (UGV) capabilities in complex urban terrain — in close proximity to people and vehicles.
- Increased vehicle autonomy and reduced network loads.
- Reduced systems operator interventions for unmanned systems.
- Increased Soldier survivability and combat effectiveness through greater autonomy and standoff distance.

Near-Term Capabilities

- Dynamic UGV safe operation in dense urban environments.
- Perception and control software suite to enable autonomous maneuvers.
- Modeling and simulation software of perception/control technologies and human-robot interaction.
- Tactical/mission behavior technologies to enable a group of heterogeneous UGVs to maneuver in collaboration with mounted and dismounted forces.

Future Capabilities

- Collaborative behavior development and implementation among varying unmanned air and ground systems.
- Integrated technology over a common control network.

