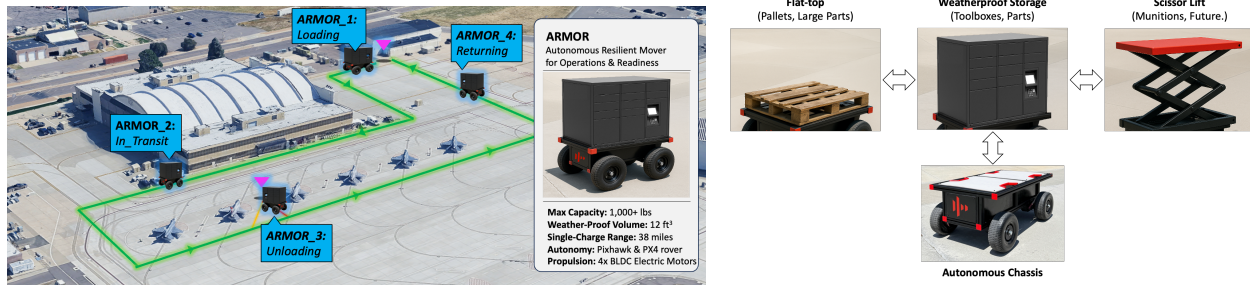


ARMOR: Autonomous Resilient Mover for Operations & Readiness

Table 1: Project Details

Sponsor	USAF (AF254-D0835)	Status	D2P2 SBIR Submitted
TRL	4/5 → 6/7	Demo Dates	June, July 2025
Classification Level	Unclassified	Point of Contact	Justin.Kopacz@OzniAI.com



(a) ARMOR automates the "last hundred yards" of flightline logistics, delivering tools and parts directly to maintainers.

(b) Modular platform supports secure storage, scissor lifts, or flat-top configurations.

Figure 1: ARMOR transforms flightline maintenance efficiency through autonomous logistics.

Abstract: Autonomous Resilient Mover for Operations & Readiness (ARMOR) is a ruggedized autonomous ground vehicle designed to revolutionize military flightline logistics by automating the routine delivery of tools, parts, and supplies. The system is **engineered specifically for the unique operational constraints of military flightlines**, where electromagnetic interference restrictions, data security requirements, and GPS vulnerability demand innovative solutions. By eliminating manual transit tasks that divert skilled maintainers from critical aircraft repairs, ARMOR directly improves aircraft availability and mission readiness.

At its core, **ARMOR integrates a resilient navigation system that fuses inertial measurement unit (IMU) data with a downward-facing, non-imaging optical flow sensor**—similar to technology in computer mice—to achieve precise positioning without relying on GPS or collecting sensitive imagery. This approach ensures reliable operation in GPS-denied environments like hangars while maintaining operational security. The vehicle features a simple "Detect and Stop" collision avoidance system using non-imaging ultrasonic and infrared sensors, prioritizing predictable behavior over complex AI-driven maneuvers. This deliberate design choice enhances safety and simplifies certification for military use.

The **hardened platform supports a 300 lb payload across 20+ miles on a single charge**, with a weatherproof cargo bay exceeding 12 ft³. A ruggedized physical keypad enables sub-10-minute operator training, while a wired handheld controller allows precise "last-inch" positioning. The modular chassis accommodates various configurations including secure storage compartments, scissor lifts, or flat-top pallets. All mission planning occurs offline through a secure Base Planning Application, with routes loaded via wired connection to eliminate RF emissions during operation.

Development follows a **15-month, two-spiral approach with key milestones at PDR (Month 4) and CDR (Month 10)**, culminating in a TRL 6/7 prototype delivery. Beyond military applications, ARMOR addresses commercial markets including airports, hospitals, construction sites, and large campuses—representing a combined \$500B+ market opportunity by 2035.

