

Cybernet Systems Corporation Builds and Retrofits Autonomous Vehicles in Michigan

Specialty Logistical Support Vehicles are Ready for Autonomy Today

Cybernet is addressing the need to augment or replace human driver performance in critical or dangerous tasks by adapting our material handling vehicle technology and automatic driving kits to proven and existing specialty vehicle platforms, transforming them into rapidly-deployable robotic reconnaissance-in-force and transport vehicles that provide 8–10 hour mission capability for tasks involving transport mobility, Reconnaissance, Surveillance and Target Acquisition (RSTA), and even armed assault.

The Unit-to-Unit Autonomous Resupply Vehicle (U2UARV) supports soldiers in-field by keeping supply lines open without diverting soldiers from other critical missions. The Automated Material Handling Fork Truck removes the need for human drivers in many warehousing applications, enhancing safety for tasks like ammunition handling. U2UARV variants based on commercial Polaris vehicle platforms support both automated and human-driven applications.

The U2UARV automation kit is a general purpose “Swiss-Army-Knife” vehicle automation package that can autonomously deliver and return ordnance, food, water, ammunition, and wounded (general logistics and resupply). The kit can also:

- ▶ Autonomously follow in formation, reducing required control efforts.
- ▶ Retrotraverse (i.e., return via a previously-travelled path) to a departure point.
- ▶ Autonomously resupply, following a designated path while using dynamic path replanning to perform obstacle avoidance, follow “other vehicle” traffic control behaviors, and perform ancillary tasks (like target scanning and ID).
- ▶ Support teleoperated control for long endurance persistent surveillance and reconnaissance-in-force.
- ▶ Support remotely-controlled fire (for squad support or self-defense).



U2UARV Kits Enhance Specialty Vehicle Platforms with Autonomous Capabilities while Reducing Costs:

New/improved capabilities include multi-mission autonomy capability, improved maintainability, safety and survivability, multiple vehicle support, skid steer and Ackerman steer control, payload options including lift forks, weapons turret control, autonomous mission execution and obstacle avoidance, and the ability to tow its own trailer for larger load hauling.

By reducing sustainment costs, the U2UARV maintains commonality with existing manually-operated equipment and procedures—which simplifies deployment and eases transition costs. By removing operators from dangerous missions, their safety is enhanced; in a production setting, removing the operator variable improves consistency and reduces logistical cost. The U2UARV even protects the investment in itself and what it carries through convoy and road-aware autonomy. Projections show that an automated fork truck with this level autonomy has a payback period of nominally 6 months.



Gladiator UGV for Pallet Delivery



Polaris Vehicle for Field Logistics



Hyster Fork Truck for Auto-Warehousing