

Autonomy Portfolio

With a relentless focus on the end-user, through software, hardware, and architecturally sound approach, we provide trusted, secure, and domestic/allied sourced solutions with strategic impact.

AUTONOMY FOCUS AREAS

Current and Future Projects



Unmanned Aerial Systems

Increase access to small drones, lower procurement barriers, and support the U.S. drone industrial base



Defense and Threat Protection

Defensive systems to detect, track, identify and defeat adversaries and threats



Maritime

Domain awareness, hazard defeat and resilient logistics



Supply Chain

Sourcing, rapid design, manufacturing, storage, and transport of critical supplies and capabilities



Ground Mobility

Technology to improve safety systems and fuel economy, increase force protection, and reduce boots on the ground



Software, Protocols, and Architecture

Fostering interoperability for seamless collaboration, reliability, and national security.

Small UAS

Increasing access to small drones, lowering procurement barriers, and supporting the U.S. drone industrial base

- **Blue UAS**
- Short Range Reconnaissance
- Advanced Autonomous Short Range VTOL
- Soldier Robotic Controller
- AI for Small Unit Maneuver
- Tactical Autonomous Drone
- Soldier Borne Sensor
- Electromagnetic Interference
- Long Range, One-Way Attack





Cleared List

- Streamlined process to vet commercial drones for government use
- Routinely updated list of DoD approved drones
- Addresses evolving mission needs of DoD end users
- Section 848 FY20, Section 817 FY23 NDAA, and 2024 American Security Drone Act compliant
- Validated and cybersecure
- Available for government purchase and operation

Framework

- Process to identify and develop NDAA compliant components and software
- Interoperable components that provide advanced capabilities
- Provides flexibility to commercial partners AND DoD end users
- Build resilient Defense Industrial Base for sUAS components



Blue sUAS Cleared List

Enabling Broader Government Access to Commercial sUAS

Problem

An overwhelming majority of popular and affordable drones are manufactured in China. DoD is not currently postured to keep pace with speed or scale of commercial sUAS development.

Solution

Identify, screen, evaluate, and select for onboarding a variety of commercial sUAS. Establish method to codify and simplify administrative barriers to entry.

Impact

Broaden pool of sUAS available to the DoD, remove barriers to narrow program of record performance parameters, and reduce necessity of ETP waivers



DoD Partner(s)

- OUSD A&S
- Every DoD Service

Commercial Vendor(s)

- Available on DIU website

Blue UAS Framework

Software, Protocols, Components for sUAS

Problem

The National Defense Authorization Act (NDAA) prohibits purchase of critical components manufactured in China. The DoD requires U.S. or allied production of critical components to conduct secure ISR missions.

Solution

Verify a market of interoperable and compliant parts that can synchronize with existing and future sUAS using a common definition of AI and Autonomy.

Impact

Developed parts have been integrated into the commercial market, program of record sUAS, GSA drones, universal controllers, and swarm technology.



DoD Partner(s)

- DoD end users from every Service
- OUSD Industrial Policy
- MCWL

Commercial Vendor(s)

- Doodle Labs
- Skydio
- Modal AI
- Vantage Robotics
- Others

Blue UAS Electromagnetic Interference

EMI capable means of communication.

Problem

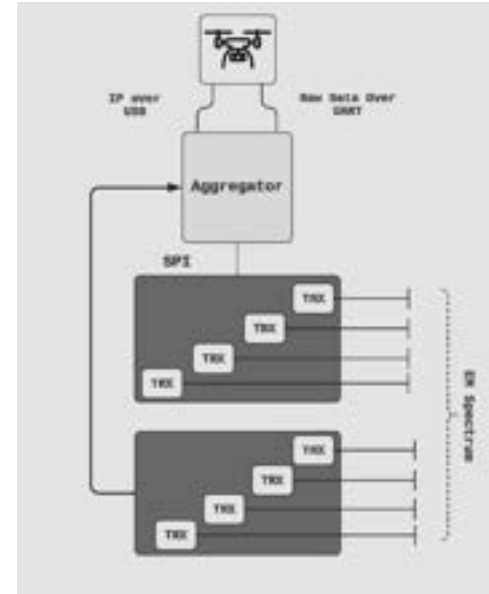
Current DoD Group 1/2 platforms lack ability to operate in an Electromagnetic Interference (EMI) environment. UxS platforms need resilient solutions to communicate in jamming, spoofing, and interference-prone environments to ensure operation integrity and reliability.

Solution

Develop baseline hardware enabling components with software layered on top, allowing rapid updates in reaction to changes in the Electronic Warfare space to maintain communications ability between operator and UAS platform.

Impact

Outfit units with platforms able to communicate in an Electronic Warfare environment, lay groundwork for Near Peer combat capable Group 1 and 2 sUAS, build supply chain resiliency, and reduce price per unit costs.



DoD Partner

- SOCOM

Commercial Vendors

- Aution Government Solutions
- Neros
- ModalAI

Blue UAS Framework: FPV Drones

Creating highly maneuverable FPV Drones from an Advanced Compute Autopilot

Problem

The war in Ukraine has highlighted the effectiveness of FPV drones, but these systems require a very high level of pilot training and the operator is unable to stop flying midway through a flight or will lose the drone.

Solution

ModalAI has built an FPV drone around their advanced compute autopilot, giving special operators the ability to fly both highly maneuverable, manually piloted or autonomously, seamlessly between.

Impact

These systems are currently used around the world to perform complex missions.



DoD Partner(s)

- PM SP
- MCoE RRD

Commercial Vendor(s)

- Modal AI

Artemis

Long Range, One Way Attack

Problem

Congressional direction to provide loitering munitions capable of operation in an electromagnetic contested environment, at a price point that allows for use massed employment. USSOCOM, EUCOM, and INDOPACOM have an urgent operational need for low-cost, upgradeable, long-range, one-way attack (LROWA) systems capable of operating in contested and denied areas.

Solution

Identify and assess current LROWA systems and quickly integrate the most suitable solutions into an operational testing environment with follow on deliveries. Spiral to deliver constantly updated systems and capabilities while supporting broader requirements development for programs of record.

Impact

Fulfills Congressional direction, directly impacts CCMD CONOPS and OPLANS and enables Allies/Partners ability to find asymmetric advantages against adversaries.



DoD Partner

- OUSD A&S

Commercial Vendors

- TBD

AI for Small Unit Maneuver

Collaborative Autonomy to Enable Multi-UAS Teaming.

Problem

Traditional UAS platforms are limited to one system per operator, and must be individually controlled at all times. The majority of the DOD's drone fleet lacks the necessary autonomy to allow for multi agent control in GPS denied environments, both inside and outside structures.

Solution

Provide a small dismounted force with organic ISR through a single operator of ~10 UAS. UAS can collaborate to automatically find and monitor detected personnel and vehicles, divide tasks into component behaviors and automatically launch/recover to sustain operations.

Impact

Single operator command and control of heterogeneous swarm with reduced cognitive load using existing POR UAS with software changes.



DoD Partner(s)

- CBP
- EOTACS
- Office of Naval Research
- Defense Production Act

Commercial Vendor(s)

- Skydio Inc.
- Systems & Technology Research
- Auterion Government Solutions

Short Range Reconnaissance Tranche 2

Advanced Capability Quadcopter for Army Program of Record

Problem

Advancements in technology during the Short Range Reconnaissance project life cycle created capability gaps in onboard autonomy, UI integration, and Ground Control Systems.

Solution

Rapidly deployable small drone that provides real-time situational awareness at the tactical edge, includes autonomous behaviors, and open source protocol and architecture.

Impact

Field enhanced capability to enable soldiers across the Army to have increased situational awareness in the battlefield.



DoD Partner(s)

- Army PEO Aviation

Commercial Vendor(s)

- Teal Drones
- Skydio

Soldier Robotic Controller

A familiar feel for every robot, for any mission.

Problem

The US Military is rapidly fielding robotic systems without growing the tactical warfighter's ability to control and interact with these systems, adding weight, reducing space, and requiring unique training for each system.

Solution

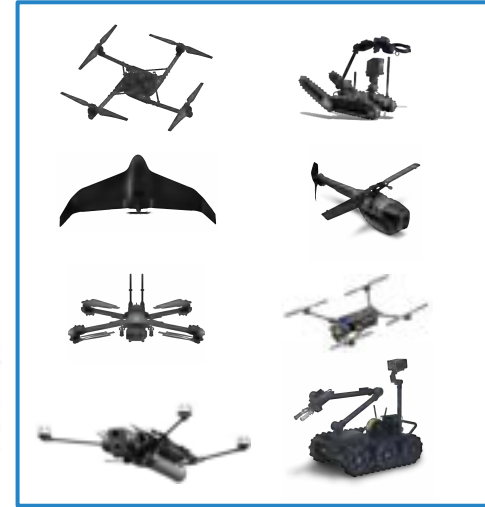
A single robotic ground control system available in three configurations using a government owned, app-based software approach that allows context switching.

Impact

Improved maneuver and reduced training. Soldiers will carry less equipment and be trained only one platform, allowing muscle memory to be built for multiple UxVs.



Utilizes Swappable
Radio Module



DoD Partner(s)

- US Army Soldier Borne Sensors
- US Army, Soldier Unmanned Aircraft Systems
- OUSD Policy

Commercial Vendor(s)

- Tomahawk Robotics
- Aution Government Solutions
- Vantage Robotics
- Tekuma
- Kutta Technologies

Counter Threat

Defensive systems to detect, track, identify and defeat adversaries and threats

- Installation C-UAS
- Kinetic Drone Defeat
- Drone Defeat & Interceptors
- Autonomous Perimeter Security
- **Counter Unmanned Aerial Systems - NEXT**





Counter Unmanned Aerial Systems - NEXT

Low cost, high probability of kill afloat counter UAS.

Problem

The Navy has an urgent operational need for shipboard Counter UAS systems that reduce the cost asymmetry of the current solutions used to intercept and defeat adversarial UAS.

Solution

High probability of kill counter UAS solutions that integrate with shipboard sensors and reduce cost asymmetry of traditional air defense measures.

Impact

Allow for cost-effective defeat of adversarial Group 3+ UAS on naval ships while preserving exquisite munitions for appropriate threats.



DoD Partner(s)

- PEO IWS
- NSWC Crane
- NAVSEA

Commercial Vendor(s)

- TBD

Installation C-UAS

Fused sensors with AI for automated threat detection.

Problem

DoD C-UAS hardware does not have software that can keep up with constant technology updates and maintain pace with threats.

Solution

Counter-unmanned aerial system capability with AI software solution that can quickly integrate in existing DoD locations on a rolling basis as new threats emerge.

Impact

Decrease manpower to operate C-UAS systems, improved sensor performance through AI enabled fusion, and shorten the decision cycle regarding threats.



DoD Partner(s)

- USMC (Installation UONS)
- USSOCOM (OCONUS)
- PACAF
- USCENTCOM

Commercial Vendor(s)

- Anduril Industries



Autonomous Perimeter Security

Collaborative Autonomy to Enable Multi-UAS Teaming.

Problem

Many DoD perimeters have inadequate or nonexistent physical barriers and sensors to provide advanced warning or prevent unwanted intrusions from increasingly advanced surface and subsurface threats.

Solution

Weather hardened system that can identify and classify threats with up to 90% accuracy, using sensors enhanced with autonomy, AI/ML, and data fusion.

Impact

Reduction of resource hours and maintenance costs by removing the need for manned crews and roving surface vessels.



DoD Partner(s)

- AFLCMS
- USN NSWC

Commercial Vendor(s)

- Digital Force Technologies
- Scale AI
- Thayer Mahan

Maritime

Domain awareness, hazard defeat, and resilient logistics

- Small Unmanned Underwater Vehicle
- Persistent Maritime ISR
- Autonomous EOD Response Vehicle
- Autonomous Amphibious Response Vehicle
- Sub Launched UAS
- Unmanned Systems for Maritime Domain Awareness
- Production-Ready, Inexpensive, Maritime Expeditionary (PRIME) Small Unmanned Surface Vehicle (sUSV) and Collaborative Intercept Capability



Large Diameter Unmanned Underwater Vehicles

Problem

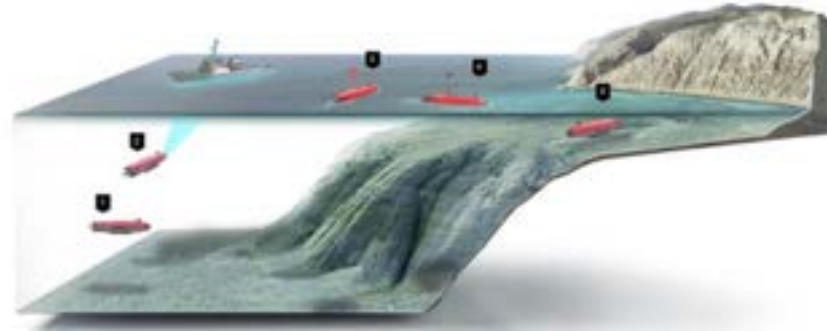
Navy lacks ability for long-range, large payload capacity underwater sensing and payload delivery in contested environments without putting Sailors on platforms.

Solution

Scalable, attritable LD AUVs with localization, navigation, and obstacle avoidance that can operate for long-duration, and clandestine operations.

Impact

Improved operational tempo and strategic location coverage with a minimal strategic asset commitment.



DoD Partner(s)

- PMS 394
- OUSD R&E
- PACFLT N9WAR
- UUVRON-1

Commercial Vendor(s)

- Anduril Industries
- Kongsberg Maritime
- Oceaneering



Extra Large Unmanned Underwater Vehicle

Problem

The Navy needs long endurance, large payload capacity underwater platforms to deliver kinetic/non-kinetic effects in the undersea and seabed warfare domain in contested environments, without putting Sailors on platforms.

Solution

Extra large uncrewed underwater vehicles with localization, navigation, and obstacle avoidance that can operate for long-duration, and clandestine operations. Modular design that delivers a range of payload options.

Impact

Combatant and Fleet Commanders possess the capability to deliver a wide range of effects at scale in a distributed, cost effective manner.



DoD Partner(s)

- PMS 406
- OPNAV N97
- COMSUBPAC
- UUVGRU-1

Commercial Vendor(s)

- TBD



Production-Ready, Inexpensive, Maritime Expeditionary (PRIME) Small Unmanned Surface Vehicle (sUSV) & Collaborative Intercept Capability

Collaborative, attributable interceptors for anti-surface warfare.

Problem

The Department of the Navy has an operational need for small Unmanned Surface Vehicle (sUSV) interceptors, and must rapidly deliver a large number on an aggressive timeline.

Solution

Multi-agent collaboration using adaptive behaviors for intercepting noncooperative, maneuvering vessels of interest. Includes agile software approaches to update fielded sUSVs, and advanced navigation and communications systems for contested environments.

Impact

Deploying sUSV interceptors at scale for missions such as anti-surface warfare, maritime interdiction, ISR, or contested logistics improves operational effectiveness, and reduces the risk to crewed ships while alleviating their tasking burden.



DoD Partner(s)

- PMS 420

Commercial Vendor(s)

- Available upon request

Autonomous Maritime ISR

Wind & Solar Powered, Extreme Endurance USVs

Problem

The DoD has an ongoing need to collect global maritime intelligence. Current maritime intelligence, surveillance, and reconnaissance technologies are costly, require manned crews, and fossil fuels to operate.

Solution

Saildrone enables persistent autonomous data collection and intelligence gathering in distant and hazardous maritime environments. Saildrone can be contracted by combatant commanders (Maritime Domain Awareness as a service), or owned and operated by a military program.

Impact

Purchases made by Task Force 59, NAVSEA, U.S. Customs and Border Protection, and the U.S. Coast Guard.



DoD Partner(s)

- NGA
- NOAA
- U.S. Coast Guard
- 4th Fleet

Commercial Vendor(s)

- Saildrone

Small Class Unmanned Underwater Vehicle

Detection & Classification of Naval Mines

Problem

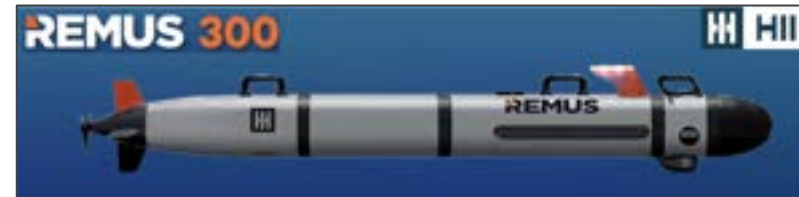
The Navy's Mine Countermeasure (MCM) fleet is rapidly approaching the end of its service life. The current fleet is deficient in integrating autonomy packages, sensors, and platform modularity.

Solution

Huntington Ingalls Industries (HII) and L3 Harris prototyped and delivered two small form-factor Unmanned Underwater Vehicles (UUVs) with open architecture and modularity principles for subsystems.

Impact

U.S. Navy has awarded HII a \$347M contract for the purchase of up to 200 UUVs in support of the Lionfish program. This includes an initial purchase of \$19M nine UUVs.



DoD Partner(s)

- PMS-408 (Exped. Missions)
- PMS-394 (Advanced USW)
- PMS-340 (Naval Spec War)
- PMM-150 (MARCORSYSCOM)

Commercial Vendor(s)

- HII (purchased Hydroid)
- L3 Harris (purchased OceanServer Technology, Inc.)

Autonomous EOD Maritime Response Vehicle

AI enhanced underwater response vehicles.

Problem

The navy needs to detect and neutralize mines quickly, further from the hazards of the minefield.

Solution

Incorporates object detection, mission level autonomy algorithms, open architecture, and modularity principles for improved mine detection.

Impact

Provide Navy an untethered capability to neutralize mines without risking EOD operator lives and the ability to collaborate with Navy UxS swarms.



DoD Partner(s)

- PMS-408

Commercial Vendor(s)

- Arete Associates
- Greensea IQ
- Nautilus Robotics

Autonomous Amphibious Response Vehicle

Surf zone capable mine countermeasures.

Problem

USMC does not have the capability to clear explosive hazards in littorals and on the beach without putting Marines at high risk.

Solution

Vehicles that can navigate from boat through very shallow water onto the beach, identifying and neutralizing mines/explosive threats.

Impact

The solution will provide the USMC an organic capability to neutralize mines, clearing the water for amphibious operations



DoD Partner(s)

- MARCORSYSCOM

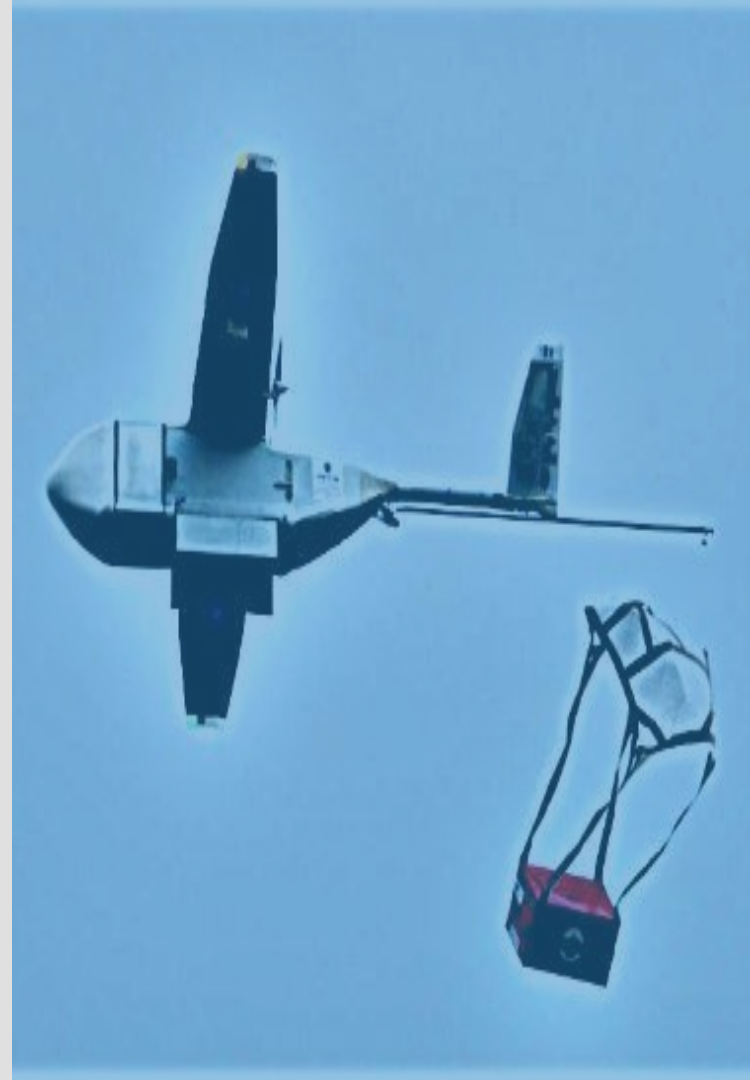
Commercial Vendor(s)

- Greensea IQ

Supply Chain

Sourcing, rapid design, manufacturing, storage, and transport of critical supplies and capabilities

- Just-in-Time Delivery
- [Enterprise Test Vehicle](#)
- Critical Supply Delivery
- Autonomous Vertical Takeoff & Landing
- Construction Scale Additive Manufacturing
- Digital Engineering and Manufacturing of Composite Structures



Enterprise Test Vehicle

Rapid manufacture, reduced costs, and upgradeable design of weapons systems.

Problem

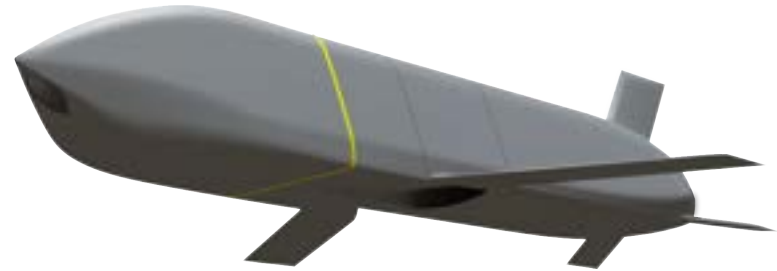
Current weapons production efforts are constrained by narrow supply chains, proprietary data, and inflexible designs

Solution

Weapons systems that maximize low-cost components and maximize commercial-off-the-shelf (COTS), with a focus on advanced manufacturing methods, and open system architecture

Impact

Ability to rapidly stockpile and replace inventory, export designs for partner nation building, all at minimal costs curves for capability.



DoD Partner(s)

- AFLCMC PEO Weapons
- SOCOM
- AFRL
- NAVAIR
- USINDOPACOM

Commercial Vendor(s)

- Zone 5 Technologies
- Anduril Industries
- IS4S
- Leidos Dynetics

Just-in-Time Delivery

Unmanned amphibious supply delivery.

Problem

Autonomous systems are needed for transportation of critical items to ships and expeditionary units to delivery time-sensitive medical supplies and reduce operational delays.

Solution

Autonomous flying system designed for maritime deployment; heavy-fuel capable with takeoff from and landing on moving ships in rough sea states

Impact

Reduction of mortality rates during amphibious or humanitarian operations and cost savings generated by limiting parts-related delays for maritime assets.



DoD Partner(s)

- NMRC-NAMD

Commercial Vendor(s)

- Skyways Air Transportation
- L3 Harris Technologies and Near Earth Autonomy
- Shield AI



Digital Engineering & Manufacturing of Composite Structures

Digital twins for composite design, manufacturing, and structural health.

Problem

Uniquely designed replacement parts take too long to develop and acquire. They often rely on expensive, bespoke systems or unreliable supply chains.

Solution

Holistic digital models that are interoperable with industry-standard software, using converted government-furnished artifacts into technical data packages, that allow for rapid manufacture of digital design into molded composite structures.

Impact

Authoritative and interoperable models for DoD system simulations, predictive maintenance, and other use cases that decreases costs and increases speed of delivery.



DoD Partner(s)

- Arnold Engineering Development Complex
- USAF Materiel Command
- TRMC

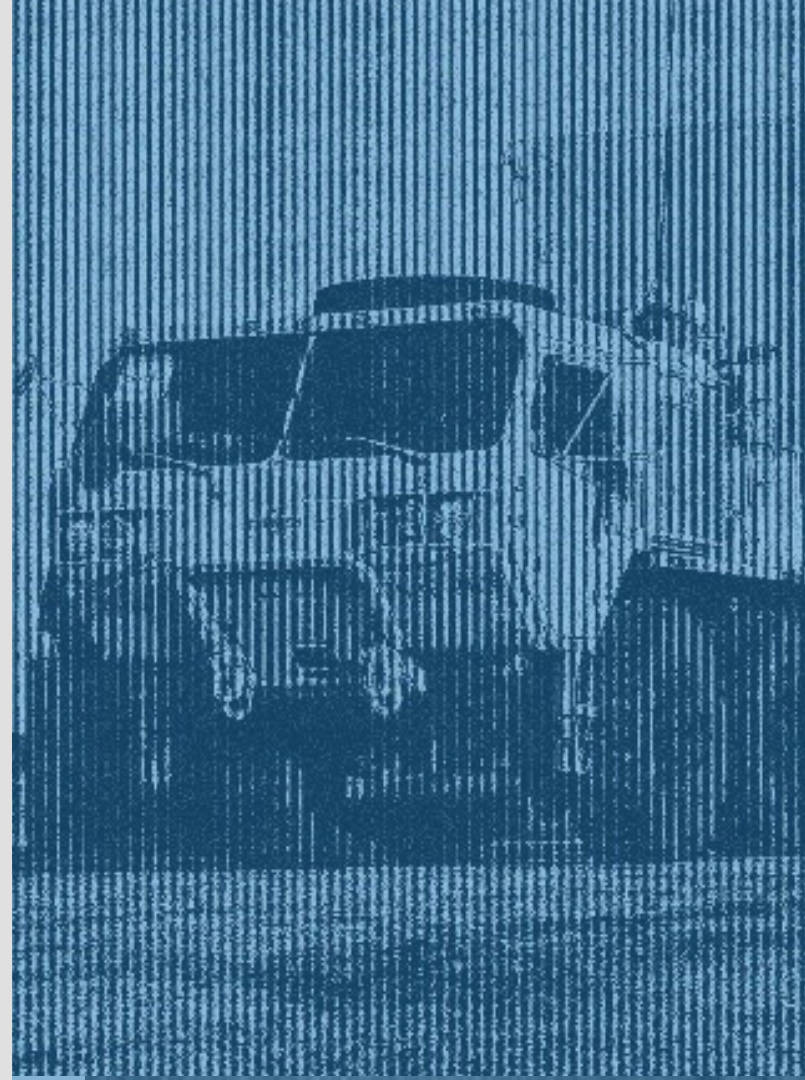
Commercial Vendor(s)

- Karem Aircraft

Ground Mobility

Technology to improve safety systems and fuel economy, increase force protection, and reduce boots on the ground

- Ground Vehicle Autonomous Pathways
- Ground Vehicle Autonomous Pathways II
- Ground Expeditionary Autonomous Retrofit System (GEARS)



Ground Vehicle Autonomous Pathways

Autonomous navigation software and development pipelines.

Problem

Land warfare components commit significant resources to fast, complex, and lethal reconnaissance missions. These operations introduce soldiers to heightened risk and cognitive burden.

Solution

Autonomous navigation software and teleoperation capabilities for the Army's Robotic Combat Vehicle that leverages advancements in remote operations, sensing, data, fusion, and localization, supported on the backend with robust DevSecOps, Modeling, and Simulation.

Impact

Save lives by optimizing maneuvers during high risk operations, and providing increased situational awareness for combat units.



DoD Partner(s)

- Army PdM RCV (PEO GCS)
- SOCOM

Commercial Vendor(s)

- Kodiak Robotics
- Applied Intuition
- Forterra
- Scale AI
- Neya Systems

Ground Vehicle Autonomous Pathways II

Off-road autonomous vehicle software stacks & integration.

Problem

Terrain in land warfare environments is unpredictable and complex. Most AV software is geared towards controlled systems of roads, highways, and speed limits and lacks maturity to operate in off-road scenarios.

Solution

Autonomous system that supports uncrewed vehicles and provides obstacle avoidance, dynamic path planning, and assisted teleoperation with prior knowledge of the environment.

Impact

Part of Fast Follower Strategy to take advantage of rapidly advancing AV technology to help save lives by optimizing maneuvers during high risk operations.



DoD Partner(s)

- PdM RCV (PEO GCS)
- PM XM30 (PEO GCS)

Commercial Vendor(s)

- Overland AI
- Palantir
- Anduril Industries
- Applied Intuition



Ground Expeditionary Autonomy Retrofit Systems

Applique kits for Army logistics vehicles.

Problem

Army logistics vehicles require significant personnel to operate and expose troops to long-duration, hazardous missions.

Solution

Applique kits to convert Army vehicles into uncrewed platforms - beginning with the Palletized Load System (PLS). Provides teleoperation, waypoint navigation, and retroverse features at a convoy operational ratio of 1:9

Impact

90% reduction in troops needed to manage long haul logistics operations by removing constraining work-to-rest cycles and enabling 24/7 operations. Ability to scale to other platforms in Family of Tactical Wheeled Vehicle fleet.



DoD Partner(s)

- PEO CS&CSS
- PdM Robotic Autonomous Systems

Commercial Vendor(s)

- Forterra
- Neya Systems
- Carnegie Robotics

Software, Architecture, and Protocols

Fostering interoperability for seamless collaboration, reliability, and national security

- Autonomous Collaborative Teaming



Autonomous Collaborative Teaming

Multi-modal UxS teaming for denied environments.

Problem

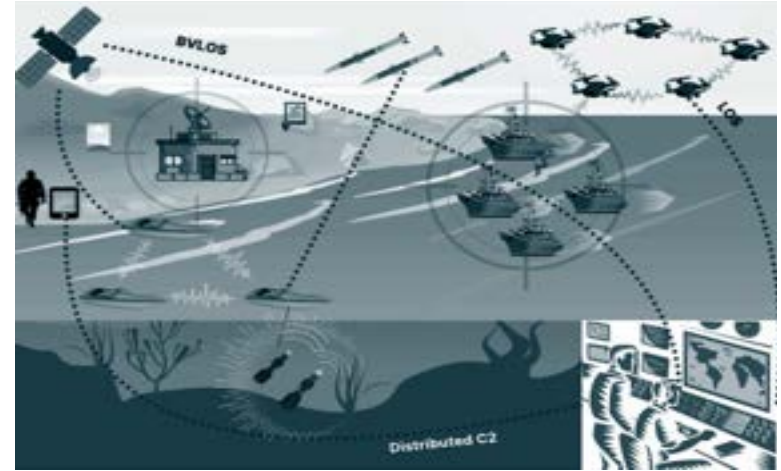
The DoD lacks the ability to coordinate hundreds or thousands of multi-domain uncrewed platforms in a shared environment, particularly when communications are disrupted or denied.

Solution

Collaborative Autonomy solutions will allow individual autonomous assets of multiple modalities to share information and accomplish complex tasks when command and control communications are disrupted.

Impact

Multi-domain uncrewed platforms will be able to be C2'd and conduct complex tactics at scale in a communication disrupted and denied environment.



DoD Partner(s)

- INDOPACOM
- Project Overmatch

Commercial Vendor(s)

- TBD

Autonomy Portfolio

With a relentless focus on the end-user, through software, hardware, and architecturally sound approach, we provide trusted, secure, and domestic/allied sourced solutions with strategic impact.