

Solutions for Evolving Missions

UNMANNED SYSTEMS

Known for our commitment to delivering next-generation technologies to the fleet and trusted for over 24 years to support DOD navigation and communication solutions worldwide, W R Systems, Ltd. (WR) is an expert integrator for Unmanned Surface Vehicles (USVs) on a variety of platforms.

WR leverages decades of experience with USV command and control (C2), autonomy, navigation, and perception subsystems development from inception to testing and sustainment. This comprises a full system of systems engineering support providing vessel control and critical payload operation in the unmanned domain.

OUR EXPERIENCE

- Autonomy Verification and Validation (V&V)
- Navigation and Vehicle Control Systems
- Command and Control (C2)
- Internal Monitoring and Self-Assessment (Health Monitoring)
- Perception Sensor Integration and Situational Awareness
- Payload Integration
- Surveillance
- Unmanned Maritime Autonomy Architecture (UMAA) Compliance
- Unmanned Aerial Sensor Launch and Recovery
- Underway Refueling
- Ground Vehicle Launch and Recovery
- Minesweeping Operations

OUR CAPABILITIES

- Autonomous Navigation
- Sensor Integration
- Craft Monitoring and Control System
- Craft Communications
- Payload Integration
- Cybersecurity (design, implementation, and certification support)
- Testing (plans, procedures, factory acceptance, underway)
- Software Developed in Compliance with MUSV Performance Spec and the Unmanned Maritime Architecture v1.0



Specific Tasking

- Navy High-Volume Long-Range Precision Strike (HVLRRPS)
- Navy Seamob program
- USV Third-Party Targeting (3PT)
- USV C2 and Communications Software
- Multi-Robot Operator Control Unit (MOCU)
- ANTX 2017 – USV and Unmanned Ground Vehicle (UGV) demonstration
- ANTX 2019 – Multi-USV coordinated launch and recover UAV demonstration
- Payload Systems:
 - Powervent
 - Surveyor
 - High Tow Force (HTF)
 - NAIAD 11-Meter
 - Mine Countermeasures (MCM)
 - Modular Unmanned Surface Craft Littoral (MUSCL)
 - Combatant Craft USV (CCUSV)
 - Coyote Unmanned Aerial Sensor (UAS)
 - Sandfly Quadcopter UAS

Unmanned Surface System Support

WR has a long history of refining requirements for Navy, Marine Corps, and NATO unmanned systems leveraging use-case analysis and experimentation.

- Naval Surface Warfare Center, Carderock Division (NSWCCD)
- Marine Corps Long-Range Unmanned Surface Vehicle (LRUSV)
- Program Executive Office Unmanned and Small Combatants (PEO USC)
- Naval Information Warfare Center (NIWC) (formerly SPAWAR Atlantic) in support of PEO Unmanned Maritime Systems (PMS 406)
- Naval Surface Warfare Center – Indian Head Division (NSWC IHD)
- NAVSURFWARCEN PNC FL

WR's FairSeas Geospatial Navigation Software Suite

FairSeas G-Arc is currently being used to develop: a UMAA compliant solution for AIS transmission control for USVs; a 100 route optimization for fuel economy and safety; a sensor-data-fusion engine; a USV autonomy control module; a 4D S-100 rendering engine; and a head-up display on Smartglasse.

APPLICATION AREAS

- Harbor and coastal navigation
- Real time data collection and synchronization-navigation
- Inland and coastal electronic navigation
- C2 Solutions
- Charting services and analysis
- Search and Rescue (SAR)
- Voyage Data Recording (VDR)
- Vessel Traffic Services (VTS)
- Training and simulation



NAVIGATION - SAFETY - TRUST

FAIRSEAS

**FLEXIBILITY AND EXTENSIBILITY THAT ENHANCES VESSEL NAVIGATION
IN THE UNMANNED SYSTEMS DOMAIN**

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