Topic: OSD06-UM1

Daniel H. Wagner, Associates, Incorporated

Detailed ASV/USV Modeling and Simulation System (DAMS)

Detailed ASV/USV Modeling and Simulation system (DAMS) accurately assesses Autonomous Surface Vehicle (ASV) and Unmanned Surface Vehicle (USV) effectiveness and vulnerability in any mission of interest (e.g., submarine track-and-trail; intelligence, surveillance, and reconnaissance (ISR); deception) in a user friendly, intuitive, detailed, and realistic modeling and simulation (M&S) environment (and with straightforward enhancements will support any autonomous or unmanned vehicle). In particular, DAMS accurately evaluates the mission performance of potential ASV/USV sensor suites, and determines the most cost-effective sensor suite for a particular mission or set of missions. Daniel H. Wagner Associates has over 50 years of experience in developing and transitioning complex software components to prime contractors and Department of Defense customers, and is teamed with NASA Jet Propulsion Laboratory (JPL) and Spatial Integrated Systems.

Technology Category Alignment:

Test, Evaluation, Validation, and Verification
Ground and Sea Platforms

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SYSCOM: ONR
Contract: N00014-15-C-0007
Corporate Brochure: https://navystp.com/vtm/open_file?type=brochure&id=N00014-15-C-0007

Department of the Navy SBIR/STTR Transition Program

STATEMENT A. Approved for public release; distribution is unlimited.
ONR Approval # 43-2203-16

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Detailed ASV/USV Modeling and Simulation System (DAMS)
Daniel H. Wagner, Associates, Incorporated

WHO

SYSCOM: ONR

Sponsoring Program: Medium Displacement Unmanned Surface Vessel

Transition Target: ONR and PMS-406 Modeling and Simulation

TPOC:
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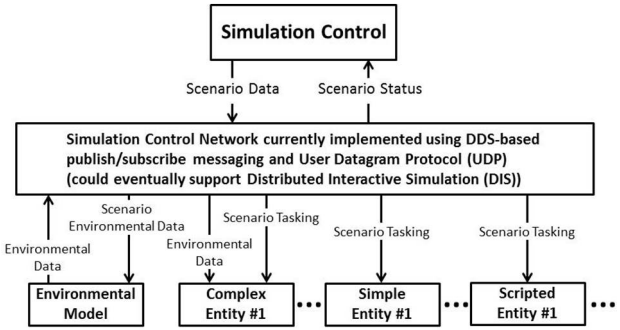
Other transition opportunities: DARPA for Modeling and Simulation



WHAT

Operational Need and Improvement: Lack of accurate plug-and-play modeling and simulation of autonomous/unmanned surface vehicles.

Specifications Required: Accurately model real-world behavior of autonomous/unmanned surface vehicles of interest.

Technology Developed: 1) Simulate an entire environment using an intuitive user interface.
2) Execute a complex scenario with all relevant information visualized in a browser.
3) Provide easily composed intelligent threat, friendly, and neutral entities including distributed data fusion to create accurate Common Operational Picture (COP) in Denied/Disconnected, Intermittent, and/or Low Bandwidth (D/DIL) communications environment.
4) Provide militarily effective Situational Awareness (SA) picture (e.g., quality of GPS, quality of off-board data, potential surprises, communication network status, accurate target location, capabilities and intent estimation).
5) Support evaluation of operationally relevant metrics.

Warfighter Value: 1) Cost-effective multiple vehicle systems of systems design and development.
2) Cost-effective multiple vehicle systems of systems testing.
3) Cost-effective training with multiple vehicles.
4) Cost-effective multiple vehicle tactics development.
5) Cost-effective "operator or autonomous control system assistant" on vehicle.

WHEN

Contract Number: N00014-15-C-0007 **Ending on:** January 1, 2019

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Demonstrate accuracy using testbed data	Low	Successful test and evaluation in testbed environment	6	November 2017
Demonstrate accuracy using real-world data	Med	Successful test and evaluation using real-world data	7	November 2017

HOW

Projected Business Model: Daniel H. Wagner Associates designs, develops, markets, implements and provides training for custom data fusion, decision support and resource optimization software. Our goal is to support Navy program offices and collaborate with defense contractors to integrate these advanced data fusion solutions for ship and aircraft platforms. Examples of successful transitions include:

1) Acoustic Mission Planner (AMP) in MH-60R avionics system and shipboard Mission Planning System (MPS).

2) Data Fusion Engine (DFEN) in Undersea Warfare Decision Support System (USW-DSS).

3) Net-Centric Data Fusion (NCDF) for USW-DSS.

4) Mission Optimization Configuration Item (MOCI) Web Service in USW-DSS.

Company Objectives: Rapidly and cost-effectively integrate DAMS components into larger modeling and simulation systems.

Potential Commercial Applications: Modeling and simulation components for large prime contractors and foreign customers

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