

WHO

SYSCOM: NAVAIR

Sponsoring Program: NAVAIR

Transition Target: NAVAIR

TPOC: (301) 123-4567

Other Transition Opportunities: F/A-18 A-G, E-2D, P-8A, H-60, Commercial Aerospace, Energy

Notes: A unique aspect of our approach is the use of non-proprietary, open-source browsers, toolsets and SimpleAR Pro, our Unity-based authoring tool that allows the government to update all training content organically. We offered full government data rights for all training content long before it became a contracting requirement.

SIQ QA also adheres to the International Mixed Reality Standards Association (IMRSA) universal standards for developing Mixed Reality (XR) content. These standards provide stakeholders with several benefits, including cost reduction, full data control, and the elimination of vendor lock.



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WHAT

Operational Need and Improvement: The United States Navy's commitment to ensuring optimal asset readiness plays a pivotal role in its ability to project power effectively in force-on-force conflicts. To bolster this commitment, it is imperative that the intricate networks of wires, harnesses, connectors, and other components in aircraft remain in peak working condition. Recognizing the importance of regular inspections and the challenges faced by human inspectors, AVATAR Partners is focusing on enhancing the readiness and safety of aircraft with its Simple Intelligent Augmented Reality for Quality Assurance (SIQ QA) solution.

SIA QA is designed to aid maintainers and inspectors by providing a more efficient and effective QA process for wiring harnesses. The solution is equipped to autonomously and accurately assess the correctness of wiring harness routing and wire state with across all NAVAIR aircraft types.

Specifications Required: Navy seeks an Augmented Reality (AR) system to efficiently inspect and identify aircraft wires and harnesses, overcoming the limitations of current technologies.

Technology Developed: The SIQ QA technology integrates the strengths of Artificial Intelligence (AI) and Augmented Reality (AR) to redefine wiring harness inspection and maintenance. Aircraft maintainers and inspectors receive immediate, context-sensitive information on wiring systems, coupled with real-time corrective guidance. The system employs a hardware-agnostic, location-based AR tracking with enhanced camera clarity, tailored for intricate aircraft wiring. At its core, SIA QA utilizes AI and Machine Learning to cross-reference ideal "Should-be" wiring setups with the aircraft's real-time "As-is" configurations, ensuring precise identification of discrepancies and potential wire damage. Also, the technology's AI-driven layer meta-analyzes the patterns of maintainers and inspectors, providing invaluable feedback for continuous process enhancement.

Warfighter Value: - Serves as an intuitive guide to safeguard operational readiness across all NAVAIR aircrafts.

- Access to more reliable aircraft, always deployment-ready with minimized unexpected downtimes.
- Real-time, clear visualization of wiring setups, allowing for quicker and more accurate checks
- Faster turnaround times and reduced maintenance delays, ensuring mission-ready aircraft
- Increased aircraft longevity and reduced long-term maintenance costs

WHEN

Contract Number: N68335-22-C-0043

Ending on: Feb 20, 2024

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Use Case Finalization	N/A	Identify 2-3 specific wire routes in aircraft cabin that are traditionally problematic	3	3rd QTR FY21
Mature SIA QA System Design	Medium	Agile Design and Development, In-Process-Review	4	3rd QTR FY21
Engineering, Development, Integration	Medium	Storyboarding, Data Generation, Integration/Product Build, Assessment	7	4th QTR FY23
Process Improvement Layer	Medium	Process Measurement Component, Issue Tracker, ECP Component	7	4th QTR FY23

HOW

Projected Business Model: Based on extensive discussions with various DoD, DHS and Industry stakeholders, we anticipate that SIA QA will be utilized first to immediately incorporate design changes to improve aircraft readiness, to field new technology to increase combat effectiveness for Naval aircraft, and to reduce the cost and time of new aircraft construction. Also, SIA QA will be incorporated into programs for the USAF and USN Nondestructive Inspectors for electromagnetic (Eddie Current) and ultrasonic testing to reduce the labor burden and time to train of current and new inspectors. Since we have already developed MR solutions for the USN, USAF and USCG, SIA QA will be introduced as a preplanned product improvement for QA tasks

Company Objectives: At the end of Phase III, Team AVATAR envisions SIA QA as the preferred tool for QA inspectors to easily identify improper installation of aircraft wiring, fuel, hydraulic, and environmental control systems. Both GOVT and industry will utilize SIA QA to design, test and field ECPs based on input from various sources such as front-line maintenance personnel, Fleet Readiness Centers, and DCMA inspectors. AVATAR has developed a SIA QA commercialization and transition roadmap that involves product evolution, fielding, and sustainment of military and industrial grade smart AR products. AVATAR has spent the last several years considering the customers and return on investment (ROI) based on our initial results from our fielded AR products with the USCG and USAF

Potential Commercial Applications: Commercial Aerospace, Commercial Construction, Energy

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