

Department of the Navy SBIR/STTR Transition Program

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NAVAIR Public Release 2021-868

Topic # N193-D01
On Demand Training Solutions for Maintenance Technicians
Avatar Partners, Inc

WHO

SYSCOM: NAVAIR

Sponsoring Program: PMA-205

Transition Target: PMA-265, 205

TPOC:
(407)380-4773

Other transition opportunities: As experts leave the workforce due to retirement without replacements, encapsulating expert knowledge via Augmented Reality (AR)/Mixed Reality (MR) training/job-aids offers Department of Defense (DoD) opportunities to address this challenge. AR/MR technologies will help reduce labor burden for limited maintainer resources, enhance knowledge & skills of journeyman maintainers, and improve asset availability & readiness. The following have expressed a need to improve On-Demand Training: Fleet Readiness Centers (FRC), Center for Naval Aviation Technical Training Unit (CNATTU), Naval Sea Systems Command (NAVSEA), Naval Education and Training Command (NETC), Explosive Ordnance Disposal (EOD), Navy Construction Battalions (SeaBees), Naval Special Warfare Command (NSW), and United States Marine Corps (USMC).

Notes: AVATAR is actively pursuing transition of similar solutions to United States Coast Guard (USCG), and United States Air Force (USAF). Transition to USAF is underway through the integration of our immersive content development tools via the USAF's Member, Operations, Training, Analytics Reports (MOTAR) Platform. SIA - The divine personification of perception, in particular the accurate perception which is necessary in order to understand the truth.



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WHAT

Operational Need and Improvement: Frequently, Sailors receive advanced training at the schoolhouse, only to spend years away from the systems they were taught to maintain. Simplified Intelligent AR (SIA) provides immersive AR/MR, On-demand training with built-in performance assessment to minimize skill decay, standardize recurring refresher training at the squadron level, and ensure proficiency for complex, unique, and rarely used tasks.

Specifications Required: Navy seeks enhanced refresher training for aircraft maintenance technicians who have been away from systems for which a Navy Enlisted Classification (NEC) was earned: (1) job-aiding solutions that deliver expert systems advising maintainers on diagnostic and repair procedures in context; (2) a training technology solution leveraging computer-based training, hands-on training opportunities; (3) performance assessment to develop sailor knowledge; and (4) adherence to Risk Managed Framework (RMF) guidelines.

Technology Developed: SIA is an On-demand, AR/MR maintenance training & Job-Aiding platform, built-in performance assessment, advanced training capabilities, RMF design. Dual-mode: Open Space (Off-site) Training Mode: Fully digital depiction of aircraft & procedures; Real Environment (On-site) Execution Mode: Overlays holograms directly onto aircraft via precision model target recognition/tracking, 1/8" overlay accuracy. Advanced AR/MR device features. Integrates A-Measure performance assessment suite.

Warfighter Value: Increases accessibility to training (point-of-need training, solutions for novice to expert), reduces life-cycle sustainment impacts for training content (hardware agnostic, modular design, data-tagging for common training architecture across Type, Model, Series (T/M/S); Reduces time/cost & spare parts needed to troubleshoot/maintain aircraft; Improves training efficiency & knowledge retention; Eliminates errors caused by misinterpretation; Isolation of training and knowledge gaps via data analytics; Reduces on-the-job training hours & time on task; Scalable; Increases Readiness; Organic sustainment of training content.

WHEN

Contract Number: N68335-20-C-0378 Ending on: June 25, 2022

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Use Case Finalization	N/A	Use Case with direct effect on aircraft readiness	3	July 2020
Knowledge Elicitation; Criticality, Difficulty, Frequency, (CDF) Analysis	Low	End User Organization Selection, CDF Analysis	3	January 2021
System Design	Med	Agile Backlog, Storyboard Creation, Media Capture. Design Documents	4	February 2021
Engineering, Development and Integration	Med	Useable Software Products Delivered. Completion of five (5) major software builds	6	February 2022
Risk Managed Framework Analysis	High	Understanding of current/future RMF Requirements, Integrated into Software/System Design	6	February 2022

HOW

Projected Business Model: Immersive content creators for DoD. SIA developed using simpleAR Pro, our XR development platform that increases efficiency by 10X. SIA sold with unlimited data rights, simpleAR Pro licenses sold to enable DoD to organically update and sustain their own content, eliminating vendor lock. AVATAR can immediately begin full-rate production of SIA upon Phase III award. AVATAR can sell SIA directly to DoD, or white label program allows implementation by original equipment manufacturers (OEMs). 15 Ecosystem Partners Worldwide licensed to sell AVATAR products, including USN SIA. Provide immersive content for entire aircraft, all T/M/S in the Navy, then any type of equipment (aircraft, ships, vehicles, support equipment, etc.), as well as the commercial sector.

Company Objectives: Recognized as industry leader in MR by large businesses such as Microsoft and Unity. Several years ago, AVATAR perfected development of military & industrial-grade MR applications by eliminating jitter, drift, and reliance on markers. Focused on maintenance & sustainment of immersive content through simpleAR Pro, which enables customers to organically update/sustain their own content, without vendor lock. AVATAR will work with the following government organizations for Navy-wide adoption/integration of the SIA MR Platform: Augmented Reality Remote Maintenance Support Services (ARRMSS), a portable AR headset and application that connects distant engineers, in real-time, to troubleshoot maintenance and repair issues; Augmented Reality Community Network (ARCNET) which is establishing AR requirements for NAVAIR.

Potential Commercial Applications: Manufacturing, Oil and Gas, Automotive, Commercial Construction: Building design, metal wall fabrications, building operations & maintenance, Commercial Aviation: Pilot and maintenance training and operations