

Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.

NAVAIR Public Release 2021-858

Topic # DHP163-002

Development of Visualization Models and AR/VR Software Tools for Model Based Enterprise
Sharp Vision Software LLC

WHO

SYSCOM: NAVAIR

Sponsoring Program: COMFRC
Advanced Technology & Innovation IPT

Transition Target: Navy Product Lifecycle Management (N-PLM), NAVAIR Digital Office

TPOC:

Other transition opportunities: DoD

- Maintenance Organizations
- Fleet Readiness Centers
- Naval Shipyards and Regional Maintenance Centers
- Marine Corps Logistics Commands
- Naval Information and Warfare Centers,
- Air Force Logistics and Maintenance Centers
- DoD Original Equipment Manufacturers and sub-tier suppliers

Notes: SVS software product, AVARIS, provides DoD organizations with the ability to generate authoritative digital work instructions and training materials for use in a connected digital environment. This moves DoD beyond paper-based work instruction with text and 2D graphics, and allows rapid development of technical instructions with visually representative 3D models and other embedded digital content, including videos, audio, photo and text, that improves understanding of complex concepts and maintenance processes.



WHAT

Operational Need and Improvement: The Navy is currently transitioning from a paper-based work environment to a connected digital environment by upgrading industrial facilities with robust information technology and deploying enterprise Product Lifecycle Management (PLM) software to store and distribute digital data and manage workflows. To further use this investment, operational measures must be taken to improve the way technical information is organically developed and used by Navy personnel who provide maintenance, repair, overhaul and sustainment support.

Specifications Required: Developed to meet the desired objectives :

- create step by step work instructions or training materials augmented with imbedded digital content (Animations, 3D Models, Video, Audio, photos, text) and view on a variety of IT peripherals (PC, mobile devices, headsets)
- convert existing PDF instructions into digital work instructions format for editing and viewing
- ID and incorporate solutions to rapidly create 3D content with portable hand held scanning technology and decimate large 3D CAD Files and Laser scan point clouds
- operate as either standalone package, or integrate with enterprise Product Lifecycle Management (PLM) software suite

Technology Developed: Developed using proven industry standard software stack and state of the art hardware solutions:

- Custom work instruction editor built on the MERN Stack (Mongo DB, Express and React, Node.js), Model Decimation powered by Pixyz and viewer app built using Unity 3D
- Matter and Form 3D desktop scanner for small objects; Peel 2 handheld 3D scanner for larger items which captures color and texture

Warfighter Value: Provides the DoD Sustainment enterprise with the opportunity to generate work instruction and training materials with 3D content and other digital artifacts to visualize complex maintenance tasks that allow for better understanding and task execution, which improves safety, performance and quality. Leverages existing DoD Model Based capability capital investments and facility modernization by extending transformation to the way the sustainment community develops and communicates technically complex information.

WHEN

Contract Number: N68335-19-C-0533 **Ending on:** March 11, 2022

Milestone	Risk Level	Measure of Success	Ending TRL	Date
UX/UI improvements	Low	Usability and Aesthetics	8	July 2021
AVARIS Version I Release	Low	User Functionality, speed of model decimation	8	August 2021
Documentation/Bug Fixes	Low	User Manuals, expanded evaluation testing	8	February 2022
Production Deployment	Low	Hololens viewer Port, Software refinement, On site training	9	March 2022

HOW

Projected Business Model: Sharp Vision Software's business model for AVARIS software will be similar to software licensing approaches based on customer requirements.

- A subscription model (# licenses to support concurrent users within the enterprise)
- One-time upfront license fee with annual recurring maintenance fees

Company Objectives: For Dept of Navy and other DoD Customers: SVS's objective is to license the AVARIS Software package and pursue integration with Navy's Product Lifecycle Management (PLM) deployment with Siemens' Teamcenter or any other PLM tools being planned.

For Commercial Sales: Planned Software licensing strategies to provide same capabilities with scalable standalone packages to support small -mid- large size engineering and manufacturing firms.

Potential Commercial Applications: SVS' AVARIS can help commercial industries with similar requirements migrate from a 2D paper-based environment to a 3D model-based environment to increase productivity and reduce costs. Commercial applications include general aviation manufacturers and repair facilities; shipbuilding and maintenance; automotive industry; energy, medical equipment, etc. This technology solution targets industries with complex assemblies and production processes.

Contact: Win Liu, CEO, Sharp Vision Software LLC
win.liu@sharpvisionsoftware.com (443) 527-7889 mobile