

Mobile Technology for Component Location Improvements

Status: Pending Implementation

PROBLEM / OBJECTIVE

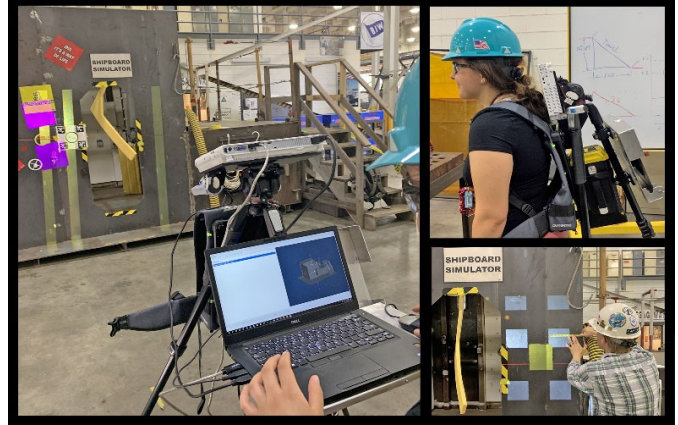
The amount of time required locating items during outfitting and final installation is a significant contributor to shipbuilding costs. Recent studies have indicated that location activities account for up to 10 percent of touch labor costs. Opportunities to reduce location costs and labor requirements are afforded by recent advancements in projection technologies, specifically when applied to hanger stud and paint masking location identification. While shipyards commonly perform automated extractions from CAD models, manual steps are required to feed data files into the projection systems. For paint masking, drawings are manually developed with dimensions added, providing direction for areas of “no paint” marking and ultimately, masking off prior to paint.

The Digital Data for Next Generation Measurement Locating Tool project utilized base technology developed under ManTech for US Air Force by Delta Sigma Company. The project team determined enhancements required to accommodate differences between aerospace and ship construction environments, as well as established registration methods to correlate physical to digital data optically. The project designed and developed a mobile optical projection device and supporting software to receive and process CAD and associated product data, and integrated the location data with the appropriate technologies to validate the accuracy and repeatability of an improved process.

ACCOMPLISHMENTS / PAYOFF

Process Improvement:

The Digital Data for Next Generation Measurement Locating Tool project developed processes to locate and install paint masking and hanger stud positions by developing software that automatically queries the CAD model and planning databases for the location and work sequencing data needed to drive the projectors. This project also developed a Mobile Optical Projector (MOP) system to project paint-masking data.



GDBIW projects paint masking on a Mobile Optical Projector (MOP)

Implementation and Technology Transfer:

This project was a twenty-eight month effort with full implementation projected second quarter fiscal year 2023.

Expected Benefits and Warfighter Impact:

The Digital Data for Next Generation Measurement Locating Tool Project will provide an estimated combined 5-year savings of \$12.85M.

- Reduces labor hours associated to extraction of location data by 90%
- Reduces labor hours associated to no-paint markup by 30%
- Reduces labor hours associated to stud/tile location by 5%

TIME LINE / MILESTONES

Start Date: Sept 2019

End Date: Jul 2021

FUNDING

Current Navy ManTech Investment: \$1.6M

PARTICIPANTS

ONR Navy ManTech
Naval Shipbuilding and Advanced Manufacturing Center
General Dynamic Electric Boat
General Dynamic Bath Iron Works