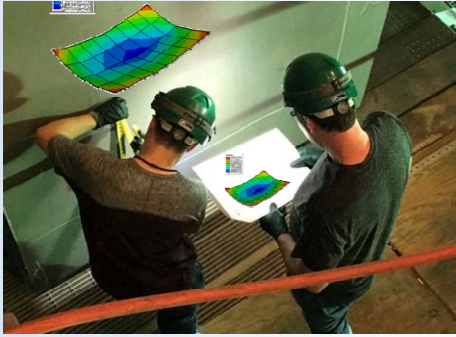




Digital Data for Next Generation Measurement/Locating Tools

Project Snapshot



Project Team:

- General Dynamics Electric Boat (lead)
- General Dynamics Bath Iron Works

Project Dates:

Mar 2019 – Sept 2020

Objectives:

- Improve ship construction processes through design and development of software to automatically query CAD models and planning databases.
- Reduce stud and no paint markup installation process through development of a mobile optical projection device capable of receiving, processing, and projecting extracted CAD and associated product data.

Estimated Savings:

- 90% labor reduction in extraction of location data
- 30% reduction of construction costs associated with no-paint markup location labor
- 5% reduction of construction costs associated with stud location labor
- \$479K per VCS & CLB Hull
- \$510K per DDG Hull

Program Offices for VIRGINIA (VA), VIRGINIA Payload Module (VPM) and COLUMBIA (CLB) class submarines have directed a reduction in construction costs. The amount of time required to locate/accurately position 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% 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 currently required to feed data files into the projection systems.

General Dynamics Electric Boat, in collaboration with General Dynamics Bath Iron Works, has embarked on the *Digital Data for Next Generation Measurement/Locating Tools* project to investigate opportunities to improve the current process used to locate and install paint masking and hanger stud markings. The project will design and develop software to enable automatic query of CAD models and planning databases for location and work sequencing data. A mobile optical projection device is to be developed to receive, process, and project extracted CAD and associated product data to expedite stud and no paint markup installation and is expected to significantly improve current processes.

This 18-month effort will examine automatic extraction and projection of fabrication data to expedite outfitting and final installation processes. This project is expected to result in an estimated savings of \$510K per DDG hull, \$479K per VIRGINIA and COLUMBIA Class Submarine hulls for an estimated 5-year savings of \$7.3M (5-year ROI of 2.91). The solution technology is expected to be implemented at EB's Quonset Point, RI facility and BIW's Maine facility during the fourth quarter FY20.

Naval Shipbuilding Advanced Manufacturing is a Navy ManTech Center of Excellence, chartered by the Office of Naval Research (ONR) to develop advanced manufacturing technologies and deploy them in U.S. shipyards and other industrial facilities. NSAM's primary goal is to improve manufacturing processes and ultimately reduce the cost and time required to build and repair Navy ships and other weapons platforms. For additional information on this and other NSAM projects, please visit <http://nsamcenter.org>.

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