



For Immediate Release

## Executive Control Board awards \$20.1M for R&D Project Portfolio

**December 14, 2018** -- The Executive Control Board of the [National Shipbuilding Research Program](#) (NSRP) has selected a new round of R&D projects for award, as part of the Program's continuing mission to reduce costs associated with U. S. shipbuilding and ship repair. These new projects, valued at over \$20M, including cost share, were among those proposed in response to Research Announcement 19-01, issued in July 2018. Abridged descriptions follow:

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### Robotic Arc Directed Energy Deposition (DED)

EWI, Navus Automation, HII - Newport News Shipbuilding, Austal USA, NSWC Carderock

**Industry Investment:** \$1.31M | **Public Sector:** \$68K | **NSRP Investment:** \$1.31M

**Duration:** 24 Months

#### Objective

This project will develop the digital data workflow processes, establish workforce competencies, help breakdown process qualification barriers, demonstrate representative qualifications, and provide standardized equipment for robotic arc DED Additive Manufacturing implementation. A standardized robotic arc DED Additive Manufacturing gantry will be developed that can build a wide range of structures and components.



## On-Board Ship 3D Environment

**HII-Newport News Shipbuilding**, HII-Technical Services, GD Electric Boat, Siemens PLM Software, eQ Technologic (eQube), NAVSEA 04, NAVSEA 08, Norfolk Naval Shipyard, SPAWAR

**Industry Investment:** \$1.77M | **NSRP Investment:** \$1.72M

**Duration:** 24 Months

### Objective

The primary objective of the On-Board Ship 3-D Environment is to provide the capability for Shipboard crew to visually display and analyze the 3D Ford Class Digital Data Environment (FCDE) as a supplement to the Navy's Advanced Technical Information System (ATIS) digital data and drawings to accurately communicate in-service maintenance and repair information.

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## Qualification Testing of Insulated Bus Pipe (IBP) for Shipboard Introduction

**Hepburn & Sons, LLC**, Tefelen, AeroNav Laboratories, GD Bath Iron Works, HII-Newport News Shipbuilding, HII-Ingalls Shipbuilding

**Industry Investment:** \$1.66M | **NSRP Investment:** \$1.66M

**Duration:** 24 Months

### Objective

The project aims to qualify IBP for shipboard introduction and to research and develop a coaxial IBP with low magnetic signature for MVDC applications. A detailed test plan will be written and submitted to the Navy and ABS for concurrence. The project will document the results of all qualification tests, results of the coaxial concept design and development, and a written draft specification for IBP.

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## Cost Reduction of Shock Application

**HII-Ingalls Shipbuilding**, HII-Newport News Shipbuilding, Hi-Test Laboratories, National Technical Systems, NAVSEA, NSWC Carderock

**Industry Investment:** \$538K | **NSRP Investment:** \$538K

**Duration:** 24 Months

### Objective

The objective of this project is to leverage opportunities resulting from the recent approval and issuance of MIL-DTL-901E (Shock Tests, H.I. (High Impact) Shipboard Machinery, Equipment and Systems, Requirements for) to reduce the high cost of shock testing and qualification on U.S. Navy surface ships and submarines.





## Tele Welding – Remote Operation of Shipyard Welding (and other) Equipment

**EWI, HII-Newport News Shipbuilding, Robotic Technologies of Tennessee, GD Electric Boat, Visible Welding**

**Industry Investment: \$762K | NSRP Investment: \$762K**

**Duration: 24 Months**

### **Objective**

The objectives of the project are to create and integrate a system that allows workers to operate welding equipment from a remote location and to design the necessary software, hardware, and interfaces that provide a robust, easy-to-use system with reliability and serviceability compatible with the shipyard environment.

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## Supply Chain Integrity – Blockchain for Smart Contracts

**HII – Newport News Shipbuilding, GuardTime Federal, LLC, HII- Ingalls Shipbuilding, NIST**

**Industry Investment: \$1.34M | NSRP Investment: \$1.34M**

**Duration: 24 Months**

### **Objective**

The project goal is to provide the Navy and the NSRP shipbuilders a viable and operationally capable proof of concept blockchain technology solution based on the Plan-Source-Make-Deliver SCOR Supply Chain model. It will produce the capability to integrate ‘smart’ (digital) contracts and part track and trace provenance to deliver significantly improved decision and risk management while increasing transparency and improving compliance.

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## Capturing In-Service Ship Configuration

**HII- Newport News Shipbuilding, HII Technical Services, ELYSIUM, Norfolk Naval Shipyard, SPAWAR, NAVSEA 04, NAVSEA 08**

**Industry Investment: \$449K | NSRP Investment: \$449K**

**Duration: 18 Months**

### **Objective**

This project will develop capabilities to capture and maintain current In-Service ship configuration through the use of laser scan data overlay onto the Hull Planning Yard’s (HPY) 3D product model. Configuration deviations; between the current ship arrangements and the HPY’s 3D product model, will be analyzed and visually displayed in the 3D product model.





## Fatigue Analysis of Swaged Bulkheads

**GD NASSCO**, San Diego State University

**Industry Investment:** \$447K | **NSRP Investment:** \$830K

**Duration:** 24 Months

### Objective

The goal of the project is to demonstrate that swaged bulkheads have equivalent fatigue strength or better than a structurally equivalent traditionally stiffened bulkhead. The fatigue life of swaged bulkheads is of high importance, and will be investigated through finite element analysis supplemented by building specimens and physical fatigue testing. The results of the analysis and testing will be compared and utilized to verify that swaged bulkheads perform comparably to traditionally stiffened bulkheads.

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## Mixed Reality System for Real-Time Construction Problem Resolution

**GD Electric Boat**, GD Bath Iron Works, ESI North America, D'Angelo Technologies, GD-APS, Navatek, GD Mission Systems

**Industry Investment:** \$1.59M | **NSRP Investment:** \$1.59M

**Duration:** 18 Months

### Objective

This project will apply an innovative combination of Augmented Reality and Virtual Reality technology to produce a Mixed Reality (MR) tool that will provide real-time resolution of construction problems. The goal of the project is to make a step reduction in construction costs for CLB class submarine (and similar ship programs) by making an appreciable reduction in the construction span time.

Questions? Contact the NSRP Team at: [nsrp@ati.org](mailto:nsrp@ati.org)  
or go to the NSRP website: [www.nsrp.org](http://www.nsrp.org)

