

# Plug & Play Cobotics

A More Shipyard-Flexible Approach

NSRP Welding Technology Panel Meeting

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# Project Team

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- Shipyard POC: Mr. Jamie Breakfield, Engineer, R & D, HII-Ingalls Shipbuilding; and
  - Jonathan Roberts, Welding Engineer, Ingalls Shipbuilding
- Government Agency POC: James Thomas, Naval Surface Warfare Center Carderock Division (NSWCCD), Welding, Processing, and NDE Branch (611), [james.a.thomas555.civ@us.navy.mil](mailto:james.a.thomas555.civ@us.navy.mil) 301.275.8447
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# Problem Statement

This project addresses two problems that limit the adoption of automation, specifically cobots for use in ship building:

- Typical cobot integrations are “vertical,” thus often adding welding equipment desired by the integrator, not allowing use of already installed equipment; and
- The integrator’s control algorithms require new skill sets for operators that are already very competent in setting up and operating existing welding equipment

***The proposed simplified approach reduces the cost and optimizes the already efficient skill set of shipyard mechanized welding equipment operators.***

# The Essence of this Project:

- Streamline the use of the cobot as a motion system, similar to the many mechanized devices now in wide use.
- Superior ease of set up, path planning and worker safety can be put to full advantage by the results of this effort.
- Shipyard panel fabrication areas have welding power supplies located under the structural supports of the overhead crane rails.
- They are connected to 480V buss ducts so that high-voltage power cable length is minimized.
- Shipyard workers are completely adept at setting welding parameters
- Project will allow cobots to be the next-generation motion system for welders, plasma cutters, and other devices.

# Progress to Date

- Held the kickoff meeting 4/10/24
- Held additional scope meetings with Jonathan Roberts and Jim Thomas
- Held another meeting Jim Thomas on 5/10/24 to discuss qualification
  - Application falls into the mechanized robot qualification because the operator can change the weld settings during welding.
  - We will do a groove weld
- Evaluating both UR and Smooth Robotics Cobot systems
- Will perform both weave and multipass capability, if time and budget allow
- Next steps are to acquire the materials and setup the robot.

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Thank you for your time!

