

# Department of the Navy SBIR/STTR Transition Program

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NAVSEA #2020-0420

Topic # N141-026

Innovative Velocity Sensors

BTech Acoustics LLC

## WHO

**SYSCOM:** NAVSEA

**Sponsoring Program:** PEO IWS 5.0 / Undersea Warfare Systems

**Transition Target:** Navy Fleet submarine bow array

**TPOC:**  
(401)862-5340

**Other transition opportunities:**  
Submarine Hull Array



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## WHAT

**Operational Need and Improvement:** The Navy is developing technologies for building and installing large SONAR arrays external to the hull of a submarine. These technologies allow for a lightweight, scalable array which provides many options for installation and deployment. Integral to these arrays are the acoustic particle velocity sensors. There are several velocity sensors available for use; however, these sensors do not meet the improved sensor sensitivity desired by the Navy in order to increase the capability of submarine flank SONAR arrays. In addition, current sensor technology does not meet all the sensor environmental requirements that come with being installed on a submarine external to the pressure hull.

**Specifications Required:** The Navy needs an innovative sensor solution that can meet all the performance, form factor, and environmental requirements while striving to reduce per channel cost. This requires innovation at the design level to trade off all the performance and environmental requirements against packaging of the sensor as well as to facilitate automation during the production phase.

**Technology Developed:** BTech has developed acoustic motion accelerometers for underwater hull and bow array applications that offer high sensitivity and wide bandwidth to achieve excellent detection performance. Demonstration of shock survivability is underway.

**Warfighter Value:** This technology will benefit the Navy by providing an affordable sensor solution for future arrays that are external to the submarine pressure hull. BTech produced sensors that offer excellent sensitivity and bandwidth coverage to support detection performance needed for mission success. New production methods will reduce cost, improve reliability, and reduce maintenance.

## WHEN

**Contract Number:** N68335-19-C-0256 **Ending on:** February 24, 2021

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Pass CST Shock Test	Med	Satisfactory survivability after exposure to shockwave	5	December 2020
Acoustic Calibration	Med	Meets sensitivity and frequency response spec	5	December 2020
Deliver 9 sensors for panel test	Med	Installed and tested in 3x3 array	5	May 2021

## HOW

**Projected Business Model:** BTech will make the sensors and provide them to the Navy and their major defense contractors.

**Company Objectives:** BTech's objective is to design, manufacture, sell and support the new innovative velocity sensors. We wish to discuss this technology with program in need of conformal acoustic sensors.

**Potential Commercial Applications:** Potential commercial applications include Geophysical Oil Exploration, harbor surveillance

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