Department of the Navy SBIR/STTR Transition Program

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NAVSEA #2020-0442

Topic # N093-198

MIRK to Improve ASW & Reduce False Alarms

Prometheus Inc.

WHO

SYSCOM: NAVSEA

Sponsoring Program: IWS 5A

Transition Target: ASW Combat System AN/SQQ-89(V)

TPOC:
(401)832-8648

Other transition opportunities: All sonar systems that perform active detection using underwater acoustics, whether for detection of submarines, torpedoes, mines, or other man-made items.

DVIDS Photo https://www.dvidshub.net/image/6220502/sailors-aboard-uss-john-s-mccain-ddg-56-conduct-usw-exercise-sonar-control

WHAT

Operational Need and Improvement: Active sonar systems struggle to differentiate between natural objects (e.g., topography, marine species) and manmade objects (e.g., submarines, mines). Ability to identify man-made objects based on reflectivity parameters promises to improve detection and classification performance for active sonar systems.

Specifications Required: MIRK promises to deliver improved performance relative to active sonar detection, tracking and classification. MIRK does not require any change to existing sensors and processing hardware.

Technology Developed: Algorithms that use reflectivity attributes to identify manmade reflectors, such as submarines, torpedoes, and mines. Technology works across all target speeds and promises to work at all detection ranges.

Warfighter Value: MIRK allows warfighters the capability to reliably detect submarines and mines in real time with fewer false alarms, significantly increasing the fleet's ability to defeat Anti-Access/Area Denial threats.

WHEN

Contract Number: N68335-18-C-0715 **Ending on:** February 28, 2021

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Prototype Software	Low	Rates of detection and false alarms	4	November 2020
Software and algorithm evaluation by ACB	Med	Approval by the working group	4	December 2020
Integration ready software	Med	Approval by PEO IWS 5.0	7	March 2023

HOW

Projected Business Model: Once MIRK is proven for use with active sonar to detect submarines, further development will integrate MIRK with the active sonar signal processing chain. Refinement of MIRK to differentiate between categories of manmade and natural reflectors would open up a large variety of both defense and non-defense markets, providing a basis for future data mining and machine learning techniques. Prometheus would license the software to companies that use active sonar on manned or unmanned vehicles. Prometheus would also work with companies to integrate MIRK to achieve their specific needs.

Company Objectives: Prometheus seeks to work with the US Navy, and major prime contractors and integrators such as Lockheed Martin, Northrup Grumman, Leidos, and Raytheon through licensing or partnership arrangements. Prometheus also seeks to work with companies using active sonar for non-military uses.

Potential Commercial Applications: Applications beyond use of active sonar for Anti-Submarine Warfare or Mine Detection include remote identification of shipwrecks, location of sunken vessels or aircraft, pipeline surveys, and identification of mineral deposits.

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