Department of the Navy SBIR/STTR Transition Program

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NAVAIR 2019-961

Topic # N171-010
Additive Manufacturing Technology for Sonobuoy Applications
TRITON SYSTEMS, INC.

WHO

SYSCOM: NAVAIR

Sponsoring Program: PMA 264

Transition Target: DIFAR Sonobuoy

TPOC:
(301)757-3617

Other transition opportunities: The knowledge gained in Additive Manufacturing will be applicable to other Navy programs. Additive Manufacturing will accelerate fast reaction R&D efforts, enable more functionality in LRIP, and can reduce cost in Full Rate Production when Subtractive Manufacturing has high waste of expensive materials.

WHAT

Operational Need and Improvement:
The Navy desires to understand the current state of the art for Additive Manufacturing (AM) technology as it relates to sonobuoys, specifically how and when it will be financially beneficial to support full volume high rate production.

Specifications Required:
Development and Manufacturing using AM for prototyping, special purpose, and high run-rate production will require a paradigm change in the sonobuoy industry. This shift to AM will improve response time, provide flexibility, increase functionality, and reduce costs.
The performance objectives are:
1) Demonstrate state of the art AM methods to produce prototype sonobuoy components
2) Develop methods for increasing sonobuoy capabilities using novel AM materials and techniques
3) Provide a cost analysis of AM for sonobuoy components versus machining or tooling

Technology Developed:
Triton Systems is working to:
1) Demonstrate AM state of the art to produce sonobuoy components at reduced cost,
2) Provide a cost analysis using AM for manufacturing sonobuoy components vs.machining or tooling,
3) Develop a timeline to determine when it's cost effective to use AM technology in sonobuoy production,
4) Develop a plan and process for using AM technology to manufacture sonobuoy components.

Warfighter Value:
Addresses the Navy's concerns about how best to use AM technology with regard to:
1) reducing sonobuoy production costs,
2) maintaining current specifications on reliability
3) obtaining equivalent or improved performance when compared to current sonobuoy components
4) accelerate Fast Reaction R&D efforts.

WHEN

Contract Number: N68335-19-C-0002 **Ending on:** July 20, 2020

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Completed AM Case Study	N/A	Study the state of the AM industry and use cases. Developed sonobuoy AM concepts.	3	April 2018
Assessed AM of Concept Value	Low	Determine component designs that represent maximum value	4	July 2019
Develop AM Techniques and Timeline	Med	Success of printed parts with required features and material properties.	4	January 2020
Test Components in Relevant Environment	Med	Successful functional testing as applicable.	5	June 2020
Test Selected Compnents Using AM	Med	Integrate components with supplied sonobuoys and test in relevant environment.	6	November 2020

HOW

Projected Business Model: Our business model will make the technology developed available at Triton through a service-based model or for use on-site by the Navy and their sonobuoy supply chain. Future products will include multi-material system solutions and stock materials. When required, intellectual property can be licensed or partnerships formed where well-established market channels or manufacturing infrastructure already exists.

Company Objectives:
Triton Systems, established in 1992, has a proven record of successfully transitioning SBIR-derived technology into commercial and military products. Triton has successfully leveraged SBIR funds to incubate products with a projected retail commercial value estimated at over $1.5 billion with an average incubation period for these technologies being less than 4 years.

Potential Commercial Applications:
The development of prototyping and material capabilities can be used for similar undersea and sensor systems. Prototypes and systems produced in low quantities have the potential to gain significant value from AM components.

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