

Department of the Navy SBIR/STTR Transition Program

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MCSC-PRR-3626

Topic # N162-076

Miniaturization of GPS Alternative Survey Equipment
Infibertech, Corp.

WHO

SYSCOM: MARCOR

Sponsoring Program: IPADS

Transition Target: PM Fire Support Systems

TPOC:

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Other transition opportunities: US Army Field Artillery and Air Defense Artillery systems

Notes:

FOG (Fiber Optic Gyro)
MCSC (Marine Corps Systems Command)
DT&E (Developmental Test & Evaluation)

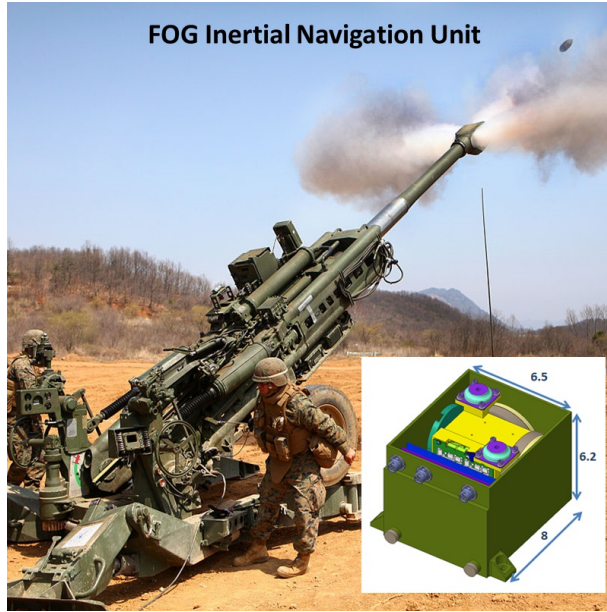


Photo Courtesy USMC and Infibertech Corp.

WHAT

Operational Need and Improvement: A lighter, smaller, more flexible survey solution is required. Current IPADS (Improved Position and Azimuth Determining System) supports artillery missions by obtaining accurate Survey Control Points (SCPs) and providing accurate azimuths of lay.

Reduce the weight of the current 137 lb. IPADS to less than 30 lb. allowing a single Marine to transport and install the system while maintaining system performance.

Specifications Required: Perform survey functions over travel radius of 100 km

- Azimuth: .4 mil Probable Error (PE) 0° to 65° N/S latitude

.6 mil PE 65° to 75° N/S latitude

- Horizontal: < 4 m CEP (Circular Error Probable)

- Vertical: < 2 m PE

Technology Developed: We developed an advanced Fiber Optics Gyro (FOG) w/ lower bias and noise, larger bandwidth and increased reliability allowing for substantial SWaP savings.

FOG Reduces Inertial Navigation Unit (INU) Size: 320 in3 vs. current 1200 in3

FOG Reduces INU Weight: < 14 lbs. vs current 50 lbs.

Prototype survey system in final demonstration phase

Warfighter Value: SMALLER | LIGHTER | BETTER

The ability to execute accurate strikes at distances is critical to ground operations.

Our technology enables survey teams to register more accurate survey control points in a wider variety of conditions than the vehicle based IPADS.

The development of a new generation of lighter-weight, man-portable field artillery survey system is one of the main goals of both the Marine Corps and the Army.

Better SWaP!

WHEN

Contract Number: M67854-18-C-6519

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Complete Phase I	High	Successfully demonstrate simulation and modeling of gyro performance and feasibility	TRL 3	3rd QTR FY18
Complete Phase II Baseline	High	Design and implement the new Fiber Optic Gyros; Integrate Inertial sensor assembly; Test in simulated environment	TRL 5	2nd QTR FY20
Complete Phase II Option	Med	Assembly of prototype survey system; Field test in actual environment; Demonstrate survey accuracies	TRL 6	1st QTR FY21
If awarded, complete Phase II.5	Low	Complete Developmental Test & Evaluation (DT&E); transition to manufacturing; finalize auxiliary system components.	TRL 8	1st QTR FY23
If awarded, execute Phase III	Low	Enter into Phase III Contract with MCSC	TRL 8	2nd QTR FY23

HOW

Projected Business Model:

Infibertech, Corp. specialized in the development of next generation gyros based on advanced optical technologies using fiber optics and waveguide based technologies.

We are engaged in several Phase I, Phase II and Phase III programs, and developing innovative solutions for future inertial systems.

We are interested to pursue the development of specific systems (IMUs, INS) with end-users and collaboration with leading inertial manufacturers for the implementation and large scale production of such systems.

Company Objectives:

The ultimate goal of this program is to integrate the core technology into one of the Navy/Army survey systems as a long term replacement of existing platforms.

More broadly, we look for government and primes to facilitate integration into other potential applications.

Potential Commercial Applications:

Our technology enables development and deployment of next generation, smaller and lighter inertial systems for various DoD and commercial platforms: autonomous navigation for manned and unmanned aircraft, ground vehicles, ships, and submersibles. As such, it enables the capabilities of a broad range of future applications.

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