NAVY Transition Assistance Program

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N07-144 - Knowledge Based Systems, Inc.

Parasitic Power Pack (P3)

NEED & CUSTOMER REQUIREMENT

Need: Using batteries to power buoys at sea is an expensive proposition. Batteries become depleted and must be replaced. Locating the buoy in the ocean, hauling it onboard, and stopping signal acquisition before battery replacement all add to the cost of maintenance. Vessel operating costs and associated manpower costs add up quickly to make battery maintenance prohibitively expensive. In the lifecycle operation of these buoys, battery replacement could well be the highest cost driver.

Need for a maintenance free perpetual power source for floating buoys.

Value to the Warfighter: Unhindered perpetual sensor data stream made possible. Elimination of inefficient battery replacement. War fighter time that can be retargeted for higher value operations.

Operational Gap: Currently the technology for perpetual green sensor power in the ocean as a modular battery replacement does not exist . This technology will act as a force multiplier supporting perpetual floating ocean sensors.

Customer Specifications: Power Specs: 600-900mW at 6-9V; Size: 3inch Diameter, 20 inches long; Weight: 4 lbs

Technology Description: Wave energy harvesting is a promising approach to solving the sustainability limitations that arise with chemical battery power sources in buoy sensor networks. KBSI has a unique design that converts low-frequency, large-amplitude wave oscillations into useful power. The design can be modularly integrated into buoys simply by replacing the battery pack.

SPONSORSHIP of original SBIR/STTR Topic

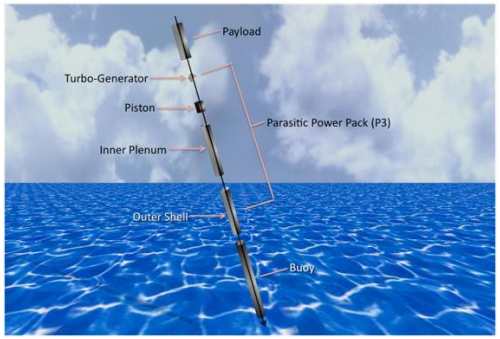
SYSCOM: SPAWAR

Transition Target: Sensors & Communication Buoys

Original Sponsoring Program: SPAWAR (PEO C4I)

TPOC Phone Number: 619.524.7922

Note: P3 can power any free floating buoy.



TECHNOLOGY DEVELOPMENT MILESTONES (SBIR/STTR)

Milestone	TRL	Risk	Measure of Success	TRL Date
Proof of Concept	3	Low	Meet Target Power 4mW (Achieved 5.8mW)	May 2008
Component validation in a laboratory environment	4	Low	Meet Target Power 4mW (Achieved 25mW)	March 2009
Component validation in a laboratory realistic simulated sea environment	5	High	Meet Target Power 900mW (Target increased in PhaseII)	Jan 2012
Sea Trials	6	Moderate	Survive Sea Trials	July 2012

Open contract: N66001-09-C-0137 ending July 2012

TECHNOLOGY TRANSITION OPPORTUNITIES (PHASE III)

Other Potential Applications: Three-inch diameter and above buoy systems for sensors and communication.

These devices could also be used for powering sensors in the remote corner of ships. In floating vessels, these devices could also be scaled up to provide low power LED lighting in the remote corners of the hull compartments.

Business Model: Our primary business model will be licensing the technology. Buoy manufactureres have the knowledge to integrate this technology into their systems. Buoy operators also might be interested in perpetual power and to reduce battery replacement costs at sea. Licensing makes better sense as we do not own the platforms.

Objective: Looking for parties interested in licensing technology to productize and standardize units for varying applications.

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