WHO

SYSCOM: NAVAIR
Sponsoring Program: PMA-262 Persistent Maritime Aircraft Systems and PMA-263 Small Unmanned Aircraft Systems
Transition Target: F18, MQ-8, Small UAS and Missiles
TPOC: (301)342-0365

Other transition opportunities: PMA 201 Precision Strike Weapons, PMA 208 Aerial Target and Decoy Systems, PMA-242 Direct and Time Sensitive Strike and PMA

WHAT

Operational Need and Improvement: Open, Modular, High Energy and Safe Li-Ion Battery with advanced Battery Management System (BMS) for F18, MQ-8, Small Unmanned Aircraft and Missiles. Current Lead-Acid and Ni-Cad battery systems used on the majority of Navy platforms have low energy density, large size and weight, and cannot predict when the battery is going to fail thus grounding Navy Aerospace platforms due to maintenance issues. The Li-Ion Battery with advanced BMS will have prognostic algorithms.

Specifications Required: The Li-Ion Battery with advanced BMS has the potential to be used in Navy aircraft platforms. Li-ion batteries meeting the Navy unique requirements are being developed.

Technology Developed: Open, Modular, High Energy and Safe Li-Ion Battery with advanced Battery Management System is being developed.

Warfighter Value: The Li-Ion Battery with advanced Battery Management System (BMS) is 1/7th weight and volume of Lead-Acid Battery, 1/3rd weight and volume of Nickel Cadmium Battery, and 1/2 weight and volume of Silver Zinc batteries used on majority of Navy Aerospace weapon systems to include F18, MQ-8, Unmanned Aircraft Systems and Missiles. The Li-Ion Battery advanced BMS protects, balance and monitors all individual cells within the battery. Unlike, the older battery technology (Lead-Acid, Nickel Cadmium and Silver Zinc) where you cannot predict when the battery is going to fail and/or monitor individual cell voltages, the Li-Ion Battery with advanced internal BMS can immediately detect if an individual cell within the battery is beginning to fail and also predict the Remaining Useful Life of the battery thus taking it off line prior to it failing and ensuring Navy Aerospace platforms are not grounded due to battery maintenance issues.

HOW

Projected Business Model: Space Information Laboratories (SIL) plans to manufacture the Li-Ion battery technology developed using our certified AS9100C Quality Management System. SIL’s development, manufacturing and test facility is equipped for low rate production of 10 units per month. SIL is developing a high rate production plan to produce 50 batteries per month to include standing up a dedicated Li-Ion battery manufacturing facility. SIL submitted to USPTO a utility patent on our Li-Ion Intelli-Pack battery technology in 2014, and USPTO awarded a utility patent # 9,748,541 B2 for our Advanced Lithium-Ion Polymer Power System (ALPS). USPTO also awarded SIL a trademark for Intelli-Pack in 2014. SIL plans to defend our IP against any company that attempts to copy it. SIL plans to significantly penetrate the DOD, NASA and commercial market with this new Li-ion battery technology for aircraft, unmanned aircraft systems, and missiles.

Company Objectives: SIL’s objective is to secure 10 - 20 % Li-ion battery market share for DOD Aircraft, UAS, strike weapons and missile platform applications requiring high reliability and safety to support the warfighter. Once DOD market share is secure will offer products in the commercial UAS marketplace and work to reduce Li-Ion battery cost by automating the manufacturing and test processes.

Potential Commercial Applications: DOD, NASA and Commercial Unmanned Aircraft Systems, Aircraft, Strike Weapons, Missiles and Reentry Vehicles, Robotics, Portable Power Systems for first responders, and Alternate Energy Systems. SIL’s Li-Ion Intelli-Pack battery with advanced Battery Management System is greatly reduced size and weight compared to existing Lead-Acid, Nickel Cadmium and Silver Zinc rechargeable battery technologies used in the applications mentioned.

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