NAVY Transition Assistance Program

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N07-010 - Global Strategic Solutions LLC

Advanced Prognostic and Health Management (PHM) and Model Based Prognostic Useful Life Remaining Capabilities for Aircraft Tactical Information and Communication Systems

NEED & CUSTOMER REQUIREMENT

Need: Aircraft Communications, Navigation and Identification (CNI)systems are critical to the operation of the aircraft. Failure of CNI systemâ€™s components or sub-systems can put the aircraft and pilot at risk. There is a need to develop the ability to accurately detect insipient faults and make accurate predictions of remaining useful life for these systems to provide for pre-failure maintenance and operational actions.

Value to the Warfighter: The ability to monitor and predict component/system degradation and impending failure greatly reduces risks to the aircraft, pilot and mission. Providing actionable, pre-failure, intelligence allows enhanced maintenance planning reducing costs and speeding repair. Additional benfits include reducing No Fault Found events and better identification of faults that do occur.

Operational Gap: Current CNI components are reliant on Built In Test (BIT) and fault isolation as the means to determine component health and maintenance actions. This occurs only after a fault has occured and does not provide for pre-failure maintenance actions.

Customer Specifications: Robust application incorporating advanced prognostic models capable of detecting incipient fault conditions and relating them to accurate remaining useful life predictions.

Technology Description: Open systems health management application for monitoring current health state, detecting pre-failure degradation conditions and providing remaining useful life predictions for aircraft CNI components or subsystems. Uses existing data capture for minimal disruption to the aircraft reducing the need for equipment/component modification and recertification.

SPONSORSHIP of original SBIR/STTR Topic

SYSCOM: NAVAIR

TPOC Phone Number:
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TECHNOLOGY DEVELOPMENT MILESTONES (SBIR/STTR)

Milestone	TRL	Risk	Measure of Success	TRL Date
Proof of Concept (Phase I)	3	Low	Demonstration of degradation tracking and Remaining Useful Life prediciton	06/2007
Develop & test integrated modeling technique for CNI Component	4	Moderate	Demonstrate integrated models and user interface	12/2009
Phase II Prototype System Demonstrator	5	Low	Demonstration of PHM System	02/2011
Conduct operational assessment tests	6	Moderate	Field application package. Operational end-user assessment tests	02/2012

Open contract: N6833508C0336 ending 12/29/2008

TECHNOLOGY TRANSITION OPPORTUNITIES (PHASE III)

Other Potential Applications:
advanced next generation strike fighter aircraft, Manned and Unmanned Maritime Surveillance Aircraft, Tilt Winged Aircraft and other fixed and rotary wing aircraft.

Business Model:
Licensing, teaming and direct sale to commercial customers.

Objective:
Our objective is to develop relationships with the JSF,and other Navy and Air Force program offices and contractors to incorporate our technology into the aircraft programs.

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