

NAVY Transition Assistance Program

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NEED & CUSTOMER REQUIREMENT

Need: Industrial power system components have diagnostic capability but do not have prognostics capabilities. What is needed is an automated health monitoring capability along with self-healing functions. This would allow scheduled downtime as opposed to unscheduled.

Value to the Warfighter: Prognostic capabilities will improve the fight-through capability so that maintenance can be performed in non-combat environment as wanted instead of as needed.

Operational Gap: Current condition based monitoring systems are vulnerable to the interface, such as a lead connection failure. Furthermore, the job of corrective actions must be either performed by a central computer system or by the human operator. Automated health monitoring is needed at the component or system along with proactive self-healing capabilities.

Customer Specifications: Provide an advanced fault diagnostics, prognostics, and self-healing control capability, ensuring cost effective and highly reliable electrical machinery systems to improve warfighting effectiveness and ensure a "limp home" capability.

Technology Description: P2M2 is a self-contained module with embedded control units that monitor, diagnose, and provide corrective action directly at the machine. P2M2 contains a diagnostic and prognostic module that serves as the information processing and analysis for system health assessment and forecasts. Submodules perform tasks such as signal processing, testing, test outcome processing, and etc. A range of intelligent algorithms embedded into the submodules perform the analytic tasks.

TECHNOLOGY DEVELOPMENT MILESTONES (SBIR/STTR)

Milestone	TRL	Risk	Measure of Success	TRL Date
Develop COTS-based system to monitor, diagnose, predict and heal electrical machinery outage	3	Low	Developed P2M2	01/31/2010
Develop and demonstrate a diagnostic test bed	4	Moderate	Generated, integrated and implemented causal fault trees and double layer gate drive sensor	03/31/2010
Develop self-healing strategy	5	Moderate	Tested in a simulation test bed	09/31/2010

Open contract: N00014-08-C-0193 ending 03/31/2010

N06-T033 - 21st Century Systems, Incorporated

Proactive Predictive Machine Maintenance (P2M2)

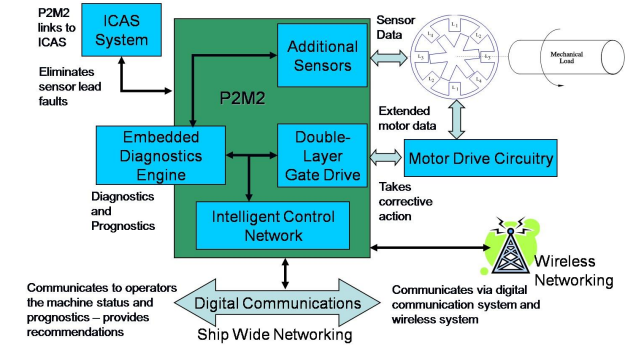
SPONSORSHIP of original SBIR/STTR Topic

SYSCOM: ONR - STTR

Transition Target: DD(X), LCS

Original Sponsoring Program:
Naval Sea Systems Command; PMS 500:
DD(X) Program. PMS 501: LCS Program

TPOC Phone Number:
(703) 696-7823



TECHNOLOGY TRANSITION OPPORTUNITIES (PHASE III)

Other Potential Applications:

Adjustable speed drives for AC motors for industrial processes and applications that require rigorous torque and speed control.

Business Model:

21CSI will license the P2M2 technology.

Objective:

21CSI actively seeks transition of its decision support technology, partnering with the DoD and other government agencies, or commercial concerns.