

Topic: N141-050

Cybernet Systems Corporation

Intelligent Information Algorithm for Electronic and Computer Network Systems

The Interactive Instructor is an intelligent information repository software tool for shipboard technicians, which automates complex troubleshooting of maintenance and operations of naval electronics. The Interactive Instructor provides technical support, expert knowledge, and predictive analysis to maintainers. Cybernet Systems Corporation is an Ann Arbor based research and development company focused on creating and commercializing innovative, high quality, leading-edge solutions in the areas of Human-Computer Interaction, Robotics, Computer Vision Systems, Artificial Intelligence, Cyber Security, and Automation. The Interactive Instructor improves system up time, and reduces maintenance expense and time by eliminating the "trial and error" replacement of parts, many of which are good. Initial platforms targeted for technology transition include the AEGIS Combat System.

Technology Category Alignment:

Human/Autonomous System Interaction and Collaboration

Maintainability/Sustainability

System Interfaces & Cognitive Processes

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SYSCOM: NAVSEA

Contract: N00024-16-C-4011

 Corporate Brochure: https://navystp.com/vtm/open_file?type=brochure&id=N00024-16-C-4011

Department of the Navy SBIR/STTR Transition Program

Statement A: Approved for Release. Distribution is unlimited.

NAVSEA #2016-0608

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WHO

SYSCOM: NAVSEA

Sponsoring Program: PEO IWS

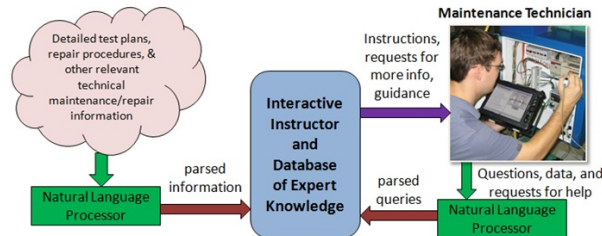
Transition Target: AEGIS Combat System

TPOC:

(805)228-5005

Other transition opportunities:
Navy Shipboard Built-in-Test (BIT) - Maintenance Improvements
Air Force, Marine Corps, Army
Complex Electronics Maintenance Improvement Initiatives

Interactive Instructor that Provides Technical Instructions, Expert Knowledge, and Predictive Analysis to Maintainers



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WHAT

Operational Need and Improvement: An intelligent information repository software tool for shipboard technicians, which automates complex troubleshooting in the maintenance and operations of naval electronics. An innovative means to capture and leverage the knowledge of more experienced shore-based technicians to assist shipboard technicians in the operations and maintenance of electronic systems.

Specifications Required: Correlating symptoms and repair knowledge that may lead to identification of a specific fault. Automated methods to interactively instruct technicians with documented expert instruction compiled from a variety of sources.

Technology Developed: A Natural Language parsing capability to interactively assess maintainer's input to identify a focused diagnostic solution. Leverages Cybernet Systems' parallel Air Force Phase II SBIR - Automated Maintenance Prediction (AMP) system initiative. Enables Apple iOS Siri-like annotations-to-instruction steps that are parsed and disseminated back to distance support. Chatbot integrated Natural Language parsing of existing technical knowledge and verbal/written expert advice.

Warfighter Value: Improves system up time, and reduces maintenance expense and time by eliminating the "trial and error" replacement of parts, many of which are good.

WHEN

Contract Number: N00024-16-C-4011 **Ending on:** November 3, 2017

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Documents Parsing, Natural Language Parsing, Database	Low	Demonstration	4	May 2016
Chatbot Implementation and Deployment, Interaction Parsing, User Interface, Spiral Improvements	Low	Demonstration	5	May 2017
Relevant Environment Testing, Spiral Improvements	Med	Demonstration	6	November 2017

HOW

Projected Business Model: Cybernet Systems will work with the Navy to identify targeted programs of records that can leverage the innovative maintenance and operations capability developed under this Phase I and Phase II initiative. To fully leverage the commercial potential of Cybernet Systems' interactive instruction framework requires identification of companion initiatives suitable for technology insertion within other Department of Defense (DoD) branches to include the Army, Air Force, and Marine Corps.

Company Objectives: Cybernet Systems' goal is to develop an interactive instructor that provides technical instructions, expert knowledge, and predictive analysis to radar system maintainers and technicians. Cybernet Systems' open, flexible solution is easily adapted to support most complex electronic systems expert technical diagnosis and maintenance support requirements.

Potential Commercial Applications: Cybernet Systems' is actively pursuing commercial clients in the automated interactive market. The intelligent instructor's key innovation is the development of an automated method to convert text from a wide variety of sources (e-mails, articles, web posts, online instruction manuals, chat, etc.) and employment of the "derived" expert knowledge into an interactive chatterbot system. Cybernet System's is looking to extend its intelligent tutoring product offering to including Instructor Avatar and Video Game Avatar user interfaces.

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