 <p>EMOTX, Inc.  <a href="http://www.emotx.com">www.emotx.com</a>  PH: 248-459-7691  EM: <a href="mailto:jivers@emotx.com">jivers@emotx.com</a></p>	<b>ACTIVE RFID AND UHF (ISO 18000-7)  SOLUTIONS IN SHIPYARD MAINTENANCE,  PRODUCTION, and ASSET MANAGEMENT</b>		
	Date: 11/12/09	NSRP Abstract RA0801-41	Rev: 0

**ACTIVE RFID AND UHF (ISO 18000-7)  
SOLUTIONS IN SHIPYARD MAINTENANCE,  
PRODUCTION, and ASSET MANAGEMENT**

NSRP Abstract RA0801-41

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Shipyards Production Process Technologies

PROJECT LEAD:

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COLLABORATORS

Identec Solutions ([www.identecolutions.com](http://www.identecolutions.com))  
NSRP Shipyards (seeking partnerships with formal announcement in final proposal)

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**ABSTRACT (RA0801-41) – PHASE ONE**

**Introduction**

RFID is rapidly moving from traditional retail and warehousing applications and offering cost advantages in industrial and manufacturing environments. While the US Department of Defense has already committed funding for the use of Intelligent Long Range (ILR) Active RFID to track vehicles, cargo containers, and other valuable assets, our objective will be to quantify similar benefits to Navy Shipyard Maintenance, Production, and Yard Asset Management (YAM) opportunities. This abstract will discuss a project to utilize Active RFID UHF Tags, Readers, and Software to reduce labor and costs in Shipyard Maintenance, Tool Services and Production.

**General Objectives**

This project will focus on applying ILR Active RFID and UHF (ISO 18000-7) technology to reduce labor and costs by applying Real Time Locating (RTL) tools initially in the following key areas:


- Welding Equipment and Tool Services Asset Tracking
- Shipyard Work-In-Process (WIP) and Pipe Shop Laydown Yards

Funding and cost sharing objectives will be used to evaluate these key initiatives and quantify the resulting cost savings opportunities from applying Intelligent Long Range (ILR) UHF Sensors and portable readers in these designated shipyard maintenance, production, and asset management opportunities.

**Problems Addressed**

Welding Equipment Repair and Tool Services departments make up a significant portion of the Shipyard Maintenance and Production services. These departments are responsible for the inventory management, calibration, and repair of thousands of tools typically spread over hundreds of acres of property, dozens of buildings, and enormous ships in various stages of production.

In addition to the size and scope of this responsibility, this equipment must be maintained and accounted for over long periods of time with the potential of being moved throughout the shipyard numerous times throughout its service life. This project will highlight the enormous costs associated with such a system and attempt to quantify the benefits of utilizing Active-RFID and UHF based tags to be integrated into existing procedures to locate, maintain, and secure these valuable assets over a long period of time.

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**Key Areas of Interest (to be evaluated for cost reduction efforts and process improvement):**

- \* Asset Location  
Where are they? What are they doing? How long does it take to find them?
- \* Preventative Maintenance  
Date of Service, Maintenance History, and Calibration Information
- \* Scheduling and Purchasing of Capital Assets  
How many do we have? How many are needed? Where are they?
- \* Security and Safety  
Potential benefits of material and security “Choke Points”  
Equipment Theft Prevention

In addition to the above, consideration will be given to production material tracking and control. Similar benefits that have been realized in Power Generation Plant Construction and laydown yards will be evaluated for similar applications in Shipyard Production. This technology has a competitive advantage in metallic environments. Following is a summary of the areas that will be reviewed:

Pipeyard Finished Product Inventory and Control  
Utilizing Active RFID to locate and identify Work in Progress (WIP).


Production and Non-Production Material Management  
Potentially tagging time and temperature sensitive production material, carbon fiber compounds, epoxies, etc.

**Technical Strategy and Key Innovations**

The DOD recently awarded major contracts that when combined will have the potential to provide the military with over \$75.5 million worth of Passive RFID (RFIDp) products and services. In addition, the DOD has also invested in Active RFID (RFIDa) solutions to track vehicles, cargo, and other valuable assets in cross border shipments and supply activities. This project will install the same ISO 18000-7 technology inside the shipyards themselves and quantify the savings within the shipyards and project those cost reductions over the NSRP facilities (focusing on maintenance, tool services, and production opportunities).

**Major Tasks:**

Conduct a site survey on a major shipyard evaluating their Welder Repair, Tool Services, and Pipe Shop departments for their potential use of RFID within their respective departments. Our objective is to prepare a case study for each of these three areas that will quantify the potential cost savings, identify any concerns with RFIDa Tags/Readers (i.e. form factor durability, reliability, and readability), and evaluate software available for standardization and/or customization feasibility.

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**Timeline:** (April 2010-February 2011)

**Deliverables:** Report on projected feasibility of utilizing Active RFID in Shipyard Maintenance, Production, and Yard Asset Management.

**Business Case Synopsis**

As reported in a recent RFID Journal publication, industry groups including the Construction Industry Institute (CII), FIATECH (Fully Integrated Technology for Capital Facilities Construction) and NIST (National Institute for Science and Technology) have concluded that the Active RFID technology can dramatically reduce the time needed to find components in a heavy fabrication “Laydown Yard” environment. The technology is being implemented at a number of McGraw Hill and Bechtel construction sites and should be evaluated for similar consideration in a Shipyard environment. A formal presentation of this technology can be found by visiting <http://getnoticedmarketing.com/intellifind/>.

**Expected Benefits:**

- Reduce Labor Costs and Enhance Productivity
- Reduce Overall Production Material and Equipment Costs
- Potential Integration with IT and Shipyard Network Data Platforms
- Reduce Capital Expenditures and Redundancy
- Minimize Shrinkage and Theft

**Technology Transfer Plans**

Our plan is to participate in technology transfer activities including but not limited to making material available to other NSRP shipyards, presenting at various NSRP events, and coordinating efforts with other DOD sponsored RFID endeavors.

**Participants**

**eMOTx Inc.** – As project leader, John Ivers and EMOTX will coordinate the above efforts with Identec Solutions at a selected NSRP facility. Mr. Ivers is a 1986 Graduate from the University of Michigan in Electrical Engineering with 15 years experience in Welding Equipment Sales and Services. In his most recent position at Computer Weld Technology, Mr. Ivers was responsible for the Sales, Installation, and Technical Support of Weld Quality Monitoring Equipment, Controls, and Automation.

**Identec Solutions Inc.** – Identec Solutions is the global leader in active wireless tracking solutions. They are committed to developing groundbreaking solutions and feature proprietary patented technology recently approved by the DOD under ISO 18000-7 specifications. They are at the forefront of this industry and offer Project Management, Consulting, System Development, and Site Engineering services.

**NSRP Shipyard TBD** - Participants currently discussing project with potential NSRP Shipyards.