Sense&React Newsletter

Preface

Dear Reader,

We are glad to introduce you the third Newsletter of the Sense&React IP project. Sense&React is a European Union funded Research & Development Project under the 7th Framework Program (FP7). The project has started on 1st October 2012 and will last until the 31st December 2015. The project engages 12 organizations from various EU countries and the consortium is coordinated by the Laboratory for Manufacturing Systems and Automation (LMS) of the University of Patras, Greece.

During the first project year the industrial pilot cases have defined and a first version of the Sense&React System has been developed that address several industry requirements.

The project is on its middle term and the focus is put on the development of Sense&React system and its application upon the industrial pilot cases. Since Sense&React system consists of different modules, both HW and SW, integration has also emerged as important aspect of the project.

The main goal of this Newsletter is to provide an overview of the main project activities as well as an overview of the next steps. Finally, recent project activities and future events are presented.

Sincerely,

The Sense&React project consortium

The project

Sense&React – The context-aware and user-centric information distribution system for manufacturing (FoF-ICT-2011.7.1, Grant agreement no: 314350) is a European Union funded Research & Development Project.

The project started on **1st October 2012**. The overall work plan is divided into work packages and their sub and covers **36 months** of industrial driven requirements, research, development and realization of final demonstrators.

- Phase 1: Industrial requirements and system specification.
- **Phase 2: Modules development**
- **Phase 3: Integration**
- Phase 4: Pilot cases execution and assessment

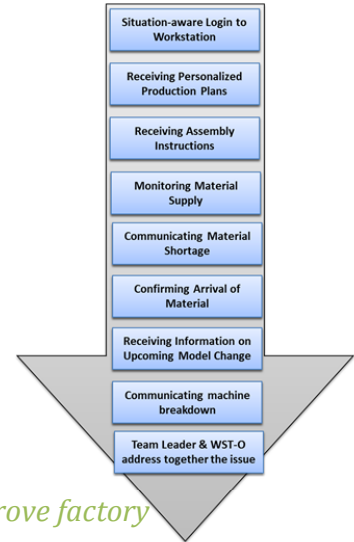# Sense&React Key Achievements in 2nd year

White Goods Pilot Case

Sense&React platform was installed at Electrolux washing machine assembling. The pilot case scenario consists of nine steps related to assembly support and an emergency situation, specifically a machine breakdown.

Benefits
- ✓ **Reduce time spent for communication**
- ✓ **Sub-line bottlenecks elimination by 30%**
- ✓ **10% improvement of Delivery Schedule Achievement**
- ✓ **Assembly errors reduction by 30%**
- ✓ **Improvement of Team Leader's overall efficiency**

Situation-aware Login to Workstation

Receiving Personalized Production Plans

Receiving Assembly Instructions

Monitoring Material Supply

Communicating Material Shortage

Confirming Arrival of Material

Receiving Information on Upcoming Model Change

Communicating machine breakdown

Team Leader & WST-O address together the issue

Sense&React represents a strong opportunity for the company to improve factory efficiency, especially supporting assembly and maintenance operations at the factory floor

Project Highlights

Main results achieved within 2nd year:

- ✓ **Sense&React installation at Electrolux premises:** Evaluation and demonstration of the platform in the context of the first iteration installation.

- ✓ **Enhancement of Sense&React localization and sensors platform** with more types of sensory systems.

- ✓ **Improvement of Sense&React Backend Prototype:** Backend System prototype provides context data services to Sense&React applications.

- ✓ **Situation-and Context-Based User Interface (Sense&React Shell):** adapt to shopfloor situation changes based on the context information

- ✓ **Sense&React Context-Aware Applications**: more than 15 applications supporting in a series of operations shop floor and managerial personnel.

Sense&React Platform

- ✓ **Sense&React localization and sensors platform:** The platform has been enhanced by supporting a variety of new sensory systems such as weight, current, weather, and indoor localization that have been tested and integrated within the platform.

- ✓ **Sense&React Backend Prototype:** Enhanced to support events coming from the new types sensors and further development of its components(Server-Proxy interface, Central Authentication Service with Dynamic Role Based Access Control, Operator Instructions Composition, Semantics Based Context Engine & Complex Events Processing) to fully address the industrial pilot requirements.

- ✓ **Situation-and Context-Based User Interface:** Improvement of the Sense&React Shell to adapt to shopfloor situation changes based on the context information coming from the backend prototype employing GUI reconfiguration. The most appropriate apps and content is provided to the user, thus facilitating the interaction with the IT system.

- ✓ **Sense&React Context-Aware Applications**: More than 15 context-aware applications for the shop floor and managerial personnel have been developed supporting activities ranging from assembly instructions and material shortage up to daily production plan and maintenance support.

Next Steps

The next steps of the project will focus on the following aspects:

- Sense&React platform installation at ENP, VOLVO, and FIR premises in the context of shipbuilding, foundry and energy efficiency pilot cases respectively and second iteration installation at ELECTROLUX washing machine shop floor.

- Evaluation and refinement of the Sense&React platform based on the feedback collected from the pilot cases demonstrations.

- Participation in scientific conferences and technology fairs for the further dissemination of the Sense&React results.

Latest Events and News

- From 9 to 11 April 2014 LMS and EMPHASIS actively participated in the Industrial Technologies 2014 conference (http://www.industrialtechnologies2014.eu/) that took place in Athens, Greece. They had the chance to present and discuss Sense&React results to a number of industry and academic people visiting their booth.

- On May 07-08 2014 Sense&React RTD developers and Electrolux personnel had a technical integration workshop in Electrolux plant near Pordenone, Italy. Sense&React customized solution was demonstrated to shop-floor and management personnel provided their feedback that can be used in next integration workshop.

- On 1 July 2014 LMS held a booth in World Manufacturing Forum (WMF) 2014 event held in Milan/Italy. In this booth Sense&React banner and video were presented. LMS people distributed Sense&React leaflets and newsletters to people visiting the booth and answered questions about the project.

- From 30 September to 1 October 2014 LMS held a booth in LET'S 2014 conference held in Bologna/Italy, where Sense&React banner and video were presented. Conference participants from industry and academia were informed about the project, received leaflets & newsletters and provided their feedback.

- An updated catalogue of all the academic publications of Sense&React is now online, at Public Material > Publications.

Upcoming Events of Interest

- By the end of November the first iteration of the ENP (shipbuilding) pilot case will take place at Peniche, Portugal.

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Sense&React

Tel: +30 2610 997262
Fax: +30 2610 997744
makris@lms.mech.upatras.gr

Context-aware and user-centric information distribution system for manufacturing

Find us on the Web:
www.sense-react.eu

Consortium