inteGration of pRocess and quAlity Control using multi-agEnt technology

Work Package 5
Integration and customization

D5.1 Summary

Working prototype of GRACE system installed in the WM production

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1. Summary

Deliverable (D5.1) describes the activities and the achievements of Task 5.1 “Integration and customization” at month 30 (December 2012); in particular it details the development and implementation on the production line of the prototypes developed within GRACE, which will then be used for the demonstration phase in the final part of WP5. The overall result is the development of a prototype that integrates contributes of WP1 (Multi-Agent Architecture), WP2 (Self-Adaptation and Self-Optimization) and WP3 (Modular and Self-Optimizing Quality Control) for the specific case study of the Whirlpool washing machines factory. The following steps have been performed and will be tested and validated on the real production line (Task 5.2):

- Integration of the local/global self-adaptation and self-optimization mechanisms (developed in WP2), and the quality control mechanisms (developed in WP3) in the multi-agent infrastructure (developed in WP1);
- Development and implementation of the following machine agents:
  - bearing insertion,
  - screwing process;
- Development and implementation of the following quality control agents:
  - Drum Geometry Control Station,
  - Visual Control Stations,
  - Vibration Analysis Station;
- Development and implementation of the washing machine Control Board Customization;
- Development and implementation of the washing machine Functional Test Customization.

Besides that, other agents were developed, namely Product Type Agents (PTAs), Product Agents (Pas) and the Independent Meta Agent (IMA).