7th Workshop on Service-Orientation in Holonic and Multi-agent Manufacturing
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Mobile Robotics in Multi-Agent Manufacturing

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Short presentation:

The actual orientation of manufacturing toward a client-directed management leads to more flexible systems, able to dynamical adaptations to the demand evolution, and to the hazards and perturbations that affect the production process. Automated Guided Vehicles (AGV) offer this required flexibility, and hence is a pertinent answer to the modern trends in transitic systems.

The adaptation and flexibility are obtained thanks to the control system of the AGV, which is composed of many different modules to realize many different functions, including the path planning, the obstacle and conflict avoidance, the coordination of the AGV fleet, the coordination with the manufacturing planning and execution systems (ERP and MES).

The concept of multi-agent systems is hence present at three different levels. It is a tool that permits to model, define and realize

- the software architecture of the control systems of each AGV,

- the supervision system for the coordination of the AGV fleet,

- the interface between the AGV fleet and the MES/ERP.

The session aims at getting together the engineers and scientists interested into the use and development of mobile robots in multi-agent manufacturing. Of particular interest are the following areas:

- Path planning,

- Obstacle avoidance, conflict avoidance

- Human-machine interactions with mobile robots in manufacturing

- Non-blocking and supervisory control

- Consensus and global control

- AGV fleet performance evaluation and optimization

Keywords: AGV, mobile robot in manufacturing, Autonomy, Adaptation, Supervision