Manufacturing Scheduling
Chairs: Angela Di Febbraro, Li-chen Fu

Advanced Scheduling Methodologies for Flexible Manufacturing Systems using Petri Nets and Heuristic Search

A. Moro[1], H. Yu[2] and G. Kelleher[1]
[1]Liverpool John Moores University and [2]Exeter University

Local Search Heuristics For the Assembly Line Balancing Problem With Incompatibilities Between Tasks

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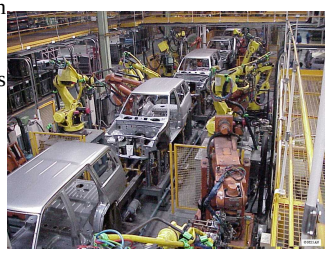
Institut d'Organitzacio i Control de Sistemes Industrials (UPC)

- Greedy heuristics and exploration of search space.
- Proposal: GRWASP for decisions plus GA for local search.
- Neighborhoods in algorithm: problem space, heuristic space.
- Results: GA and GRWASP generally better than others.



Dynamic Scheduling Approach to Group Control of Elevator Systems with Learning Ability

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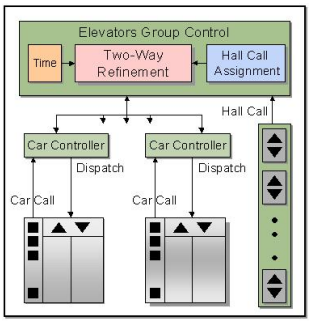
National Taiwan University

- Dispatch and schedule elevators to serve hall calls and car calls.
- Use Petri-Net for modeling tools & back-propagation network for learning ability.
- Develope a simulation environment to demonstrate the superiority of this method.
- Proposed a dynamic scheduling strategy to schedule an elevator system in real time.



Multi-Agent Architecture for Distributed Monitoring in Flexible Manufacturing Systems (FMS)

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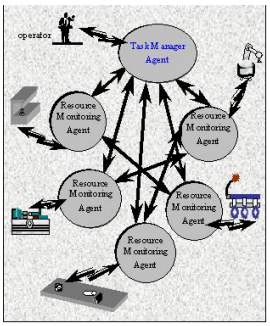
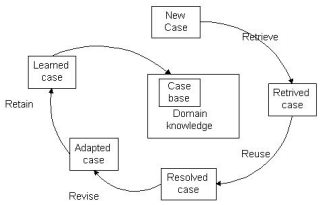
[1]Worcester, UK, [2]Universite de Toulouse and [3]Centre de Developpement des Technologies Avancees, Algeria

- Decentralization of monitoring systems in FMS
- Multi-agent approach
- Simulation results demonstrated feasibility & potentiality of the approach
- Main advantages: Flexilbility, heterogeneity, autonomy, robustness, adaptability



Maintenance of Robotic Systems using Hypermedia and Case-Based Reasoning

R. M. Crowder[1], R. McKendrick[2], R. Rowe[3], E. Auriol[4] and M. Tellefsen[5]
[1]University of Southampton, [2]IT Innovations, [3]Mulitcosm, [4]Acknosoft, and [5]Odense Steel Shipyard Ltd.

- Supporting the world's largest robot welding cell
- Combining CBR with hypermedia
- Integration of information across the factory
- Measurable reduction in locating information