

Manufacturing Scheduling

Chairs: Angela Di Febbraro, Li-chen Fu

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

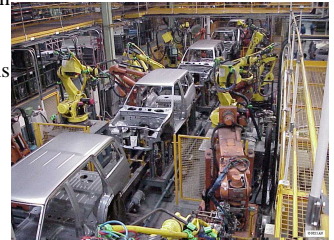
A. Moro¹, H. Yu² and G. Kelleher¹¹Liverpool John Moores University and ²Exeter University

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

J. Bautista, R. Suarez, M. Mateo and R. Company

Institut d'Organització 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.

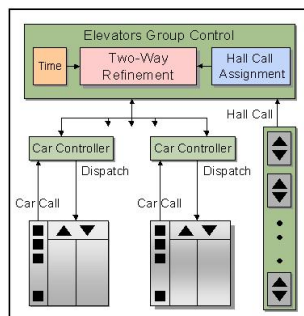


Dynamic Scheduling Approach to Group Control of Elevator Systems with Learning Ability

Y. W. Ho and L. C. Fu

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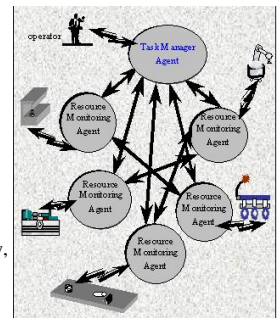
- Dispatch and schedule elevators to serve hall calls and car calls.
- Use Petri-Net for modeling tools & back-propagation network for learning ability.
- Develop a simulation environment to demonstrate the superiority of this method.
- Proposed a dynamic scheduling strategy to schedule an elevator system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



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

D. Ouelhadj¹, C. Hanachi² and B. Bouzouia³¹Worcester, UK, ²Universite de Toulouse and ³Centre 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: Flexibility, heterogeneity, autonomy, robustness, adaptability



Maintenance of Robotic Systems using Hypermedia and Case-Based Reasoning

R. M. Crowder¹, R. McKendrick², R. Rowe³, E. Auriol⁴ and M. Tellefsen⁵¹University of Southampton, ²IT Innovations, ³Multicosm,⁴Acknosoft, and ⁵Odense 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

