



INDUSTRY CASE

#05_DANFOSS_B

Hybrid transport and assembly optimization (simulation)

Case description

In their production, Danfoss considers a scenario, in which an automated warehouse brings parts to the counter, which are then picked up by workers or mobile manipulators for delivery to a number of manual or automated assembly stations. Planning such a hybrid production scenario involving workers and robots has many aspects, e.g. layout of stations, distribution of assembly steps across stations, etc.



Hybrid transport and assembly scenario

Challenge

Develop a simulation that can support the planning and optimization of hybrid transport and assembly tasks involving workers, mobile manipulators, and stations for manual assembly resp. stations for automated assembly with robot arms. (Christian)

To get the team started, consider the following:

- Which are the relevant design parameters (e.g. spatial station layout)?
- Which are the relevant performance indicators (e.g. cycle time, utilization)?

Keywords: Discrete event simulation, kinematic simulation, cycle time

Tools, methods and materials

The challenge can be addressed with many different tools, ranging from spreadsheet calculations to kinematic robot simulators. Regarding the methods, discrete event simulation is the typical type of simulation one would apply in industry for this type of problem. The selection of tools and methods is left to the team.

From Danfoss, the team will receive specifications of the available floor space, automated warehouse, and assembly instructions as input materials for the challenge. In addition, Danfoss will be available to discuss details of the challenge along the way.

Contact

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