STORAGE ZERO FOOTPRINT STOCKER PURGE SYSTEMS RFID RACKS



HANDLING MOBILE ROBOTS ROBOT CELLS EFEMS

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UNIQUE PRODUCT PORTFOLIO FOR THE COMPLETE MATERIAL HANDLING AUTOMATION



IDENTIFICATION RFID SYSTEMS RFID RETROFITTING RFID BASED LOGISTICS SYSTEMS



TRANSPORT

AGVS/RGVS

PGVS

t t

CONVEYOR SYSTEMS

SOFTWARE FLEET MANAGER FOR MOBILE ROBOTS SOFTWARE INTEGRATION WEB GUIS



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Phone: +86 13910374221 E-mail: jeff.chen@gbgtek.com.tw MATERIAL FLOW SIMULATION

SERVICE

Modeling, visualizing, and analyzing a semiconductor fab's handling, transportation, and storage processes





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MATERIAL FLOW SIMULATION

Modeling, visualizing, and analyzing a semiconductor fab's handling, transportation, and storage processes.

Material flow simulation is a powerful tool for analyzing and assessing existing system conditions or for enabling well-founded decisions in automation projects. Using material flow simulation, all relevant logistical processes of a semiconductor fab can be integrated into a single

comprehensive and dynamic digital model. The in-depth experimental analysis of this model allows for detailed insights and holistic conclusions about the existing underlying real-world system or can even be used for envisioning the potential dynamics of a non-existing system.

Benefits

Reducing project risk

- Analyzing the effect of changing conditions
- Highlighting hidden dynamic material flow effects (traffic jam potential, temporary bottleneck situations)

Support in decision making

- Calculating key performance indicators
- Using predefined and customized diagram views
- Support of ROI calculation for automation projects
- Validating novel concepts and comparison of different automation solution scenarios, like usage of AGVs vs. stationary robot cells

Generating better system understanding

- Identifying system thresholds, limits, and bottlenecks
- Visualization of processes and process interactions

Replication of existing system conditions

- Simulating arbitrary tool layouts
- Simulating diverse material flows in quantity and characteristics
- · What-If analyses for system upgrades or modifictions

Components

Factory layout Bays



Production tools



Storage systems Stocker Zero footprint groups Racks



Carrier handling Robot cells Mobile robots

Software Toolbox

Fabmatics offers a variety of complementary software tools for material flow simulation experiments that do justice to the manifold use cases, questions, and requirements.

Level 1 Analytical approximation

Level 2 Standard material flow simulation

Visualization

- Detailed 3D, statistics, charts
- Statistics, charts

Visualization

Applications

• Preliminary studies to generate system understanding

Applications • Feasibility studies, system design







Transports

Conveyors Lifts Automated guided vehicles



Processes

Production times Tool utilizations



Material flow

Historic transportation demands Integration of new production patterns Average transportation demands per tool



Level 3 Emulation

Visualization Case-dependent

Applications

• Exact replication of productive elements (digital twin), virtual commissioning