LogiCAD
Leonardo da Vinci Project

iED MALTA

CAD COMPUTER–AIDED MATERIAL HANDLING

2D & 3D CAD Applications in Logistics

mecb Ltd.
Driving Excellence & Innovation

Outline

- **Introduction**
- **Examples of CAD Applications in Logistics**
  - **Logistics in Factory Planning**
  - **Logistics in Warehouse Design**
  - **Logistics in the Transport of Goods**
- **Live Demonstration**

INTRODUCTION

Logistics is the detailed organization and implementation of a **complex** operation.

What are the benefits of using CAD in logistics ?
- ✓ CAD systems can produce accurate and repeatable results rapidly
- ✓ Establishing more safe and more productive working places
- ✓ Allows for testing and simulation of a digital system without making commitments in the real world
- ✓ Renders management and sharing of information easier

APPLICATION OF

Factory Logistics

Planning of Physical Factory Layout

Planning of Factory Operations

o Planning the physical layout of a factory can be very complex activity.

o Some of the challenges to be tackled include:
  o Boost productivity
  o Increase availability of resources
  o Promote flexibility
  o Reduce lead times
  o Ensure that layout being considered can be implemented e.g. avoid static collisions of services

… in essence it is a very complex task.

CAD applications for the detection of collision between static objects.
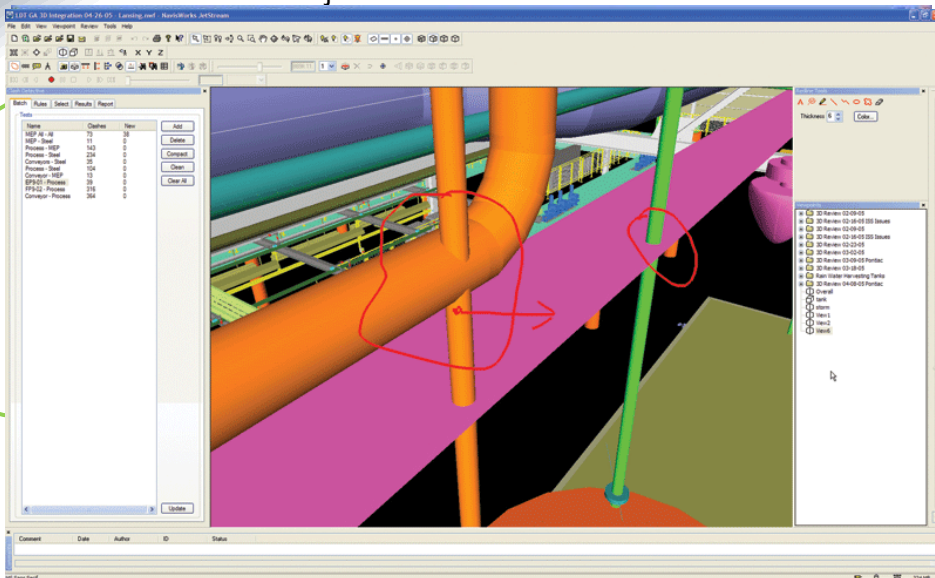
Factory Walkthrough and Collision Detection

CAD COMPUTER-AIDED

Analyzing Layout for Clashes with Factory Design Suite.mp4

LOGISTICS

3D CAD systems can also be used to plan and simulate operations taking place within a factory.

These CAD systems can be used to :
o Optimise the flow of material
o Maximise the utilisation of factory assets e.g. assembly cells
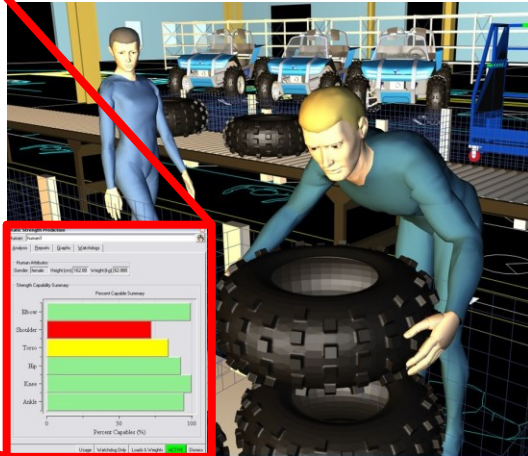o Identify potential health and safety hazards.

CAD COMPUTER-AIDED
MATERIAL HANDLING
ENGINEERING SYSTEMS
LOGISTICS
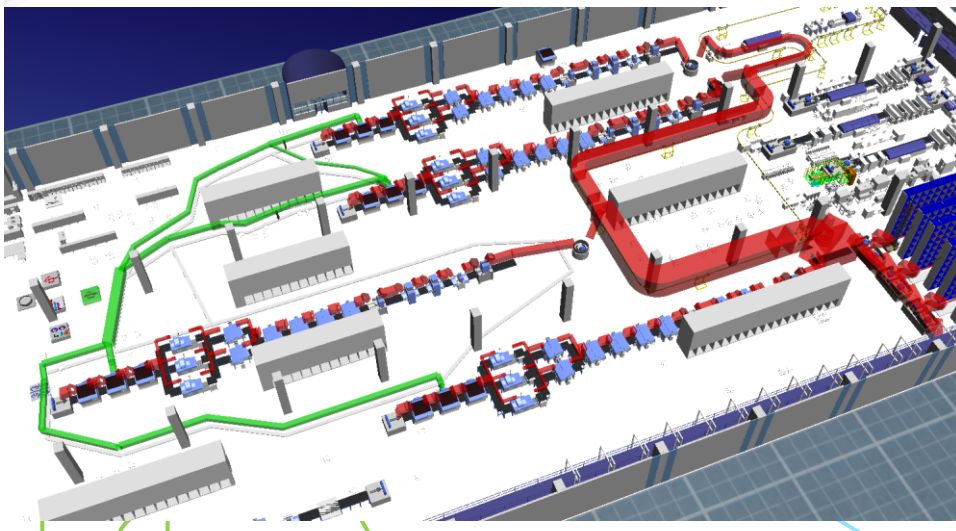
Identifying health hazard in handling operation
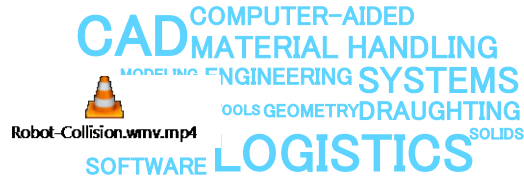
CAD systems can also be used to monitor the flow of material and the degree of utilisation of work stations.

CAD COMPUTER-AIDED MATERIAL HANDLING MODELING ENGINEERING SYSTEMS TOOLS GEOMETRY DRAUGHTING SOLIDS SOFTWARE LOGISTICS

Robot-Collision.wmv.mp4

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o CAD can become an important warehouse design and management support tool, with the potential to:

- ✓ Enable the fast discovery of layout design problems while avoiding expensive re-design
- ✓ Support execution of warehouse simulations
- ✓ Provide a breakdown of material handling costs and material handling requirements
- ✓ Reduce material handling needs and storage requirements
- ✓ Reduce time to launch
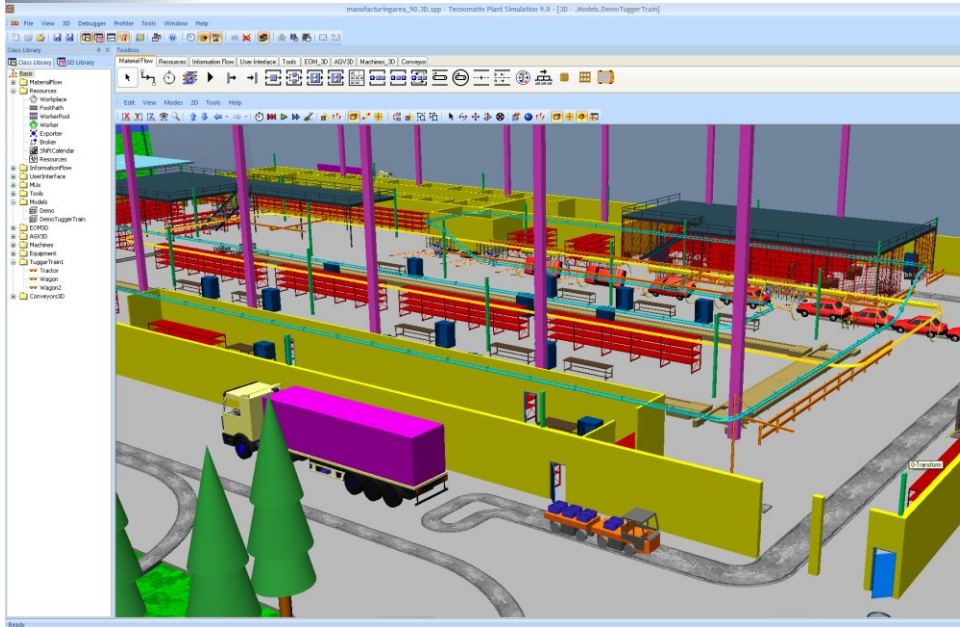
CAD COMPUTER-AIDED
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MODELING ENGINEERING SYSTEMS
DRAUGHTING
SOLIDS
SOFTWARE LOGISTICS

Dexion Automatic Storage and Retrieval System (ASRS).mp4

Logistics in Transport of Goods

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ENGINEERING SYSTEMS
TER TOOLS GEOMETRY DRAUGHTING
ANIMATION SOLIDS
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Space Utilisation inside a container

Cargo Stowage Planning

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o Plan the spatial configuration of goods in order to maximise the utilisation of space within shipping containers
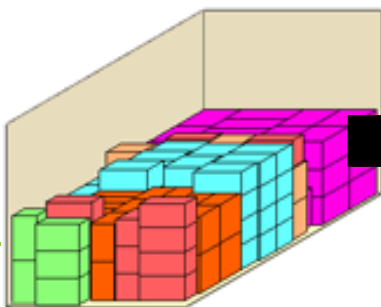
Poor Container Space Utilisation   Maximised Container Space Utilisation
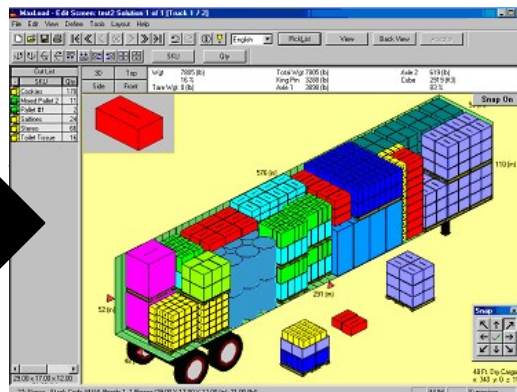
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SOLIDS
SOFTWARE LOGISTICS

Cargo Optimizer Enterprise Presentation.mp4

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o Container stowage planning.
  o Improve the ship stability by ensuring an even distribution of the cargo load.

  o Minimise the time a cargo ship spends loading and unloading containers at a particular port.
    Ensure that containers at the top correspond to the next port in the travel plan of the ship.

NEPTUNE Terminal Operating System – Terminal Planning.mp4

CAD COMPUTER–AIDED MATERIAL HANDLING MODELING ENGINEERING SYSTEMS RAUGHTING SOLIDS SOFTWARE LOGISTICS

CAD COMPUTER–AIDED MATERIAL HANDLING MODELING ENGINEERING SYSTEMS COMPUTER TOOLS GEOMETRY DRAUGHTING ANIMATION SOLIDS SOFTWARE LOGISTICS

THANK YOU FOR YOUR ATTENTION

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