SimPlan

Digital Twin Software

for layout design, visualisation and demonstration

EMULATE3D

Demonstrator

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Rockwell Automation

Layout design, animation and presentation of production and logistics systems

If you consider the entire period of a plant or mechanical engineering project, the **Emulate3D Demonstrator** is used in the early project phases. Namely, when the aim is to design and visualise the best possible solution for specified objectives in a limited space.

Picture: Visualisation of warehouse planning including building, narrow aisle warehouse etc.

Specific areas of application

3D layout design: The use of CAD in layout design is state of the art. However, the effort involved in creating CAD drawings is still considerable and slows down the speed and creativity of the planning process in the early planning phases. This can be remedied by using **Emulate3D Demonstrator**, which leads to a more efficient design process while at the same time increasing design quality.

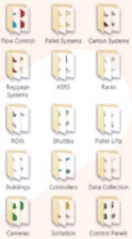
Detailed 3D models and animations of the system designs immediately create a high level of system understanding, and alternatives can be modelled and evaluated interactively.

Visualisation and animation for sales support: A picture is worth a thousand words, a video is worth a thousand pictures. This is the motto of the **Emulate3D Demonstrator** when it comes to presenting a developed concept in a way that everyone can understand during the sales phase, thus creating the basis for a common understanding on which decisions can be made. The **Emulate3D Demonstrator** uses state-of-the-art software technology to provide all the necessary functions, including physics-based simulation and presentation options using virtual reality.

Picture: Animation of an automated logistics system

Basic features

Model creation: Models are built using components from standard or customer-specific catalogues. The catalogue principle ensures a high degree of reuse. The components canbe modified using a variety of properties. This applies to both the appearance and the function.



Picture: Extensive standard catalogues

Snap functions are used to automatically connect and align the modules, taking restrictions into account.

Snap function: The snap function during model creation automatically produces executable models, which can then be further detailed in a second stage with regard to material flow control if required.

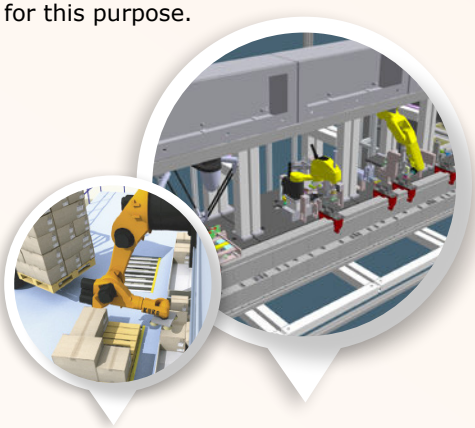
Bill of material: Bill of Materials (BOM) can be generated automatically at any time, in which all installed components are listed with type, quantity and properties. Optionally, price information can also be included to enable cost estimates to be made at an early stage.

Physics-based material flow simulation: In **Emulate3D**, the simulation of material flows takes into account physical properties such as gravity, friction, and collisions. This results in realistic behaviour of the objects in the model. If required, the physics simulation can be deactivated to enable a simplified, linear material flow

CAD Interfaces: There are various native interfaces available for integrating CAD data. Examples include AutoCAD, Creo Parametric, Inventor, NX, Onshape, SketchUp, SolidWorks and Solid Edge. Other formats can be imported via STEP. Following the import, the motion axes can be imprinted using the 'CAD Is The Model' module.

The joints are applied directly to the components via function blocks, which means that even complex kinematics can be animated. The markup of CAD data can be carried out using the 'CAD Is The Model' module in

Emulate3D Demonstrator or, in some cases, directly in the design programs. Specific add-ins are available for this purpose.



Pictures: Import of 3D CAD data and kinematization using „CAD is the model"

Presentation: Thanks to state-of-the-art graphics technologies, the **Emulate3D demonstrator's** animation quality is very high. Importing 3D CAD data significantly increases the level of detail and realism of the visualisation. Visualised systems can be freely explored.This is particularly convenient with a 3D mouse.

For an even more immersive experience, VR glasses enable you to fully enter a virtual 3D world. You can create video recordings using customisable camera movements and play them back using standard media players. Alternatively, the animation models can be exported as viewer-ready files or interactive 3D PDFs for further use.

For the visualisation of models in NVIDIA Omniverse, the **Emulate3D Demonstrator** provides a standard interface that allows both geometries and movements to be transferred. It can be used to render high-resolution images and videos, particularly for trade fairs or presentations. Thanks to the powerful ray tracing technology, Omniverse offers outstanding image quality with realistic reflections, lighting effects and materials.
In addition, any resolution - for example for large-format poster printing - can be flexibly generated.

Catalogues: Emulate3D Demonstrator ships with numerous standard catalogues. These currently include

- Smart Conveyors for modelling conveyor technology
- People catalogue for modelling humans (transport, order picking, palletising)
- Robot catalogue (articulated axis robots, portal robots, flexpickers)
- ehicle Framework for the simulation of vehicle systems (industrial trucks, overhead conveyor technology, AGVs)
- AMR catalogue for the simulation of grid-based AGV systems
- QuickLogic Racks for all types of storage systems
- BHS for the simulation of baggage handling systems
- Doors and Windows for building parts
- Camcorder for the definition of any camera paths and for video generation
- Loads with a variety of different conveyed goods and products
- Flow Control for controlling material flows and movements

Advanced functions

Customised and smart components: In addition to its comprehensive library of standard building blocks, Emulate3D Demonstrator allows you to develop your own customised components and organise them in user-defined catalogues. The building blocks are designed to be smart and parameterisable, which significantly reduces the effort involved in creating models and increases their visual quality and reusability.

Scripting with C#: Thanks to its integrated C#-based scripting environment, Emulate3D offers extensive options for expanding functions and automating processes. These can range from the realisation of complex movements to fully automated model generation.

Demo3D editions

In order to meet the requirements of different user groups, there are two editions for the areas of layout design, visualisation and animation that build on each other. These are **Emulate3D Layout**, which can be used to create static models without simulating movements and material flows, and **Emulate3D Demonstrator**, which includes these functions.

Extract from the current references

- Accenture
- Bühler AG
- Continental Tyres Germany GmbH
- Dachser Group SE & Co KG
- DHL Sorting Centre GmbH
- Dematic GmbH
- Ehrhardt + Partner GmbH & Co KG
- Fortna
- G. Siempelkamp GmbH & Co KG
- GEBHARDT Fördertechnik GmbH
- Groninger
- Interroll Group
- IWL AG
- Jungheinrich AG
- KHS GmbH
- KNAPP AG
- Körber AG
- Kühne & Nagek
- Lidl Foundation & Co KG
- Miebach Consulting GmbH
- Optima
- REWE Markt GmbH
- Schenker Germany AG
- SEW-EURODRIVE GmbH & Co. KG
- Swisslog GmbH
- TGW LOGISTICS GROUP GmbH
- Vanderlande Industries GmbH
- viastore SYSTEMS GmbH

Our locations

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Do you have any questions about the Emulate3D software?

Please feel free to contact us: info@emulate3d.de

SimPlan

www.emulate3d.de

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