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MI.RA/ PICKER

Flexible solution for Random Bin Picking

‹mi_ra›

A customized solution starts with a watchful eye

Discover MI.RA, Machine Inspection and Recognition Archetypes: Comau's flexible vision systems portfolio empowered by artificial intelligence.

Reconfigurable performance to face the future

Delivering the flexibility and innovation to meet the demands of the most challenging production scenarios, Comau's MI.RA portfolio guarantees modular, scalable, stable and customizable solutions that reduce operating expenses while increasing throughput and performance.

Thanks to decades of experience in systems integration, Comau's advanced MI.RA archetypes also ensure a seamless interface with the best hardware available on the market.

‹mi_ra/Picker›

MI.RA/Picker is our standard solution for Random Bin Picking. Designed to automate the task of emptying bins full of single type objects, it reduces the need for manual and repetitive operations and increases productivity and cost efficiency.

The powerful CAD based 3D vision system detects and localizes random displaced objects inside the bin and chooses the best way to pick the object among its pre-defined grasp poses, optimizing robot reachability and avoiding singularities. In addition, collision-free robot paths are generated in order to eliminate potential collisions between the robot and the bin when picking the objects.

MI.RA/Picker supports two types of sensors:

- **Laser rotative system**: for single bin application, it acquires multiple images to ensure higher resolution and picking precision, while reducing undercut limitations and potential reflections

- **On-Robot mounting**: a compact camera ideal for multiple bin applications with collaborative robots

Furthermore, a virtual environment is provided to better facilitate feasibility studies and reduce commissioning time and costs of the entire solution.

Vision System for 3D Robot Guidance

- **Simulation mode available**
- **Advanced path planning**
- **User-friendly interface**
- **Scalable**
- **Reflection tolerant**
- **Flexible and precise solution**
- **Hardware optimization:** Laser rotative and 3D camera
- **Robotic agnostic:** TCP/IP with all major robot brands, plus integrated robot libraries to speed up commissioning
- **Software option for optimized path planning**

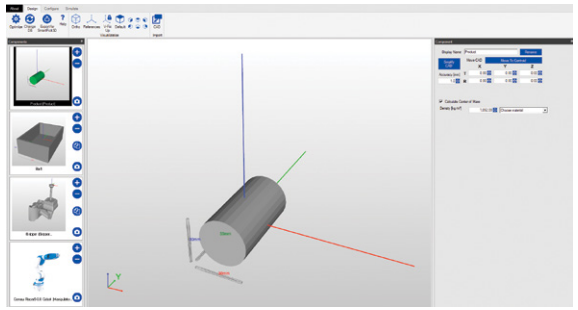
APPLICATIONS

- Machine tending
- Manufacturing
- Automotive

Cell setup and Simulation

Cell Setup

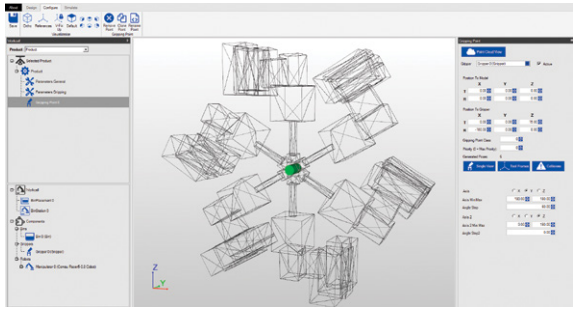
The complete bin station can be configured for a feasibility study of the whole bin picking process through a simulated environment. From a simple configuration page, the robot model and customized product, bin and gripper can be set.



- **Imported CAD models**
- **Different bin types**
- **Standard and customized gripper**
- **Wide range of robot models supported**

Grasp Generation

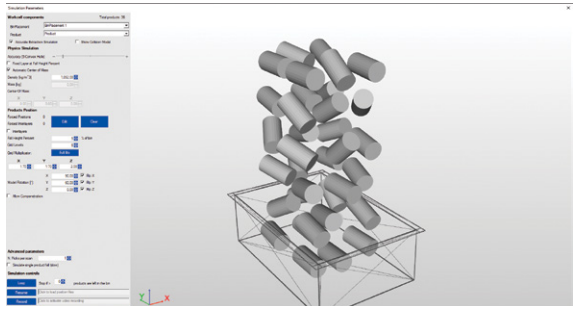
Based on the product to be picked and the gripper used, grasp points can be automatically generated and further customized, which can exploit product symmetries. Grasp points that lead to collision between product and gripper are discarded.



- **Automatic grasp point generation**
- **Collision detection between the gripper and product**
- **Grasp points customization and prioritization**

Simulation

The whole process can be simulated with random placement of products with integrated physics engine. This allow to optimize the setup before the commissioning phase.



- **Gripper design and validation**
- **Physics simulation**
- **Cell setup and reachability optimization**
- **Pick rate simulation**

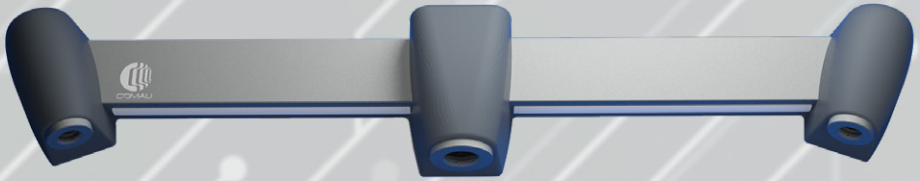
Deployment

Seamless integration with robot programs and the full automation process through a series of pre-defined routines for cycle management and error handling.

- **Standard robotic libraries**
- **Reduced commissioning time**
- **Analysis tool for troubleshotting and cycle optimization**
- **Collision-free path generation inside the bin**

Vision System for Robot Guidance

LT series



LT series

The laser rotative system, designed for single bin applications, is based on dual-line laser triangulation technology. By acquiring multiple images, it delivers higher resolution and picking precision. It also effectively reduces undercut limitations and potential reflections.

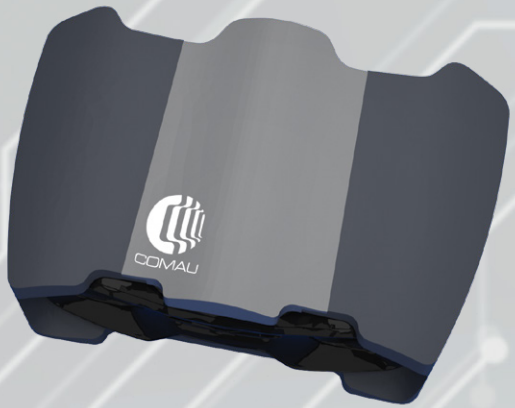
- **FOV: from 600x400x300 to 1200x800x1000 mm**
- **Single bin**
- **High resolution**
- **Picking precision**
- **Reflection tolerant**
- **Undercut efficiency**

ZV series

Designed to unleash the full potential of multi-box bin-picking. It can be installed on the robot without limiting the reachability inside the bins, even for the smallest collaborative robots. Compact and lightweight, with reduced acquisition times, it has little to no impact on the reach of the manipulator or the gripping process cycle time.

- **FoV: from 600x400x300 to 800x600x600 mm**
- **On-robot mounting**
- **Multiple bins**
- **Suitable for collaborative robot**

ZV series



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