



**BLUMENBECKER**

WE DELIVER SOLUTIONS

AUTOMATION TECHNOLOGY **ENGINEERING** INDUSTRIAL TRADE INDUSTRIAL SERVICE TECHNICS

## BIN PICKING

- | Consulting
- | Image processing
- | Tool and machine construction
- | Commissioning
- | Sensor technology
- | Path planning
- | Robot and PLC programming
- | Training



# BIN PICKING – AUTOMATED AND PRECISE POSITIONING OF PARTS

## INTERACTION BETWEEN ROBOTS AND CAMERA TECHNOLOGY

Robots perform increasingly complex tasks. Despite all the automation, there are still situations in modern-day production where it is more economical to load boxes or crates haphazardly than to invest time and manpower in loading them neatly. This, however, only shifts the problem from one end of the production line to the other. After all, you still need to unload the chaotically loaded objects and send them to the next station for processing. This takes manpower unless the work is done by singulators such as vibratory bowl feeders.



# 1

## OBJECT IDENTIFICATION

Object identification – selecting the right measurement method, camera technology and resolution for different lighting conditions and component surfaces.

# 2

## OBJECT POSITIONS

Identifying the right algorithms for finding object positions in three dimensions.

# 3

## MOVEMENT

Calculating the robot path and collision-free gripper path.

# 4

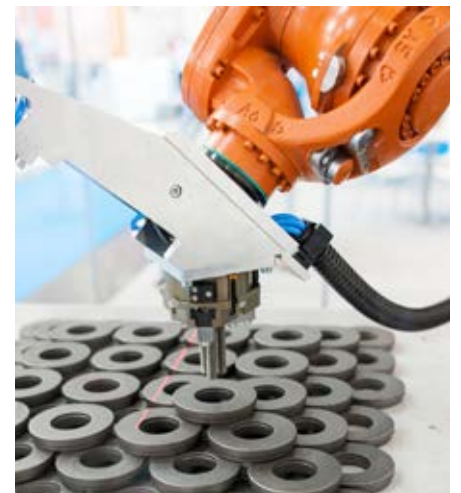
## GRIPPERS

Designing component-specific grippers.

# 5

## SOLUTION PACKAGE

Combining all these elements into one functioning robotunit.



## BIN PICKING

BIN PICKING is a technology in which a robot, equipped with a 3D camera, takes parts out of a container filled with unorganized, often irregularly shaped pieces and aligns them properly before sending them to the next station. The challenge is to process differently shaped objects held in containers in an entirely random order.

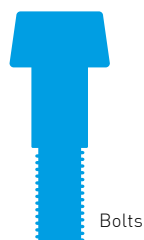
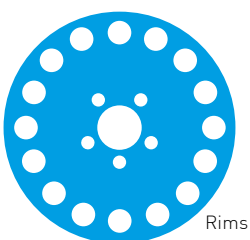
Blumenbecker is a pioneer in this field, specializing in the development of sensor systems for industrial robots and the design of special gripping tools.

## VENDOR-INDEPENDENT SOLUTIONS

One challenge in BIN PICKING is that a vast amount of data must be processed in real time. For example, the robot must identify the part from a vast collection of 3D data. Then, a calculation method is needed to guide the robot axes and the gripper to the selected point. The robot axes can perform various movement sequences in order to reach the desired component. Some sequences, however, would result in a collision with the bin. Blumenbecker has developed a proprietary solution that, before starting a movement sequence, checks for collision hazards, calculates alternatives and then provides a corrected path for the robot system.

Blumenbecker supplies sensors and software supported by all types of robots, but also has its own design department to develop and build the required grippers.

### Examples for unorganized parts held in containers



WE LOOK FORWARD TO  
**HEARING FROM YOU.**