SANEZOO Grasp

for 3D picking & feeding

- 3D system for any components
- Calculates full robot trajectory
- Integrates easily in one day
- Adaptive AI & machine vision
- Easily copes with reflective parts
- One size fits all

Fits any compoment

Works like a pair of eyes. No need for projectors or lasers. Perfect for metal, machined, glossy or matte parts and scenes with multiple different materials in the field of view.

✓ GRASP is universal for all parts
  – of any size from 5mm up,
  – with geometric or complex shapes

✓ Can handle a wide range of part surfaces, including:

very **reflective**

machined

dark / **matte**

painted / **coated**

transparent

foil-wrapped
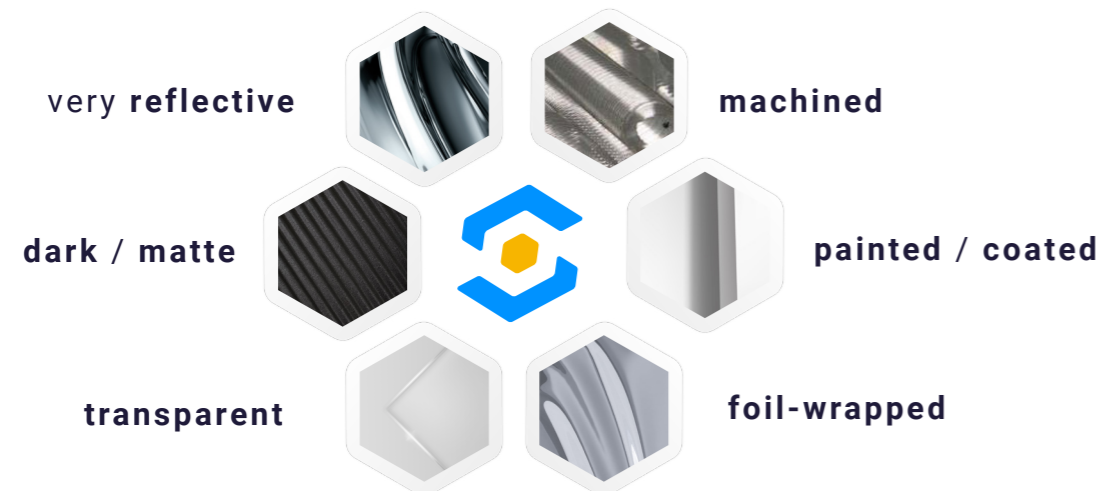
Plug-and-Play

- enables fast and easy integration
- up and running next business day

Automatically calculates full trajectories

- creates end-to-end trajectories on-the-fly
- can guide from a final position directly inside the box
- knows the gripping position -> oriented placing
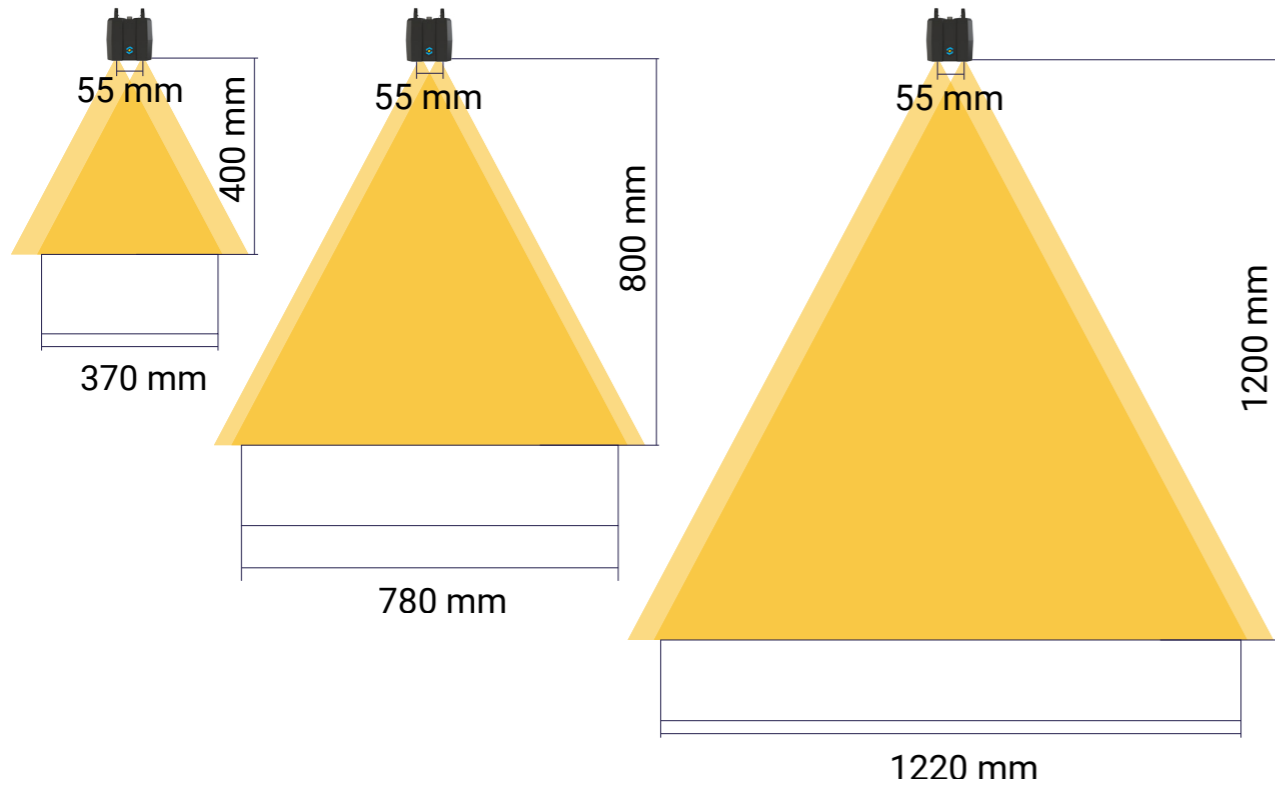
Avoids obstacles and collisions

- gripper
- gripped part
- robot arm
- end effector
- holders and cabling
- robot arm
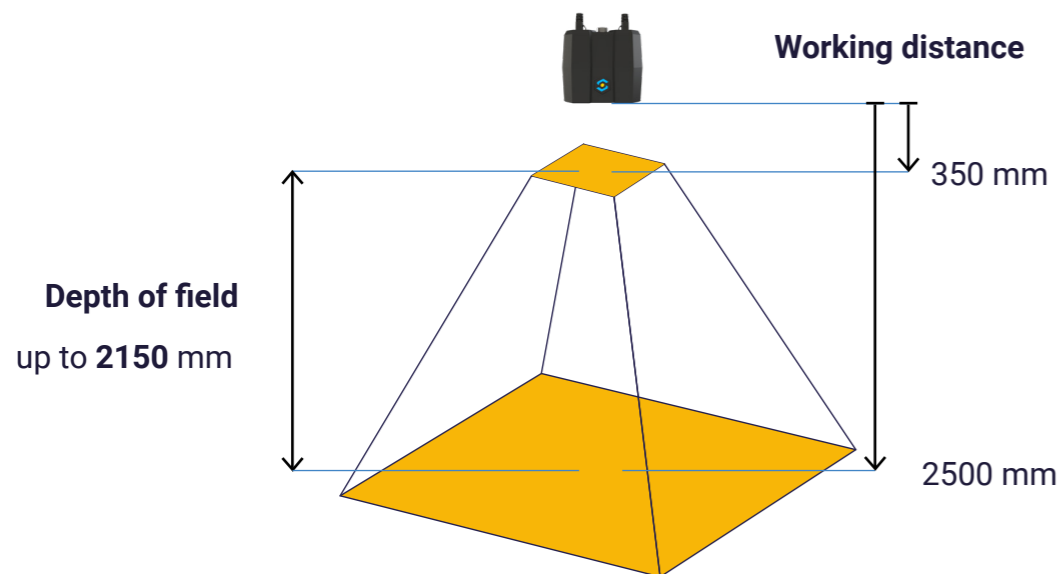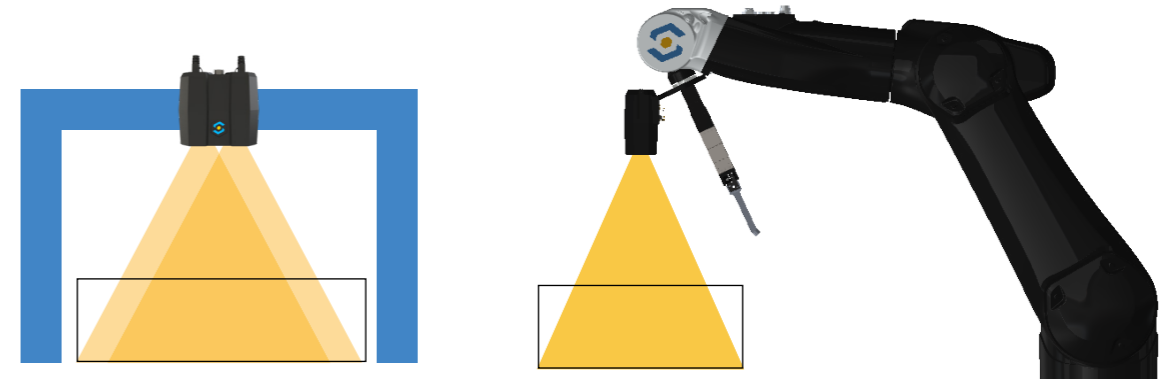- boxes
- cell frames
- other obstacles
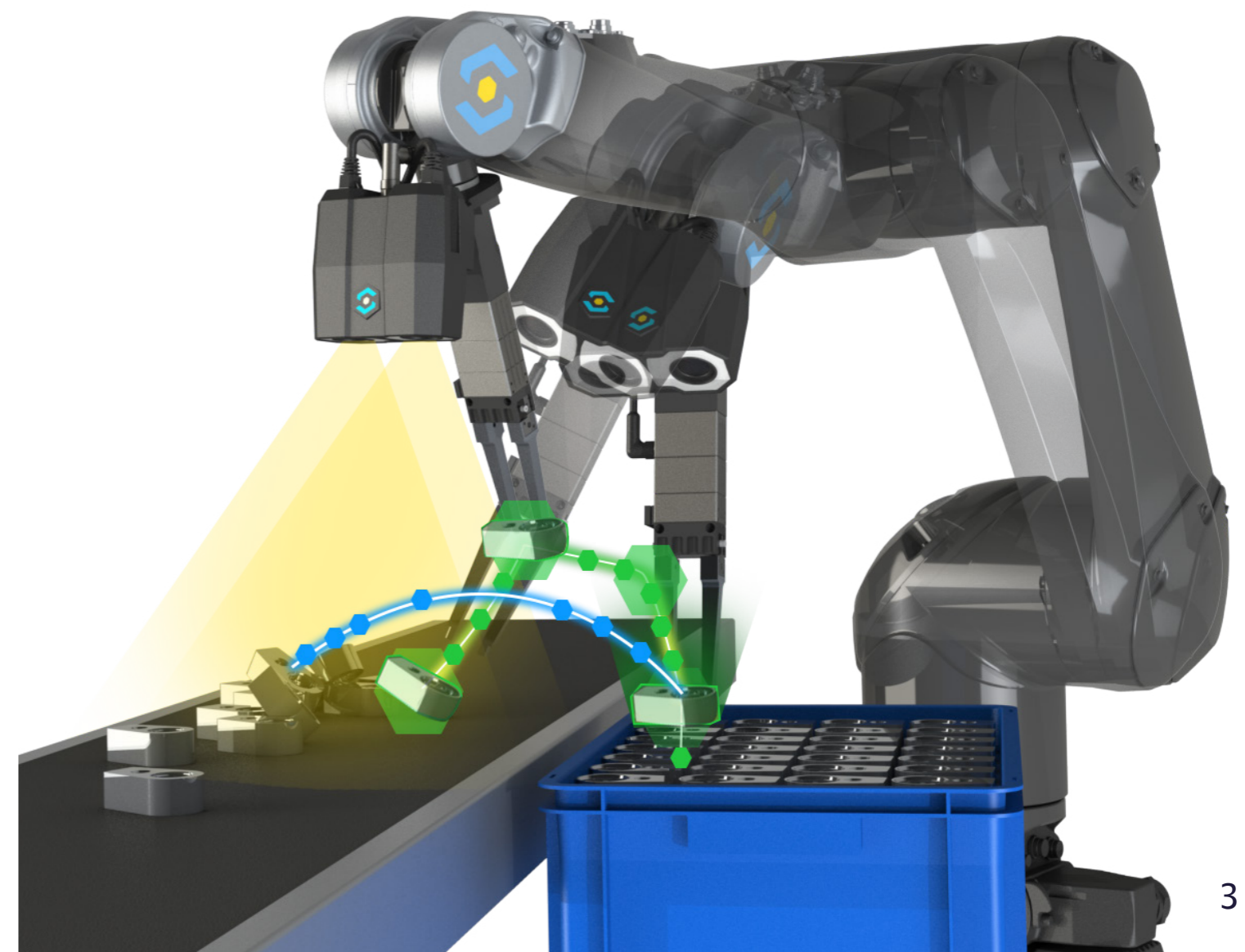
One size fits all

Universal for containers of any size.
From small totes to mesh box pallets
Can handle also very small parts in large containers

55 mm
400 mm
370 mm

55 mm
800 mm
780 mm

55 mm
1200 mm
1220 mm

Large depth of field

Working distance

350 mm

Depth of field

up to **2150** mm

2500 mm

## Can be static or robot mounted

Advantages when mounted on a robot

→ less fewer obstructions and occlusions

→ more accurate acquisition and picking

→ no need for vibration-free frames and holders

→ can pick from large or multiple containers

→ unlimited depth of field, handles deep boxes

ALWAYS in focus

The SANEZOO system can also pick accurately from the top as well as the bottom of very deep containers. The images stay in perfect focus thanks to the constant working distance.
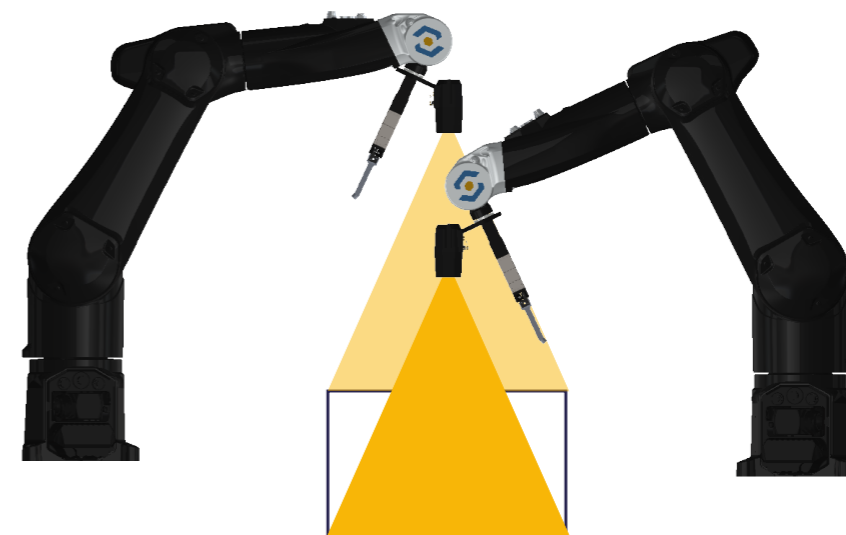
Comparison of 3D Input Technologies

	SANEZOO	ToF	Structured Light	Laser	Stereo
Resolution & FoV	Scalable	Limited	Limited	Scalable	Scalable
Mirror-like surfaces	✓	✕	✕	✕	✓
Machined surfaces	✓	?	✕	?	✕
Painted surfaces	✓	✕	?	?	✕
Dark & matte surfaces	✓	?	✕	✕	✓
Textureless surfaces	✓	✓	✓	✓	✕

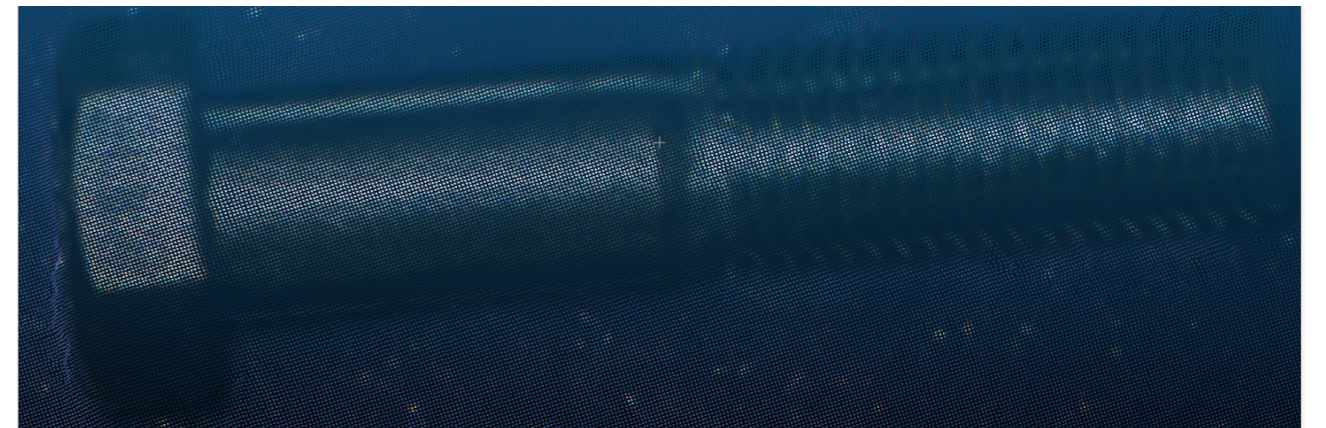## Consistently reliable across all lighting environments

from complete darkness to direct sunlight
Unaffected by the variability of lighting conditions, ensuring stability day and night, even in extreme brightness or darkness.
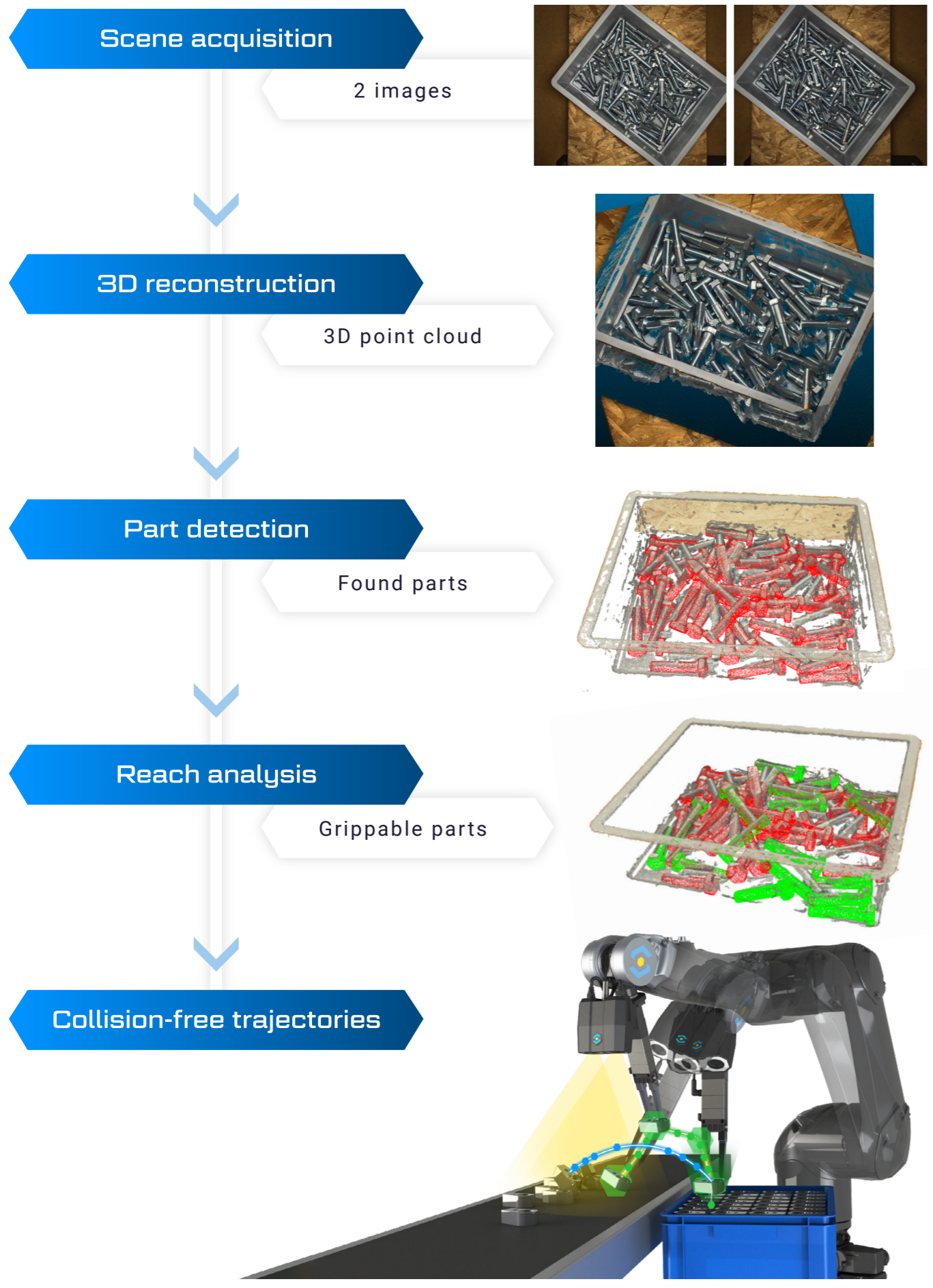
Detailed and accurate 3D reconstruction
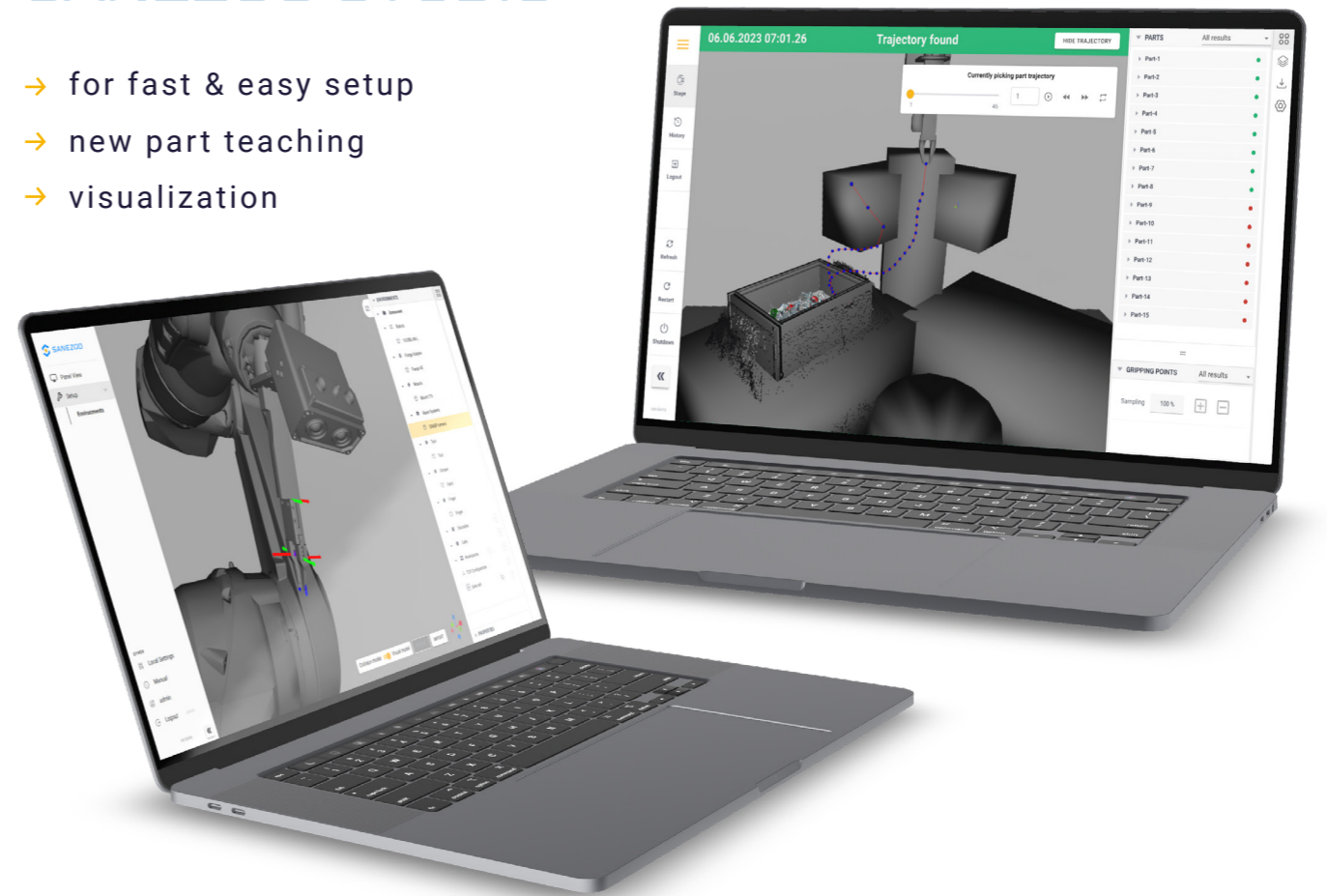
Even on very reflective parts

A 3D point cloud is a collection of points in three-dimensional space that represents the whole scene. Each marked point is assigned three coordinates (x, y, and z) based on its position in the 3D space.These points collectively form a cloud-like representation of the object or scene, where each point in the cloud corresponds to a specific location

Calculation pipeline

Scene acquisition

2 images

3D reconstruction

3D point cloud

Part detection

Found parts

Reach analysis

Grippable parts

Collision-free trajectories

SANEZOO STUDIO

→ for fast & easy setup

→ new part teaching

→ visualization

Fast integration

- The length of integration (including unboxing, installation and application setup): 1-4 hours.

- The integration includes the following steps:

  A Installation of the 3D camera and flange adapter

  B Calibration of the 3D camera

  C Uploading SANEZOO library to a robotic controller

  D Integration setup steps:

      I.   CAD model or simplified CAD model upload of a part and a box

      II.   Selection of a robot (or definition of a new robot)

      III.   Selection of a gripper

      IV.   Upload of a model of fingers

      V.   Scene definition or upload of the robotic cell

      VI.   Definition of gripping points on the part

      VII.   Definition of placement points

      VIII.   Definition of signals for PLC integration

Typical use cases

- picking parts for production lines and conveyors
- machine loading and unloading
- part inspection and sorting
- laser marking
- kitting and assembly
- custom packaging

Supports any robot manufacturer

SANEZOO offers universal interface for integration with any robot controller.
New robot controller can be added in less than two weeks.
Open and documented API for third-party, adaptation can be performed by anyone.

AND MANY MORE

Industries

Automotive

Aerospace

Food & Beverage

Medical & Pharma

Metal & Foundries

Machinery & CNCs

Electronics

Fulfillment centers

Smart warehouses