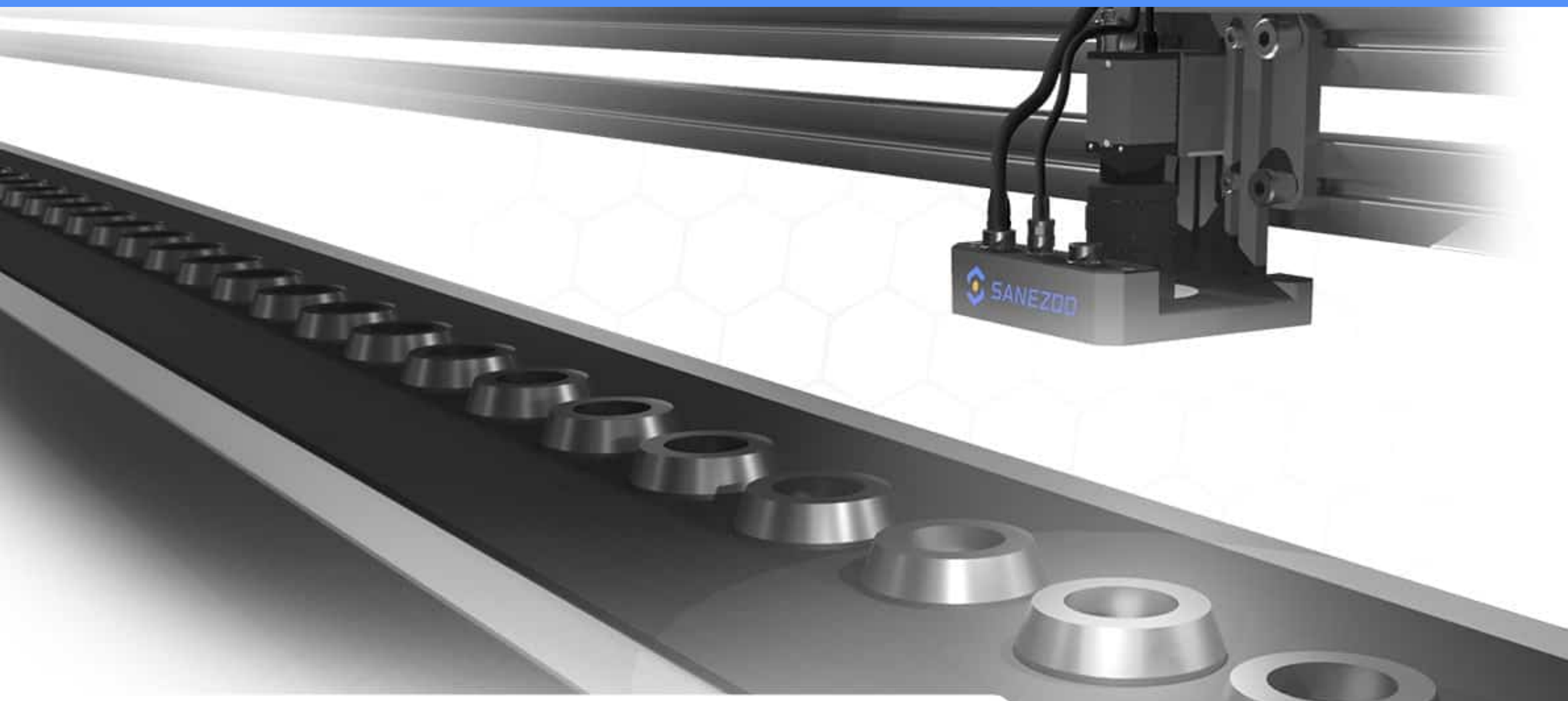


UNITY Quality Control

SANEZOO

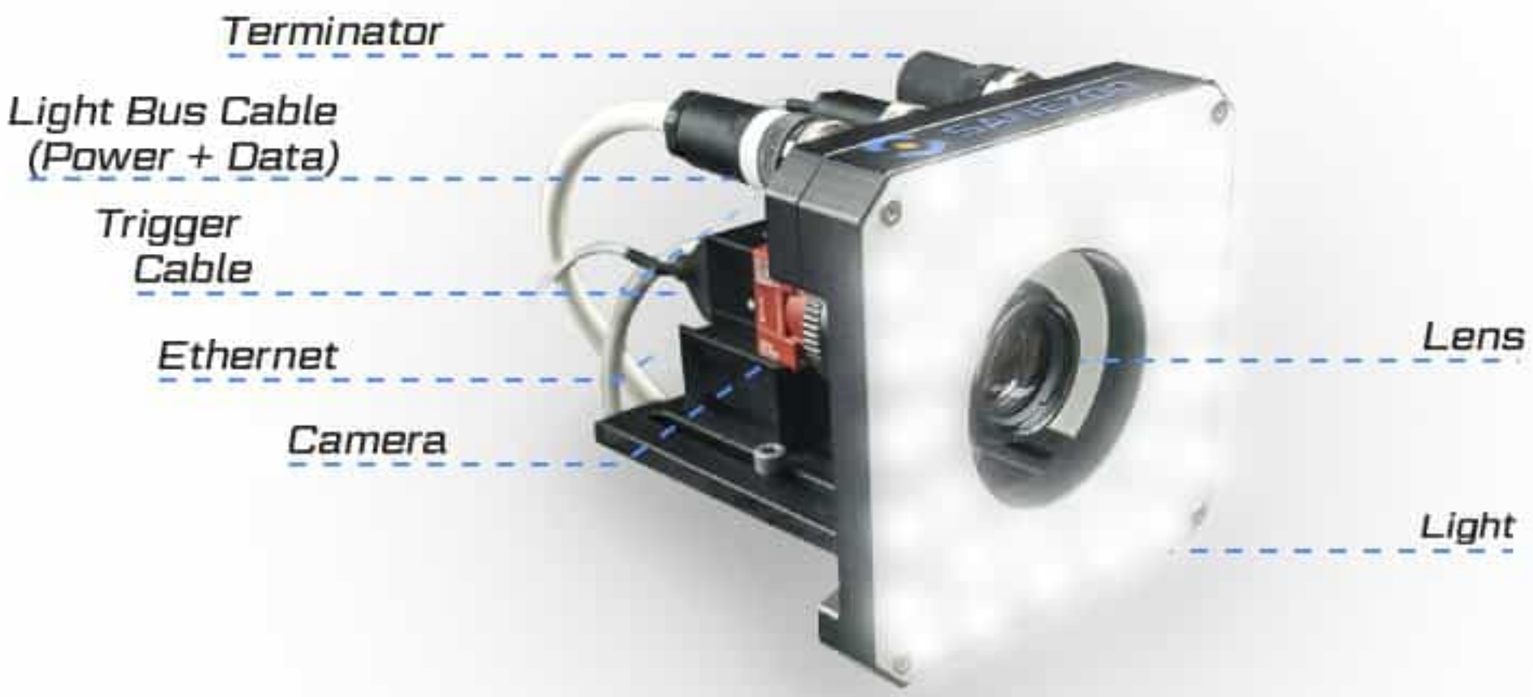
GRASP Bin Picking

WINNER OF INNOVATION IN AUTOMATION TECHNOLOGY & INDUSTRY 4.0
MSV 2023 IN BRNO

SANEZOO

is a technology company
focused on machine vision and automation.
We develop systems for precise object recognition
and manipulation, optimizing production processes
and reducing costs. Our solutions enable the rapid
deployment of intelligent technologies
for modern industry.

OUR PARTNERS AND CLIENTS:



SANEZOO UNITY

UNIVERSAL QUALITY CONTROL

Detects even the *smallest surface defects* on *large areas*.

Handles a wide range of surfaces, including *highly reflective* and *machined materials*.

Customizable settings based on your *specific requirements*.

Resistant to ambient lighting thanks to our unique lighting system.

Tolerant to imperfect positioning.

Unaffected by stains, machining marks, or other anomalies.

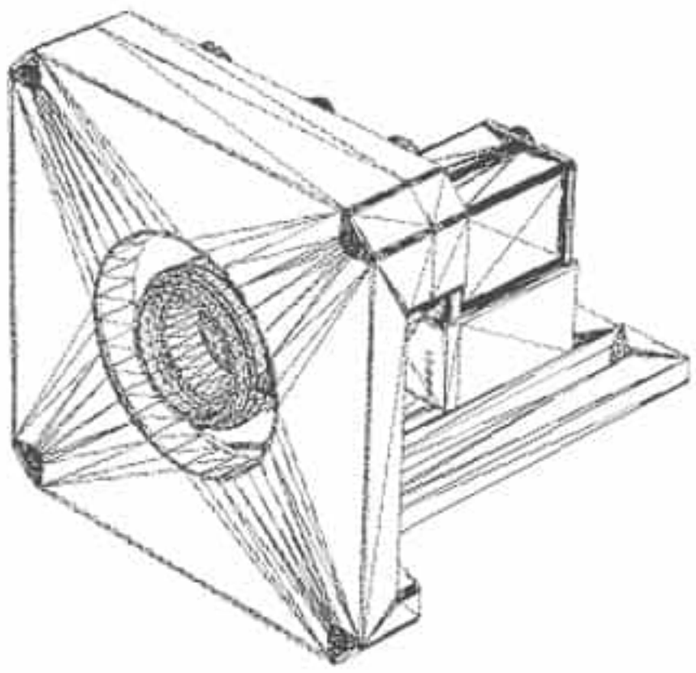
Can be integrated into a production line for real-time rejection of NOK parts, final inspection, or external evaluation.

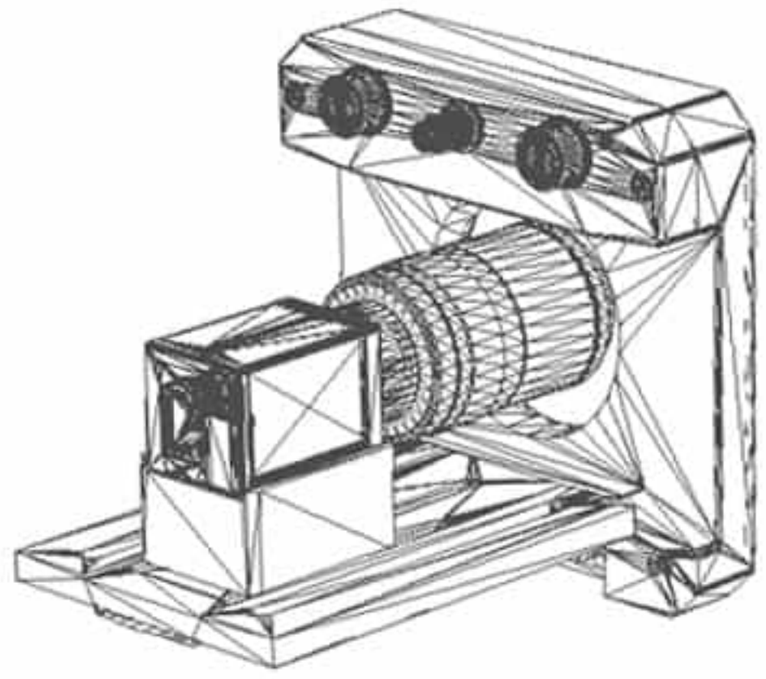
Resolution:
Up to 25 MPx

Defect Detection Rate:
> 99.998 %

False Alarm Rate:
< 1 %

UNITY Datasheet





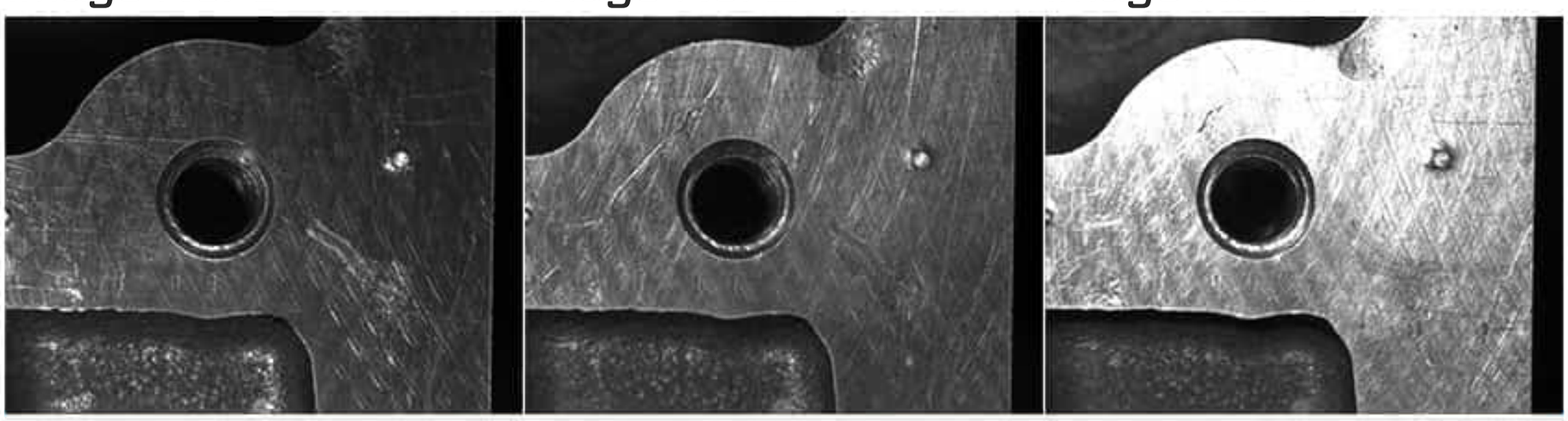
Camera weight:	*~450 g / ~1 lb (without cables)*
Dimensions (l x w x h):	*132 mm x 120 mm x 120 mm / 5.20 in x 4.72 in x 4.72 in*
Surface types:	*machined, milled, pressed, plastic, rubber*
Defect types:	*scratches, cracks, unevenness, porosity, dents, bends, holes, missing parts, incorrect dimensions*
Cycle time:	*~2.8 s*
Minimum defect size:	*~0.03 mm / ~0.001 in*
Field of view (l x w):	*adjustable to customer's needs*
Camera power supply:	*24 V | 5 A | 120 W*
Machine vision controller power consumption:	*~400 W (max. 1200 W)*
Camera connection:	*RJ-45*
Ambient light:	*Variable (from total darkness to sunlight, 0 to 100000 lx)*
PLC communication:	*MODBUS protocol*
Coverage level:	*IP30 (please contact us for higher protection)*
Requirements for part placement:	*arbitrary (programmable using Sanezoo UNITY studio)*
Number of different components and views:	*resistance to part position shifts due to adaptive segmentation*
Trigger method:	*PLC, frontend or HW trigger*

How UNITY Works

Image No. 1

Image No. 2

Image No. 3



Input Images

Enhanced Contrast

Surface Structure

Glare removed

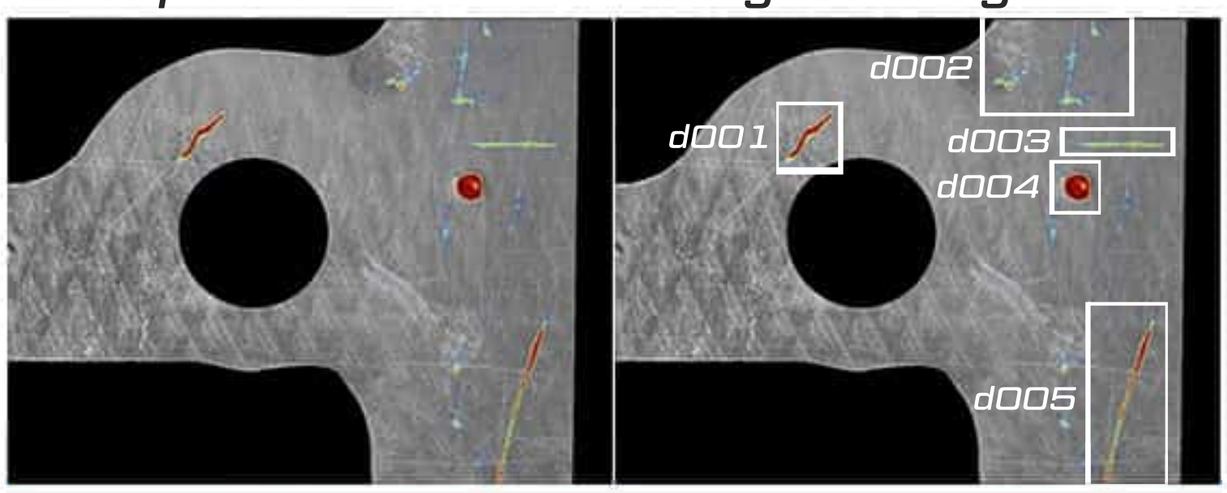
Contrast Improvement

Surface structure generation

Reflection Elimination

AI response

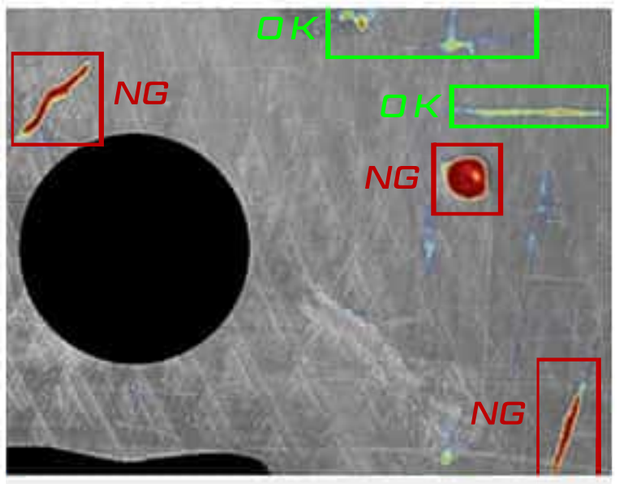
Analyzed image



Proprietary AI

Proprietary image analysis

Final evaluation



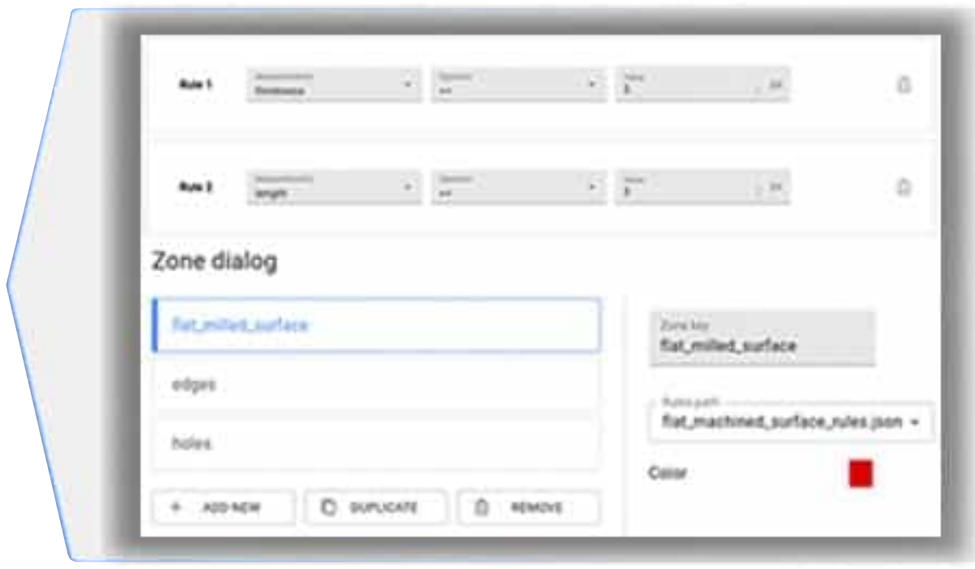
Decision engine

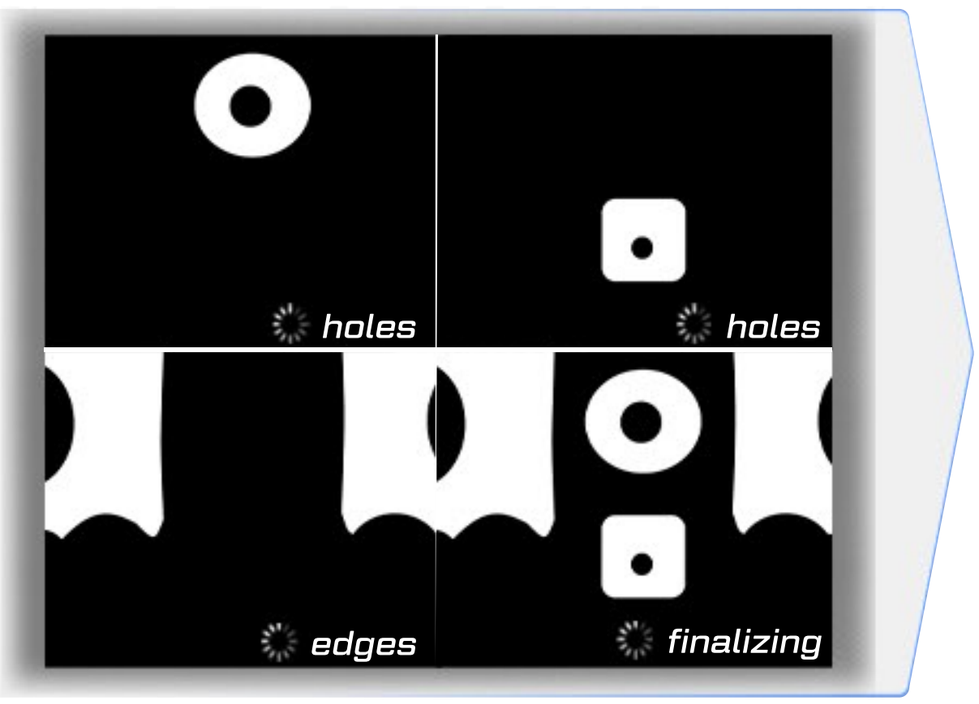
Unique features of UNITY

ADAPTIVE ZONE SEGMENTATION
ENABLES THE CREATION OF DIFFERENT ZONES WITH DISTINCT EVALUATION PARAMETERS.

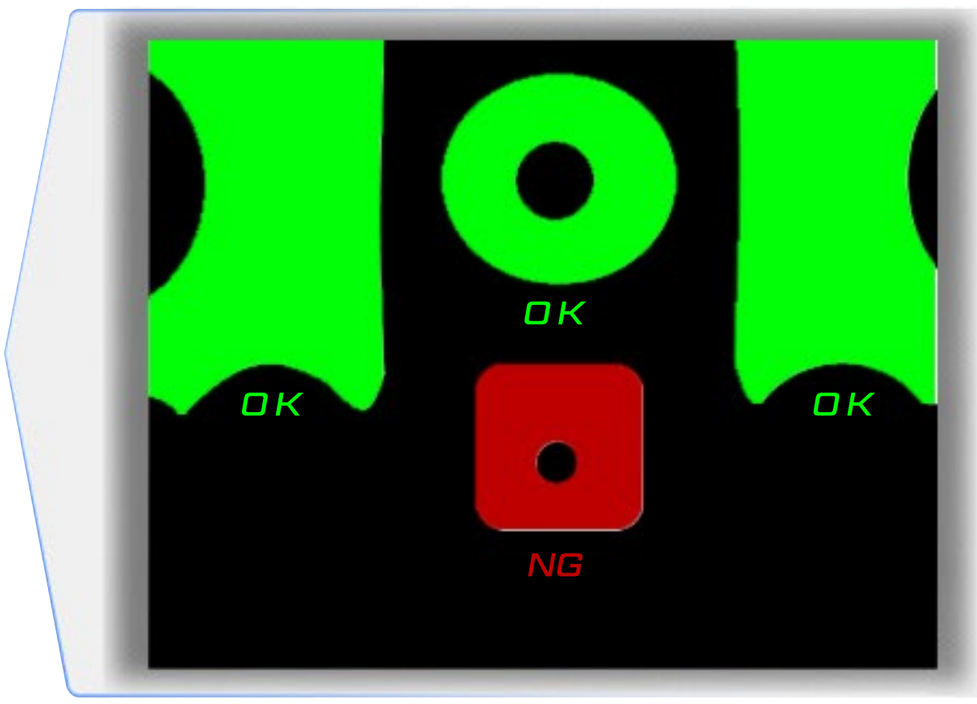
SPECIFICATION AND DEFINITION OF MANY ZONES OF INTEREST.

CONFIGURATION OF RULES FOR EACH ZONE FROM A DEFECT CATALOG.





SEQUENTIAL INSPECTION OF DEFECTS WITHIN INDIVIDUAL ZONES.

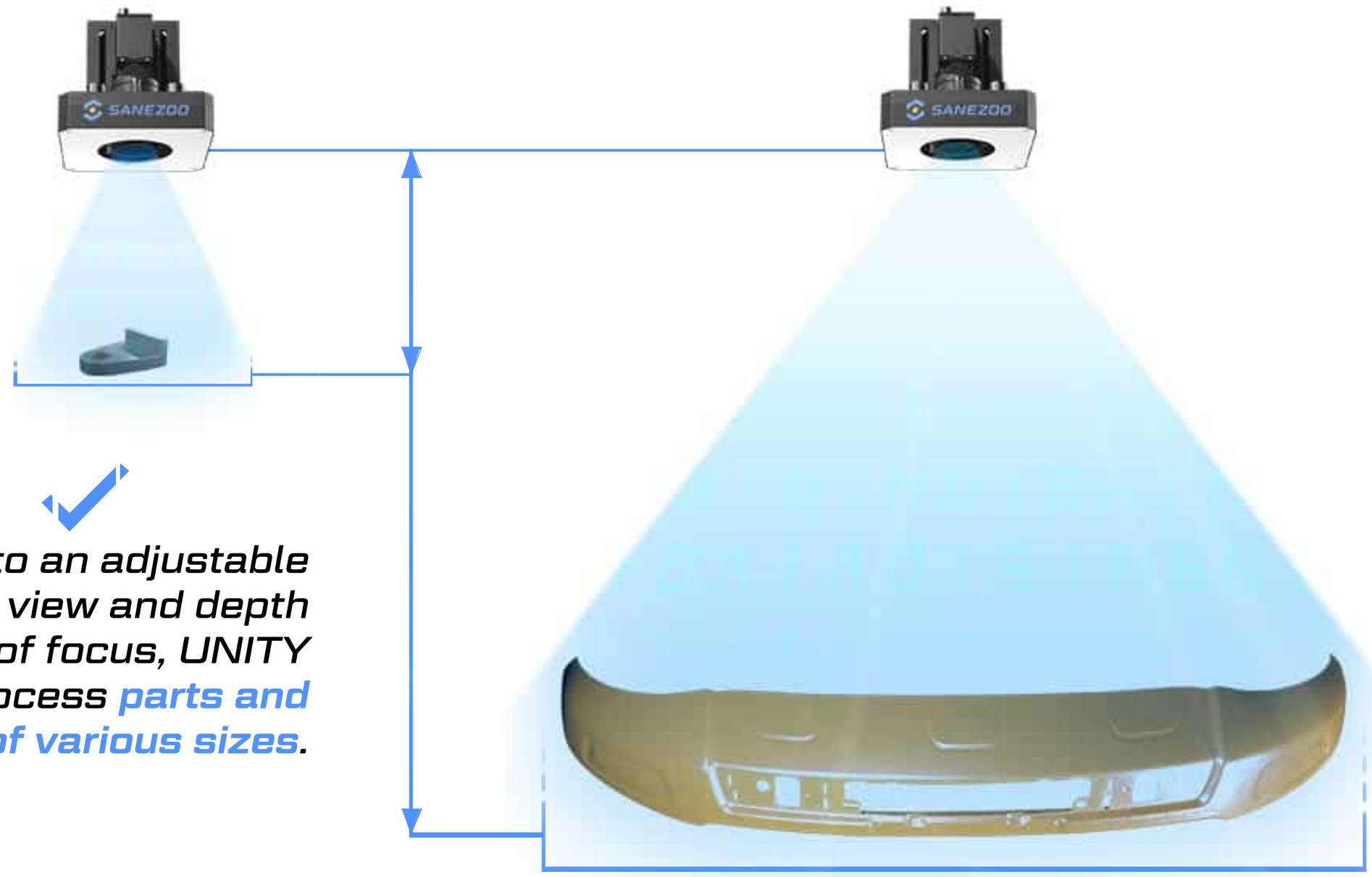


FINAL EVALUATION.

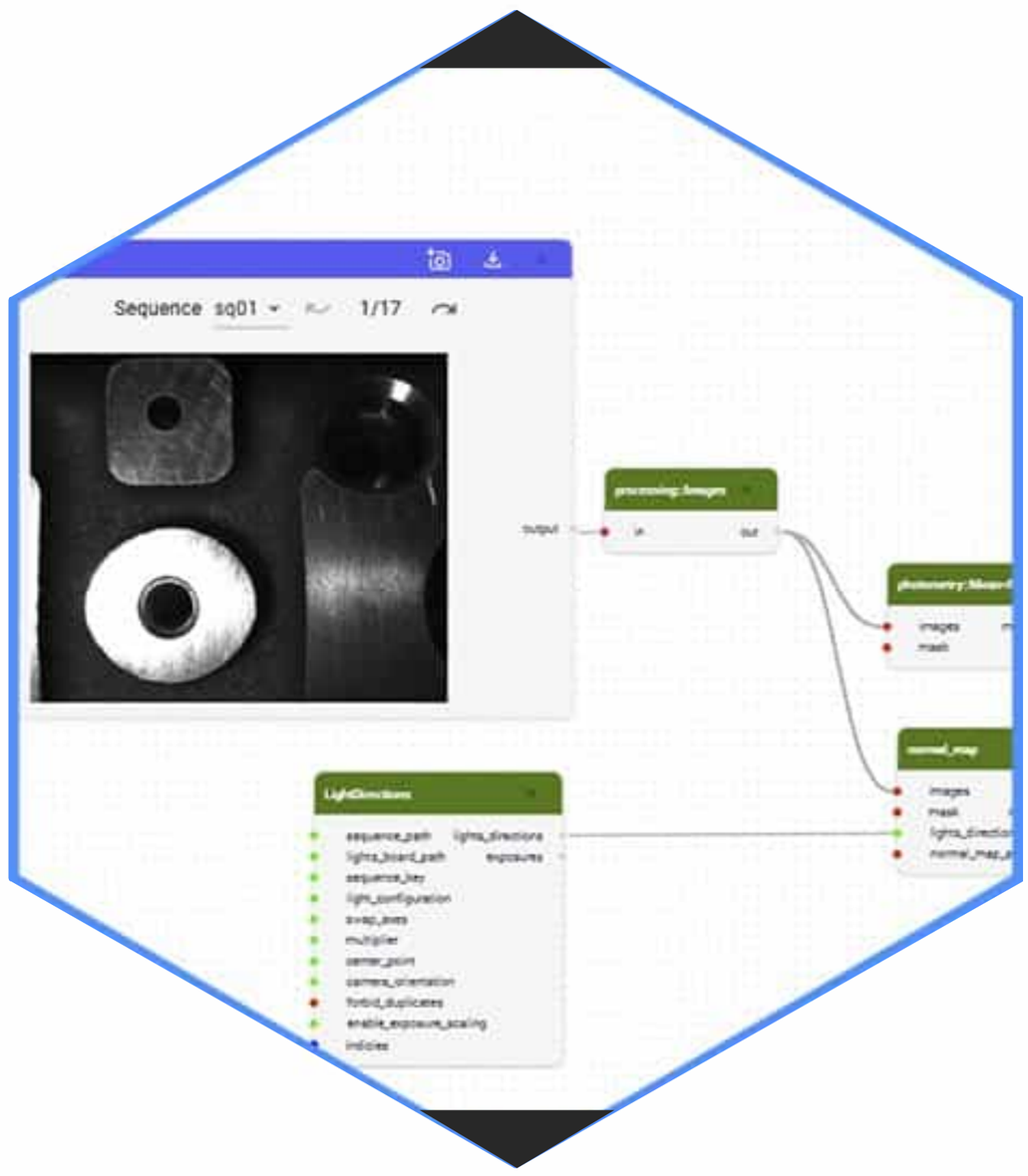
UNITY IDENTIFIES NON-COMPLIANT ZONES AND **ALLOWS** FOR THE **ADJUSTMENT OF SUBSEQUENT PRODUCTION STEPS**.

Unique features of UNITY

HANDLES ALL DIMENSIONS



*Thanks to an adjustable field of view and depth of focus, UNITY can process **parts and boxes of various sizes**.*



*Supports **custom pipelines** with trainable neural network models.*

SANEZOO GRASP

BIN PICKING

Simple scene setup allows *picking from multiple boxes*.

Suitable for a wide range of parts, including *glossy, machined, matte,* and *painted*.

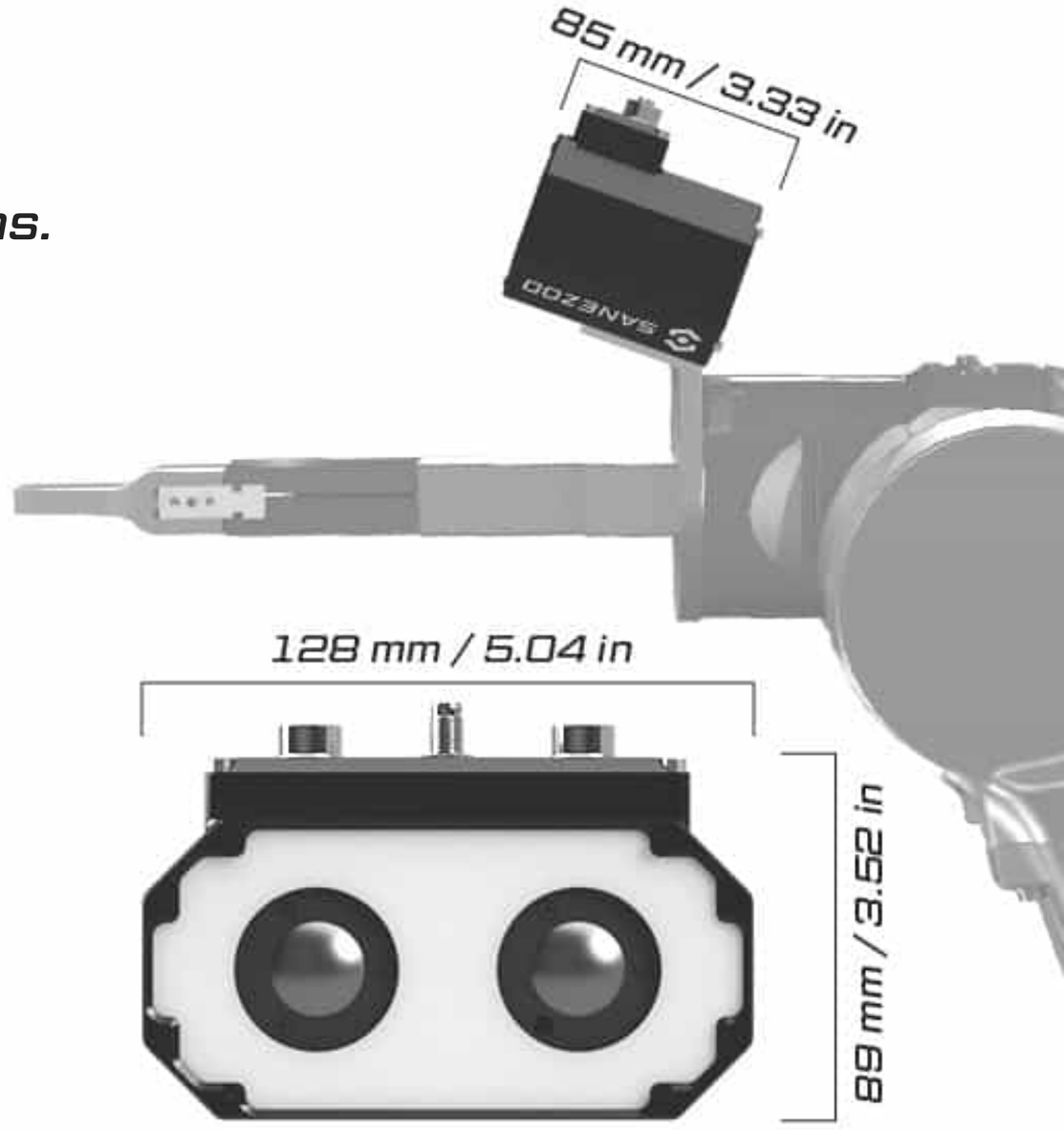
Always *in focus* thanks to a *camera mounted on the robot.*

Calculates the complete robot trajectory in real-time, avoiding unexpected collisions.

Recognizes the gripping position for oriented part placement.

Suitable for various shapes, surfaces, part sizes, and box sizes.

Custom TCP/IP protocol for seamless communication with many robotic systems ...



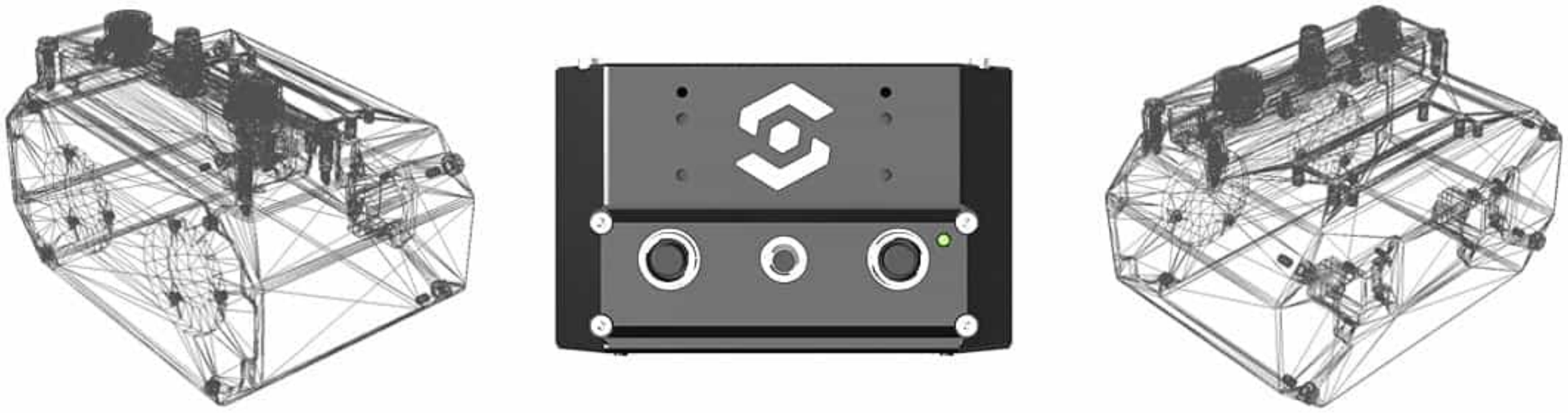
STÄUBLI ABB FANUC NACHI Kawasaki Robotics KUKA

Minimum Part Size:
125 mm³ / 4.92 in³

Trajectory Calculation Time:
2 – 3 s

System Weight:
< 1 kg / 2.20 lb

GRASP Datasheet



Camera weight:	~750 g / ~1.65 lb without flange adapter and wiring
Dimensions (l x w x h):	85 mm x 128 mm x 89 mm / 3.33 in x 5.04 in x 3.52 in
Working distance:	50 cm / 20 in, adjustable from 35 - 150 cm / 13 - 59 in
Minimum part size:	from 5 mm x 5 mm x 5 mm / 0.2 in x 0.2 in x 0.2 in
Maximum part size:	to 500 mm x 500 mm x 500 mm / 20 in x 20 in x 20 in
Cycle time:	2 - 3 s
Depth of field:	at f/8: approx. 30 - 80 cm / 11.8 - 31.5 in
Field of view (l x w):	48 x 57 cm / 18.9 x 22.4 in (various lenses can be supplied)
Camera power supply:	24 V
Machine vision controller power consumption:	~400 W (max. 1200 W)
Camera connection:	2x RJ45 (Ethernet)
Ambient light:	Variable (from total darkness to sunlight, 0 to 100000 lx)
Lighting needed:	uses built-in light
Coverage level:	IP42 (please contact us for higher protection)
Trigger method:	HW trigger, SW trigger
Min. container size (l x w x h):	50 mm x 30 mm x 1 mm / 2.0 in x 1.2 in x 0.1 in
Maximum container size (l x w):	1200 mm x 1000 mm / 47.2 in x 39.4 in
Containers:	boxes, crates, trays, pallets, wire pallet cages, KLT

How GRASP Works

Left camera

Right camera

SCENE ACQUISITION

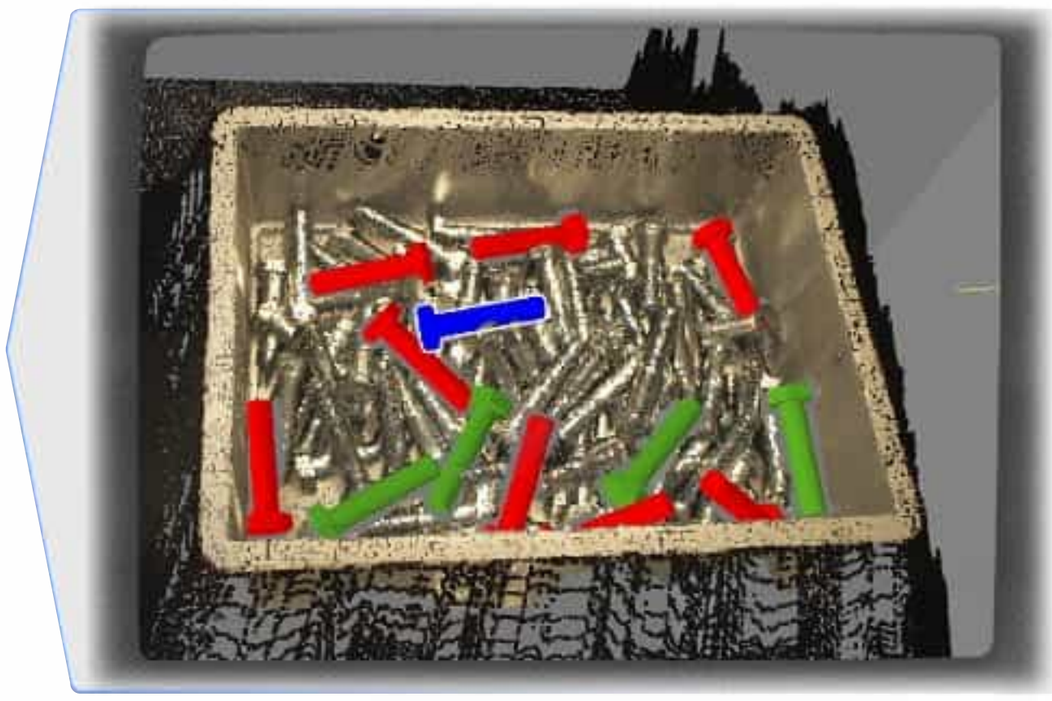
3D point cloud

3D RECONSTRUCTION

Found parts

PARTS DETECTION

Grippable parts



REACH ANALYSIS

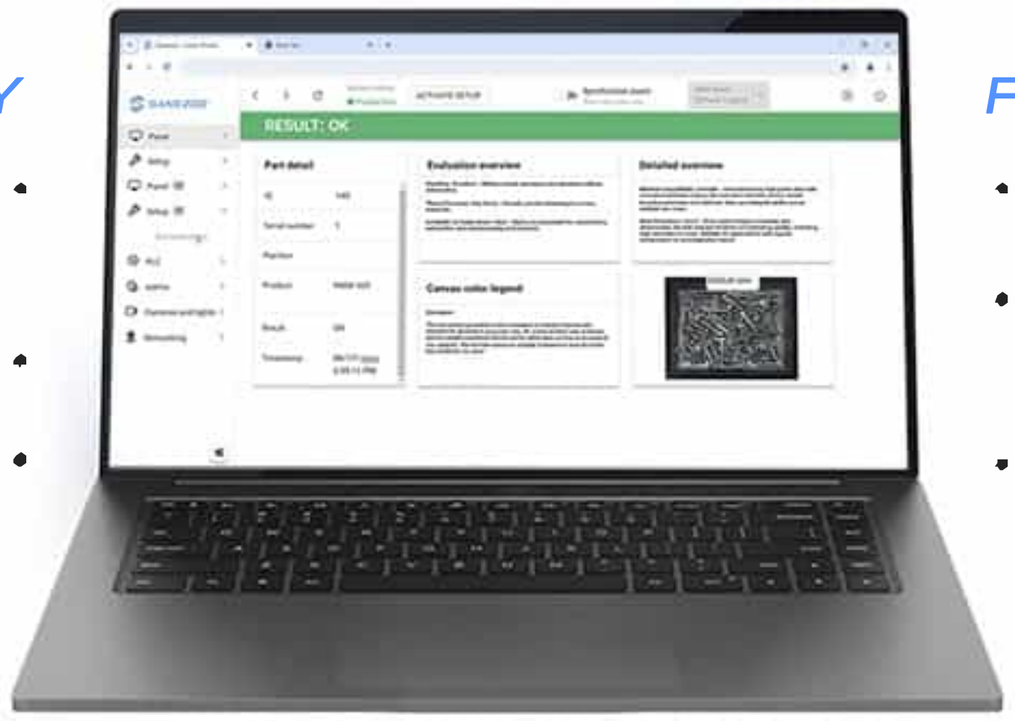
COLLISION-FREE TRAJECTORIES

SANEZOO STUDIO

FAST PRODUCT INTEGRATION

FOR UNITY

- Criteria and zone configuration
- Result visualization
- Inspection history and archiving



FOR GRASP

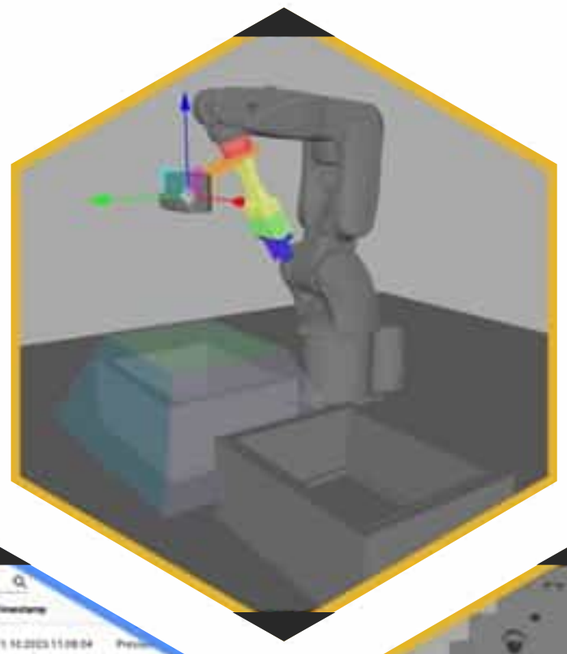
- Simple 3D scene setup
- Custom grip point definition
- Process visualization

SANEZOO STUDIO
ensures seamless communication with our products, offering fast integration and precise settings tailored to your specific needs.

UNITY STUDIO

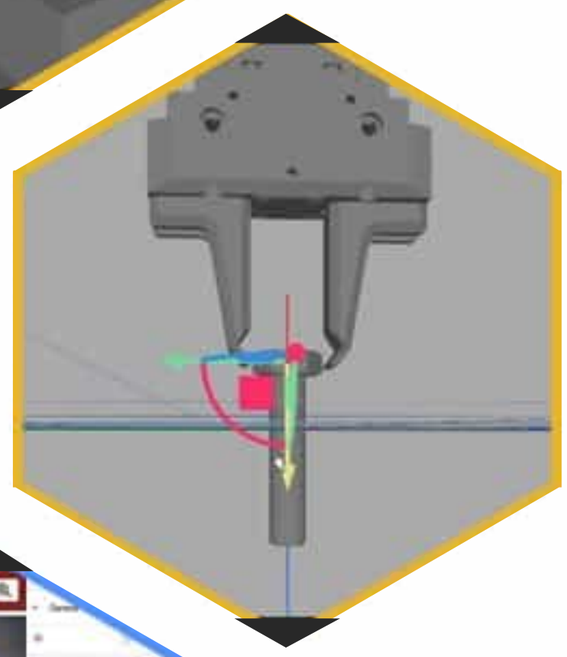
Automated **tracking and archiving** of inspected parts.

Detailed **configuration of decision-making criteria**, including individual **control zones**.



GRASP STUDIO

Support for **multiple picking boxes** and automatic **obstacle avoidance** for robots.



Custom grip point settings for precise **oriented part placement**.

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