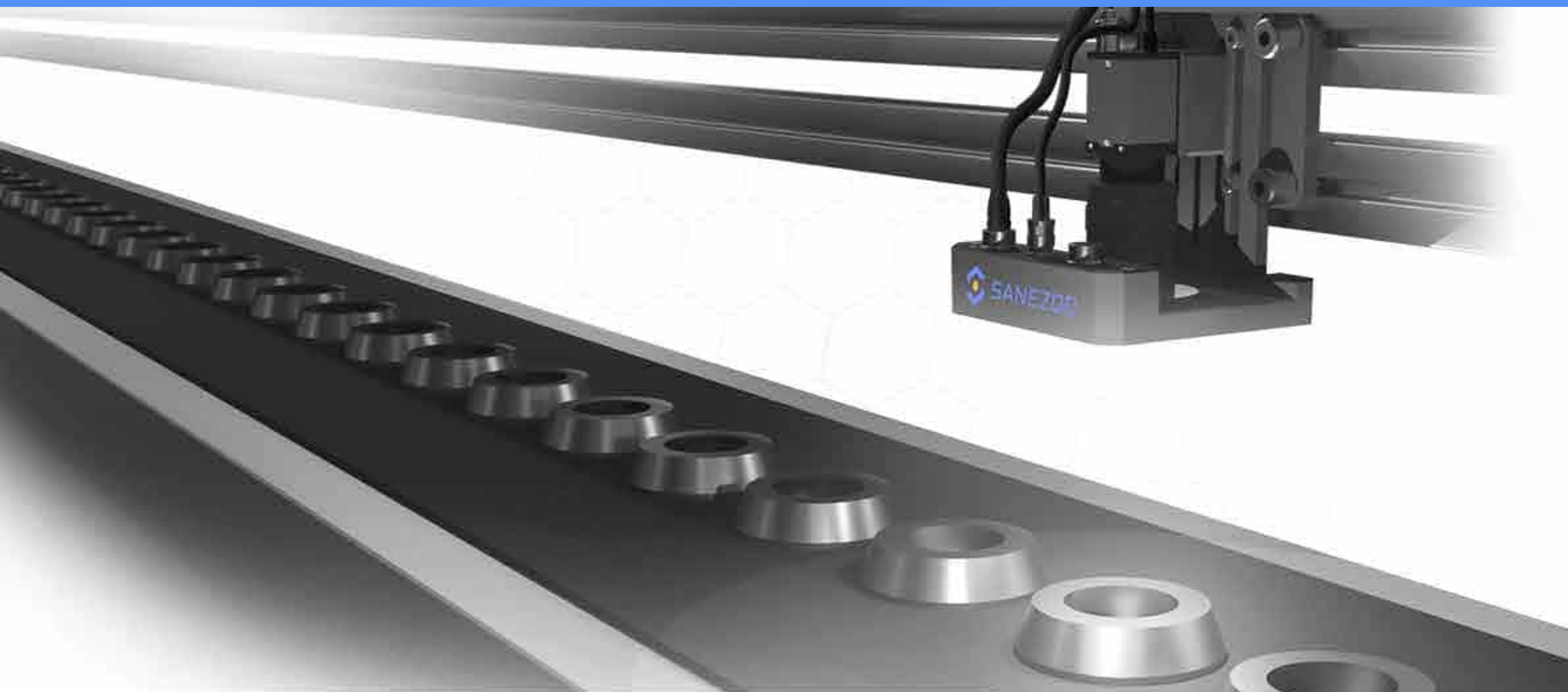




**UNITY** *Quality Control*



**SANEZOO**

**GRASP** *Bin Picking*



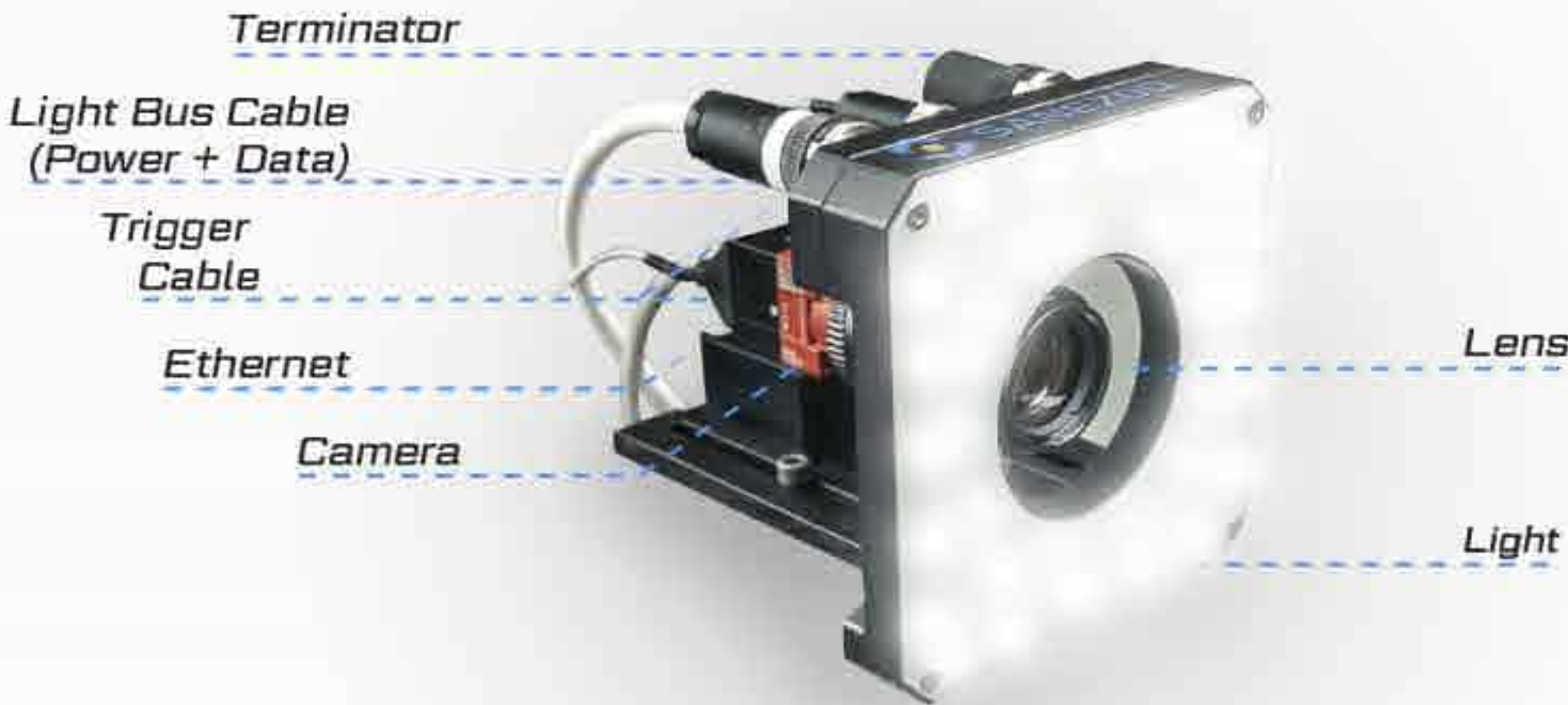


WINNER OF INNOVATION IN AUTOMATION TECHNOLOGY & INDUSTRY 4.0  
MSV 2023 IN BRNO

# 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 %

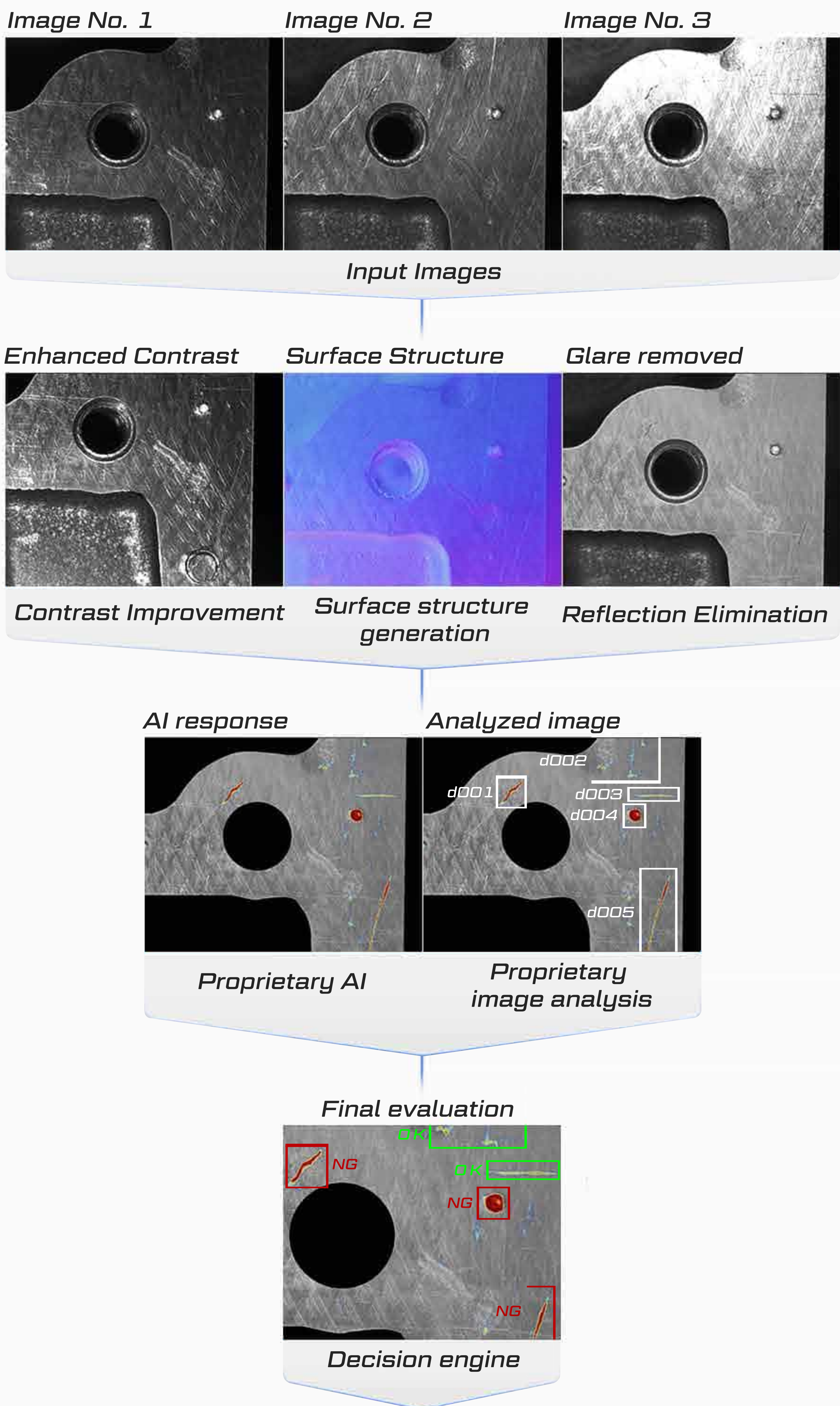
**False Alarm Rate:**  
< 1 %

# UNITY Datasheet



|                                              |                                                                                                   |
|----------------------------------------------|---------------------------------------------------------------------------------------------------|
| Camera weight:                               | ~450 g / ~1 lb (without cables)                                                                   |
| Dimensions (l x w x h):                      | 132 mm x 120 mm x 120 mm<br>/ 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                                                                       |

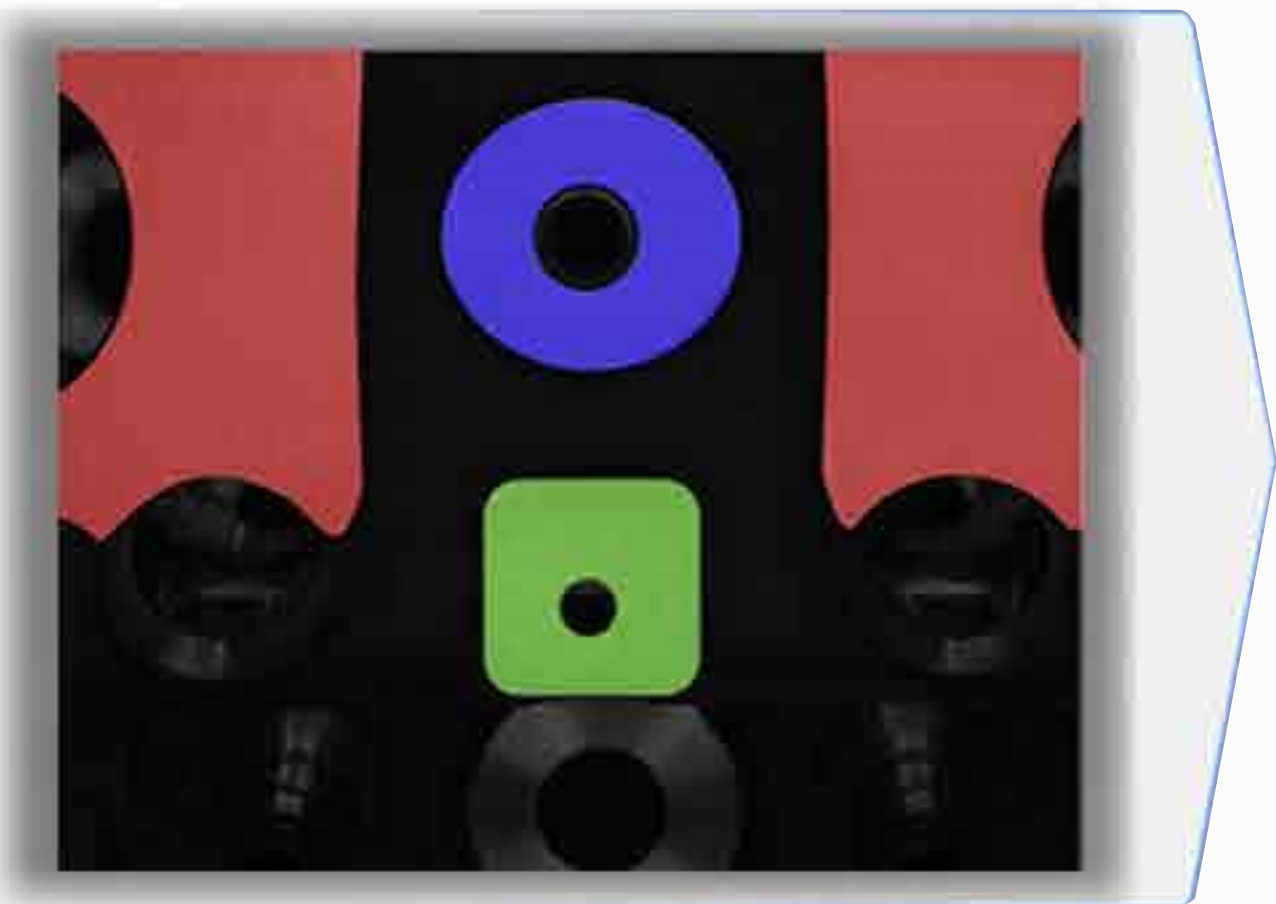
# How UNITY Works



Unique features of **UNITY**

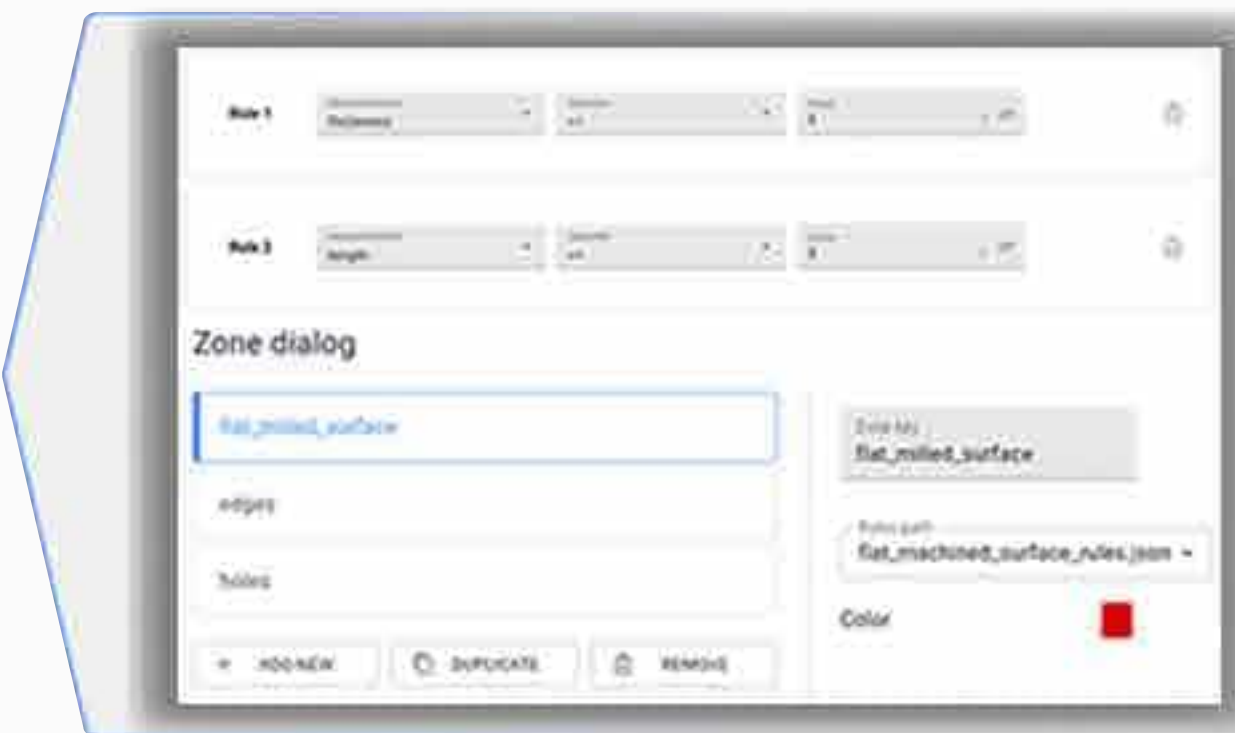


**ADAPTIVE ZONE SEGMENTATION**  
ENABLES THE CREATION OF  
DIFFERENT ZONES WITH DISTINCT  
EVALUATION PARAMETERS.

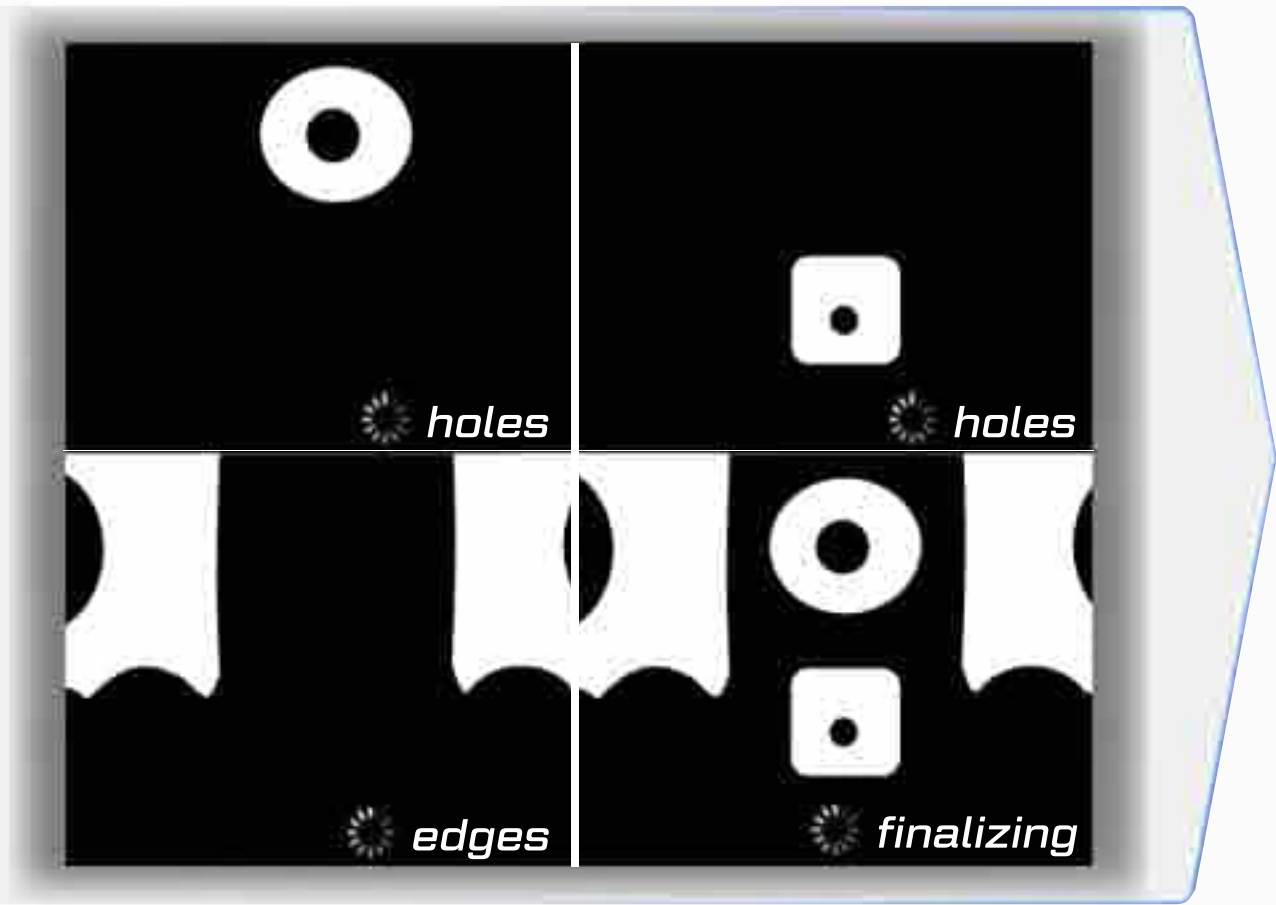


CONFIGURATION OF RULES  
FOR EACH ZONE  
FROM A DEFECT CATALOG.

SPECIFICATION AND DEFINITION  
OF MANY ZONES OF INTEREST.

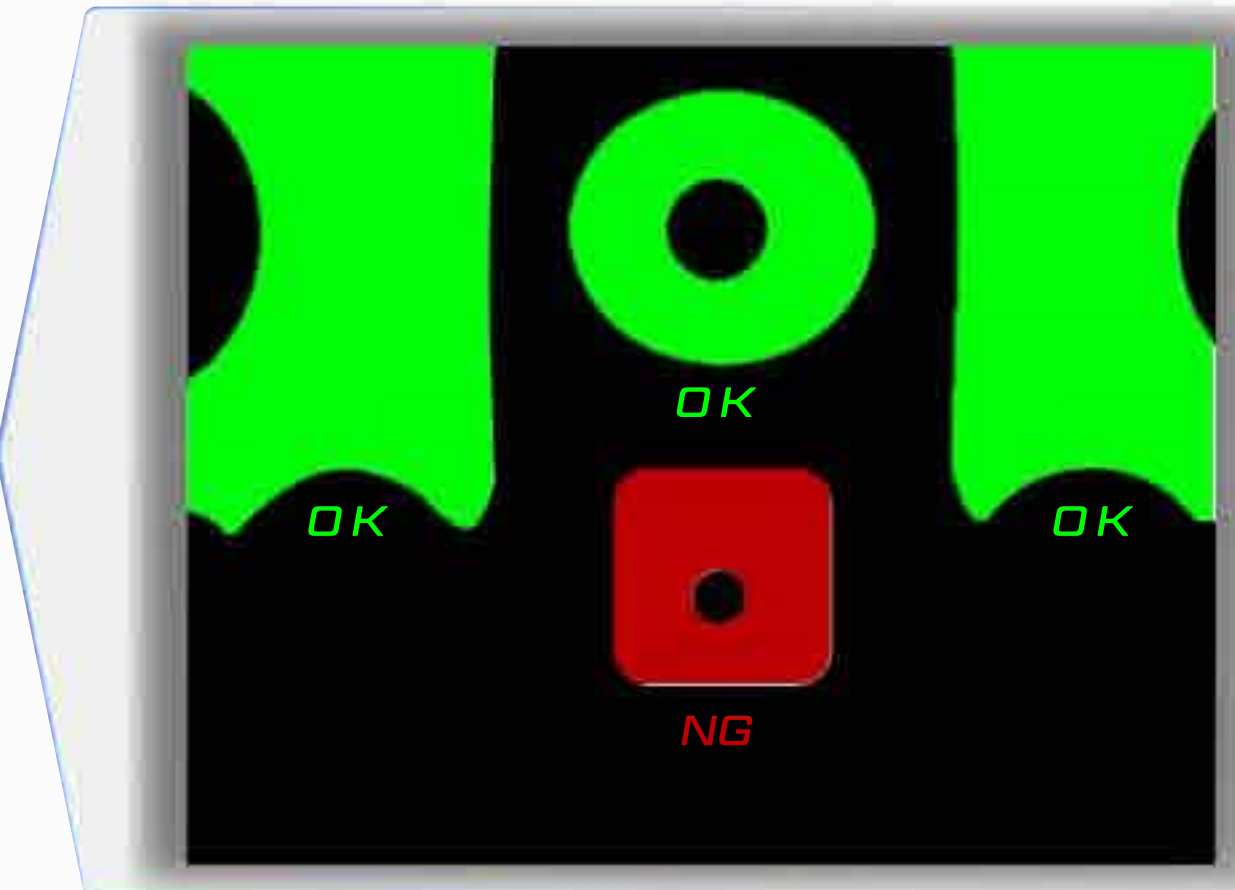


SEQUENTIAL INSPECTION  
OF DEFECTS WITHIN INDIVIDUAL ZONES.



FINAL EVALUATION.

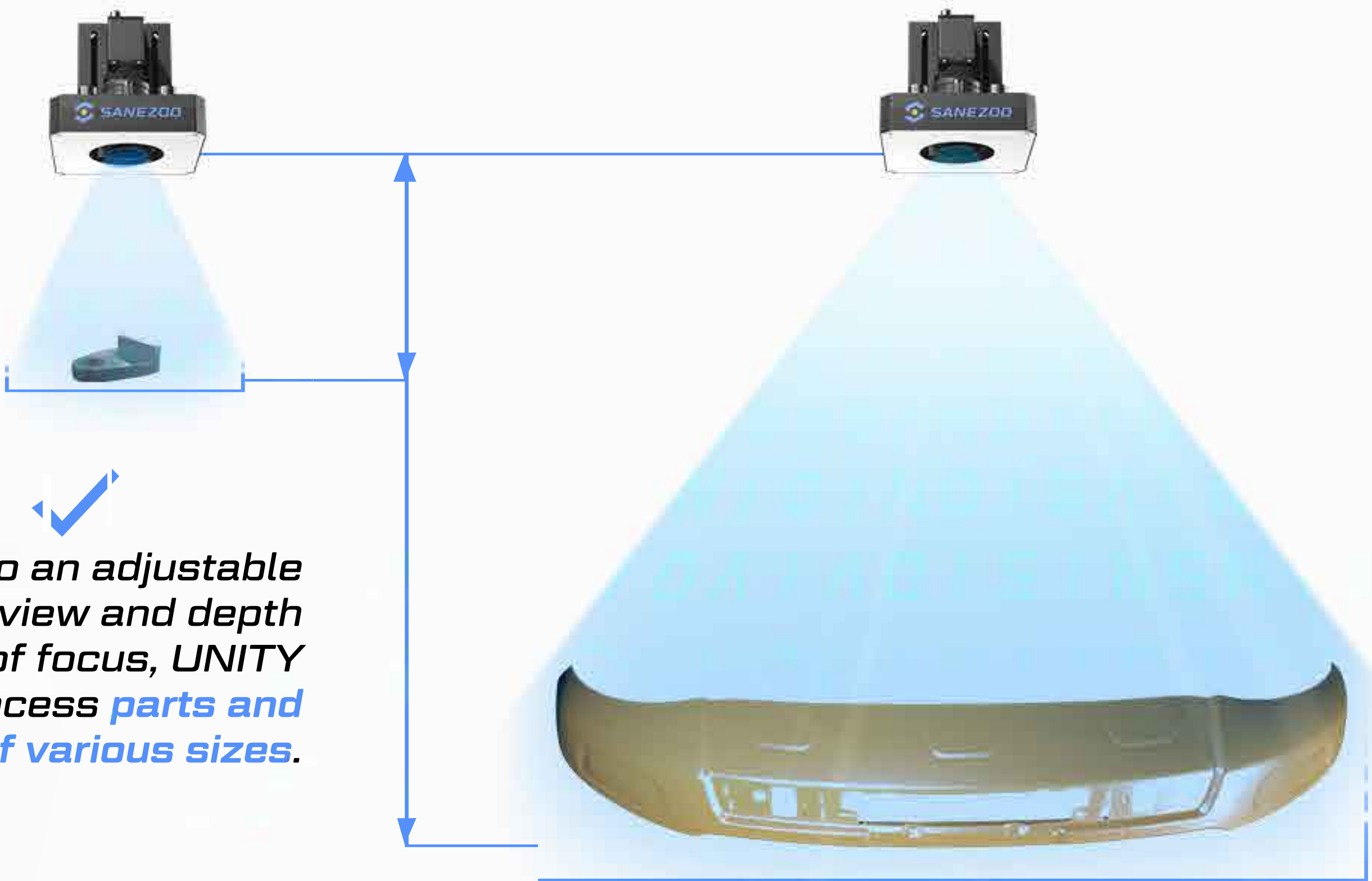
UNITY IDENTIFIES  
NON-COMPLIANT ZONES  
AND **ALLOWS** FOR THE  
**ADJUSTMENT OF**  
**SUBSEQUENT**  
**PRODUCTION STEPS.**



Unique features of **UNITY**



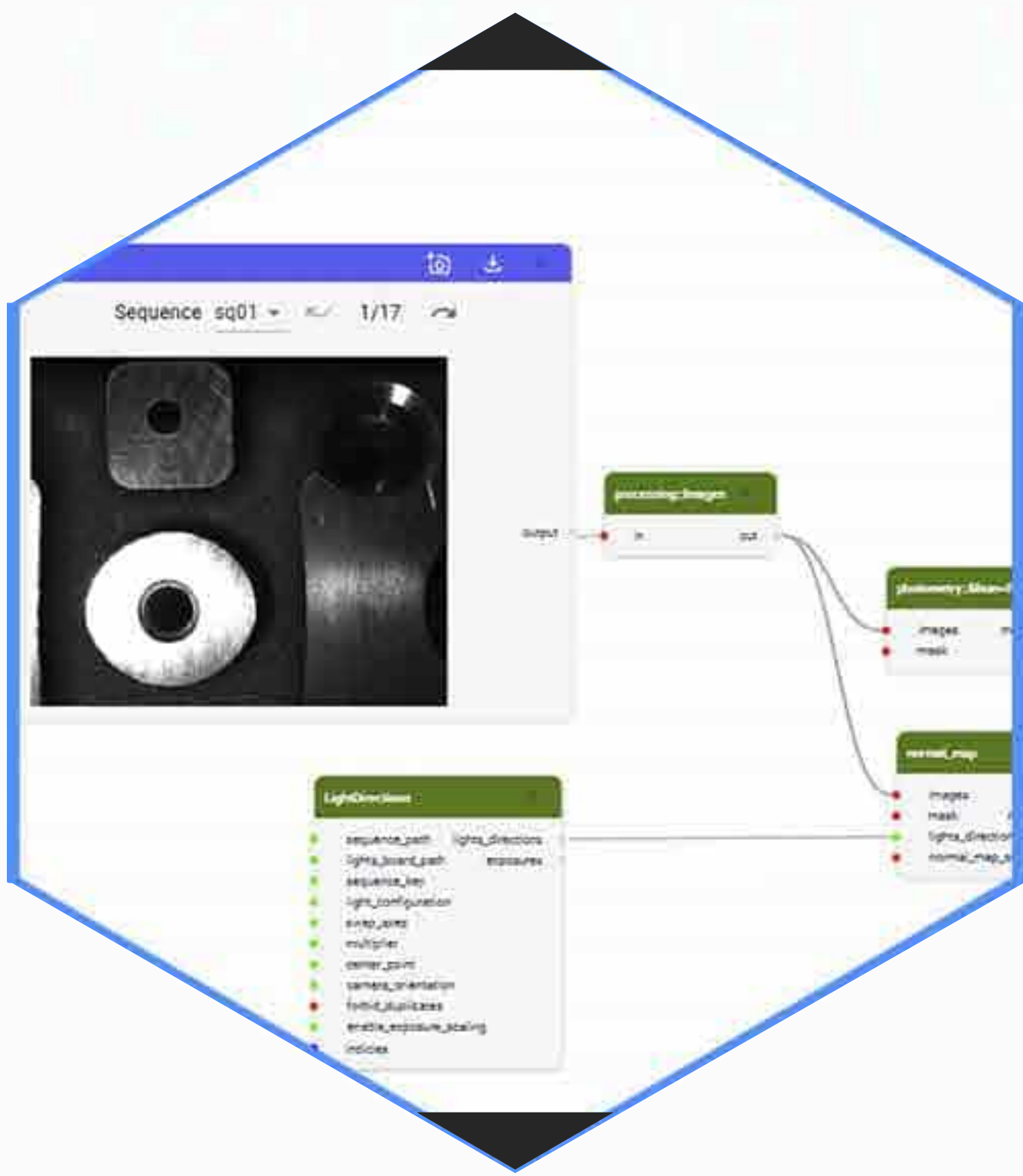
**HANDLES ALL DIMENSIONS**



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.**



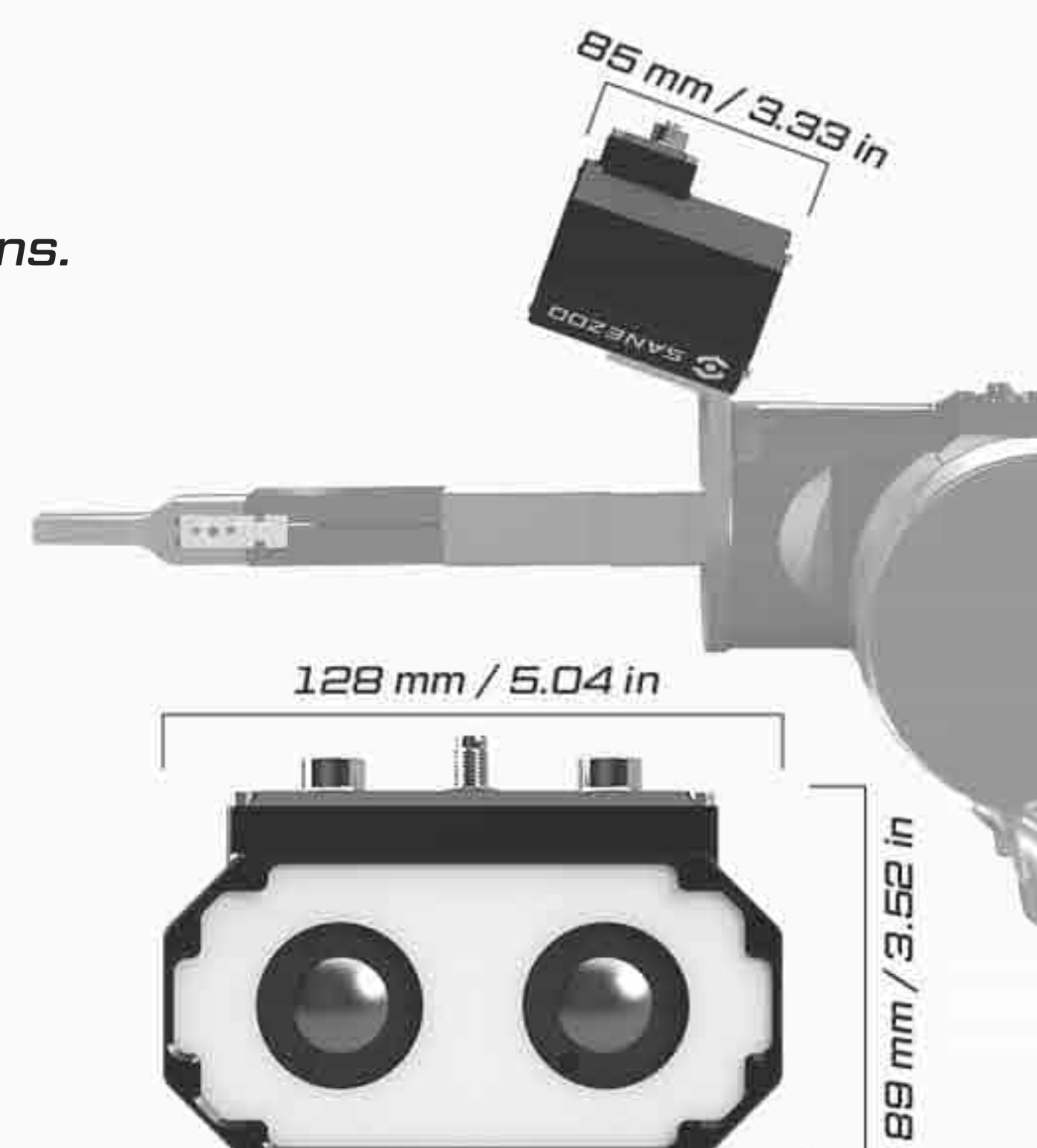
Always **in focus**  
thanks to a **camera  
mounted on the  
robot.**

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 ...

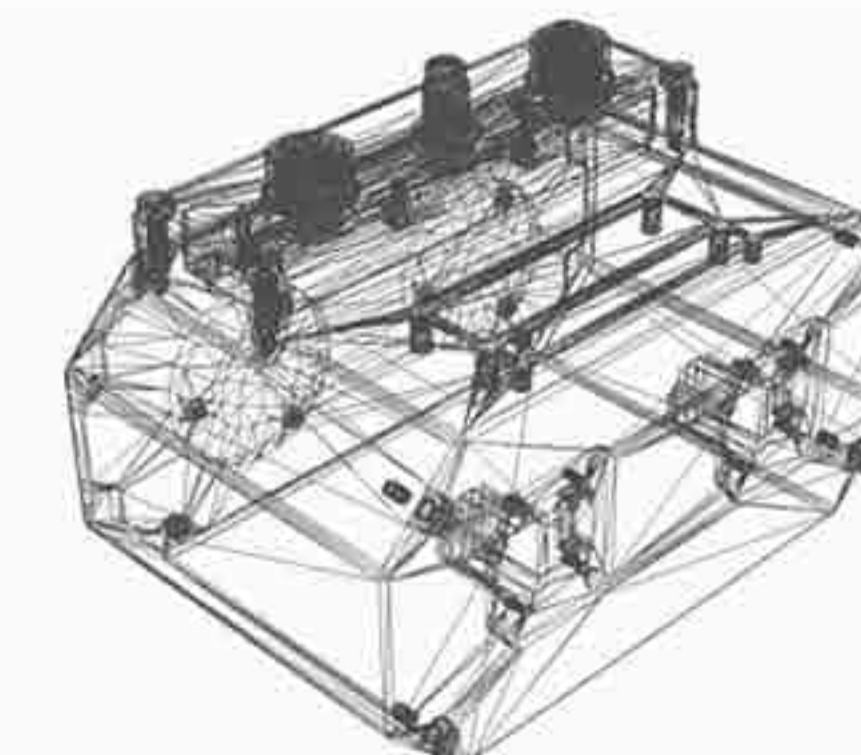
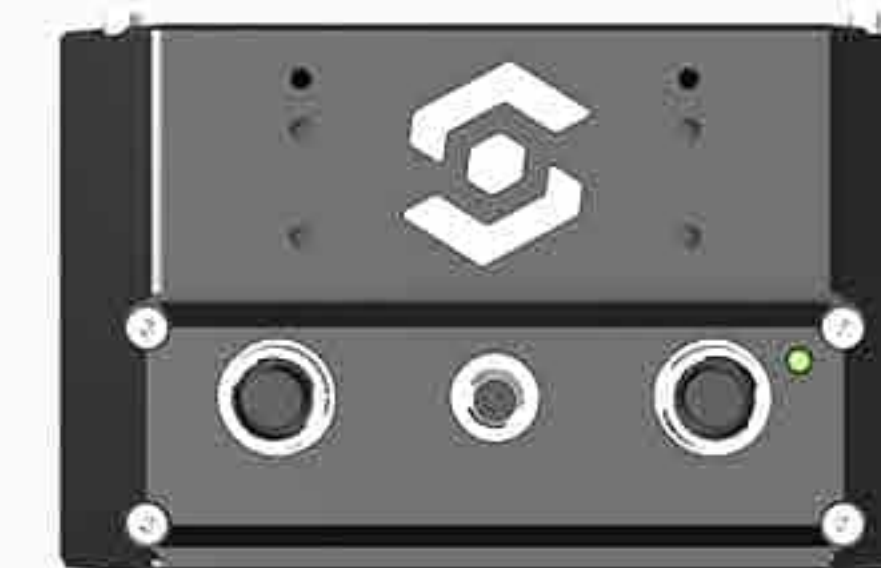
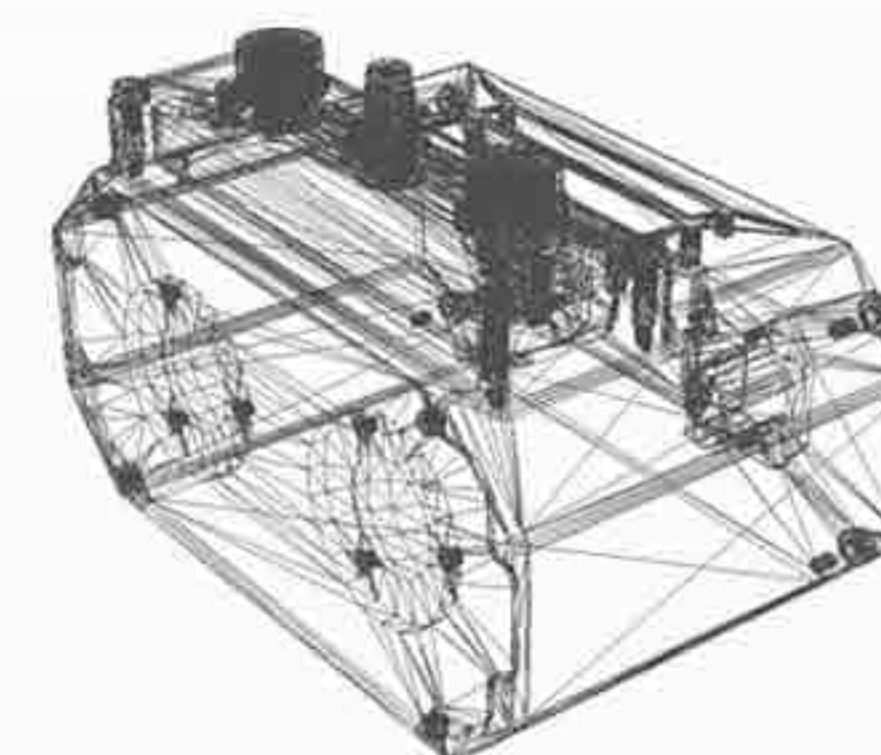


Minimum Part Size:  
125 mm<sup>3</sup> / 4.92 in<sup>3</sup>

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<br>/ 3.33 in x 5.04 in x 3.52 in         |
| Working distance:                               | 50 cm / 20 in, adjustable from 35 - 150 cm<br>/ 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<br>/ 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<br>(various lenses can be supplied) |
| Camera power supply:                            | 24 V                                                            |
| Machine vision controller<br>power consumption: | ~400 W (max. 1200 W)                                            |
| Camera connection:                              | 2x RJ45 (Ethernet)                                              |
| Ambient light:                                  | Variable (from total darkness to sunlight,<br>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<br>(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<br>(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



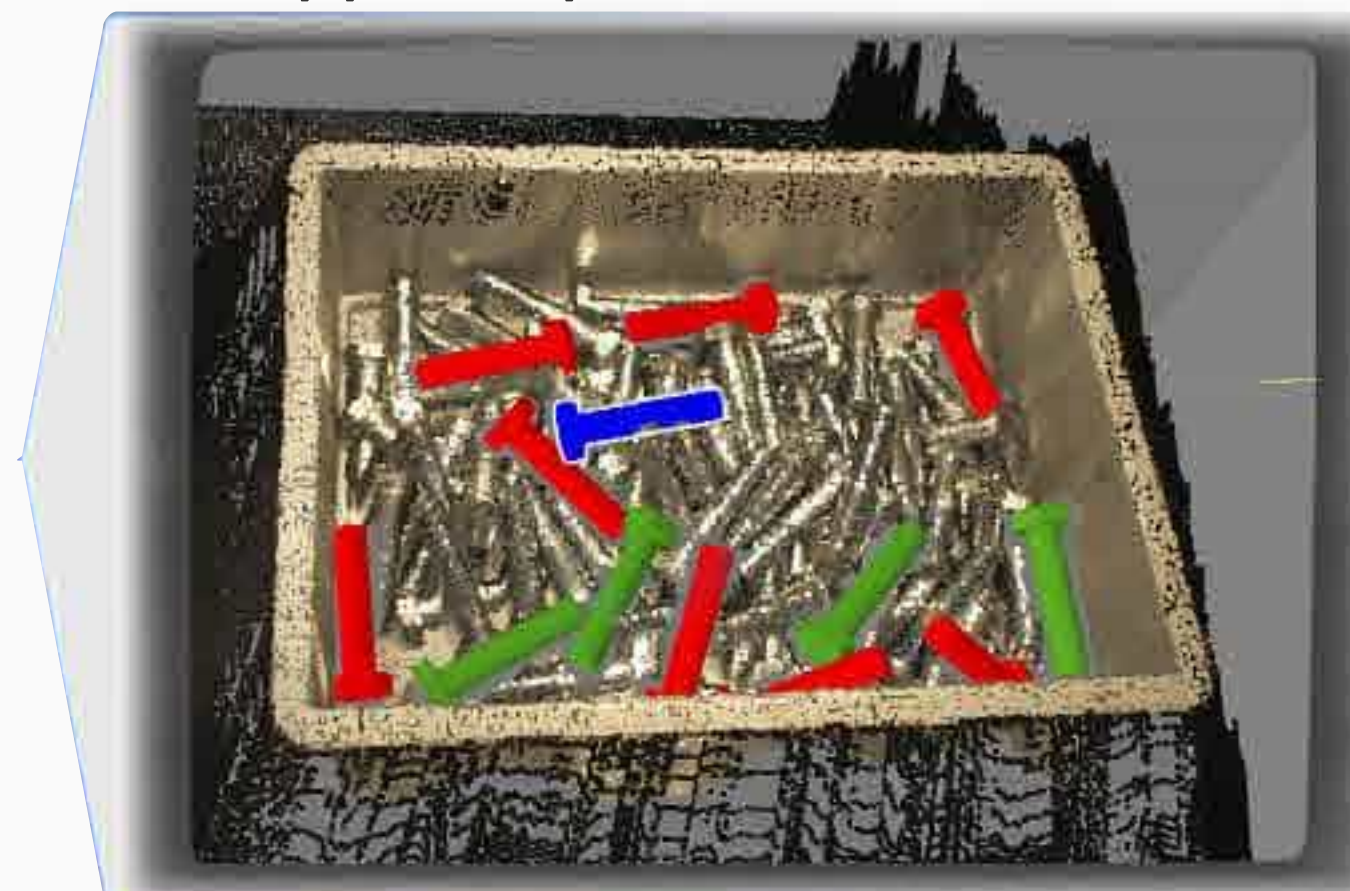
## 3D RECONSTRUCTION

Found parts



## PARTS DETECTION

Grippable parts



## REACH ANALYSIS

## COLLISION-FREE TRAJECTORIES



# SANEZOO STUDIO

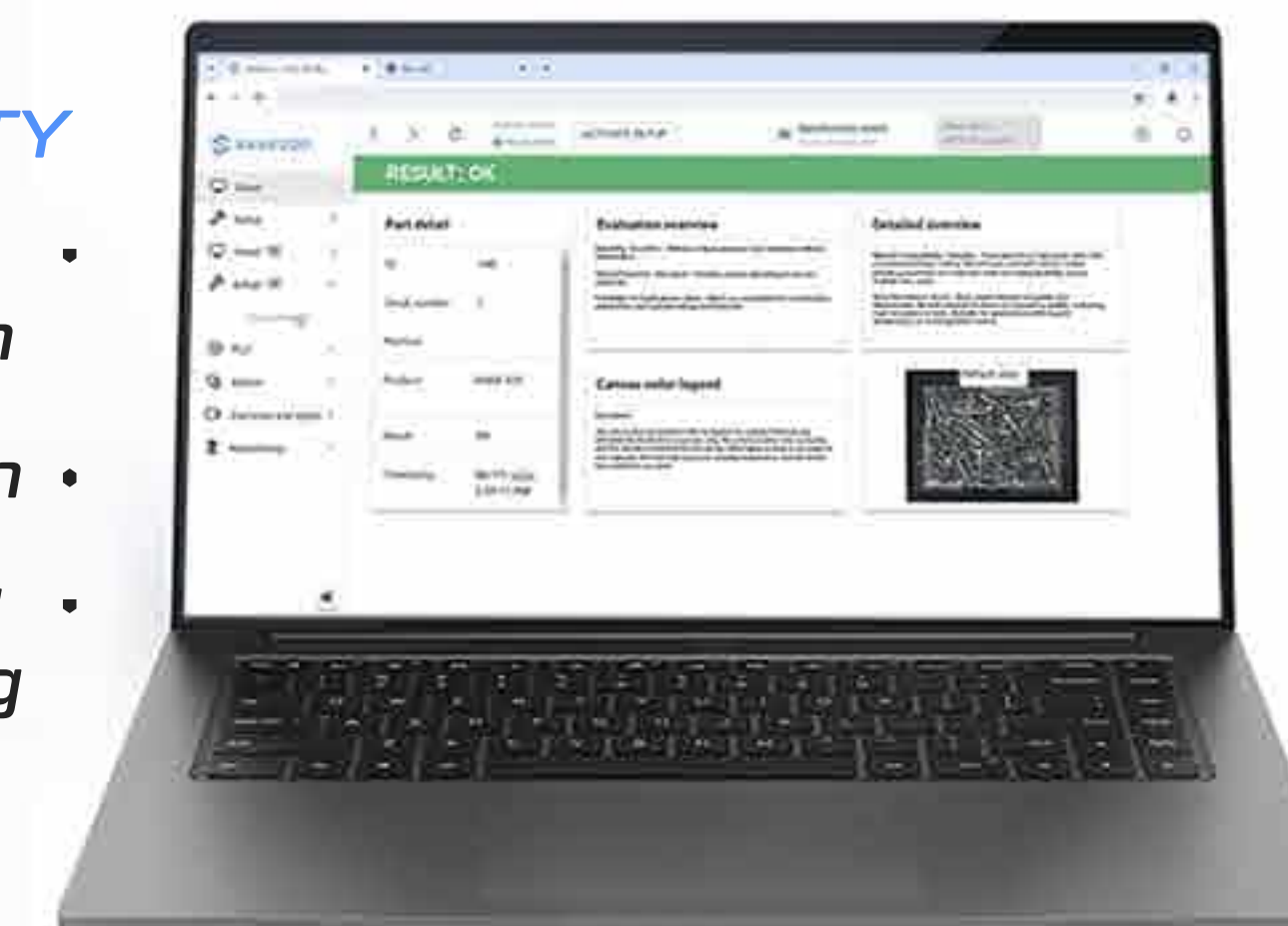
## FAST PRODUCT INTEGRATION

### 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.

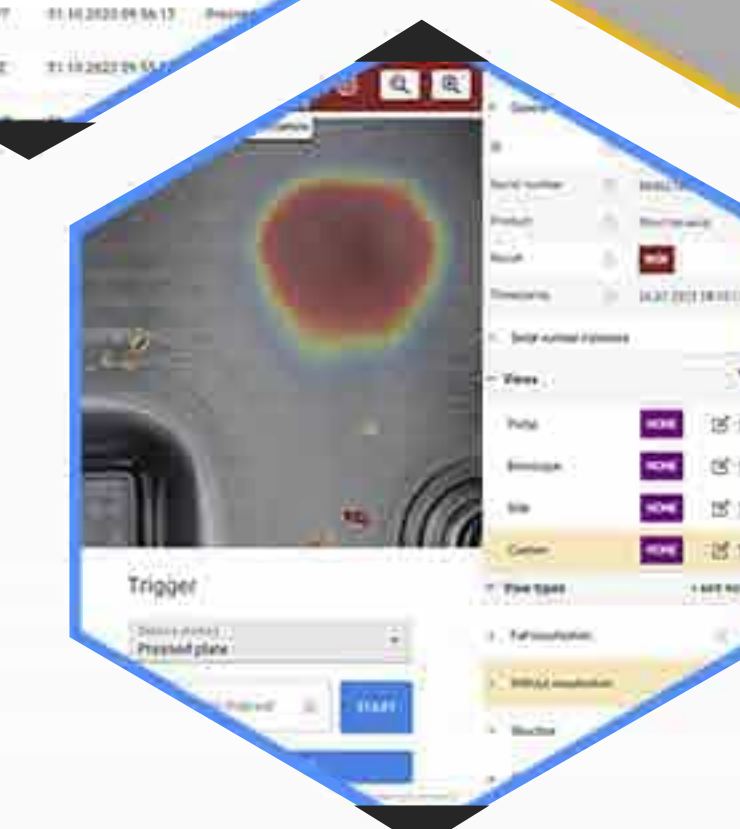


### UNITY STUDIO

Automated tracking and archiving of inspected parts.

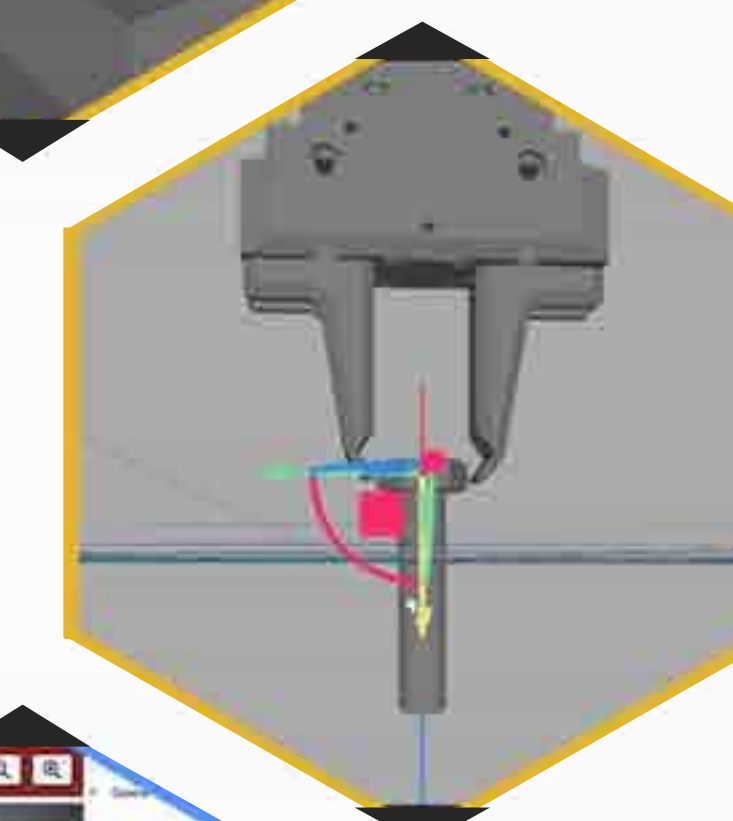
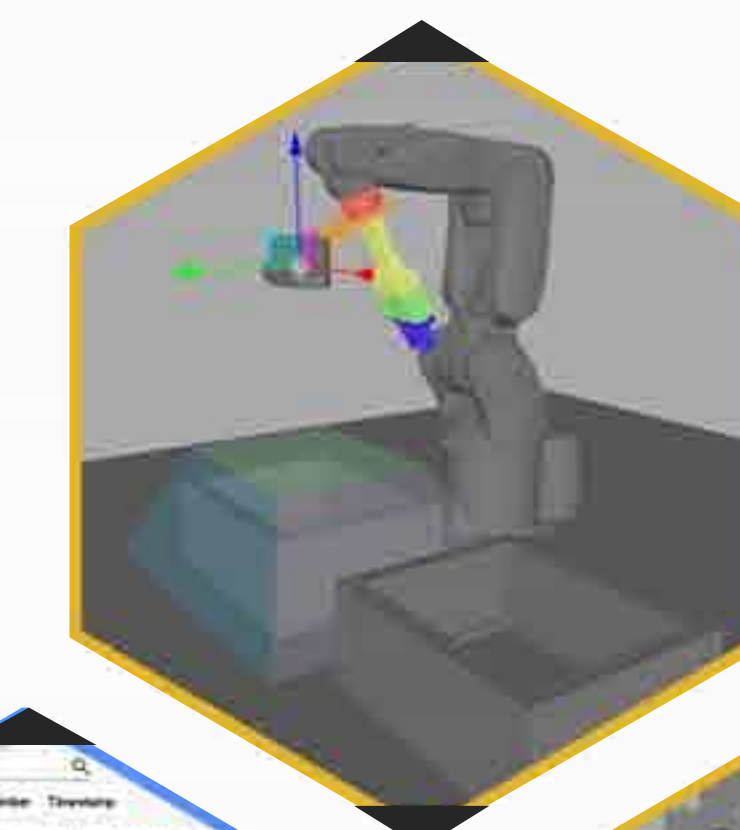


Detailed configuration of decision-making criteria, including individual control zones.



### 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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OH 

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**SANEZOO**

