



**SuPAR™**

# **Visual Inspection in Quality Control with Augmented Reality**



**CDM Vision**

## What is Augmented Reality Interactive Inspection?



- Augmented Reality allows you to bring the virtual world into the real one creating a new unique environment, opening new opportunities in Visual Inspection Quality Control.
- Visual inspection is not new, there are existing processes to check geometry or assembly. AR interactive inspection improve these processes.

## AR Interactive Inspection Main Applications

- AR interactive inspection strongly supports and eases your ongoing drawing or CAD based visual inspection processes. Up to 80% time saving!
- AR Interactive Inspection opens the physical-digital mock-up world and virtual assembly check.
- We help and support the digital transformation.



# The 5 Strongest SuPAR AR Visual Inspection Benefits

## Huge Time Reduction:

Compared to traditional visual inspection using drawings or CAD models.

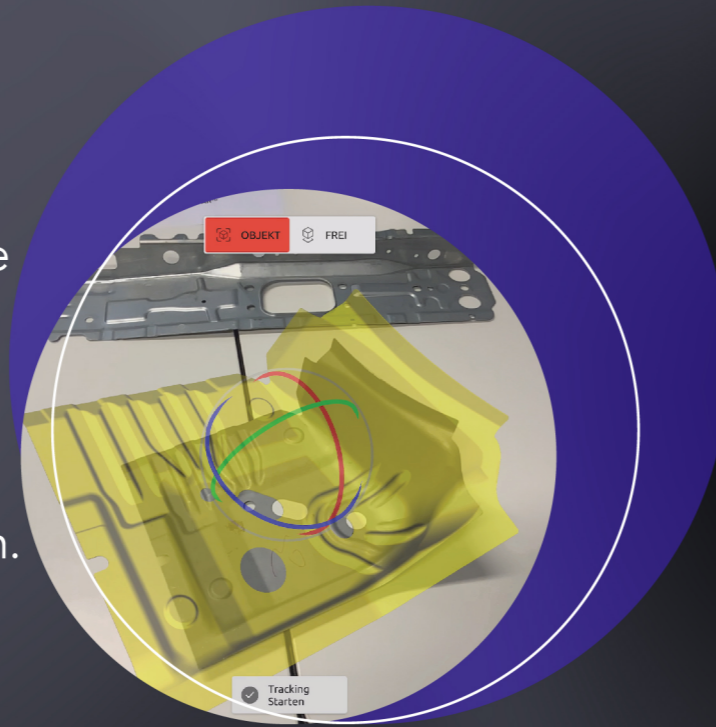


## Cost Saving:

Financial savings due to improved networking inside the company and improved communication with customers/suppliers. SuPAR supports a lean process.

## Simple and Powerful Geometry Check:

AR Visual Inspection allows intuitive geometry and assembly visual checks. SuPAR automatically shows CAD surface edges and actual edges on the part providing a quick and easy error identification.



## Easy Inspection and Secure Reporting:

Inspection template and POI (point of interest) will drive and secure the complete process. Annotations and marks are easily created live on the AR model and automatically exported through an excel file. The complete 3D report can be reviewed and shared using the free SuPAR Composer. PDF and excel reports are automatically created.



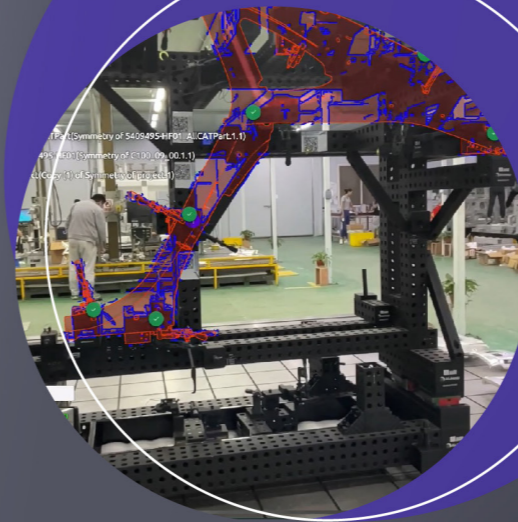
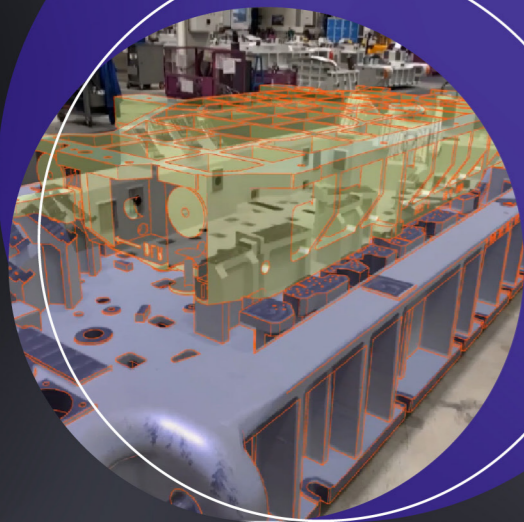
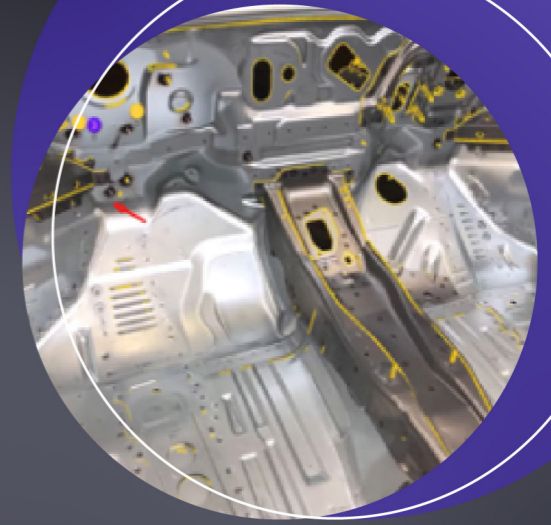
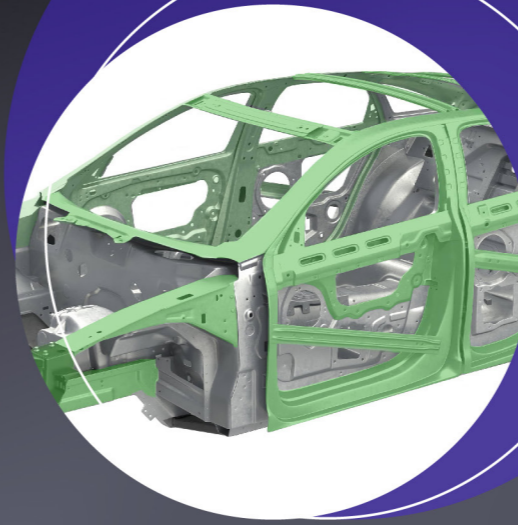
## Ease of Use:

Quick to learn and limited user experience required.



## SuPAR Application Areas

- Styrofoam and Tooling incoming inspection
- Prototype/supplier sub assembly parts inspection
- Welding and control fixtures assembly / geometry check
- Logistic racks inspection
- BIW - car, bus and truck targets geometry visual inspection (E:G: studs / welding points)
- Grippers and handling units maintenance
- Master cubing assembly / geometry check
- Design center (design review and presentation)



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### Logistic Rack inspection Use Case

Production Rack proofing is a key element to keep the assembly process safe.

AR visual inspection is much faster and safer than CAD based visual inspection.

- Production rack proofing
- Rack repair
- Supplier buy-off



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### BIW Geometry Check Use Case

#### Inspection Targets

- Appearance (damage, crack, gap, rust, uneven)
- ARC Weld (number, location)
- Bolt status (spec, absence)
- Hole (location, number)
- ID mark (location, absence)
- Insulator (location, absence)
- Nut status (absence)
- Ring (location, absence)
- Rivet (number)
- Sealing (location, absence)
- Spot weld (number, location)

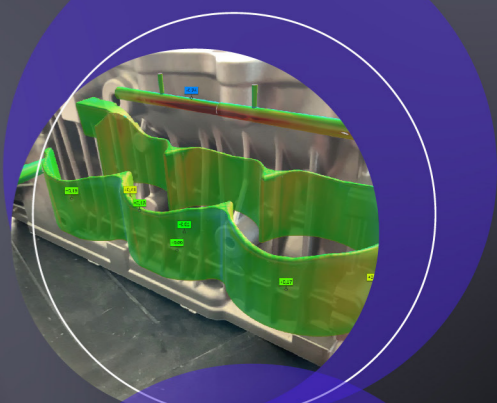
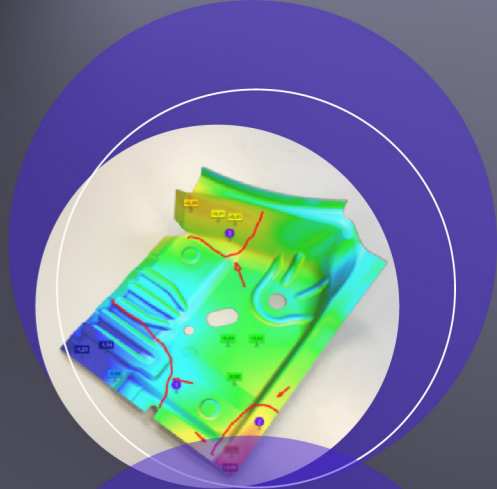


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### Colour map AR projection

Colour map AR projection with scanning data (XML) from GOM or CREAFORM and Computer Tomography data.

- Surface measurement plan available
- Customizable colour scale
- Manual labels creation
- Remote connection available
- Free sketch on the part
- CT hidden data Visualization
- Comments, photos-intelligent report (excel and pdf)



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### Design center: Design review / Grey zone visualization

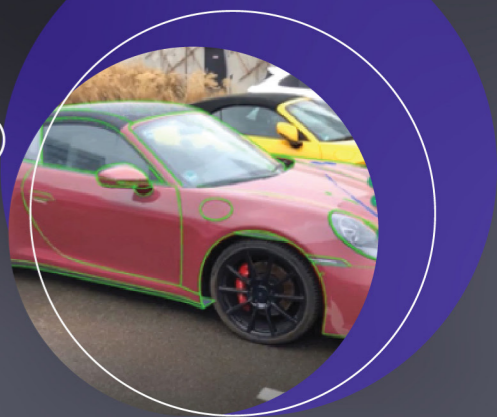
- New CAD design visualization on actual part for design changes approval
- Grey zones visualization on a clay model, hiding the door or the spoiler to see the hidden surfaces
- All above use cases, especially design review on actual clay model and grey zone visualization will help reduce data control models / surface control models



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### Car Tracking / Design Review

- Set POIs (points of interest) plan using inspection templates and visualize them during tracking (PDF, photos, animations)
- Presentations for c-levels
- Digital documentation reporting decisions



## SuPAR™ AR Visual Inspection process. Master use case: Quality and Body Assembly Engineering

Compared to the actual drawing or CAD based visual inspection, AR interactive inspection greatly reduces time and increases process safety! Feedback from our customers:

- 75% time saving in the new studs inspection
- 10 times faster in sub-assembly welding point inspection.

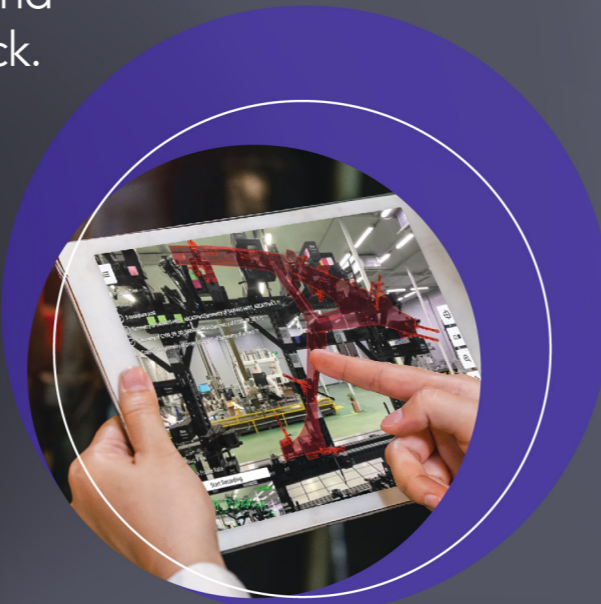


## SuPAR™ AR Physical-Digital mock-up process. Master use case: Cubing Assembly and Virtual Elements Control

Physical-digital mock-up supports safe and easy assembly and virtual elements check.

*AR Physical-Digital mock-up for Fixture Assembly.*

- Build and check a fixture in a short time without paper manual/drawing.
- Check Virtual Element before the physical part arrives.

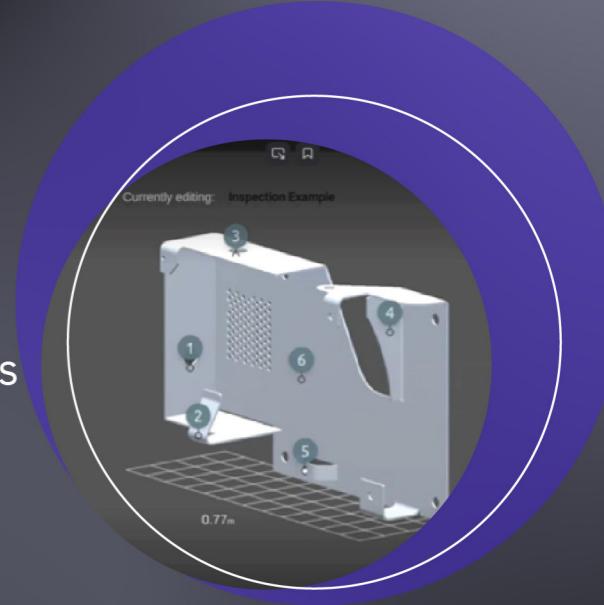


## SuPAR™ AR Digital communication process: Inspection Template / Point of Interest (POI)

Inspection templates define checkpoints to determine the features status.

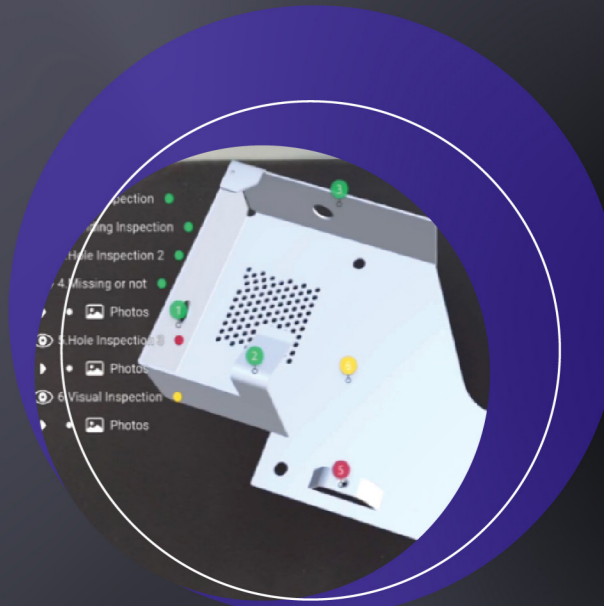
- Not Checked
- OK
- Partially OK
- Not OK

- Multiple inspection templates are possible for one part.
- Digital reporting with photos and 3D drawings (PDF / Excel).

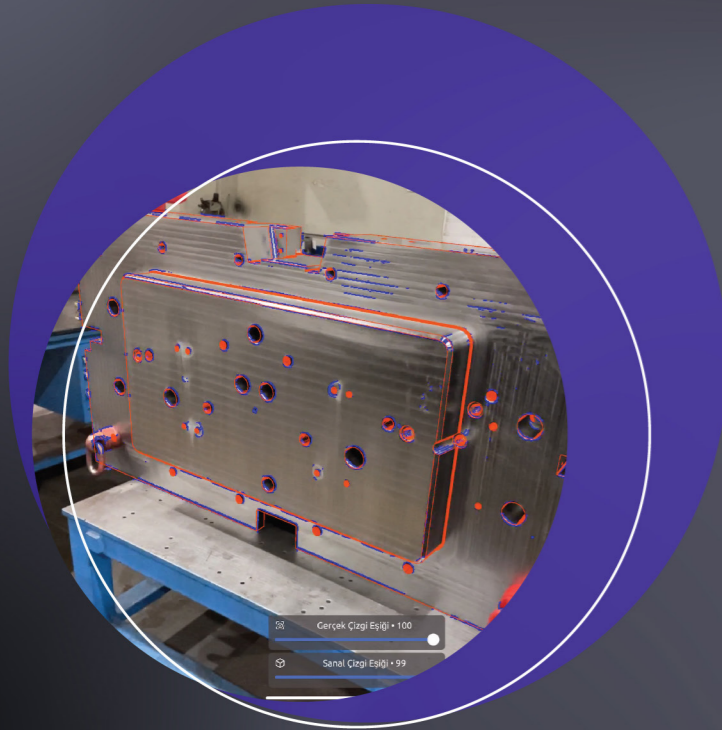


## SuPAR™ AR Digital communication process: Digital Twin Inspection Review and Free Placement

- AR inspection review and free placement with the digital twin in the SuPAR Composer.
- Review of the digital twin with the information, annotations and inspection templates created on the real component.
- Digital twin free placement in the real environment.



# Injection Mold Applications

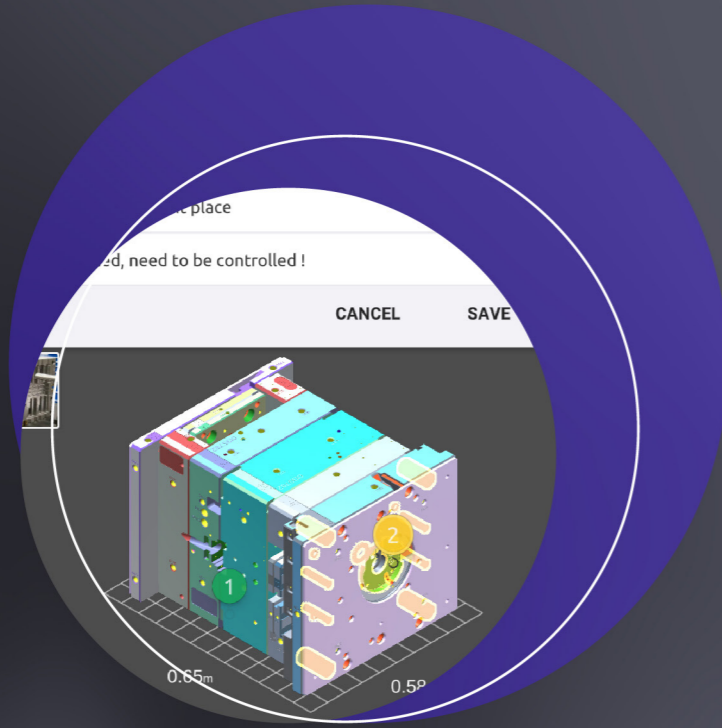


Drilled mold plate geometry check

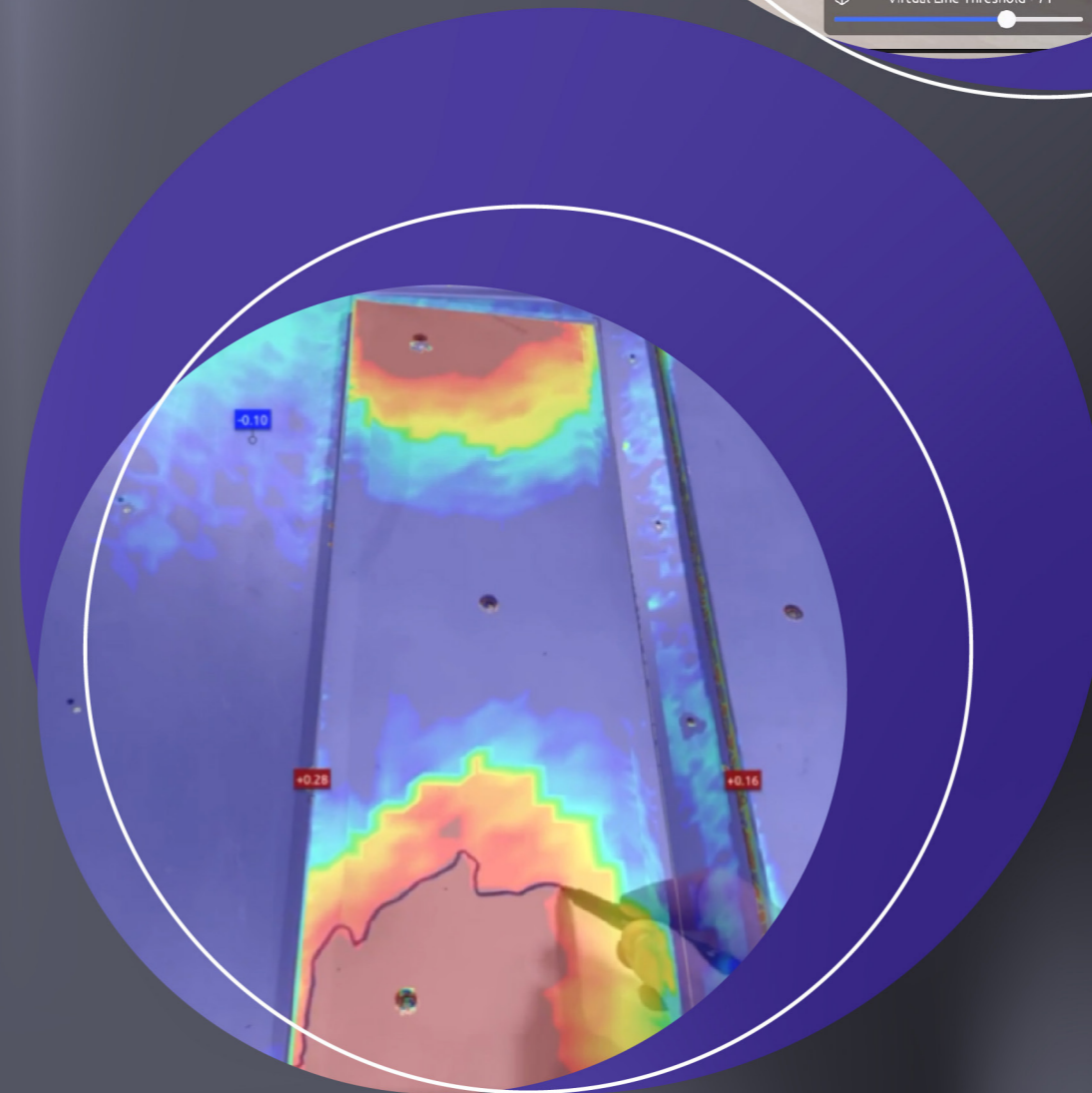


Injection mold assembly

Plastic part geometry check



Mold maintenance



Colors map AR projection

# Sales Structure

## SuPAR™

### GERMANY

CDM Tech

- Enterprise
  - OEMs (BMW, Porsche, Daimler, Audi, VW)
- SME in Germany

### EMEA

11x Reseller

- Italy
- Sweden / Fin / Norway
- Portugal
- Romania
- U.K. / Ireland
- Czech / Slo
- Poland
- HR, SI, RS
- Spain
- Turkey
- Russia

### AMERICAS

3x Reseller

- U.S.A.
- Brazil / ARG
- Mexico

### APAC

4x Reseller

- China / Hong Kong
- India
- Japan
- South Korea





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