visiomex
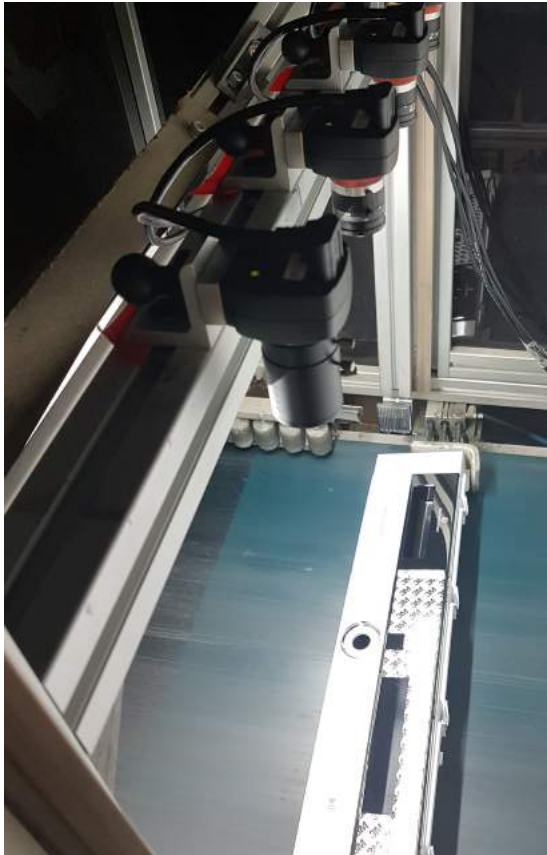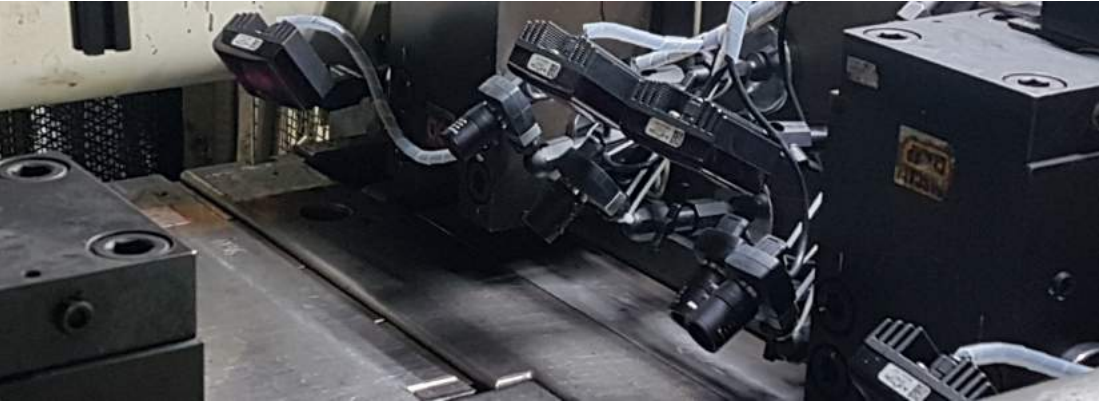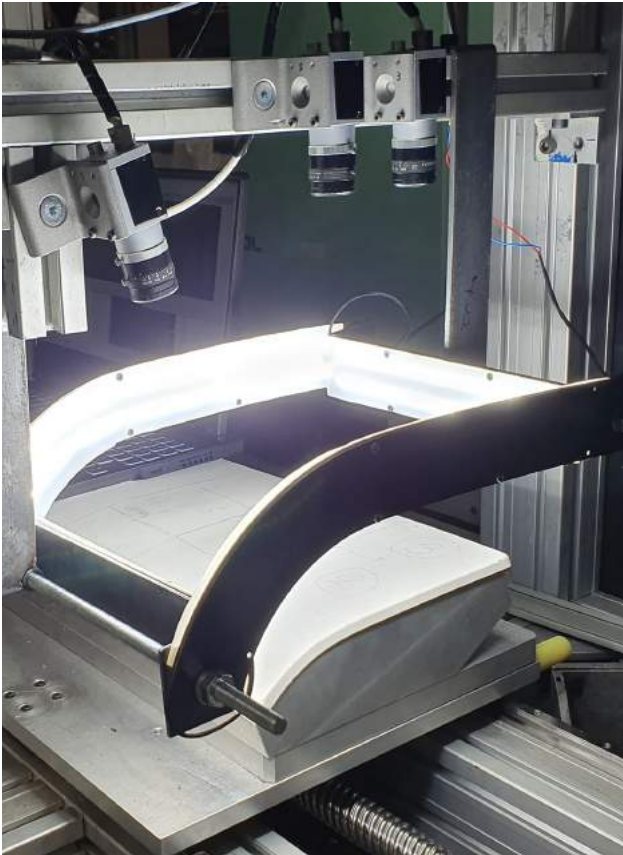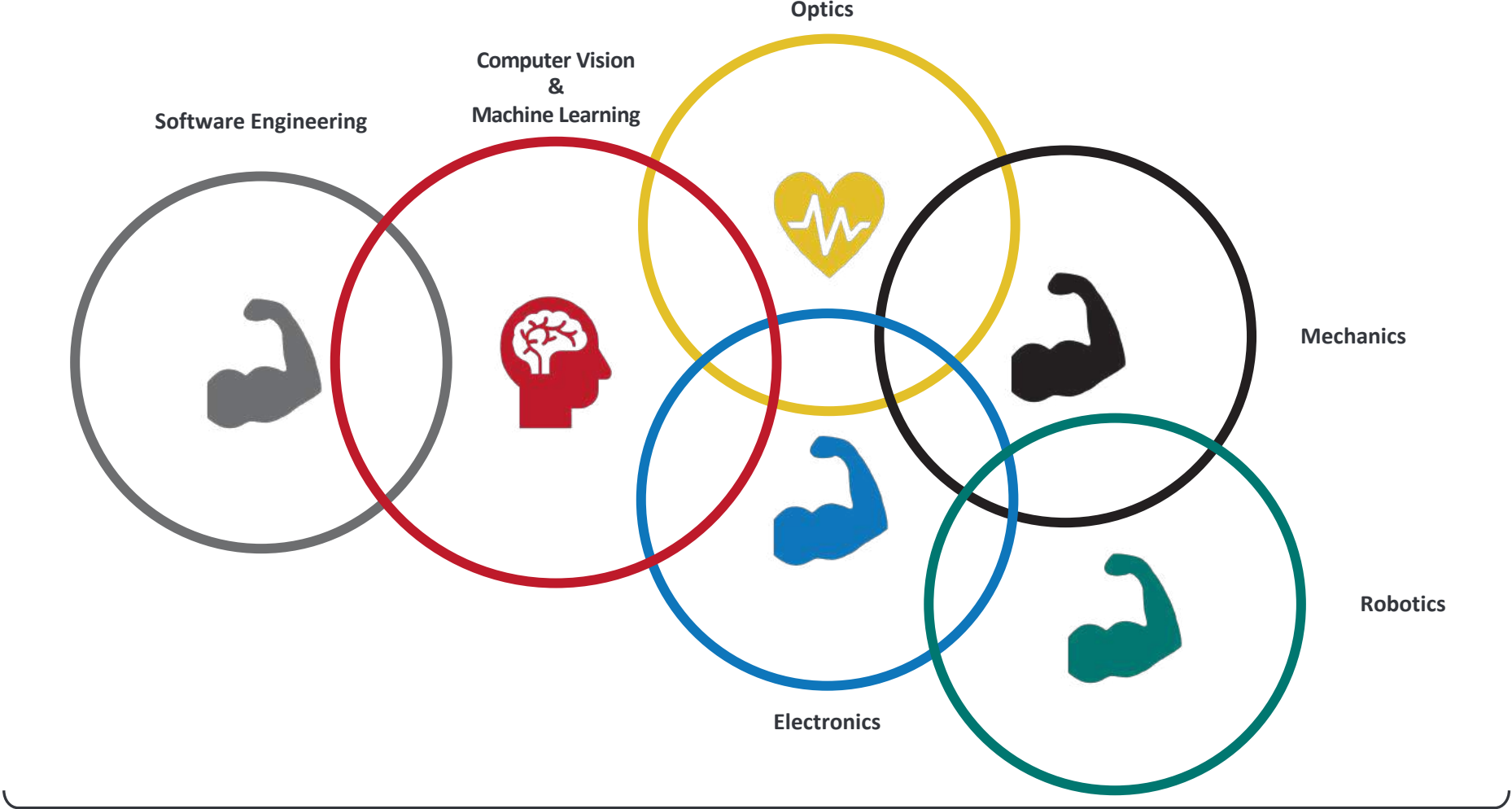
Your business, our vision

We employ *Machine Vision* technology to provide cutting edge *quality control* solutions to factories that manufacture quality*!*
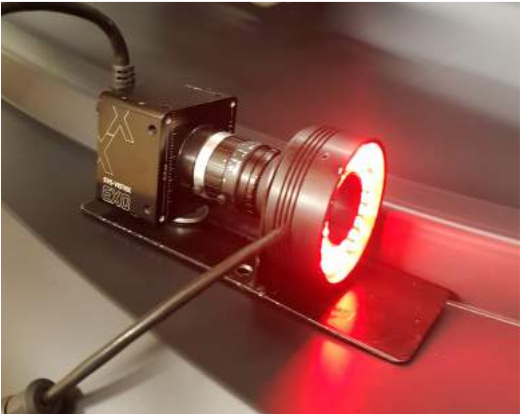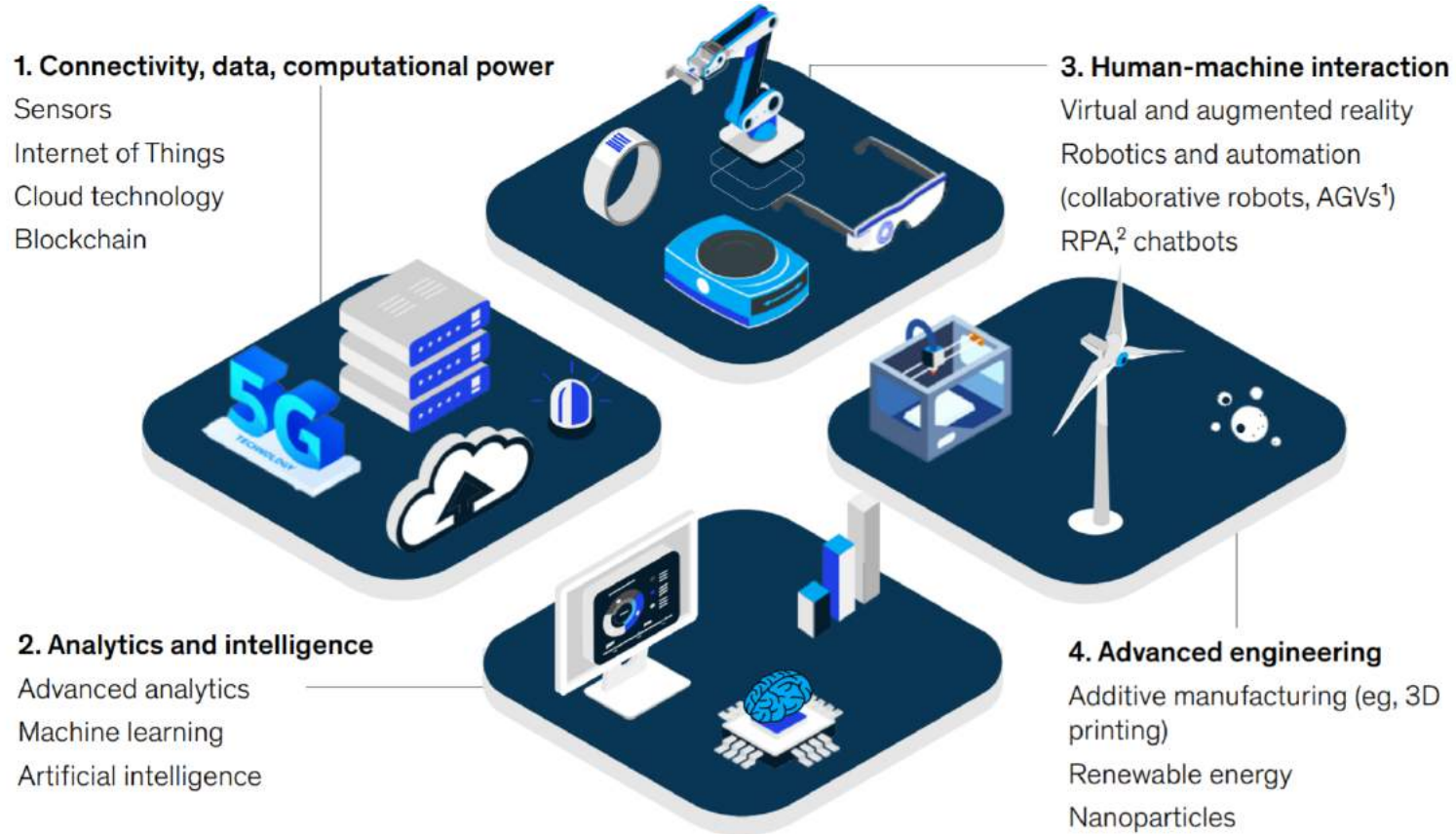
Visiomex is a *Deep Tech Company* and the science behind it is a multi disciplinary field...

Optics

Computer Vision
&
Machine Learning

Software Engineering

Mechanics

Robotics

Electronics

Machine Vision

Machine Vision is at the heart of *Industry 4.0* along with IoT, Robotics, Edge and 5G...

1. Connectivity, data, computational power

Sensors

Internet of Things

Cloud technology

Blockchain

3. Human-machine interaction

Virtual and augmented reality

Robotics and automation
(collaborative robots, AGVs[1])

RPA,[2] chatbots

2. Analytics and intelligence

Advanced analytics

Machine learning

Artificial intelligence

4. Advanced engineering

Additive manufacturing (eg, 3D printing)

Renewable energy

Nanoparticles

Machine vision inspection systems are used in *various* industries..

Defense Industry

Automotive

Pharmaceuticals

Medical Devices

Electronics

White Goods

Plastic and Metal Manufacturing

Packaging

Logistics

Food

Business Partners

KT PORTFÖY

Visiomex is KoçDigital by BCG's image acquisition partner for white goods and automotive industries.

Visiomex is Accenture's machine vision partner for manufacturing.

Microsoft for Startups

Visiomex is a member of Microsoft Startups ecosystem. Microsoft provides free Azure services, free consulting and business opportunities.

We apply our *Artificial Intelligence and Machine Learning* expertise to challenging machine vision applications in the Automotive Industry!

- Print and text quality control
- Glass/window inspection
- Surface Inspection
- Color matching & verification
- Defective component detection
- Character and pattern recognition
- Assembly inspection
- Calibration and measuring
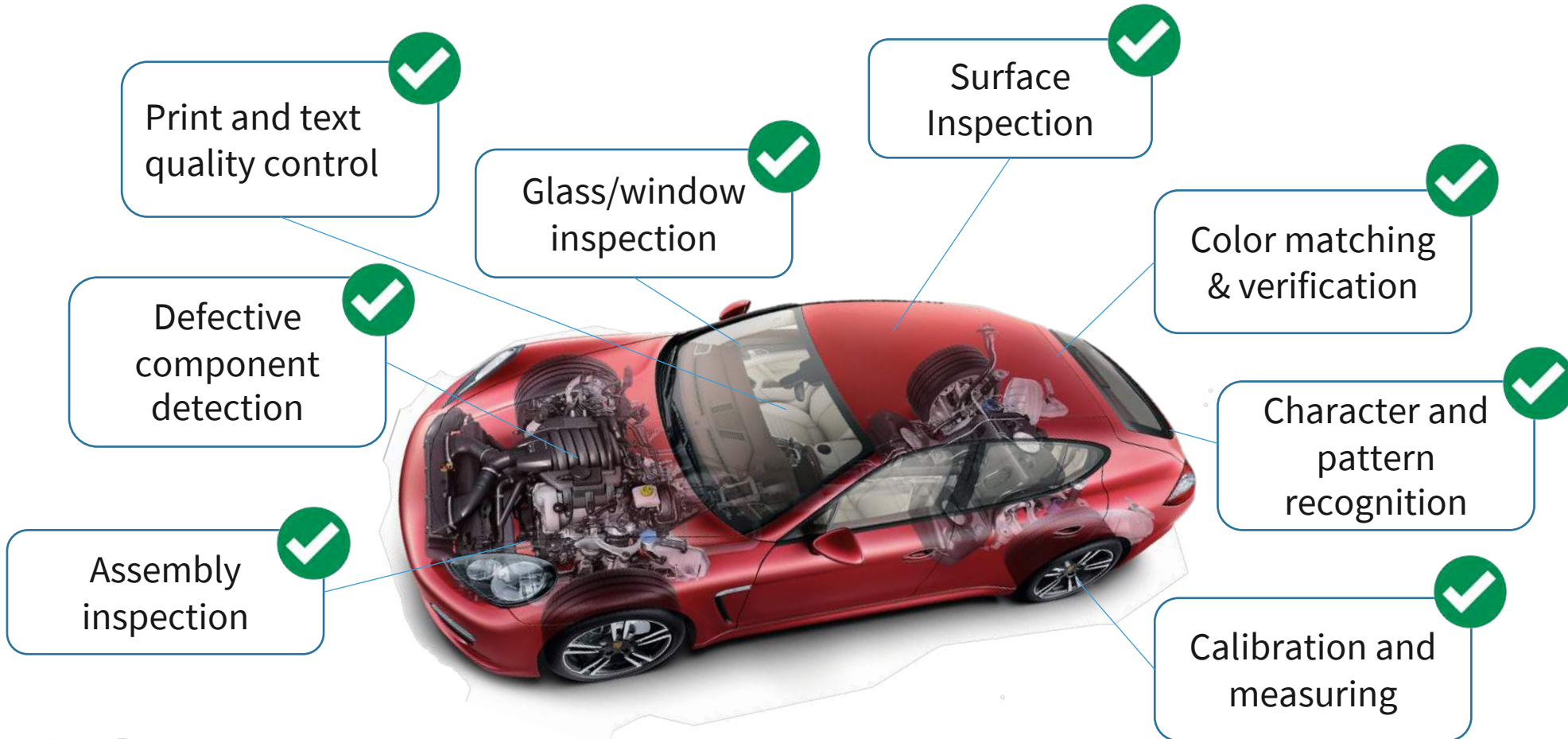
We offer *customer-oriented*, *zero-defect*, *efficient* and *quality solutions* in the white goods industry from the production process to the final product.
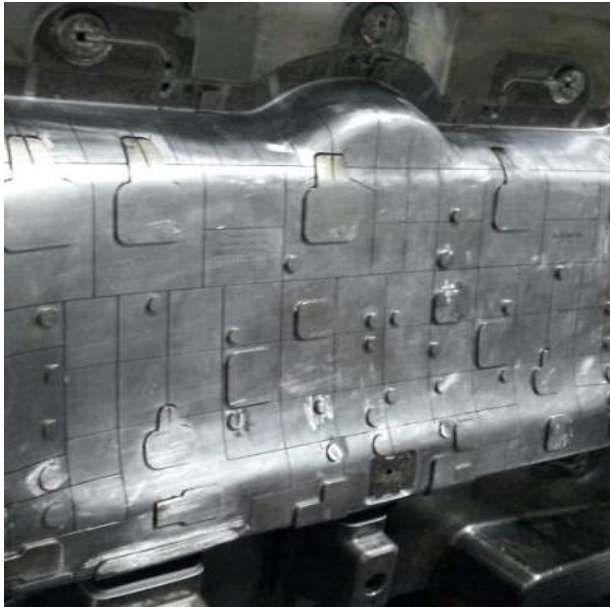

Print and text quality inspection

Assembly inspection

Glass inspection

Defective component detection

Surface inspection

Calibration and Measuring

Some of our Projects

visiomex

Your business, our vision
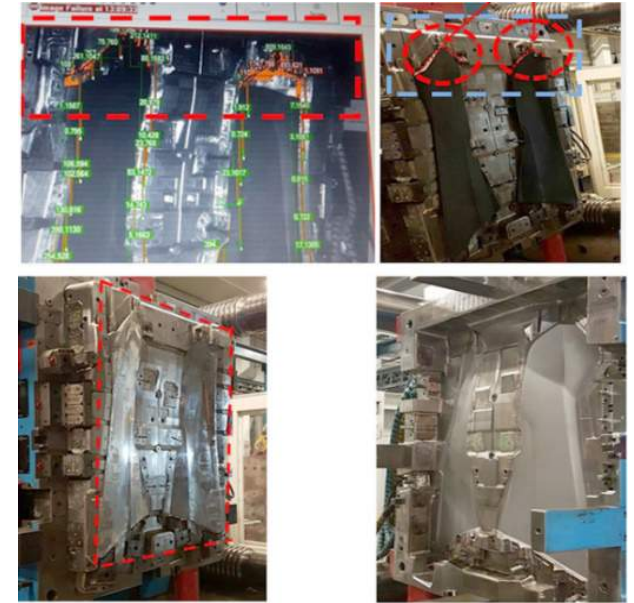
Injection Mold Protection (1/2)

Problem

When ejector pins jam or break and lifters are left out of position prior to mold closing damage to the mating surface of the mold in inevitable.
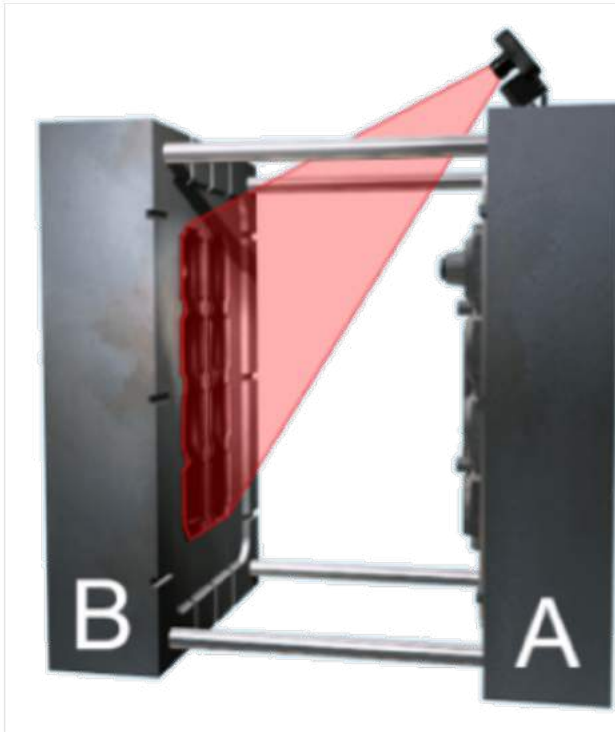

Challenge
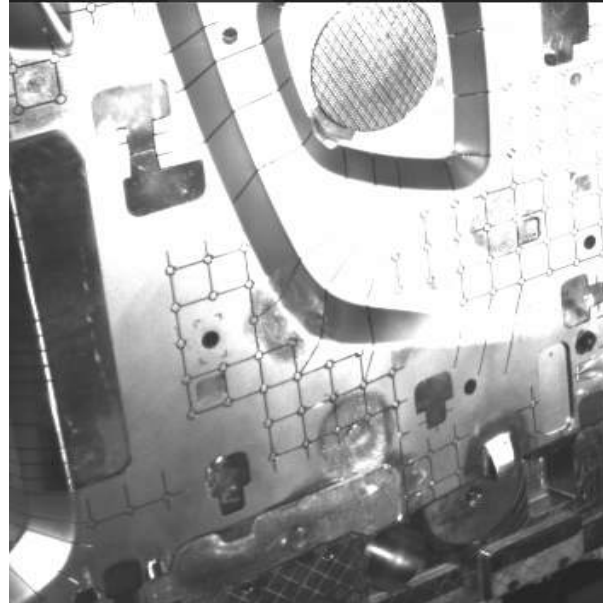
It is not possible to inspect the surface of shiny and curvy molds with regular computer vision systems due to the changes in the ambient light
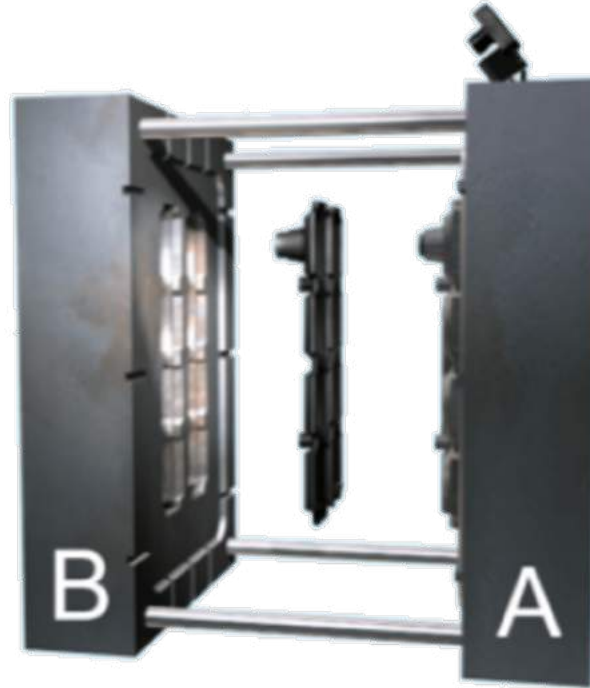

Solution

With the help of NIR lighting and cameras flowless surface inspection is enabled

Injection Mold Protection (2/2)

Throughout the mold injection process, each time the mold is open a photo is taken and basic inspection of the surface is carried out.

As the formed part is taken out of the mold, our system waits for the signal for ejector pims getting back to their locations
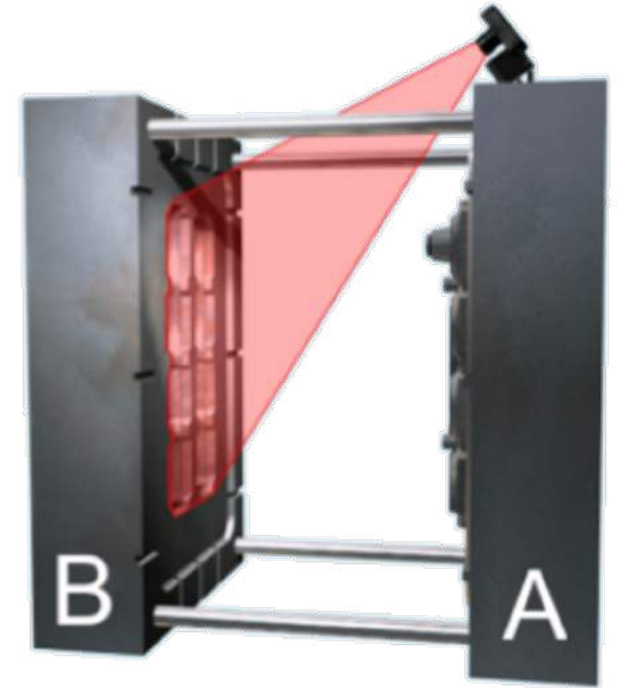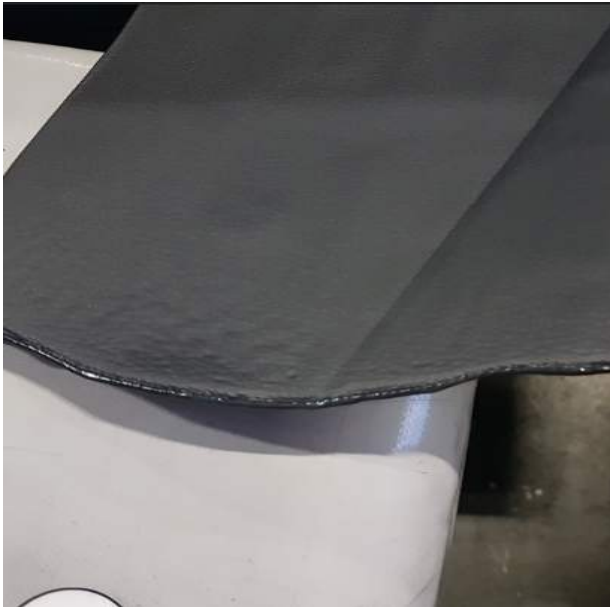
The surface of the mold is inspected by taking a photo of the surface ensuring all ejector pims are in their supposed locations
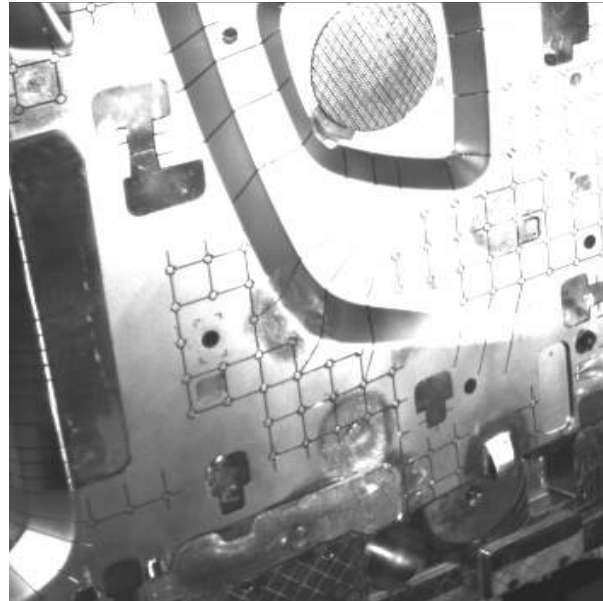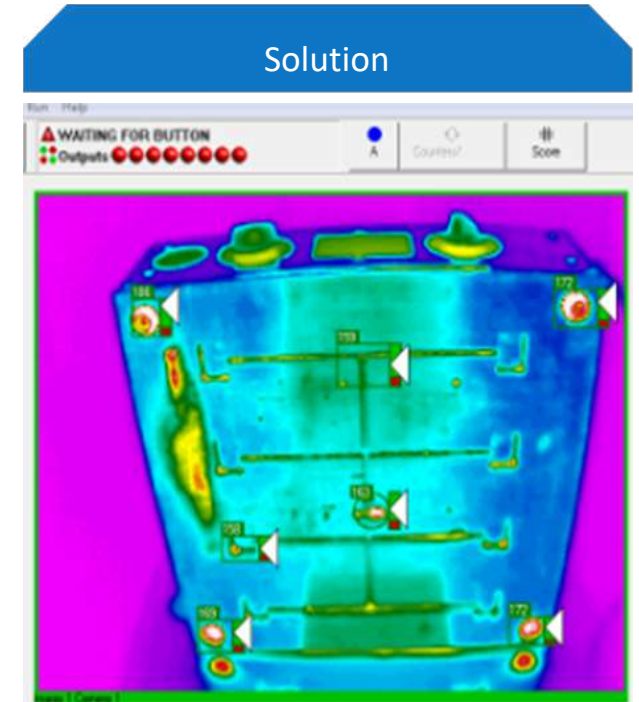
Thermal Mold Injection Control

Problem

Faulty manufacturing due to sharp increase or decrease of surface temperature of the injection molds

Challenge

The surfaces to be inspected has different thermal behaviors

Solution

With the real time regional temperature control and the mapping method enables to control the manufacturing process instantaneously
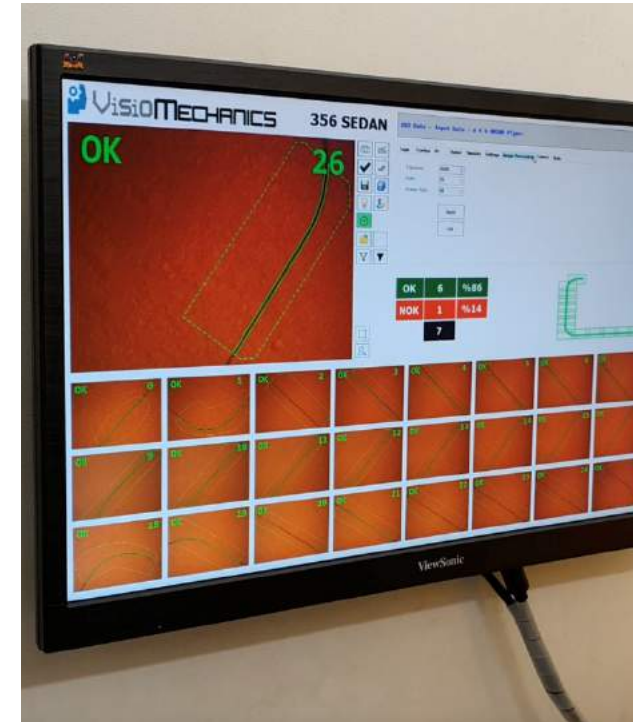
Cut Inspection on Thermoform Material

Missing, thickness and disconnected line check on a tiny cut
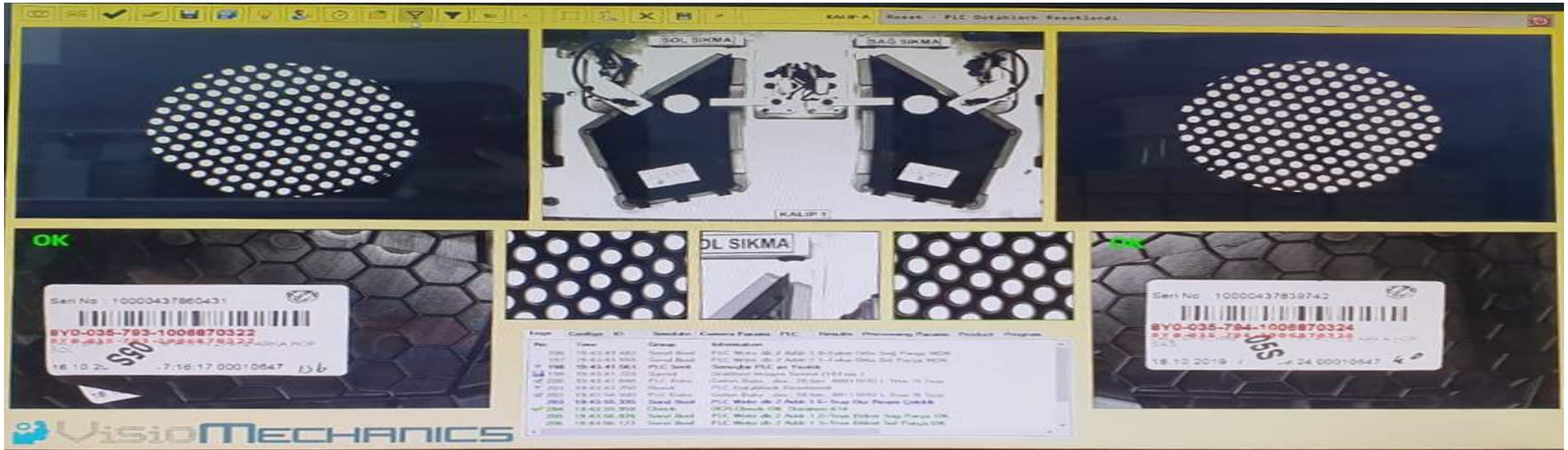
Low contrast and limited FOV

Using ML based multi machine vision functions and correct spectrum optic methods

Geometric Measurement and TQC on Plastic Materials

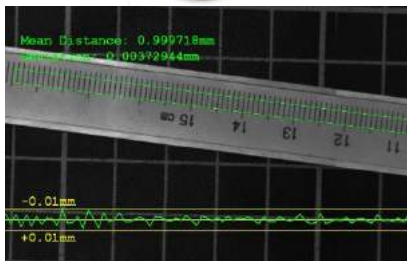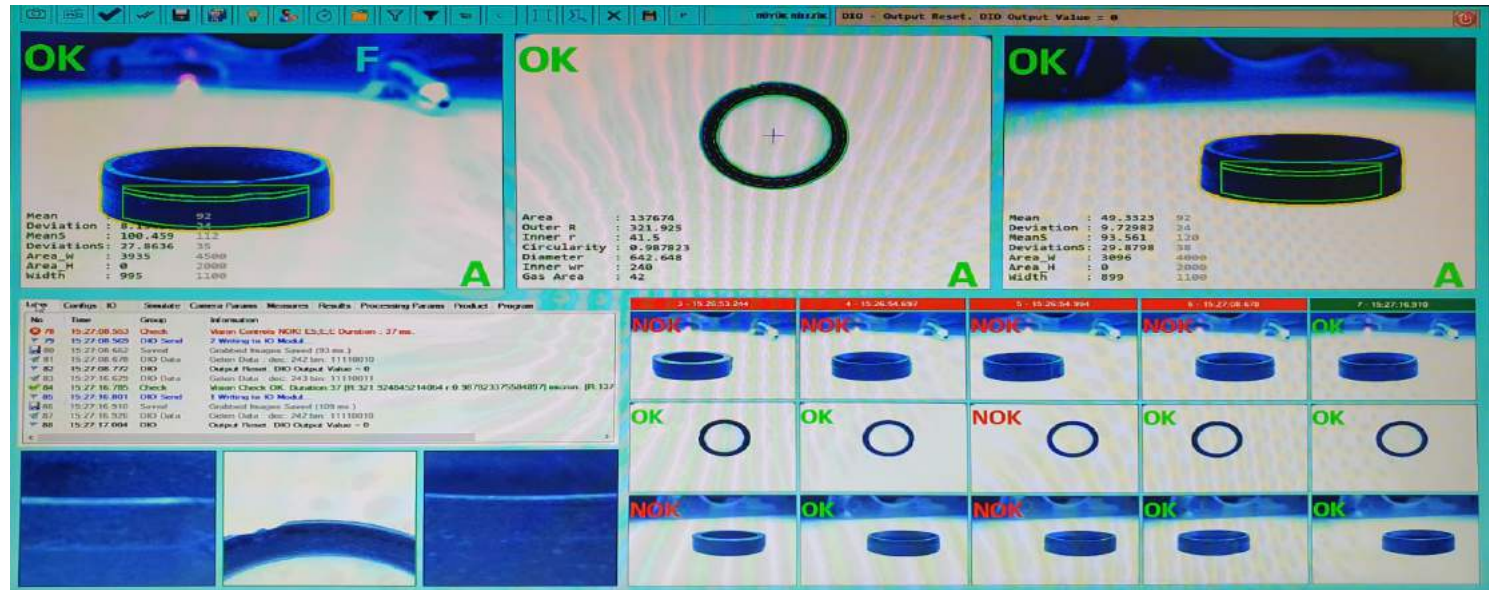| Problem	Challenge	Solution
Inspecting multiple small regions with high precision	The need of toleration of deviations caused due to the bending nature of the parts manufactured	Development of a computer vision system that would work in high precision

Sensitive Geometric Measurement

Problem

The need of visual inspection of rings manufactured in high volumes and pace

Challenge

High precision and fast inspection

Solution

Inspection of 10 rings per second with a precision of 10 microns.

Scratch and Deformation Detection Via Deflectometry (1/3)

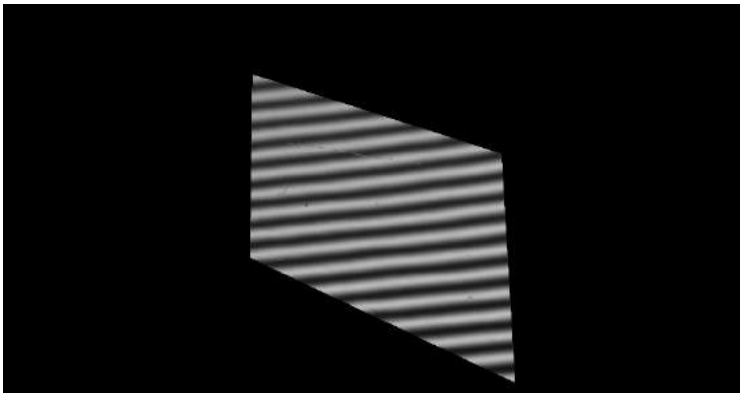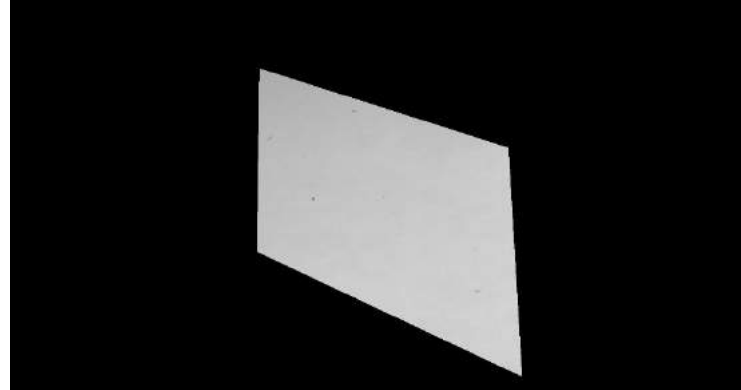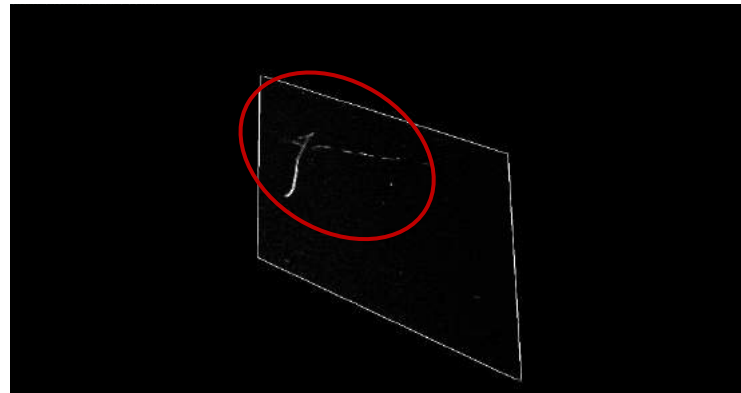
Reference Image

Patterned Image

Image before Processed

Processed Image

Even the scratches on the shiny surfaces which can not be clearly inspected or difficult to analyse with the standart machine vision functions and the lights, can easily be found thanks to the Deflectometry perspective.

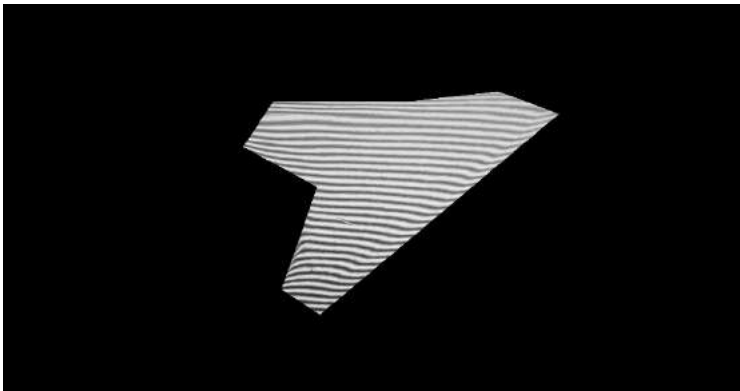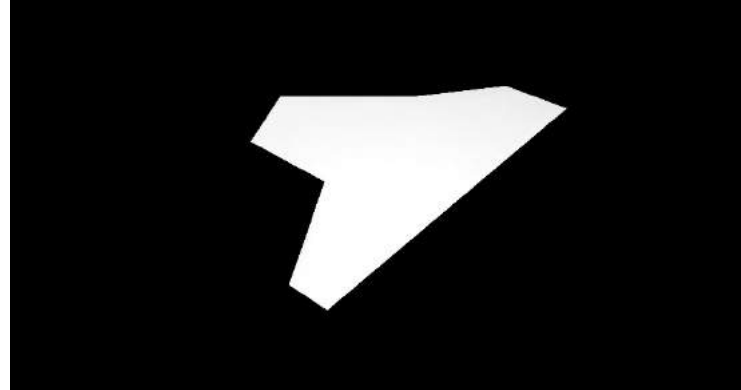# Scratch and Deformation Detection (2/3)

Reference Image

Image before Processed

Patterned Image
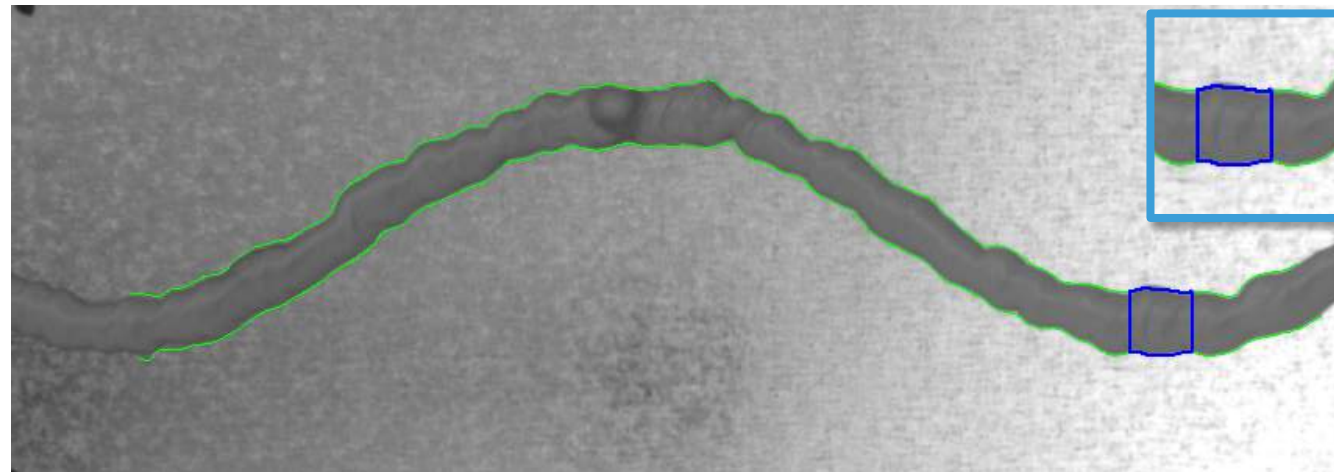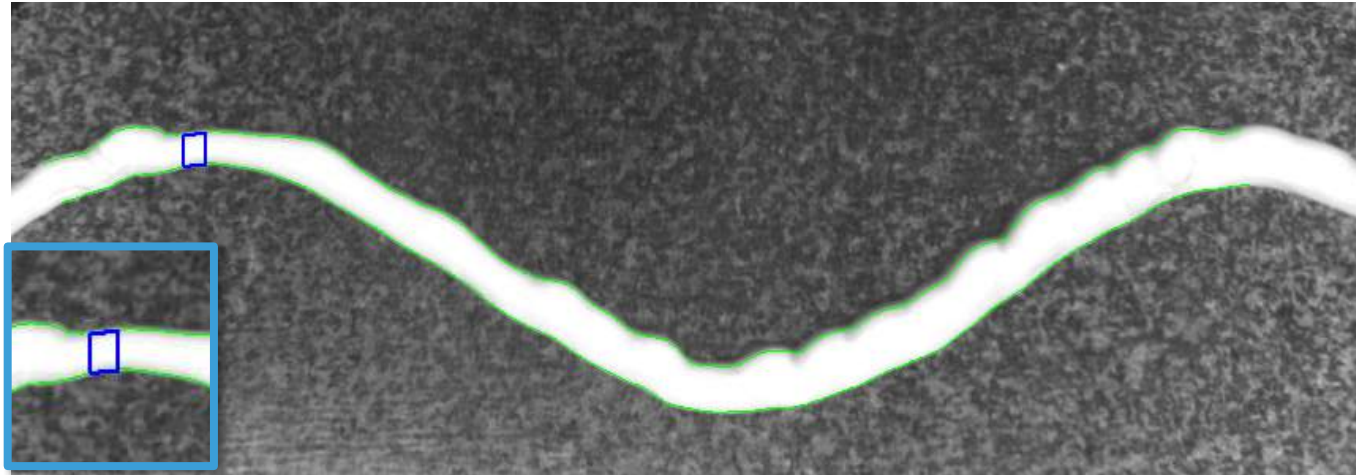

Processed Image

One of the main drawbacks of this method is the longer inspection time! Otherwise, it is the most powerful method when it is compared with the classic machine vision illumination methods.
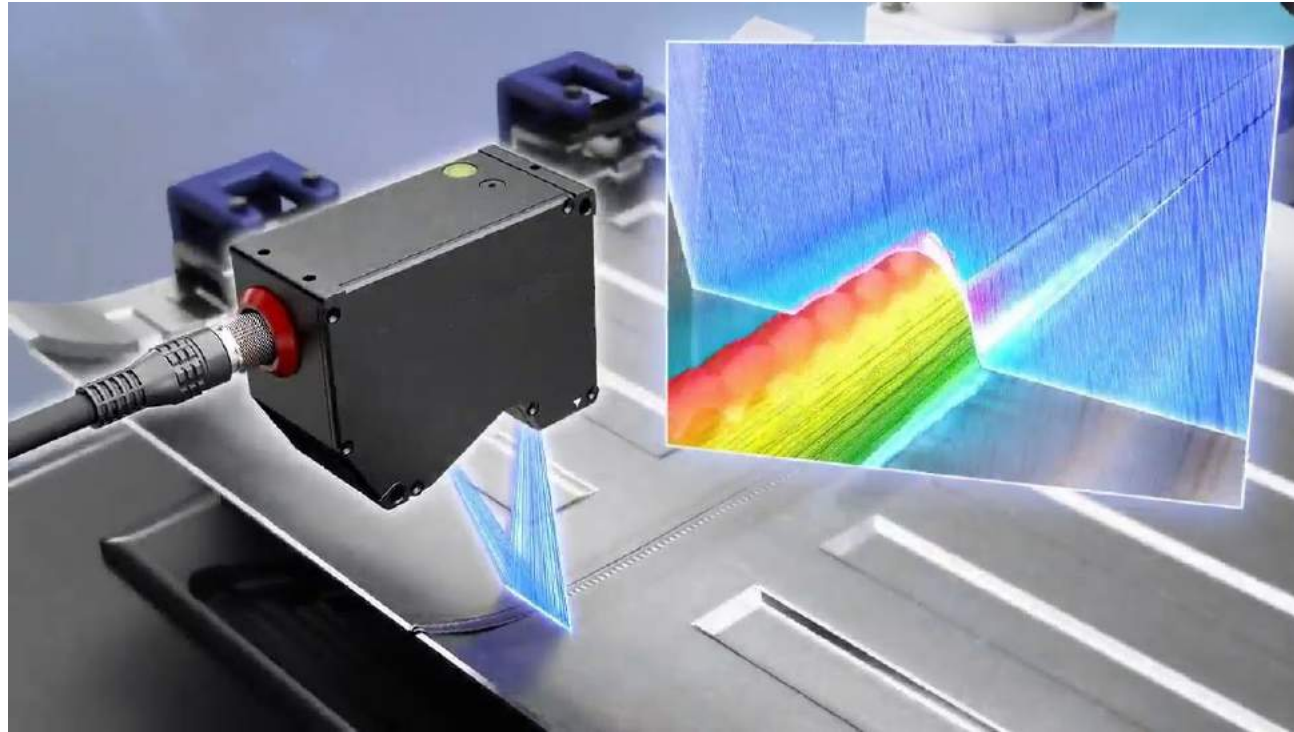
Bead Inspection

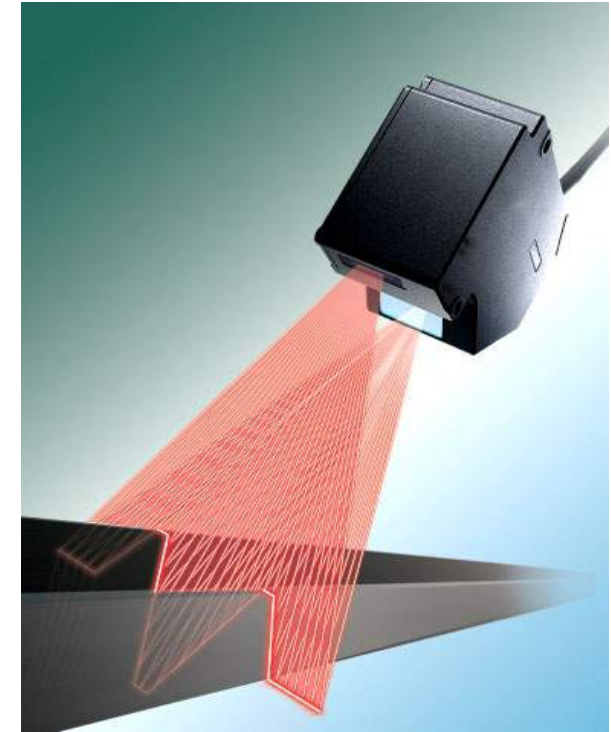If the bead is too short or spillover, it is caught in any place on the line

Any color differences on the bead can be inspected

Measurement and Inspection Using Laser Scanners

| Coating inspection of sealing material | Shape, edge and gap measurement | Measurement of external and internal part of pipe and profile |

3D inspection on Complex parts

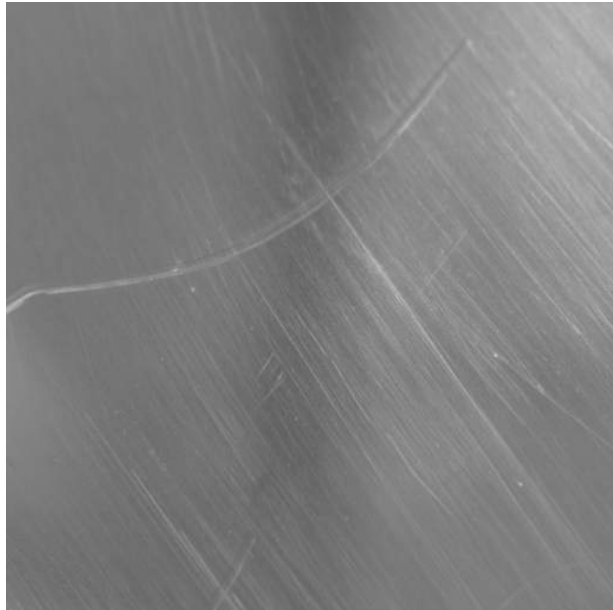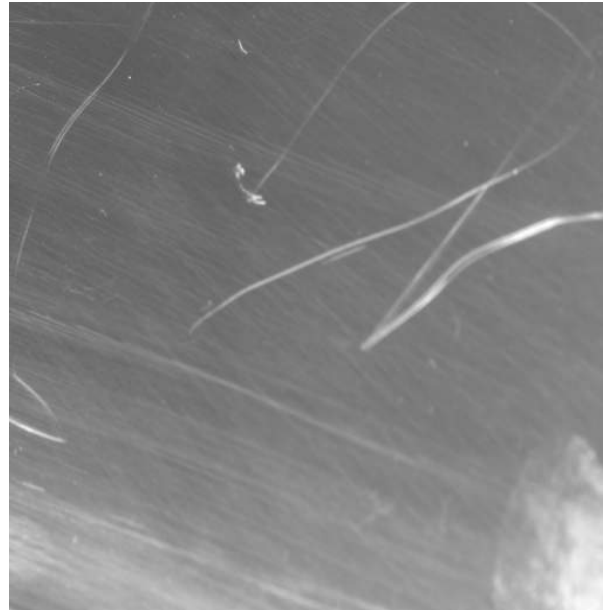|		
Precise measurement of complex parts	3D matching and providing CAD model	Position detection on small scale.

Scratch and Deformation Detection (3/3)
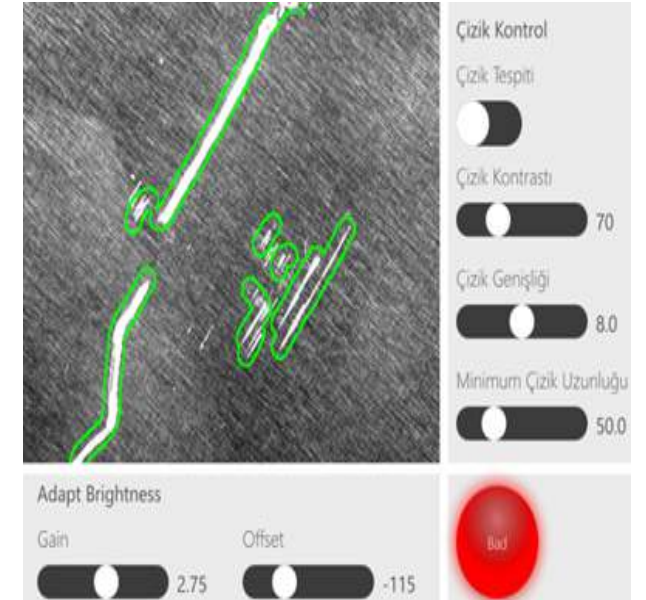

Problem

Out-of-tolerance scratches and deformations

Challenge

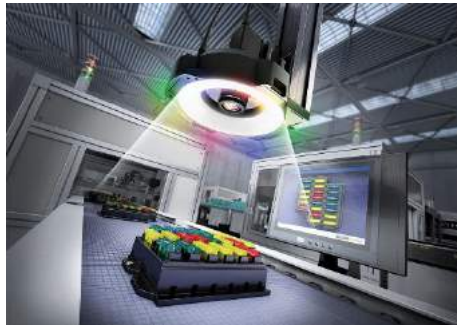Non-contrasting scratches with different sizes

Solution

Adaptive scratch control with special design narrow angle lighting using high resolution cameras
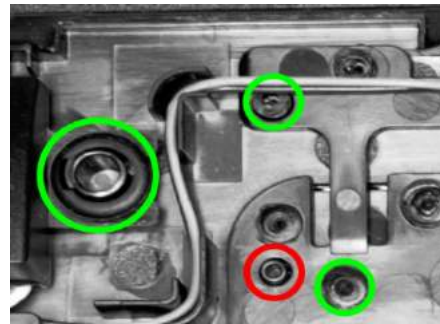
Robot Navigation

Problem

Faulty welding of parts

Challenge

Low contrast making image acquisition very hard

Solution

Using infrared lighting and optical sensors to navigate robotic arm in order to do the weldin on the right coordinates

Screen Printing Inspection
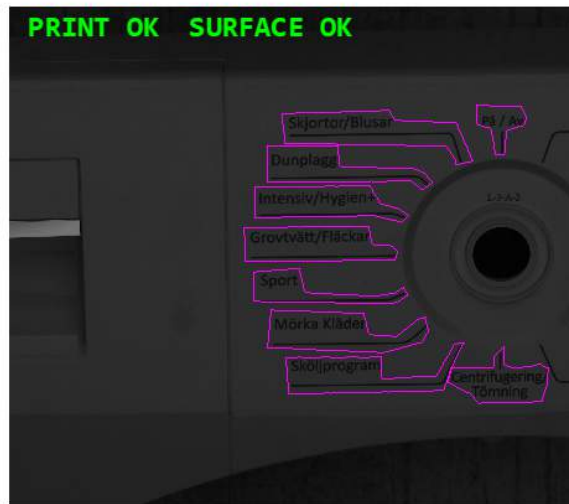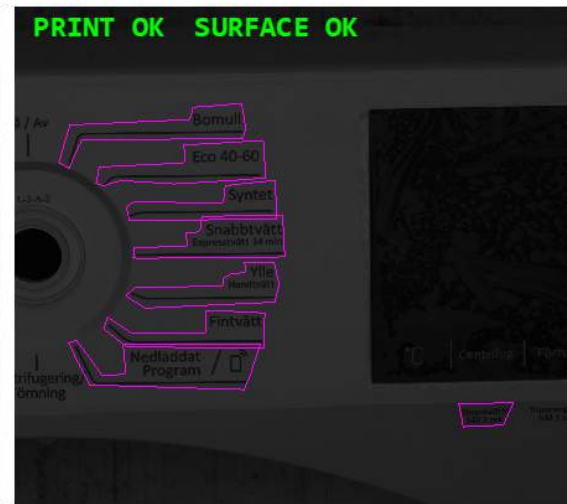

Problem	Challenge	Solution

The burr, missing prints and coordinate deviation in screen and laser printing

The need of inspection of different surfaces with different background colors printed either by screen printing or laser printing.
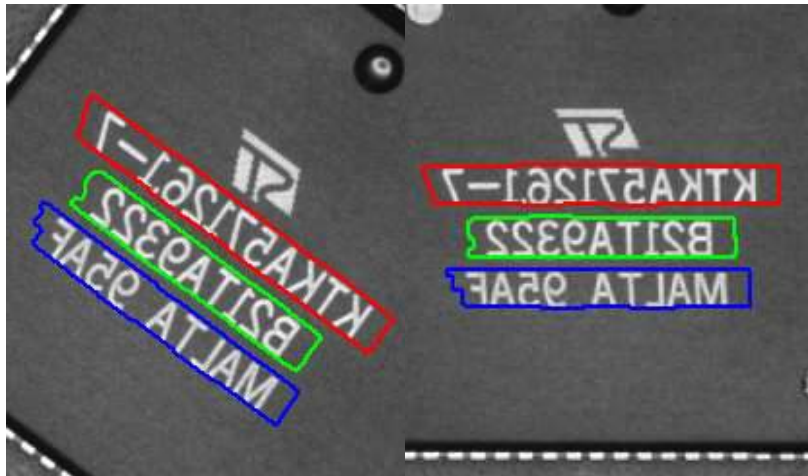
With the sophisticated deep learning algorithms and special design lighting all anomalies are inspected with high sensitivity

OCR Reading

Problem

Reading OCR in any position

Challenge

Low contrast and different orientations making image acquisition very hard to inspect the OCR

Solution

Using the most robust OCR library, special design lighting and optical sensors make optical character recognition easy

Barcode Reading (1D, 2D)

Barcode: 4316268172578

Barcodes can be read on any colors of backgrounds

Up to 800 barcode reading in a minute

Some of Our References

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Your business, our vision

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