Artificial vision system for real-time quality control by a collaborative robot

Within an automotive seat production line, a fully automated real-time quality control system was introduced through a collaborative robot system equipped by sensors and cameras, with consequent zeroing of production waste.

• Client requirement

Check the presence and correct installation of the inserts in the seat molds before proceeding with the next step (*foaming and seaming of the covering*), with the aim of reducing the number of scraps, and reducing production costs.

• Project description

This highly innovative project consists of implementing a **quality control system** within the production line. The control system is composed by a **UR5 collaborative robot (Universal Robotics)** equipped with an **inductive sensor** and a **camera system** connected to a software on which is active an artificial vision algorithm designed by Taiprora and already in use in other projects in automotive, pharma and food sectors.

The controls on the seat molds (configurable and customizable directly by the customer even for new models) take place during real-time production; molds with errors are sent back to be re-processed: the scraps in this phase have been zeroed.

The system was designed as a **single semi-assembled system** with numerous advantages such as *reduced installation times, reduced occupied space (to be easily positioned on an existing line), ease of maintenance, ease of customization and future expandability.*

Taiprora has also realized all the necessary programming: *PLC, Cobot, Reporting Software on Windows PC, Software to manage and create additional algorhytm-controls for the molds.*
Today, around 100 different molds are managed by our system.

ACHIEVED RESULTS

✓ Zeroing of waste due to incorrect foaming

✓ Daily production time reduced

✓ Cost reduction due to returns for non-compliant products

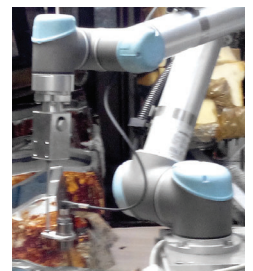## SERVICES AND TECHNOLOGIES USED

ROBOTICS

COLLABORATIVE ROBOTS

ARTIFICIAL VISION

.NET PROGRAMMING

AUTOMOTIVE

TAIPRORA
Software & Automation Engineering

Smart Solutions for Smart Factories
AMH • Software • Automation Systems

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