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OCR - crimp printing

Pharma

TASKS

OCR
Segmentation
Classification
Image analysis
Annotation
Computer vision

INDUSTRY

Pharma
OEM original equipment
manufacturer

TECHNOLOGIES

AI-go Studio
AI-go Runtime
Invariant.ai®

REQUEST

Automatically perform OCR control to read the lot number, printed with dotted font, on the metallic curved surface of vials necks.

STARTING POINT

Quality control was being carried out through traditional machine vision approaches that were inadequate at managing the bad printing quality and distortions on the image due to the curved printing surface.

The consequence was a high rate of false scrap since the system discard all the vial in which the lot number was not well printed (ca 10% of the total production was incorrectly rejected).

RESULTS

Maintaining the same quality assurance, but reducing false rejects.

Increased OEE

Reduction of the time required for **format change operations**. Thanks to the user friendly interface, **less experience and time is needed to achieve good performance**.

Better recognition of characters - even if badly printed and in suboptimal visual conditions - with a significant decrease of components **misidentified as scrap: the amount of false reject decreases to 0.5% on the total production**.

Most reliable output

test*	competitor 1		competitor 2		Neural OCR	
	% false rejects VS rejects	% false rejects VS total	% false rejects VS rejects	% false rejects VS total	% false rejects VS rejects	% false rejects VS total
#01	93%	30%	83%	12%	0%	0%
#02	100%	34%	100%	21%	0%	0%
#03	42%	17%	22%	5%	0%	0%
#04	92%	24%	83%	12%	75%	7%
#05	92%	32%	80%	9%	0%	0%
#06	88%	16%	60%	7%	0%	0%
#07	58%	16%	45%	12%	33%	7%
#08	50%	2%	86%	14%	0%	0%
#09	90%	20%	50%	2%	0%	0%

*Tests performed on 5000 pieces from 7 different batches

Reduction of the time required to add extra quality controls already present on the line (e.g. OCV)

Improved Quality