

SMART OPTICAL INSPECTION

INTELLIGENT INSPECTION OF ELECTRONIC COMPONENTS

INTELLIGENT
SOLUTIONS
POWERED BY AI

ai:rob

PRODUCT
SHEET

OUR SOLUTION

INTELLIGENT INSPECTION OF ELECTRONIC COMPONENTS ASSEMBLY PROCESS

AI.Rob by Fitech is a brand of intelligent machines for industry. Our Smart Optical Inspection (SOI) solution uses AI algorithms to monitor the quality of the component assembly process in your electronics manufacturing factory. It offers an efficient replacement for laborious and error-prone manual inspection, saving rework time and costs. In a nutshell, our solution:

- detects the most common candidates for potential defects, enabling them to be corrected before they become difficult or impossible to fix during subsequent production phases,
- inspects SMD and THT components against Pareto errors (missing, invalid rotation, invalid position),
- assures continuous process improvement due to the cloud-based, advanced AI algorithms.

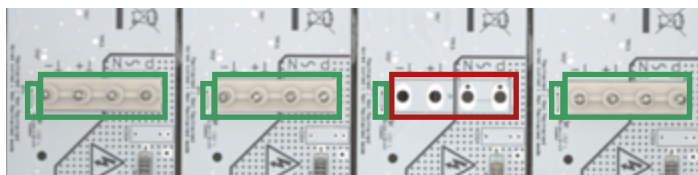
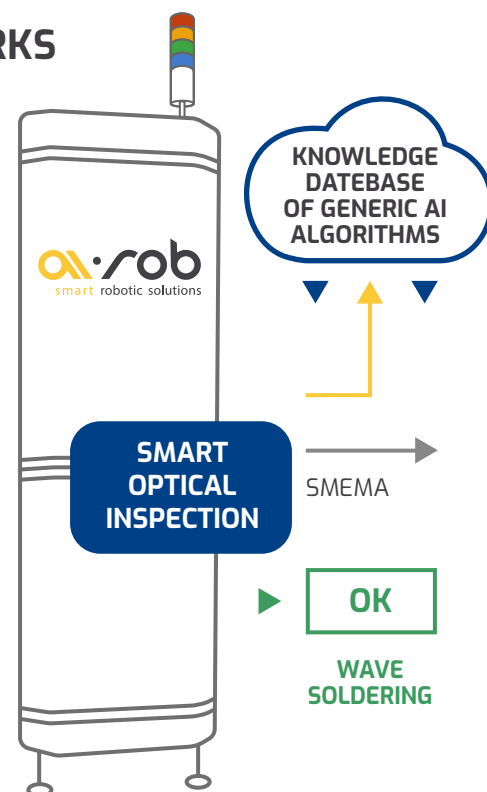
HOW IT WORKS

PCBA

- SMD ASSEMBLY
- MANUAL THT ASSEMBLY
- AUTOMATED THT ASSEMBLY

SMEMA

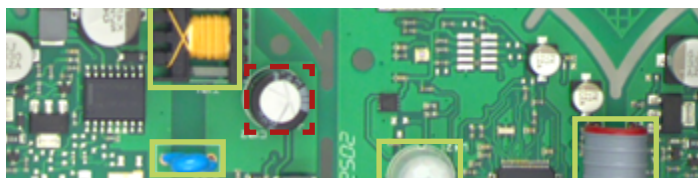
ERROR
DEFECT CANDIDATE
TO BE REWORKED



Detection of missing THT and SMD components before soldering



Detection of misplaced and rotated SMD connectors



Detection of incorrect polarization of THT components



Detection of led errors (LED is broken or incorrect)

MARKET PROVEN SOLUTION

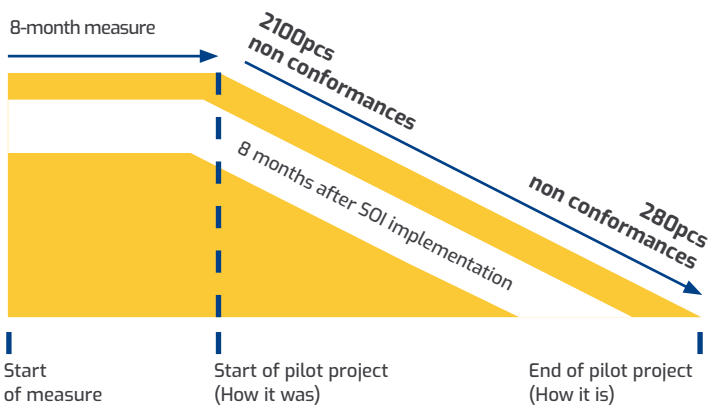
BASED ON THE 18-MONTH PILOT PROJECT IN OUR CLIENT'S FACTORY

FIGURES

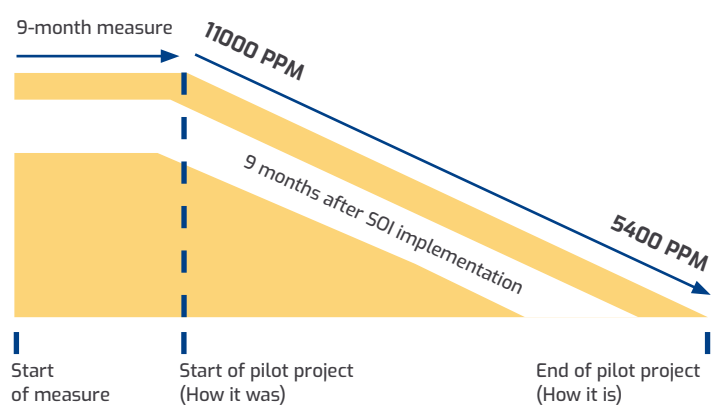


FINDINGS

NON CONFORMANCE CHART BEFORE AND AFTER IMPLEMENTATION (4 LINES, 18 MONTHS) IN PCS



REWORKS DURING PRODUCTION PROCESS PER 4 PRODUCTION LINES IN PPM



BENEFITS

Higher quality of the process with less defects produced

- ▶ Defect candidates were detected and corrected in up to 2.31% of the production volume

Much cheaper quality adherence due to correcting error candidates rather than fixing defects when it is too late and costly

- ▶ Around EUR 0.5m was saved in scraps (assuming EUR 15 per scrap)

No programming needed – just basic skills are required to configure the products for testing due to AI generalization

- ▶ More than 6 times faster program definition (assuming averaging 30 minutes for SOI vs 8 hours for AOI per program)

No initial investment – a pay-as-you test model

- ▶ EUR 1.5k per month in OPEX rather than ~EUR 50k in CAPEX (assuming 2-year depreciation)

PILOT PROJECT



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