

USE CASE

DETECTION OF WELDING DEFECTS



CUSTOMER

Tier 1 Automotive Manufacturer

NEED

- Develop a reliable way to detect and flag welding irregularities on car doors manufactured for a German sports car maker.

OUTCOMES

- Elimination of up to 70% of the false positives
- Less time-consuming rework of non-defective (false positive) units
- AI model trained to recommend rework vs scrap for flagged units

CHALLENGES

- The legacy system generated a high number of false positives in one of three defect categories
- The system correctly classified pinholes and splatter, but not edge-offset defects
- The main challenge was to improve the overall accuracy of the system by reducing false positives in edge-offset analysis to reduce costly rework.

PROCESS

- Training of AI model by showing it samples of welding seam defects so it learns to differentiate between correct and incorrect edge-offsets
- Further improvement through deployment of model into production. An operator can review and correct any mistakes made by the AI-model and retrain the model with the new annotated images on a periodic basis.

SOLUTION

Deployment of an AI-model instead of a conventional machine vision program to analyze the image scans generated by the legacy camera system.