Accella AI

USE CASE

VISUAL INSPECTION OF BATTERIES

CUSTOMER

Leading Manufacturer of Primary, Consumer Batteries

NEED

- ID detect defective batteries at several stages during manufacturing, esp. batteries that pass final inspection but discharge within minutes when used
- Defect classification to aid root cause analysis

OUTCOMES

- Increased accuracy to 99.996%
- Models found new defect categories that allow better diagnosis of upstream issues
- Inspection of 100% of batteries at line speed possible, model can accommodate increase
- Up to 80% savings in hardware cost
- Flexible algorithm adjusts for changing manufacturing conditions

CHALLENGES

- The high speed of the manufacturing line requires an OK/NOK call and a defect classification to be made every 40 milliseconds
- Very high degree of accuracy is required

PROCESS

- Collection of 1,000s of images and defect classification with the help of internal experts
- Use of image library to train first an OK/NOK model and subsequentially a defect classification model
- After deployment, the built-in reclassification tool of the AI-Bot is used for continuous training of the model to improve accuracy further

SOLUTION

- Four-camera system that collects data AT critical stages in manufacturing for each production line
- AI-model to analyze images, detect defects and automatically notify the PLC to blow defective units off the line