

Pharmaceutical



How Machine Vision is used to meet today's increased demands for information, quality, and manufacturing flexibility in the pharmaceutical industry



Proven Applications for Pharmaceuticals



Product Manufacture

- Pill Inspection
- Pill Counting
- Code Reading on Tablets

Container Manufacturing

- Vial Inspection
- Syringe Inspection
- Safety Needle Inspection
- Safety Seal Presence

Packaging

- Code Reading
- Blister Pack Inspection
- Inserts/Outsert Verification
- Cap/Label/Fill-Level Inspection

Warehousing

- Bundling Verification
- ID Code Tracking
- Robot Guidance

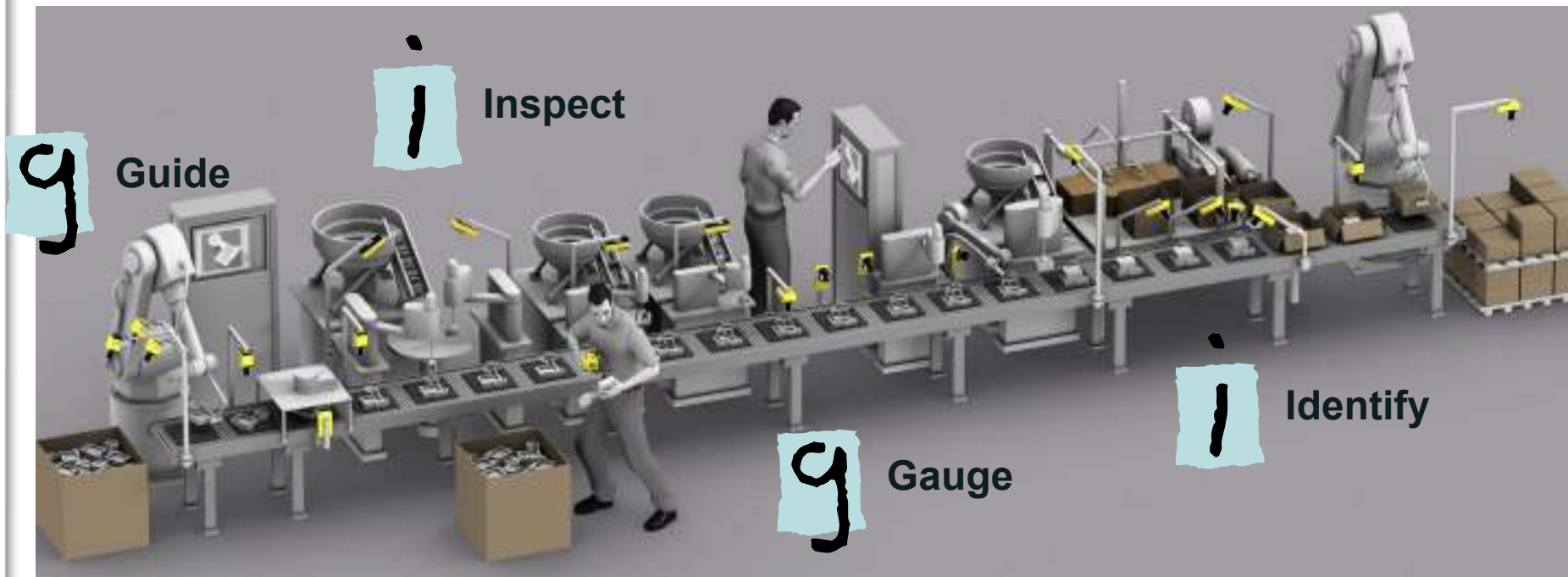
- Benefits of Machine Vision:
 - Trace Parts
 - Boost Yields
 - Ensure Product Quality
 - Improve Brand Image

Vision Applications



What does machine vision do?

g i g i



Blow-Fill-Seal Vials



- High-speed unit-dose line
 - Individually wrapped unit-dose vials
 - Verifies lot number and expiration date required by FDA in code form
 - 300 parts per minute
 - Robotic arm top-loads vials in quantities of 25, 30 or 60



g Guide

i Identify

Vial Counting Application



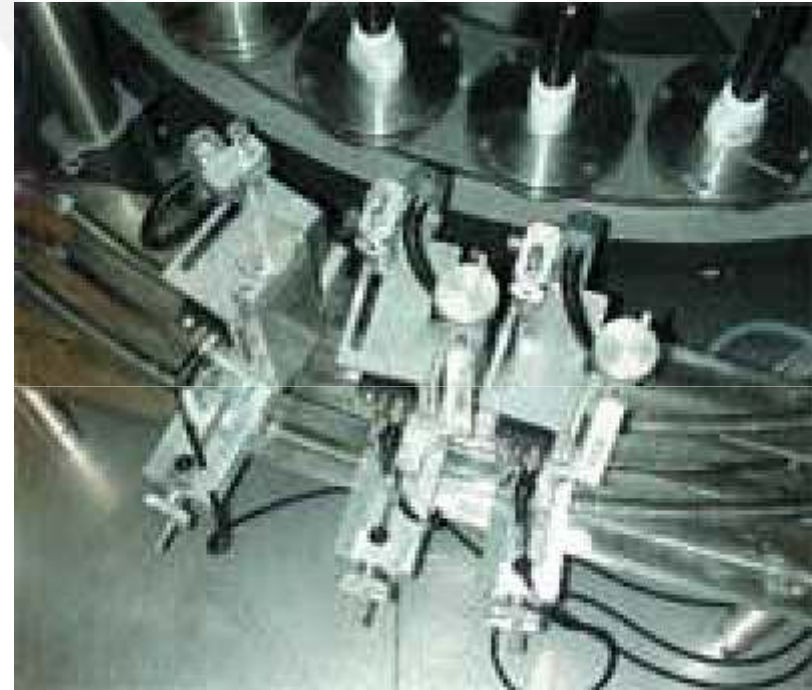
- Counting of incoming glass anesthesia vials
 - Counts the exact number of vials in 500 milliseconds
 - 3 different vial sizes – 2, 5, and 10 cubic centimeters
 - Task used to be done by as many as five workers



Label Inspection



- Inspect front and back label
 - Label presence confirmed by reading ultraviolet text
 - Front label is difficult due apply due two-ply accordion-folding and must be inspected for aesthetics
 - Back Label is for Pharmacist and requires Optical Character Reading (OCR) of Lot Number and Expiration Date



Inspect

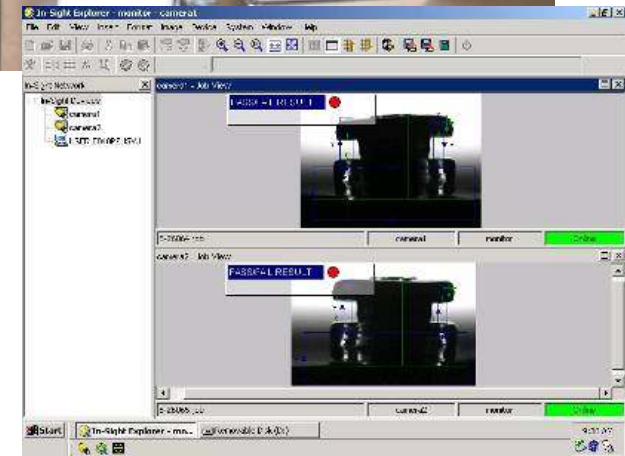


Identify

Medical Vial Cap Inspection



- Check vial cap for raised stopper
 - Verify and measure the placement of cap
 - 2 vision sensors used for 90 degree view of caps
 - 600 caps per minute
 - Customized operator interface



Carton Inspection



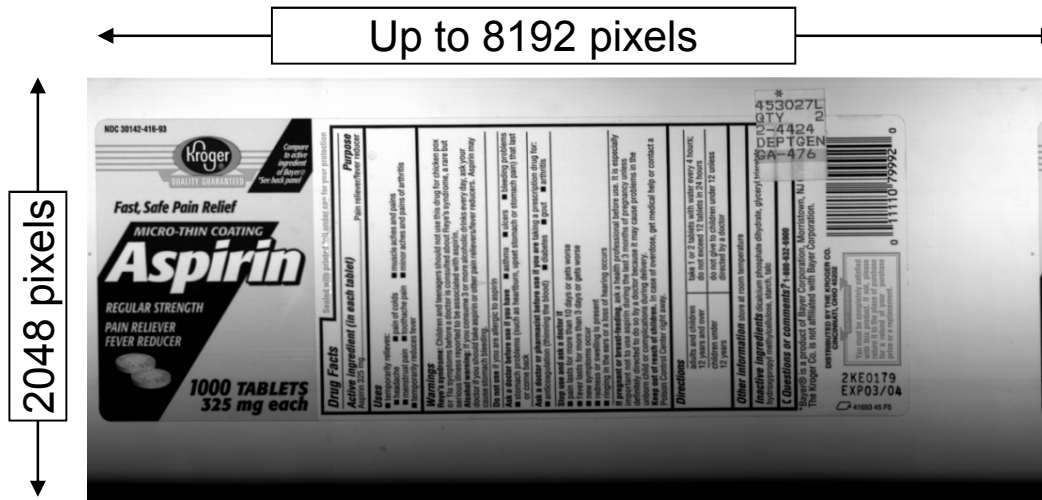
- Check quantity and position of bundled bottles
 - High-speed production line
 - Shrink wrap material causes reflections
 - 100% bundle inspection required



Label Inspection



- 360 degree label inspection
 - After application to bottle
 - Line scan camera views entire part as it rotates
 - Full image is “unwrapped” and inspected



Benefits of Machine Vision:



- Increase Productivity
- Trace Parts
- Boost Yields
- Enhance Product Quality
- Lower Capital Costs
- Reduce Scrap & Rework
- Increase Customer Satisfaction
- Improve Brand Image