Read every code, every time

Zebra AI optical character recognition for date and lot code verification

The environment

Manufacturers in the food and beverage, cosmetics, and consumer packaged goods industries operate under rigorous regulatory requirements. Every item they produce, package, and ship must contain clear, readable date and lot codes. Otherwise, they risk failed safety inspections, product waste, rework, downtime, and costly recalls. While these expectations haven't changed, manufacturing realities have. Production volumes keep increasing, cycle times keep getting shorter, and manufacturing lines have gotten faster in order to keep pace.

The challenge

Many facilities still rely on manual inspections at intervals, which can allow errors to escape detection. And outdated optical character recognition (OCR) systems struggle with varying packaging materials, reflective surfaces, improper placement, different marking methods, or distorted print quality. Some modern solutions can address these issues but require an extensive configuration timetable to "train" the software to read different fonts, characters, and product shapes.

The solution

Zebra machine vision with AI-powered OCR overcomes these complex challenges with a solution purpose-built for date and lot code inspection. It combines Aurora Focus™ software powered by deep learning with Zebra's NS42 or FS42 smart cameras with embedded AI processing. The result is fast, reliable optical character recognition that delivers near 100% accuracy even on challenging surfaces and inconsistent print conditions. This powerful machine vision system matches the speed, volume, and variability of modern manufacturing lines without sacrificing accuracy.

Improved accuracy on reflective, distorted, and hard-to-read surfaces

Key benefits

- Verify date and lot codes at speeds up to 900 products per minute
- Read times as fast as 40 ms
- Near 100% accuracy
- Extensively pre-trained on real-world images, font families, surface textures, angles, and marking methods
- Ready to deploy within minutes

Faster inspections. Built for high-volume manufacturing.

Zebra makes date and lot code verification better every day with AI-powered machine vision that is easier to deploy, faster to scale, and accurate enough for the most challenging manufacturing environments. With artificially intelligent OCR powered by Aurora Focus software and Zebra smart cameras, manufacturers can transform inspection from a production bottleneck into a competitive advantage.

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Reduce risk not speed

Zebra's AI OCR solution automates a critical part of the manufacturing process that is always at risk, of human errors. Misprinted date and lot codes and the potential release of incorrectly marked items are constant stressors for operations teams. Machine vision systems from Zebra empower operations leaders to inspect with confidence while maintaining throughput.

Operations and quality teams gain:

- Reliable verification of date and lot codes across varying packaging types
- Faster inspection performance to support high-speed production lines
- Improved regulatory compliance
- Reduced costly rejects, rework, and recalls
- Simplified deployment with AI-powered OCR

Manufacturing applications

- **Cosmetics**
- **Food and beverage**
- **Consumer packaged goods**

Key components

Zebra NS42 and FS42 smart cameras

Capture high-quality images and process OCR inspections directly at the edge with embedded AI acceleration and industrial-grade reliability. Learn more at zebra.com/ns42 and zebra.com/fs42.

Zebra Aurora Focus

Configure, deploy, and manage intelligent OCR systems with an intuitive software platform designed for machine vision applications. See zebra.com/aurora-focus for more information.

→ For more information about Zebra AI OCR solutions and machine vision applications, visit **zebra.com/ai-ocr**.

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