COGNEX

FOOD AND BEVERAGE SOLUTIONS GUIDE

Safeguard Inspections, Improve Quality, and Protect Your Brand

THE GLOBAL LEADER

IN MACHINE VISION AND INDUSTRIAL BARCODE READING

Cognex,® the leading supplier of machine vision and industrial barcode reading solutions.

With over 3.5 million systems installed in facilities around the world and over forty one years of experience, Cognex is focused on industrial machine vision and image-based barcode reading technology. Deployed by the world's top manufacturers, suppliers and machine builders, Cognex products ensure that manufactured items meet the stringent quality requirements of each industry.

Cognex solutions help customers improve manufacturing quality and performance by eliminating defects, verifying assembly and tracking information at every stage of the production process. Smarter automation using Cognex vision and barcode reading systems means fewer production errors, which equates to lower manufacturing costs and higher customer satisfaction. With the widest range of solutions and largest network of global vision experts, Cognex is the best choice to help you **Build Your Vision.™**

$1.04 BILLION
2021 REVENUE

OVER 41
YEARS IN THE BUSINESS

500+
CHANNEL PARTNERS

GLOBAL OFFICES IN
20+ COUNTRIES

3,500,000+
SYSTEMS SHIPPED

THE RIGHT CHOICE FOR FOOD AND BEVERAGE APPLICATIONS

PROTECT YOUR CUSTOMERS. PROTECT YOUR BRAND.

With lean operations and thin margins, the pressure on the food and beverage industry to optimize overall equipment efficiency (OEE) without compromising quality is challenging. Successful manufacturers embrace machine vision and barcode reading solutions to minimize downtime and consistently deliver safe, high quality products that are easily traced throughout the supply chain. With the widest selection of machine vision systems and barcode readers, Cognex solutions help food and beverage manufacturers solve some of the most challenging inspection, verification, and tracking applications.

POWER UP YOUR OPERATIONS
WITH MACHINE VISION

INCREASE THROUGHPUT AND OEE

Accommodate fast and frequent line changeovers and increase the throughput, efficiency, reliability, line speeds, and versatility of your production lines.

IMPROVE PRODUCTIVITY AND DRIVE DOWN COSTS

Achieve greater consistency, precision, safety, and output to drive down manufacturing overhead and avoid costly, time-consuming rework.

REDUCE SCRAP

Achieve your zero waste goal with smarter automation. Detect mislabeled, wrongly assembled, and defective products early in the production process to reduce scrap and avoid stoppages and downtime.

PROTECT YOUR BRAND

Avoid having spoiled or damaged goods reach the market. Prevent defects and ensure quality to keep customers satisfied and your brand reputation protected.
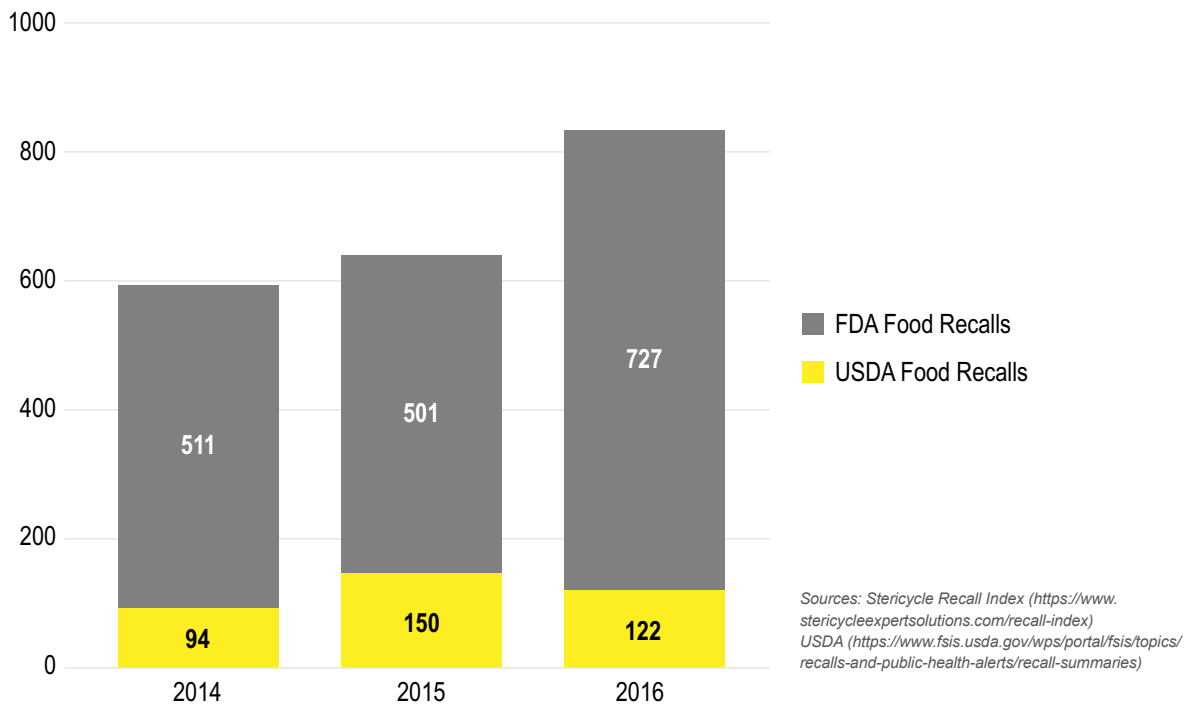
"Given the current high costs of raw ingredients and energy, this vision system really does drive down waste figures at this plant thus increasing overall production and reducing costs."

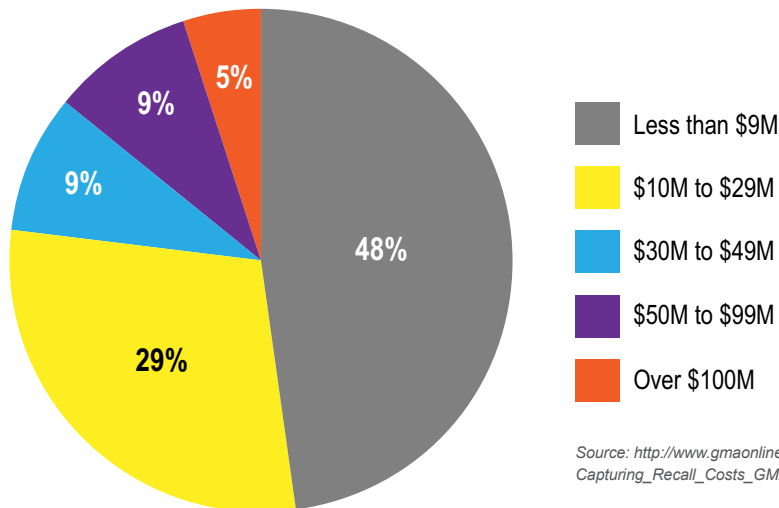—Niall Reilly, Senior Software Engineer at Frank Roberts

COMBATTING THE RISE OF
FOOD RECALLS

In the US and abroad, sweeping food safety reform has occurred against a backdrop of rising authentication challenges and recalls. The average direct cost of a recall is estimated at $10 million, not including brand damage and sales losses. Under intense scrutiny by regulators as well as consumers, the food and beverage industry is embracing advanced automation with machine vision to safeguard its processes and products. Cognex's vision systems and image-based barcode readers help manufacturers achieve the highest levels of confidence in assembly, packaging inspection, and traceability to prevent devastating recalls and preserve brand reputation.

The rise of food recalls

- FDA Food Recalls
- USDA Food Recalls

Year	FDA Food Recalls	USDA Food Recalls
2014	511	94
2015	501	150
2016	727	122

Sources: Stericycle Recall Index (https://www. stericycleexpertsolutions.com/recall-index)
USDA (https://www.fsis.usda.gov/wps/portal/fsis/topics/ recalls-and-public-health-alerts/recall-summaries)

Estimated financial impact (direct costs and sales losses) to food companies as a result of a recall

- Less than $9M — 48%
- $10M to $29M — 29%
- $30M to $49M — 9%
- $50M to $99M — 9%
- Over $100M — 5%

Source: http://www.gmaonline.org/file-manager/images/gmapublications/ Capturing_Recall_Costs_GMA_Whitepaper_FINAL.pdf
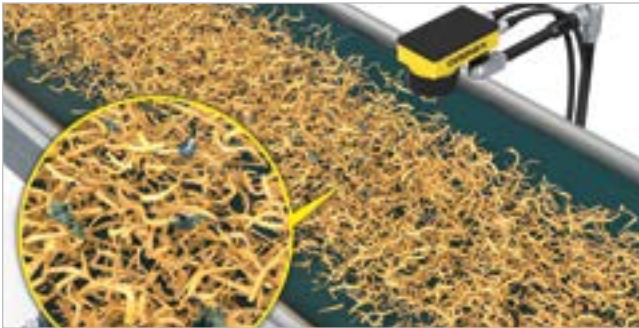
PRODUCT QUALITY INSPECTION

Products can break or become damaged during production. Inspecting for product integrity prior to packaging is critical to ensure customer satisfaction and protect brand reputation. Cognex identifies defects and rejects them before they reach the customer, protecting your company's brand against the net effect of damaged goods while avoiding stoppages and downtime.

BENEFITS

- Detect damaged products
- Reduce costly downtime and manual intervention
- Avoid packaging mix-ups
- Preserve customer loyalty

Detect foreign objects and debris

Verify food portioning

Match product to packaging

Ensure consistent size, shape, color, and texture

Detect cosmetic defects

Automate classification
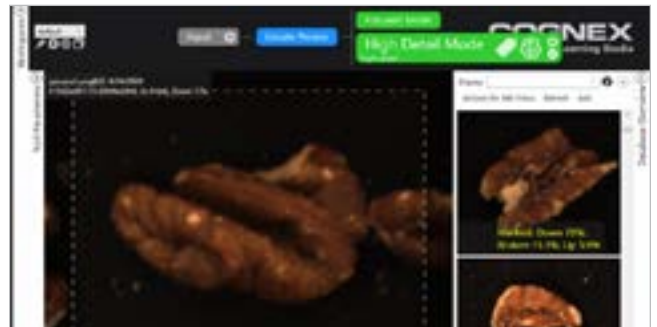
PACKAGING INSPECTION

Packaging affects consumer perception of product quality, safety, and value. Cognex vision systems inspect food packaging to ensure it is correctly assembled, defect free, and complete, so that only the highest quality products reach customers.

BENEFITS

- Avoid unsightly, damaged packaging
- Defend against contamination and spills
- Prevent returns from wholesalers and retailers
- Preserve brand reputation

Identify torn, skewed, or missing labels

Verify tamper seal integrity

Check for date/lot code presence

Ensure label print integrity

Detect defects in packaging

Ensure proper orientation

ASSEMBLY VERIFICATION

Identifying assembly defects early saves significant time and money, especially when a single failure can affect an entire batch. Vision-guided quality checks ensure completeness and consistency while robotic pick-and-place capabilities speed up and error-proof the transition from production to packaging.

BENEFITS

- Detect defects and missing items
- Verify completeness and product integrity
- Enable vision-guided robotics
- Improve pick times and accuracy

Verify cap height

Ensure accurate liquid fill levels

Detect missing items

Enable vision-guided robotic pick and place

Confirm proper ingredients

Automate visual inspection

ALLERGEN MANAGEMENT
AND TRACEABILITY

Mislabeled allergens threaten the public's health and can cause expensive recalls deeply damaging to brands. Regulations in the US and abroad require manufacturers to label and trace common allergens. To ensure product safety and efficient recalls, manufacturers must be able to quickly identify and locate faulty products in the supply chain posing hazards to consumers. Cognex machine vision and image-based barcode readers verify your ingredients are labeled correctly, while track-and-trace solutions prevent packing mistakes and help locate recalled items quickly to minimize loss.

BENEFITS

- Identify and locate defective products

- Prevent accidental exposure and liability

- Limit the risk of recalls

- Comply with regulatory standards

- Deter counterfeiting

Verify allergen label is present

Match and verify packaging

Track items through the supply chain

Avoid counterfeiting and validate tax stamps

WAREHOUSING AND DISTRIBUTION

Increasingly, food and beverage products are being manufactured, warehoused, and distributed from the same location. Manufacturers must optimize not just their production capacity and quality, but also their warehousing and fulfillment operations to meet growing performance criteria and customer demands. Cognex vision systems and image-based barcode readers have the highest read-rates in the industry and can dramatically increase the speed, accuracy, and productivity of warehouses and distribution centers.

BENEFITS

- Streamline item processing and sorting
- Receive, store, and retrieve inventory efficiently
- Minimize rework and downtime
- Lower maintenance costs

Process batches quickly, easily, and accurately

Manage palletized inventory

Read codes printed on or covered by reflective material

Automate sorting and shipping

MACHINE VISION SYSTEMS AND IMAGE-BASED BARCODE READERS

Vision Sensors

In-Sight® 2000 vision sensors perform simple pass/fail applications that help ensure products and packaging manufactured on an automated production line are error-free and meet stringent quality standards.

2D Vision Systems

Cognex In-Sight 2D vision systems are unmatched in their ability to inspect, identify, and guide parts. These self-contained, industrial-grade vision systems combine a library of advanced vision tools with high-speed image acquisition and processing.

3D Vision Systems

Cognex In-Sight laser profilers and 3D vision systems provide ultimate ease of use, power, and flexibility to achieve reliable and accurate measurement results for the most challenging 3D applications.

Fixed-Mount Barcode Readers

Compact but powerful DataMan® barcode readers offer unmatched code reading performance with patented 1D and 2D code reading algorithms. The flexible options, easy setup, and quick deployment make them ideal for the most demanding industrial applications.

Handheld Barcode Readers

Versatile DataMan barcode readers provide best-in-class performance for 1D, 2D, and DPM codes, where ruggedness and speed are critical to success. A range of field-changeable communication options ensure these readers are ready to meet your application requirements.

Mobile Terminals

The MX series of vision-enabled mobile terminals leverage the latest iOS® and Android® smartphones in a rugged housing, tough enough to stand up to the most challenging environments—all while providing superior 1D, 2D, and DPM code read rates.

INDUSTRY-LEADING VISION TECHNOLOGY
DELIVERS THE MOST ACCURATE INSPECTIONS AND HIGHEST READ RATES

Companies around the world rely on commitment to continuous innovation to optimize product quality, drive down manufacturing costs, and control traceability. Cognex tools and patented technologies include:

Pattern Matching

Locating a part accurately is the first step in most vision applications. Cognex's industry leading pattern matching technologies, such as PatMax RedLine™ provide unmatched accuracy and robustness, even with rotation, scale and lighting variations.
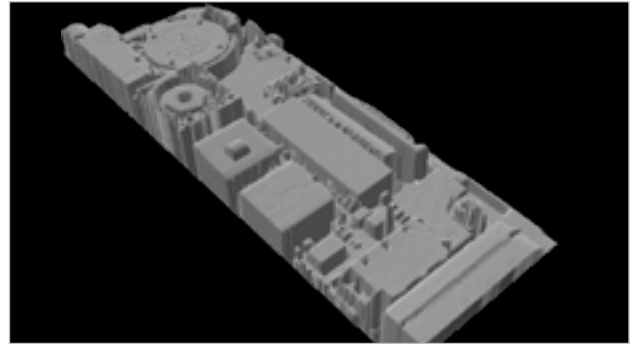
3D Inspection

Based on PatMax® and other alignment technologies, VisionPro® 3D software delivers real-time 3-D position information for challenging package verification and logistics applications. VisionPro's robust library of tools remains reliable even when patterns are partly covered, ensuring accurate part location in the toughest conditions.
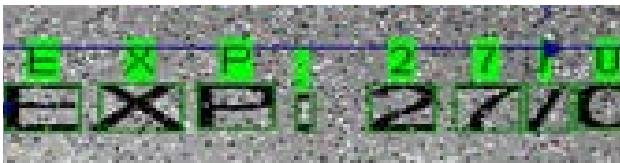
Optical Character Recognition

OCRMax character recognition algorithm achieves superior read rates on images with low-contrast or confusing backgrounds, and can handle common printing deformities such as unevenly-spaced, skewed or distorted characters.
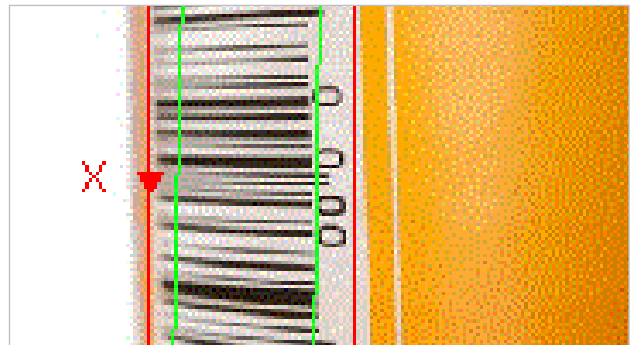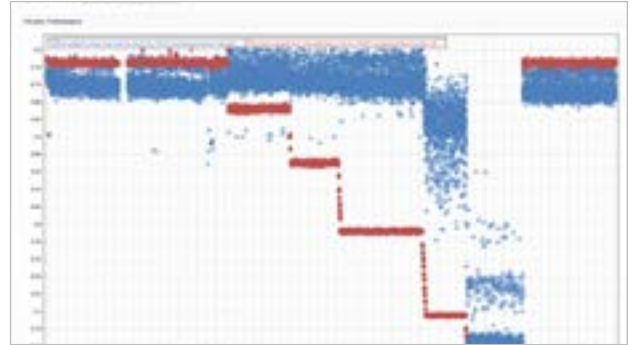

Barcode Reading

1DMax™ and 2DMax® barcode reading algorithms achieve the highest read rates for 1D and 2D barcodes, including challenging 2D direct part mark (DPM) codes.
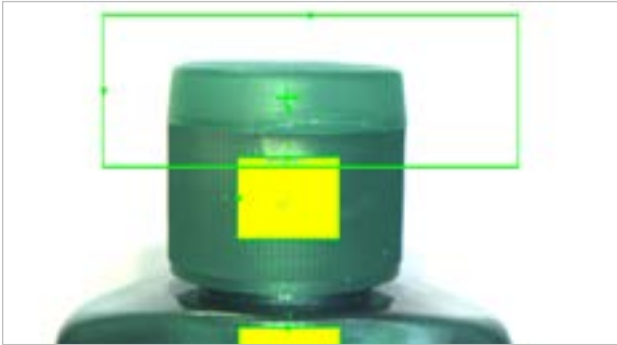
Color Verification

Color tools are used to identify and inspect objects based on color data. Color tools also measure by evaluating the amount of color pixels present of a color or group of colors. Advanced color vision technology maintains accuracy even with lighting variations that can cause problems for traditional color vision tools.

Real Time Monitoring

Cognex Explorer™ Real Time Monitoring (RTM) technology uses world-class Cognex vision technology to monitor DataMan barcode reader performance. Cognex Explorer RTM empowers facility managers with data that can assist in removing system defects and optimize processes.

Cognex Global Support

Cognex serves an international customer base from offices located throughout the Americas, Europe, and Asia and through a global network of highly-trained partners, system integrators, and distributors. From development to deployment, Cognex is there to help you get your vision systems up and running as fast as possible.

BUILD YOUR VISION

2D VISION SYSTEMS

Cognex machine vision systems are unmatched in their ability to inspect, identify and guide parts. They are easy to deploy and provide reliable, repeatable performance for common to complex tasks.

www.cognex.com/machine-vision

3D VISION SYSTEMS

Cognex laser profilers and area scan 3D vision systems provide ultimate ease of use, power and flexibility to achieve reliable and accurate measurement results for the most challenging 3D applications.

www.cognex.com/3D-vision-systems

VISION SOFTWARE

Cognex vision software provides industry leading vision technologies, from traditional machine vision to deep learning-based image analysis, to meet any development needs.

www.cognex.com/vision-software

BARCODE READERS

Cognex industrial barcode readers and mobile terminals with patented algorithms provide the highest read rates for 1D, 2D and DPM codes regardless of the barcode symbology, size, quality, printing method or surface.

www.cognex.com/barcodereaders

COGNEX

Companies around the world rely on Cognex vision and barcode reading solutions to optimize quality, drive down costs, and control traceability.

Corporate Headquarters   One Vision Drive Natick, MA 01760 USA

Regional Sales Offices

www.cognex.com