

THE **BarCode**TM NEWS

RFID FOR
food safety
what manufacturers
should know

MODEX &
RFID Live
news from the shows

MACHINE VISION
automation
today's industrial systems

NEXT GENERATION
barcodes
how big data is involved

...and more

Utilizing RFID For Food Safety



by Jordan Anderson of [PAR Technology](#)

Picture this: a manufacturer has issued a recall on its hamburger meat. Employees at a grocery store are scrambling to clear the shelves of contaminated products. But which packages of meat are contaminated, and which are still safe? It would take too much time to find out now. The reputation of the store could be destroyed if contaminated products aren't recalled quickly. Time to pull every package from the shelves, just to be safe.

This approach, while it certainly saves lives, is inefficient and wasteful. Recalls cost a company \$10 million on average in brand damage and lost sales. With proper food safety technology, food can be tracked in a manner that allows manufacturers to easily identify contaminated products. Lives are still saved, but they are saved more quickly and with less effort. RFID is one technology that provides these solutions to food safety issues.

What is RFID?

RFID, or Radio Frequency Identification, is a data collection method that sends and receives information between tags and readers using low-power radio waves. RFID is more efficient than traditional identification methods, such as barcode scanning, because it can scan hundreds of tags at once.

Types of RFID Tags

Passive, ultra-frequency tags, or RAIN RFID, are the most cost-effective and commonly used tags. They require a powered reader to reflect and transmit their signal.

Active, Wi-Fi-based tags provide real-time location information by using their own internal power supply to relay signals to standard wireless access points. These tags have a much greater read range than passive RAIN tags.



The downside to Wi-Fi-based tags is that they are expensive. Thankfully, there is a cost-effective alternative. Bluetooth low-energy (BLE) tags collect the same real-time information as Wi-Fi tags, but they are even easier to implement. While Wi-Fi tags require new

infrastructure and several wireless access points, BLEs only need a connection to a Bluetooth-enabled device, such as a smartphone, to transmit signals.

Different types of tags have different uses. Passive tags are best for tracking large volumes of low-cost items, while active tags are ideal for tracking high-value, low-volume assets. Hybrid RFID systems, however, can be used for both low-cost/high-volume and high-cost/low-volume assets.

RFID and Food Safety

Why is RFID capability important for Food Safety? RFID capability can be used for both temperature and location measurements. With respect to location measurements, the RFID sensors, positioned within the store, verify the employee performs a check on a checklist at a specific location. As an example, this is useful to verify checks along employee Travel Paths, whether it is visiting a specific location within a restaurant and documenting cleanliness, ensuring opening and closing routines are being followed, or verifying that certain inventory levels have been verified, RFID location tags can prove to be invaluable.



There are numerous methods to measure temperature within a store environment, ranging from IoT sensor type devices to RFID Temperature Tags. One of the benefits of the RFID tag is that it requires the employee to go to the location of the tag to interrogate the temperature data from the tag. In this case, the employee may also be required to check the condition of the freezer or cooler while there. Another benefit of utilizing the RFID Temperature Tag is that it does not

require a monthly hosting fee for its use or connection to the store internet. The employee simply approaches the device with the temperature-measuring device, interrogates the tag by holding the unit close to the tag and uploads the data to the appropriate check on the checklist. Recent advancements in RFID temperature tags have evolved the tag from a thick credit card size device to an adhesive label that can either be applied on the outside of a pallet or container, or included in the shipment to record temperatures at pre-defined intervals along a product's transit.

The importance of ensuring proper temperature regulation of produce has never been more important. To successfully implement a versatile food safety system, the monitoring and data capture of HACCP procedures must be taken properly in real-time. PAR Technology's Temperature Measurement Device (TMD) ensures this is executed following strict FDA and HACCP guidelines. Without these technologies, food related companies leave themselves susceptible to producing foodborne outbreaks, tainted brand image, and profit loss. Now, more than ever, is the time to invest in food safety technology.

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About PAR Technology

PAR Technology Corporation's stock is traded on the New York Stock Exchange under the symbol PAR. PAR's Restaurant/Retail segment has been a leading provider of restaurant and retail technology for more than 30 years. PAR offers technology solutions for the full spectrum of restaurant operations, from large chain and independent table service restaurants to international quick service chains. Products from PAR also can be found in retailers, cinemas, cruise lines, stadiums and food service companies. PAR's Government segment is a leader in providing computer-based system design, engineering and technical services to the Department of Defense and various federal agencies. For more information, visit <https://www.partech.com/> or connect with PAR on Facebook and Twitter.



Thunder Valley Casino Resort Shifts To RFID Technology For High-Efficiency Uniform Operations



Socket Mobile Conducting Share Buyback By Dutch Auction

Socket Mobile, Inc. (NASDAQ: SCKT), a leading innovator of data capture and delivery solutions for enhanced productivity, announced the preliminary results of its “modified Dutch auction” self-tender offer for the purchase of up to 1,250,000 shares of its common stock, which expired at 5:00 p.m., New York City time, on Friday, March 9, 2018.

pany, LLC, the depository for the tender offer, a total of approximately 1.4 million shares of Socket Mobile’s common stock were validly tendered and not validly withdrawn at or below a purchase price of \$3.90 per share, including approximately 0.2 million shares that were tendered through notice of guaranteed delivery.

Based on the preliminary count by American Stock Transfer & Trust Com-

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InvoTech Systems Inc. announced the recent upgrade of its Uniform System at the Thunder Valley Casino Resort. InvoTech Systems is the leading provider of advanced Linen Management, Laundry and Uniform Systems that integrate the latest RFID technology to increase profitability for hotels, resorts, casino operators, sports arenas, convention centers and theme parks. Linen, Laundry and Uniform Systems.

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Honeywell, The Code Corporation Reach Settlement On Patent Infringement Claims

Honeywell (NYSE: HON) announced that it has reached a settlement with Code Corp., a company that manufactures bar code readers, to settle Honeywell’s claims that Code infringed certain Honeywell patents related to bar code scanning technology.

patents. Code also has agreed to redesign a portion of its products and not to revert back to certain designs of this products that were alleged to have violated Honeywell patents.

In addition, Code will dismiss all claims it asserted against Honeywell.

Under terms of the settlement, Code has agreed to make a significant lump sum payment to Honeywell to resolve Honeywell’s claims and to pay an annual royalty to license certain Honeywell

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Barcoded Neurons - A Revolutionary Brain-mapping Technique

Using a new brain-mapping technology recently developed at Cold Spring Harbor Laboratory (CSHL), an international team of scientists led by Professor Anthony Zador has made a discovery that will force neuroscientists to rethink how areas of the cortex communicate with one another. The new technology, called MAPseq, allowed the scientists to determine that neurons in the primary visual cortex communicate with higher visual areas of the cortex much more broadly than previously believed, and according to specific patterns. [Continue reading >>](#)

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Vizinex RFID Relocates To Larger Lehigh Valley Manufacturing Facility

Vizinex RFID, the industry leader in developing and manufacturing high performance RFID tags tailored to specific applications, recently moved to a new 5500 sq.-ft facility as a result of its growing business and to accommodate the future installation of state-of-the-art manufacturing equipment.

The company moved just over a mile away to 6343 Winside Drive in Bethlehem, Pennsylvania. Sandra Garby, Vizinex's VP of operations, worked with

Bruce Morris of PFWeiss Realty, LLC to identify a space that fit the firm's requirements. "Moving to a new facility was necessitated by our continued growth. Our new space is 45% larger than our old location, and the layout has been engineered to improve efficiency, improving products, in ways that would not have been possible without this move."

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Suntory, Sellr Win Award For Use Of Bar Codes On Retail Floor

Atlanta-area tech company, Sellr, and Beam Suntory, purveyors of premium spirits, are celebrating a big win. They finished first place in the "Best Multi-Case Floor Display" category at Beverage Dynamics magazine's Advertising and Promotion Awards. The project that brought home the win is a custom-made app created by Sellr, based on Beam Suntory's brand awareness campaign, The Cocktail Project. The app was loaded onto Sellr Tablets and mounted onto the shelves of a multi-case display designed by Beam Suntory. It allowed shoppers to scan the barcode of a number of select beverages then see a recommended cocktail recipe.

"Sellr Tablets give shoppers a unique experience—the ability to interact with

their favorite brands right in the beverage aisle," says Sellr's president, Bruce van Zyl. "Whether scanning products for more information or researching perfect pairings, shoppers receive high-quality content at just the right moment—at the point of decision," he adds.

"Our tablets help beverage store employees provide a better customer experience," says van Zyl, explaining how easy-to-access knowledge arms employees with better tools to assist customers. "Providing shoppers with carefully curated product information via Sellr Tablets and onsite advertising via BevTV, elevate brand awareness and increase sales." ◻

Toshiba Unveils Barcode Reading Windows - Based Smart Glasses Solution



Toshiba's Client Solutions Division (CSD) a division of Toshiba America Information Systems, Inc., today announced the first completely wearable Augmented Reality (AR) solution to combine the power of a Windows 10 Pro PC with the robust feature set of industrial-grade smart glasses. Designed for enterprise customers, Toshiba's new dynaEdge™ AR Smart Glasses packages together the company's new dynaEdge AR100 Head Mounted Display (HMD) with its dynaEdge DE-100 Mobile Mini PC for a completely wearable PC system maximizing mobility, productivity and security without compromising flexibility. [Continue reading >>](#)

Loftware Acquires Gap Systems

Loftware, Inc., the global leader in Enterprise Labeling Solutions, with over 5,000 customers in 100 countries, announced today that it has acquired Gap Systems, a leading provider of SaaS based artwork management solutions headquartered in the United Kingdom. Loftware extends its global presence and offers a new cloud-based digital platform with solutions that redefine how enterprises create, manage and print complex labeling and packaging artwork, and scale across their operations.

With this acquisition, Loftware unites complementary companies, teams and solutions. [Continue reading >>](#)

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The Next Generation OF BARCODES

by Ryan Yost, [Printer Solutions](#), [Avery Dennison](#)

There is a “perfect storm” of challenges brewing in the food industry. The increasingly critical need to guarantee food safety, labor issues and growing consumer demand to know the origins of their food are converging to create a pivotal crisis moment for grocery and restaurant businesses. The key is to leverage technology to solve long-term industry problems.

Barcodes have an important role in overcoming obstacles and turning these challenges into opportunities, by playing a part in new integrated technology solutions. Barcode technology has remained relatively simple, with thermal printers using analog printing to capture information. RFID technology elevates barcodes to a smarter, more robust way of capturing data with the capability of carrying information throughout the supply chain. With RFID, food retailers have a clear view of both product availability and remaining shelf life throughout the supply chain.

But RFID labels are not a standalone solution. Capturing data is just the first step – the ultimate objective is utilizing that information across the supply chain to ensure food safety and compliance, inventory management and consumer transparency. This goal is achievable through robust, integrated technology solutions that encompass intelligent labels, hardware, software, applications and services.

Enter Big Data. “Big data” are buzzwords in every industry, but its application to the food industry isn’t immediately evident. While it often pertains to websites that collect and purpose personal profiles for targeted marketing, big data as a technology is very relevant to the food industry in that it pertains to collecting and using information. Barcodes collect data, but to maximize their effectiveness, they need the power of hardware and software to be part of the big data conversation.

The time is right for a comprehensive revolution in food industry technology. First, food safety has never been more

important than it is today. It seems that cautionary tales present themselves on a weekly basis; it’s not a question of “if” anymore, but “when.” Which brand will be the next to see its share values drop because of a contaminated supply shipment?

Factor in today’s hyper-enlightened consumer, and information on the provenance of our food is becoming not just a “nice-to-know” but a “must-have.” Customers want to be assured not only that their food is organic, but also informed about what farm it’s from and under what conditions it was processed.

Finally, and perhaps most importantly, due to wage inflation and worker shortage, the basic labor that grocery and restaurants have relied upon is less available and affordable. Adding technology to the “back-of-the-house” also frees up clerks to make the foods customers are increasingly grabbing on the go, or to help consumers in the store, markedly improving the customer experience, be it directing them to a particular aisle or helping them reach items on a high shelf.

The apparel industry was early-to-the-game in adopting enterprise supply chain solutions as core to distribution, logistics, high-speed processing and real-time inventory management. Initially enabled by barcode labels, these industries have seen exponential ROI through scalable technology solutions that embrace not only intelligent labels, hardware and software, but are now moving to robotics and the cloud as well.

The food industry, on the other hand, has been historically behind the curve in employing new technology to meet the increasingly difficult challenges it faces. Where other industries continue to look to hardware, software and applications, grocery store clerks are still restocking based on which shelves look bare. In kitchens at quick-service-restaurants, staffers often still hand-write, prep, use and sell by dates, often on tape.

The food industry is realizing that it’s time to take a page out of

the logistics and distribution playbook. While it may not be obvious, logistics of manufacturing apparel and managing inventory have much in common with getting food from farm to plate, with issues of perishability and food safety compliance regulations being the clearest differentiators. The many similarities lie in the need to have access to information at every point along the supply chain in order to act on it in real-time. In apparel, the concern might be relative to in-stock numbers. For food, the issue may be related to sell-by dates. For both, immediate response is required to meet the tantamount needs of the end-consumer.

Food businesses are finding greater accuracy and efficiency by employing advanced barcode technology that is more aligned with how manufacturing sectors have been using it - through integrated, scalable technology solutions. They are finding that quantifiable ROI lies in efficiencies of using technology to collect data and then utilizing it to move products, quickly, efficiently and most important for food - safety.

Grocery stores offer the prime example of how currently-available integrated hardware, software, printing and applications technology changes the game. These retailers must not only maintain sufficient stock of thousands of products, they must also monitor and maintain highly perishable inventory such as meat, fish, poultry and produce, all while tracking sell-by dates on every item in the store. Meeting these demands means that grocery stores face a significant labor cost, and volatility at any point along the supply chain can disrupt the delicate balance they must maintain to achieve already thin margins.

Robust technology solutions for the food industry provide the additional benefits of reducing food waste, improving data accuracy and introducing software-as-a-service to a sector that is hungry to embrace new technology.

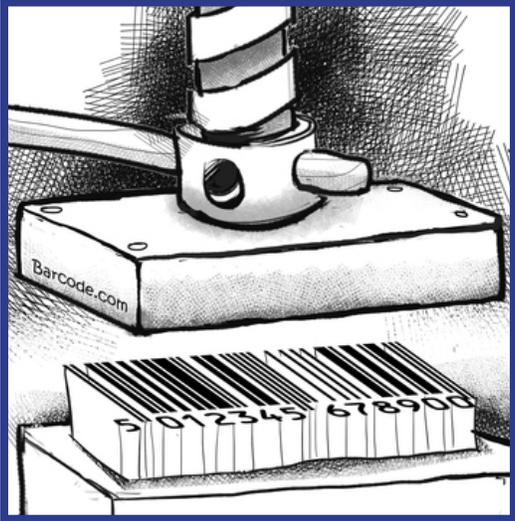
In developing solutions that embrace these major challenges that the food industry faces, I focus on the power of "and" in empowering groceries, convenience stores and restaurants to operate in a way that is both safe and profitable. No longer do these business owners have to choose between increasing their workforce to ensure food safety or risking not meeting safety and compliance standards by cutting back on labor. There is no need to continue to be totally reliant on judgement calls or potential human error.

Intelligent labels enable integrated technology solutions to overcome the challenges faced by groceries, convenience stores and restaurants. The next generation of RFID-enabled barcodes is at the center of integrated technology solutions that harness the power to big data for the food industry supply chain by capturing relevant information that can be used significantly improve operations.

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How China is Killing the American Ribbon Industry

Article courtesy of [Smith-Corona](#)

It's no secret. Our President is obsessed with it. Chinese companies are taking American manufacturing jobs. The trade deficit is real and it is crippling the United States. The gap between goods imported from China to the United States and American goods exported to China is all the way up to \$375.2 billion, which is the highest it has ever been.

How has the gap grown so significantly?

Most economists agree that the trade gap is due in large part to two main factors: lower worker wages and favorable exchange rate. Certainly in some industries these two factors might explain the Chinese trade advantage. After all, it is no secret the Chinese wages are lower than American wages. However, one industry that it is definitely not true for is the thermal transfer ribbon business. Instead, Chinese ribbon manufacturers have found another way to undercut American businesses: tax breaks, import loopholes, and government subsidies.

PET film & Thermal Transfer Ribbons

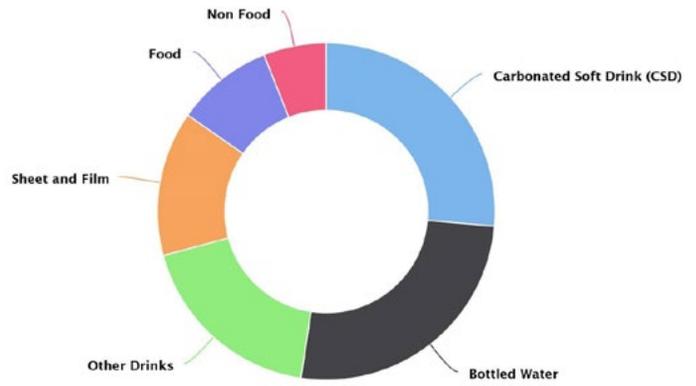
Thermal ribbons that are used for thermal transfer label printing are a relatively simple product. Through a combination of 4.5 micron PET film, ink, a little labor, and some manufacturing expertise, they exist. Of these inputs, over 50% of the cost of thermal ribbons comes from the 4.5 micron PET film used to create them. Since PET film is a global commodity, it should cost the same everywhere.

But, Chinese manufacturers are still managing to sell their thermal ribbons for 35% less than the price of their US counterparts. With prices this low, they have managed to take over roughly 20% of the US market. But how is this possible? To learn how the market got here, you need to go back to the early 2000's, when the Chinese first brought PET film to the United States.

Predatory Pricing, Tariff Loopholes, and Government Subsidies

Polyethylene Terephthalate Film is a thermoplastic polymer that is used in the manufacturing of many goods such as: clothing, bottles, packaging, solar cells, ribbons, and more. Although it has many uses, the overwhelming majority of PET film is used for plastic bottles. Up until the mid 2000's, the Polyethylene Terephthalate (PET) Film market was dominated by a few major players, such as: DuPont Teijin USA, Toray Plastics, SKC Inc., and Mitsubishi Polyester Film of America. These three companies charged relatively the same prices, worldwide for PET film. However, all of this changed during the early part of the 21st century when Chinese manufacturers entered the United States PET market.

Global PET Resin Market
Global PET Resin Market was 20.6 million Tons in 2015



PlasticsInsight.com | Data Source: Plastics Insight

After a few years of selling abroad, Chinese manufacturers had managed to take roughly 25% of the entire PET film market in the United States. They didn't accomplish this feat through strength of marketing or quality of product. Instead they took the market share by selling PET film far below what it costs to make. Put another way: Chinese manufacturers of PET were dumping the product into the US, far below cost, to take market share. To combat this predatory pricing, an anti-dumping petition was filed on the behalf of the group of DuPont Teijin Films (VA); Mitsubishi Polyester Film of America (SC); SKC, Inc. (GA); and Toray Plastics (America), Inc. (RI).

After an investigation, the Department of Commerce found the People's Republic of China guilty of dumping PET film into the US. Specifically, these Chinese manufacturers were selling PET Film in the United States for 46.82% to 76.72% below fair value! As a result of the DOC's ruling, those Chinese companies looking to sell PET film in the US would need to pay a tariff if they wanted to continue to import this PET film into the US. With their competitive edge taken away from them, these Chinese manufacturers simply decided to stop selling PET film in the US all together.

The PET Loophole

All at once, the 25% market share that was taken previously by Chinese PET manufacturers was back up for grabs. This sudden increase in demand became a windfall for the plaintiffs in the anti dumping lawsuit. With an increased demand, prices rose and so did profits. To keep up with market needs, US Based PET film manufacturers began to increase capital expenditures to expand their PET film production. After the anti-dumping ruling by the DOC, many thought that the Chinese would be blocked from ruining the US market for PET

liner for good. However, stopping the sale of under priced PET film in the United States didn't last long. What the DOC's ruling failed to account for was Chinese PET manufacturers finding a new way to get their goods into the US.

What the Chinese manufacturers discovered in the anti-dumping ruling was that if they "transformed" their PET film into a finished good it could be imported into the USA, without any of the incremental duties.

Enter Thermal Transfer Ribbons

4.5 micron PET liner combined with ink and resin, otherwise known as thermal wax ribbons, became the perfect vessel to bring under priced PET products back into the US. With this new avenue to dump PET film into the US, Chinese manufacturers built enough 4.5 micron PET extrusion lines to easily surpass Chinese demand for 4.5 micron film. With this ex-



cess manufacturing capacity, this additional supply needed to go somewhere internationally. Ribbon manufacturers in China now had a competitive advantage that none of their American counterparts had, below cost raw materials that could be sent to the US, tariff free.

Government Subsidies – The Real Cost Advantage

The one topic that has gone unanswered is exactly how are these Chinese manufacturers getting below cost raw materials in the first place? The answer: Government Subsidies. Low-cost loans, artificially cheap raw materials and low cost energy are all government sponsored subsidy programs that Chinese manufacturers have taken advantage of.

Subsidized Energy

In 2008, the Harvard Business Journal studied the Chinese Steel Industry. They found that over the course of one year, from 2005 to 2006, China went from the world's fifth largest steel provider to the first largest steel provider.

These steel manufacturers achieved this feat at this speed with aid in the form of a \$27 Billion energy subsidy. Cheap energy let these manufacturers produce finished goods for a fraction of what it should actually cost. They could then turnaround and sell their steel for far less than their American counterparts.

How this relates to thermal ribbons is simple. In their research, the Harvard Business Journal found that energy subsidies to the steel industry were ACTUALLY paid to the energy sector, not to the steel manufacturers. This means that energy supplied to China's other manufacturing industries were subsidized with significantly reduced energy bills as well. The low price of Chinese thermal transfer ribbons is now starting to make sense, the Chinese government is paying the energy bill!

The Kicker – A 17% Chinese Trade Advantage

The final piece of this puzzle is the Chinese VAT (value added tax) export law. The Chinese government encourages their manufacturers to export some goods internationally. This encouragement can come at a rate of a 17% tax rebate on select exported products. Thermal wax ribbons fall under the category of products the Chinese government wants to export. In commodity products such as thermal labels and wax ribbons, the race for market share has always defined by a race to the lowest price. Getting a 17% head start on American competitors is a gigantic advantage that Chinese manufacturers get to take.

What Can US Ribbon Manufacturers Do?

There are really only two positive paths forward for American thermal ribbon manufacturers.

The first option is legislation. If American thermal ribbon manufacturers unite, just like the PET manufacturers did in 2006, they could file an anti-dumping petition against China. Why ribbon manufacturers like DNP, Imak, Dynic, and Coding Products haven't done this yet is tough to explain. While the cost of such litigation would be quite a lot, the possible return for a victory would be worth the price. Alternatively, they could be waiting for our current presidential administration to step in and impose new tariffs, just like they did with steel. If the President's attention does find it's way to thermal ribbons, then American manufacturers could find themselves in a great situation.

The second and less than ideal option is for American thermal ribbon manufacturers to simply wait out their Chinese competitors. If the government subsidies stop coming in, then the Chinese manufacturers will have to raise their prices or risk going bankrupt. Effectively, these Chinese manufacturers will be faced with the same reality that their American counterparts are dealing with, having to run a profitable operation.

TEKLYNX International

TEKLYNX International is the world's leading developer of barcode labeling software solutions. Their products feature the widest range of device and driver support in the industry. More than 600,000 companies in 120 countries rely on TEKLYNX integrated software solutions for supply chain automation, warehouse management, shipping and receiving, inventory control, and asset management.



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ACCURATE, HIGH-VOLUME LABELING

Warming to the Task: Case Study



Thermal Management Provider Integrates Labeling with Software to Improve Supply Chain Performance

Since 1916, Modine Manufacturing Company has provided thermal management solutions for a wide variety of applications and markets that include automotive, industrial power and HVAC. Headquartered in Racine, Wisconsin, the company's 11,200 employees work in operations that span the globe.

Modine prides itself on being a customer-focused company delivering exceptional quality, innovation and value. Key to its success are the three SAP systems that help manage the company's complex logistics. A North American system supports 1,400 users in the Americas. A second system, hosted in Germany, supports 1,500 users throughout Europe and Asia-Pacific. The third instance, which became part of the Modine family through a recent acquisition, is used by an additional 300 employees.

Labeling is essential to meet customer demand. More specifically, labels are needed to support SAP's Materials Management and Warehouse Management (goods receipt and warehouse labels); Production Planning (packing and line sequencing labels); and Sales and Distribution (customer shipping) modules. Across Modine's full SAP landscape, about 1000 barcode labels are required each month. Modine needed to ensure that it could leverage its SAP implementation to streamline and improve its labeling process.

CHALLENGES: Ensure Labeling Accuracy And

Consistency

In the face of intense global competition, no manufacturing business can afford the costly delays and disruptions due to labeling errors. Modine had long recognized that a centralized approach was necessary to ensure labeling consistency. But a centralized strategy, while necessary, could not on its own guarantee accuracy. When the data in a labeling solution is replicated from other sources, there are risks that errors will be introduced or that the data being used is not the most up-to-date information available. Modine needed a labeling solution that could leverage its trusted source of data: SAP.

Simplify Label Creation

The intense time-pressures of today's supply chain mean that label design must be done quickly and efficiently, without requiring complicated coding efforts or support from IT. When Modine deployed SAP, they identified special requirements that must be met for producing barcode labels: it had to be simple for users, with an intuitive, easy-to-use interface that more accurately depicted what was being printed. The previous system required considerable manipulation from the design stage to final output. It lacked a WYSIWYG capability, presenting a tremendous challenge to business end users. As a result of the complexity of the labeling tool, there was a significant burden placed on IT.

Satisfy Increasing Customer Requirements

Modine must meet a wide and growing range of customer-specific label requirements, and Modine customers often make special requests for information to be incorporated on HVAC, refrigeration, and other equipment. Automotive is one of Modine's principal markets, and more and more automotive industry customers are demanding data from EDI sources, or information that ties to physical shipments, such as keeping the numbers on palettes in sync with the data on labels.

Comply With Industry Standards And Regulation

Many industries have exacting standards and regulations that much be met, and automotive is a good example of the demands that are placed on labeling. The automotive supply chain is complex: global in scope and demanding in scale. Accurate labeling is necessary for the efficient flow of information, for the transit of parts across international borders, and to provide vendors throughout the supply chain with visibility into the system. There are a number of automotive-related labeling requirements that Modine must meet, includ-

ing those established by Automotive Industry Action Group (AIAG); Verband der Deutschen Automobilindustrie (VDA); and the Organization for Data Exchange by Tele Transmission in Europe (ODETTE).

SOLUTIONS: Loftware's Enterprise Labeling Solution – with the SAP Connector for certified integration with SAP – helps Modine meet these and other labeling challenges throughout their supply chain.

Integrate Labeling With Sources Of Truth

Loftware's enterprise-wide approach allows Modine to integrate labeling with its existing SAP platforms to trigger and execute labels. This eliminates the need to manually replicate data from one system to the next and, more importantly, ensures end-to-end label accuracy. Further, if there are other systems and repositories that provide key data, Loftware can incorporate this data via web services or event-based integration. Modine benefits from standardized, automated labeling that draws from vital data sources, protecting existing investments and ultimately saving time and money, while also avoiding mislabeling issues.

Design With Business In Mind

By leveraging the powerful, intuitive design capabilities of the Loftware solution, Modine is able to decrease the burden on IT and respond more quickly to changing customer demands. Secure access to an easy-to-use WYSIWYG interface enables less technical, more business-focused users to format labels and support myriad label combinations. Advanced design features allow Modine to support a wide variety of options— graphics, languages, various symbologies—letting them easily meet customer, regional, and regulatory requirements. Key users are easily able to do this on their own, as there's no need for Advanced Business Application Programming (ABAP) in SAP. And label printing is triggered directly from SAP, so users aren't forced to learn a new application or process.

Control The Label Creation And Updating Process

Loftware provides a full change management process for label design and creation, which mirrors the SAP process. Labels are designed in a test environment, then sent to Quality Assurance, where the appropriate administrators oversee the process through which labels are promoted to production. This enables Modine to dovetail output management into their overall release management processes.

Scale Label Printing Without Looking Back

Loftware supports all major printer vendors, including unique printer features such as temperature settings for the printer head and label retract options. In addition, only Loftware provides native drivers for such a wide range of printer makes and models. This ensures rapid, high-volume printing

without bogging down the network. Modine can operate in mixed-printer environments as needed and, if they switch to a new hardware manufacturer, they will be able to seamlessly continue label printing without a "big bang" migration.

RESULTS: Loftware provides Modine a flexible, scalable labeling solution that greatly simplifies a complex process, while improving supply chain efficiency and label quality. Leveraging certified integration within its SAP platform, Modine is able to centrally manage and control labeling to keep up with increasing demands, greatly reducing the number of templates used across its global operation and improving the consistency and professionalism of its labels. And by empowering business users to update labels quickly and easily, Modine lessens the dependency on IT, freeing up technical resources to focus on other high-priority projects. Because of its success in using Loftware with SAP's Materials and Warehouse Management, Production Planning, and Sales and Distribution modules, Modine is now exploring integrating Loftware within its MES and laboratory environments as well.

Accurate Labeling, Enterprise-Wide

First and foremost, Loftware enables Modine to leverage SAP as the "system of record", integrating labeling with existing business processes already relied on by the company. Any changes to the SAP data are automatically captured in the label data ensuring accuracy and consistency.

Full Control, Full Redundancy

By managing the labeling process at headquarters, Modine gains greater visibility and control of how plants are using templates to quickly resolve any issues.

Improving Customer Responsiveness

In the face of customer requirements, Modine has the labeling solution to respond quickly. One example: in the automotive industry, Modine customers are increasingly demanding that data from EDI sources align with physical shipment information. With Loftware, Modine has an integrated process to keep data in synch, and manage this and other customer requests without significant rework.

"When you're doing decentralized label printing, you need to have duplicate skill sets in each location. Plus you end up with inconsistencies: labels that don't look professional and may not comply with requirements. With Loftware, we've become more efficient, and we're producing higher quality labels." - Eric Richmond, Director of ERP Applications, Modine Manufacturing

[Read more at Barcode.com](https://www.barcode.com)



Atlas RFID Solutions Completes RFID Drone Testing – Leads To Patent

Atlas RFID Solutions, the world leader in Material Readiness™ for the construction industry, has a patent pending with the U.S. Patent and Trademark Office for the technology behind their Drone-Mounted Reader (DMR). The technology was rigorously field-tested in partnership with Bechtel, a global leader in engineering, procurement, and construction, on a large liquid natural gas processing facility.

The testing pilot consisted of a week of testing over seven laydown yards associated with a Bechtel project along the construction site. Drone-mounted RFID scanned the yards to identify location of equipment and materials. The results were impressive with a 56% reduction in sweep time and 22% increase in successful location captures.

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Omron Microscan To Showcase Wide-Ranging Solutions Portfolio At The Vision Show

The quest for a complete vision portfolio is never-ending, so it's perfect for people who enjoy a good challenge. Known for its ever-expanding and highly customizable vision solutions, industry-leading barcode reading and vision supplier Omron Microscan takes this challenge seriously.

Omron's recent acquisition of Microscan Systems, Inc., brought a wealth of new expertise into an already remarkable portfolio, and the resulting prod-

ucts and solutions will be on display at this year's Vision Show in Boston. Organized by the Association for Advancing Automation (A3), this three-day event is a destination for vision experts, suppliers and other professionals interested in keeping up with the industry's latest innovations.

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Omron Microscan Debuts Duo Of Best-In-Class Barcode Readers



Two brand-new, best-in-class barcode readers from Omron Microscan are hitting the market this month. The industry-leading manufacturer of industrial code readers and machine vision technology will host a live webinar on February 22nd to outline the benefits and key features of the HS-360X, an ultra-rugged DPM handheld, and the MicroHAWK ID-45, a new addition to the MicroHAWK family that boasts new and improved lighting configurations. [Continue reading >>](#)

New Healthcare Bar Code Scanner From Code: CR 1500

Code, a healthcare industry innovator and leader in image-based barcode reading technology, is pleased to announce the launch of their newest barcode reader, the Code Reader™ 1500. The CR1500 is a handheld reader purpose built for healthcare applications – it is compact, rugged, and features a high-performing dual-field imager that can scan any barcode. “We are very excited about our next generation reader,” said Hong Ji, Code's Handheld Program Manager. “The imaging performance alone delivers a new level of reading ease to critical barcode applications.” [Read more >>](#)

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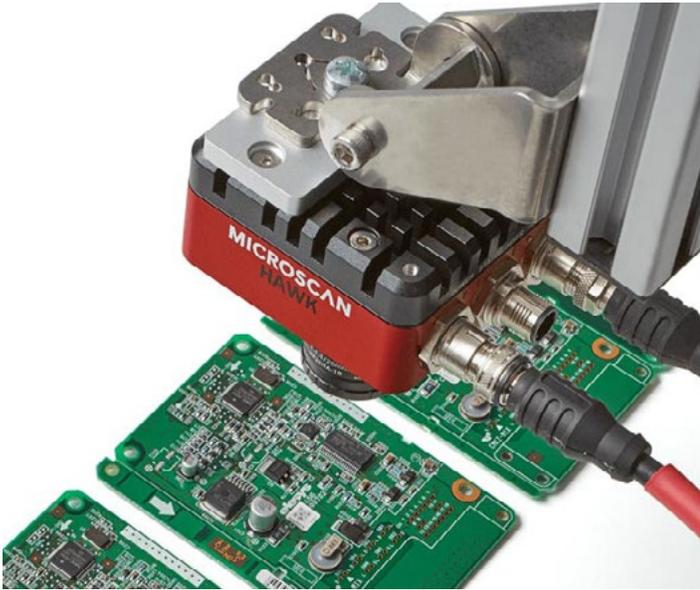
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Barcode As Art photo by Chiara Marra
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MACHINE VISION: It Can Do More Than You Might Think!



If you've ever read about experiments that involve making computers recognize cats in photos, then you've been introduced to the concept of computer vision. This is a branch of computer science that advances the theoretical understanding of how computers can learn to "see" – or, in other words, recognize specific patterns and objects within images. When these theoretical advances are applied to real-world challenges in manufacturing and built into actual devices, then you're talking about a field within systems engineering called machine vision. Much more than mere image processing, machine vision takes visual data captured by highly advanced camera technology and uses specialized algorithms to extract useful information. This information is then used to guide the actions of industrial machinery and robotic equipment.

Many people are unaware of the extent to which the theoretical field of computer vision has produced tangible benefits for manufacturing. Embodied in compact smart cameras as well as powerful, PC-connected camera systems, the brilliant work of academicians is being used daily to make industrial operations safer, steadier and more productive.

Omron Microscan Systems, Inc.

An Integral Part of Today's Industrial Automation Systems

The ability to automatically extract information from digital images opens many doors for manufacturers striving to cut costs, improve quality and streamline their processes overall. The primary uses of machine vision are inspection, gauging, and robot guidance. These tasks require repetitive activities to be performed as quickly as possible and with a high degree of accuracy, which is precisely what machine vision systems excel at. They have also become increasingly cost-effective and simpler to implement during the past couple of decades.

Figure 1 (left): A smart camera inspects a line of printed circuit boards (PCBs).

Automated inspection is usually performed in-line, i.e. in tandem with items moving along the production line. Although the technology is complex, the basic sequence of using machine vision to perform automation tasks is simple: the vision system is triggered to capture an image when the part is in front of it, and then the system processes the image and extracts key features and data from it. Finally, it communicates the resulting data, which can be as simple as Pass/Fail, so that actions and decisions can be made. Such actions include triggering a reject mechanism or giving the locations of all parts for a robot to pick up.

Proper illumination on the production line is essential to ensure that the camera sees the key features it is trying to process. The lighting needs to be consistent so that changes perceived by the system reflect actual changes in the items being inspected rather than variations in the light source or ambient lighting. With advanced optics, superior illumination technology and state-of-the-art algorithms, machine vision systems can perform a wide array of industrial automation tasks, including product inspection, print inspection, surface defect detection, gauging, and robot guidance.

A Foundational Toolkit with Wide-Ranging Capabilities

Even with near-perfect lighting on the production line, there is still bound to be plenty of variation. How can machine vision deal with so much irregularity and still perform its tasks in a reliable manner? As it turns out, the extensive capabilities of machine vision boil down to just a few fundamental functions: location, measurement, counting and decoding.



These four tasks depend on the common capabilities of recognizing pixel intensity values, finding edges contours, and matching shapes and patterns. These are complex tasks that involve comparing an image to a template pixel by pixel or comparing a set of perceived edges (generated by calculating the gradient of neighboring pixel intensities) to the edges of a template. There are many ways that pattern matching is performed and optimized, but for the purposes of this white paper we will focus on the resulting functionality that industrial professionals can make use of.

Let's look at each foundational task in greater detail.

Figure 2 (top): A set of basic machine vision tools offered with Omron Microscan's AutoVISION 5.0, including location, counting, measurement, decoding, optical character recognition (OCR), optical character verification (OCV), color verification and more.

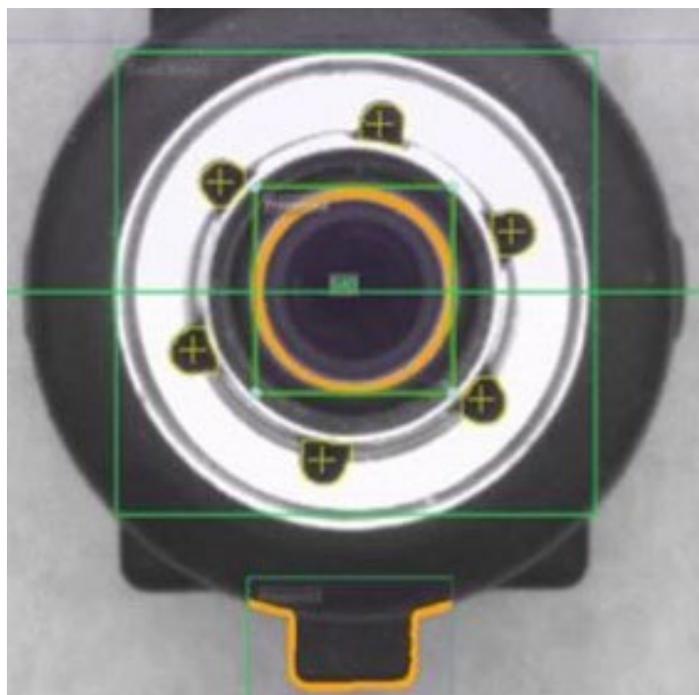
Basic Function: Location

In many cases, complex machine vision processing tasks begin with object location. The system is trained to recognize a specific pattern that it will then locate in various images featuring a variety of backgrounds. A common example of something a machine vision system would be expected to locate over and over is a two-dimensional barcode such as a Data Matrix. The system must find a barcode before it can decode it, and it must often do this extremely quickly as products bearing the codes fly by at high speeds. (In fact, high-performance smart cameras can inspect up to 4,000 parts per minute, or the equivalent of a conveyor belt moving at 300 inches per second!) Specific aspects of the codes indicate to the vision system that a barcode is present, as do other graphics that typically reside near barcodes, such as logos.

Matching specified patterns within the field of view also makes it possible to detect defects based upon how closely the located object corresponds to the pattern supplied for training. If the image of an item has a significant amount of deviation from the expected pattern – for instance, the presence of pixels not matching the expected color or edges in places that shouldn't have edges – it will be flagged for rework or rejected from the production line.

Basic Function: Counting

Once a machine vision system can locate an object of interest, it can count the number of similar objects present in an image. It can also tell whether the object is NOT present in an image, so a presence/absence test also falls under the category of counting. In the automotive industry, for example,



the counting function is used to determine whether a component has the proper number of machined holes. Components with the wrong number or size of holes will be removed from the production line instead of becoming part of a new car.

Figure 3: A part is inspected for the correct number and placement of holes.

Basic Function: Measurement

Machine vision can also calculate the distances between objects that it has located, a task known as gauging. It makes exceptionally precise measurements to verify that the distance between two components of a product – such as the bottom of a medication vial and the point to which the bottle is filled – meet expectations. Before the vision system can perform measurements, it must first be calibrated. Simple calibration involves telling the system that a unit of measure equals a certain number of pixels. More complex calibration involves showing the system a grid pattern wherein the grid spacing equals a known value. This ensures that measurements will be good even if the camera is tilted or rotated, or if there is distortion in the lens.

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BARCODE RESOURCES



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Colorful barcode by Yoshikazu TAKADA in “BUNNY SMASH” Exhibition at Museum of Contemporary Art Tokyo <https://flic.kr/p/hNcGgZ>

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Zebra (IL, GA, CA, MO, NY, RI and others) (about 60 openings posted) - <https://www.zebra.com/us/en/about-zebra/work/careers.html>

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