RFID in the Beverage Industry

"May your glass be ever full. May the roof over your head be always strong. And may you be in heaven half an hour before the devil knows you're dead." - Old Irish Toast

COCA COLA

Coca-Cola began testing a new drink dispenser called Coca-Cola Freestyle™ that they hope will reinvent the market. An innovative use of RFID, Freestyle is a drink dispenser that also includes a curved metal enclosure created by the designers of Ferrari race cars and the latest in touch-screen menu technology. Using technologies similar to those used to deliver precise doses of drugs, a single Coca Cola Freestyle can dispense over 100 different beverages. Through this microdosing process, drink ingredients are blended with water and sweetener and then dispensed from the machine. Taking innovation a step further, the more than 30, 46-ounce flavor cartridges in each Freestyle machine are RFID-enabled, allowing Freestyle to detect its supply levels and transmit data back to Coca-Cola and the dispenser owner for re-stocking, and to report which brands of drinks are being consumed and when.

With 1.6 billion servings of Coke sold worldwide daily, one of the most interesting aspects of this system is the massive amount of real-time data it will providing Coca-Cola to help assess consumption trends and improve test marketing activities. For a view of what a dispenser analytics dashboard might look like, check out these images from SmartData Collective.

'Like' Coke?

The way that beverage manufacturers and retailers are connecting with their customers is also changing. High-cost broadcast and print advertising is giving way to social networks and other methods of permission marketing to extend reach and deliver personalized messaging. Coca-Cola and handful of

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companies including Facebook recently teamed to host an event that leveraged RFID to bring the digital 'Like' to the physical world. With over 500 million active users on Facebook and nearly 11 million who 'Like' Coke's Facebook page, a new way for brand owners like Coke to market to their customers has emerged. With a combination of RFID enabled displays, wristbands like those used at the Coca-Cola Village, and mobile devices, brand owners such as Coca Cola can take 'Like' marketing beyond its virtual confines to the physical world. Coke also has a Freestyle Facebook page that lists its test locations, drink flavors, and wall comments from many satisfied customers.

PATRON IDENTIFICATION TO COMBAT UNDERAGE DRINKING

Establishments that serve alcoholic beverages must comply with the laws for their state's drinking age or face stiff penalties. Fake identification can make compliance difficult. With over 50 years of experience developing wristband ID systems and nearly a decade deploying RFID systems, California-based Precision Dynamics helps event organizers and venue owners take ID checking to the next level. For positive age identification and verification, the Precision Dynamics AgeBand® system scans the magnetic stripe or 2-dimensional barcode of an individual's credentials (typically a driver's license or other ID card) and prints their name and other pertinent information on a non-transferable RFID-enabled wristband. If they are 21 years of age or older, the system also prints "*Age ID Verified 21*" on the wristband. In addition to confirming the age data on a person's credentials and providing visible verification for venues that serve alcohol, use of the AgeBand system provides a technology advantage over the human error variable.

In addition to being used to verify patron ages, AgeBands are made of thermal material to support point of sale applications. When used in conjunction with a specialized kiosk, the system allows patrons to load cash credit onto their RFID wristbands to support instant, automated purchases at concession stands and other retail areas. This has led to increased throughput at concession stands, reduction of long lines, and replacement of expensive stand-alone point-of-sale units.

THE PERFECT POUR

[photo: Liquorinventory.Net System]

Key to the successful management of a bar or restaurant is measurement of its liquor pour cost, or the bar's cost of goods sold as a percentage of total sales. For example, if a bar of restaurant has a drink product that costs $2 and sells it for $10, the pour cost is 20%. In order to calculate an accurate pour cost and factor it into overall profitability measures, restaurant and bar owners need to contend with inventory shrinkage, a big problem in this service industry. Bar operations often lose profits due to careless draft beer pouring by bartenders, with an estimated 10-15% of tap beer going straight down the drain, over-pouring liquor shots, and product theft. In fact, industry research reports that the average bar may be losing more than 25% of their liquor, wine and beer profits through inventory mismanagement.

RFID is being integrated into liquor pour systems to help establishments measure every milliliter of alcohol served. For example, LasVegas.Net Liquor Inventory System offers replacement RFID pour spouts, active antennas and browser-based software that allows bar and restaurant owners and managers to record and review drink pour data, down to the last drop. With this system, an RFID Spout is assigned to each bottle in the bar and every drink dispensed is automatically tracked in real-time. The Liquorinventory.Net System can generate customized real-time reporting, giving bar owners a detailed view into their establishment's liquor usage to help determine open stock inventory, bartender over/under pours, employee theft, and resolution of differences between reported dispensed volume and point of sale records.

Similarly, Northern California based Capton, a leading developer of RFID-based business control solutions for the hospitality market, offers a solution called Beverage Tracker. Beverage Tracker utilizes patented RFID-enabled pour spouts that monitor liquor use and wirelessly transmit information on every ounce that is free poured. In a recently published case study, Caption details how the Hotel Del Coronado on Coronado Island in San Diego, CA produced an immediate 3.6 point drop in liquor costs by using Beverage Tracker, an improvement that paid for the system in only 3 months.

WINE PRODUCTION & ANTI-COUNTERFEITING

[photo: William Koch]

In 1985, a bottle of Chateau Lafite, 1787 sold for $160,000 at Christie's London – the highest price on record for a single bottle of wine. For as long as wine has been made, it has been fraudulently manipulated and counterfeited. As far back as 1820, German chemist Friedrich Accum noted that wine was one of the commodities most at risk for being misrepresented. Penalties for producing and distributing fraudulent or "corrupt" wine have been severe. During the Middle Ages, if a merchant was found selling fraudulent wine, he was forced to drink all of it. In medieval Germany, the penalty for selling fraudulent wine ranged from branding to beating to death by hanging. Wine fraud continues, sometimes with deadly consequences for consumers. In 1986, twenty-tree people died because a winemaker in Italy blended toxic amounts of methanol into his wine to increase its alcohol content. The less lethal practice of illegal blending also continues, with several wine producers and shippers recently found guilty of blending inexpensive wine with their pricey counterparts to inflate production and increase profit. Legitimate wine producers, therefore, are constantly seeking ways to combat fraudulent wine production and distribution.

In 2008, eProvenance introduced a bottle seal and authentication system that uses a combination of RFID technologies to create the electronic pedigree for each bottle of wine produced. Semi-active RFID tags are used to log temperature throughout each bottle's journey from production to distribution and ultimately to the point of sale. Passive RFID tags are also attached to the base of each bottle to automate inventory management and discourage theft. Data collected from these tags enters the eProvenance Online Monitoring System (OMS), providing users with a global start-to-finish view of product authenticity.

Taking innovation into the bottle, Lab-Id has patented an RFID-enabled wine cork that can be encoded with data about the wine, including type of grape, bottling date, and alcohol content. Once in the bottle, SmartCorq can be used by wine producers to improve storage and distribution processes. Distributors and retailers can read the SmartCorq to determine specific details about each wine bottle, and consumers can be presented information about the wine's producer and vintage through interaction with a smart retail display.

The Tenuta dell'Ornellaia estate in Tuscany plans to implement an RFID system to track the distribution of its wines in order to prevent black market activity and guarantee of authenticity. The solution includes RFID tags embedded into the back label of the wine bottle, with RFID read points at labeling application machines and warehouse gates. This system records data from each bottle into a dispatch and customer data base.

Beyond fraud prevention systems, RFID is also being implemented into winemaking and compliance solutions and interactive retail kiosks (see Bacaro at the Zurich Airport).

For wine producers, implementing RFID-enabled solutions provides opportunity for process improvement across many areas of their business, from growing grapes, to making wine, to sales and marketing

BEVERAGE SUPPLY CHAIN

For beverage companies, RFID offers a number of ways to help move products through the supply chain and keep the shelves stocked with drinks when customers are there to purchase them. RFID solutions speed data capture throughout production cycles and eliminate manual and paper-based processes that are prone to errors and can result in distribution and fulfillment delays.

For example, in 2009, PepsiCo's Quaker, Gatorade and Tropicana business units began using RFID-enabled pallets from Intelligent Global Pooling Systems (iGPS) in their supply chains. RFID reading and reporting solutions from iGPS provide improved asset visibility, billing accuracy, reduced loss, and helps companies comply with industry requirements like Sarbannes-Oxley. iGPS RFID solutions are also being used by The Sunny Delight Beverages Co., a leading producer of juice drinks, including brands such as SunnyD citrus punch, FruitSimple fruit smoothies, Fruit2O flavored waters, and Veryfine juice drinks.

To improve the distribution of its products, Ringnes, a subsidiary of the Carlsberg Group and Norway's largest brewery and supplier of bottled water and carbonated drinks, is using an EPC Gen 2 UHF RFID system to track the beverage containers it ships to retailers and as they return from distributors. Influenced by its view of 'a smarter planet', Ringnes teamed with IBM to source and deploy its RFID infrastructure. *RFID Journal* covered this news in a detailed case study.

Another area that RFID is being used is beer keg tracking. Over 50 million reusable keg containers are lost or damaged each year. To combat this loss, several companies have implemented RFID-enabled keg tracking solutions. For example, New Belgium Brewing Co. has implemented Fluensee AssetTrack™ to track the aluminum-and-steel kegs used to distribute the beers it produces at its brewery in Fort Collins, Colorado. The RFID system not only allows New Belgium to track keg location and status, but also provides key customer metrics such as fill-to-fill cycle times and distributor keg turn rates. Scottish and Newcastle, a subsidiary of Heineken, is using the InteliTap RFID keg tracking and management system to keep track of 2.1 million kegs. InteliTap is also working with other major brewers including Carlsberg UK and Molson Coors.

ABOUT JADAK:

JADAK, a business unit of Novanta, is a market leader in machine vision, RFID, barcode, printing, and color and light measurement products and services for original equipment manufacturers. The company designs and manufactures embedded detection and analysis solutions that help customers solve unique inspection, tracking, scanning and documenting challenges. The company is ISO 9001 and ISO 13485 registered. Novanta is a trusted technology partner to OEMs in the medical and advanced industrial technology markets, with deep proprietary expertise in photonics, vision and precision motion technologies. ThingMagic is JADAK's RFID line of products and services.

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