DELIVER THE ULTIMATE PERSONALIZED SHOPPING EXPERIENCE WITH BEACONS AND WI-FI
Executive summary

Just a few short decades ago, when shoppers walked into their neighborhood store, everybody knew their name — plus the wealth of information required to give that shopper a truly personalized experience. Fast forward to today’s world of large department stores and big chains. When shoppers walk in, nobody knows their name — or anything about them.

Beacon technology is changing all of that, allowing retailers of all sizes to roll back the clock to the days of personalization, with new technology that allows a much deeper level of personalized interaction with shoppers than ever before. With a blend of Bluetooth® Smart and Wi-Fi indoor locationing technologies, retailers can provide every shopper with the ultimate in personalized service, from the moment they walk into the store to the moment they walk out — regardless of whether there are 10, 100 or 1,000 shoppers in the store. At last, the playing field is leveled — large department stores, big chains, hypermarkets, do-it-yourself super stores and small boutiques can all deliver the personalized service today’s shoppers require to earn a sale and a return visit. This informative white paper explains the basics of indoor locationing technologies and how they can enable you to treat your shoppers to a whole new level of personalized service.
THE SOLUTION: INDOOR LOCATIONING...  
BUT IS IT RIGHT FOR YOUR STORE?

The first step in determining whether an indoor locationing solution is right for a retail store and its customers is understanding the underlying technologies and their benefits. As indoor locationing evolved, three facets of the technology emerged: Wi-Fi locationing, Bluetooth Smart® locationing and analytics. It is the combination of all three that form the foundation of an indoor locationing solution capable of delivering the ultimate in personalized service.

A PRIMER: UNDERSTANDING INDOOR LOCATIONING TECHNOLOGIES

INDOOR LOCATIONING PHASE 1:
Monitoring the location of the workforce and assets inside the enterprise

Until Wi-Fi was officially ‘born’ in 1999, enterprises were unable to track the location of the workforce or enterprise assets in real time — while GPS technology existed, GPS connectivity was spotty at best indoors.1 But with Wi-Fi, organizations could use the same access points that provided workers with a wireless connection to business data to automatically triangulate the position of Wi-Fi tags on business equipment and in employee badges, providing GPS-style location services for the workforce and business assets.

For the first time, businesses could always answer the question, “Where are our assets and our people?” in real time. The need to conduct manual time-consuming and costly physical asset inventories was eliminated. Hospitals could dependably locate equipment whenever it was needed, protecting patient health. Employees working in remote or hazardous areas could wear Wi-Fi enabled badges to improve worker safety — an injured or ill worker who was unable to move was easily spotted. In the event of an emergency situation, managers could be certain all workers in the area were evacuated. And the ability to utilize existing Wi-Fi access points to automate additional business processes improved the return on investment for the existing Wi-Fi infrastructure.
But from the shopper’s perspective, analytics were a one-way data stream that only benefitted the retailer. Shoppers weren’t aware that visibility into their location in the store provided information that was utilized to make store modifications — modifications that were aimed at improving their shopping experience. And as shoppers became aware that stores could collect their in-store location data via the Wi-Fi radio on their smartphone without their permission, concerns over privacy erupted.

In order to develop a highly relevant two-way data stream that could provide shoppers with high-value direct communications, retailers would need more accurate location information — but the limitations of Wi-Fi technology could only determine the location of a customer within 15-30 ft./5-10 m.

**INDOOR LOCATIONING PHASE 3:**

**Rich shopper engagement**

Enter Bluetooth 4.0 technology, known as Bluetooth Smart. Bluetooth Smart and beacon technology can use the Bluetooth radio in smartphones to determine shopper location within 3 ft./1 m, providing the crucial accuracy that was missing in indoor locationing technology. Bluetooth Smart technology was first enabled by Apple, starting with iOS 4s handsets, with Android™ following with native support for Bluetooth Smart starting with v4.3 (Jelly Bean). By combining Wi-Fi and Bluetooth Smart locationing data, retailers now have visibility into virtually any level of shopper location anywhere in the store: whether they are simply present in your facility, in a specific department or aisle, or standing in front of a specific product.

At the same time, analytics software evolved, enabling stores to not only collect locationing data, but to also act automatically on that data and engage directly with the shopper to deliver a highly personalized shopping experience.
To deploy the power of today's indoor locationing, simply add a layer of technology on top of an existing Wi-Fi locationing solution — Bluetooth Smart. Bluetooth Smart beacons are placed on store shelves and any other location where highly accurate shopper location is desired. The shopper or guest mobile phone does the rest. When the shopper passes by a beacon, the beacon transmits its location information to the shopper's smartphone via the smartphone's activated Bluetooth 4.x radio. The existing Wi-Fi locationing solution is at work simultaneously, identifying where customers are by identifying the location of the Wi-Fi radio in their smartphone — no additional hardware is required. Since the shopper is logged into the store loyalty application, shopper location (Bluetooth Smart and Wi-Fi) is merged with shopper identity and all the information in the loyalty app about that particular shopper — from buying preferences to birthdays. Armed with that real-time knowledge and the right software, stores can take the action that will best serve the shopper, all automatically.
Bluetooth Smart provides the precise shopper location you need to create the most personal and relevant customer experience possible.

With the precise shopper location information, stores can create the most personal and relevant customer experience, delivered through the store loyalty application running on the shopper’s smartphone. And since engagement with shoppers is controlled by rules that the retailer creates, the retailer can give shoppers complete control over their in-store location data and the type of communications they receive while in the store, addressing shopper privacy concerns.

The result? The one-way data stream is replaced with a high-value two-way data stream that provides shoppers with many benefits in exchange for their location data. Now, in addition to greeting shoppers by name and delivering the standard weekly discount coupons and coupons for items shoppers purchased in the past, shoppers can opt to receive highly relevant dynamic coupons based on their location. When a shopper enters a department, a discount coupon good for any item in that department can be delivered instantly to the shopper’s smartphone. When a shopper stops for a specific amount of time in front of an item, a special offer for that particular product can be delivered to the shopper smartphone. And if a shopper is having trouble locating an item, a press of a button or two on their smartphone can provide access to step-by-step directions to the item of interest. No need to clip coupons or scour the Internet for special offers. No need to search for an associate to locate an item. Everything shoppers need is always right in the palm of their hand. And that is only the start of the personalized services that today’s locationing technologies can enable.

The result? Rich and personalized customer engagements that help shoppers save time and money in the store, earning sales and repeat business.

HOW TO OVERCOMING PRIVACY CONCERNS TO ENSURE THE SUCCESS OF YOUR INDOOR LOCATIONING INITIATIVES

When retailers hear the word “locationing”, the reaction is often positive and negative. Locationing can provide very valuable information that helps retailers better compete for loyal customers and sales — but isn’t it at the expense of customer privacy? And with so many privacy concerns, will shoppers even be willing to allow stores to access their location information?

The answer is yes. Not only is the time right, but the technology is right. In order for customers to be willing to give retailers access to their location data while they are in the store, the retailer must provide enough value in return. With the combination of Wi-Fi and Bluetooth Smart locationing technologies, retailers have the rich locationing data required to deliver comprehensive high-value services that will not only make each shopper feel like a ‘VIP’ — but will also help shoppers save more money on the products they want.

BEST PRACTICES

The key to deploying a successful indoor locationing solution is in the execution of a few critical best practices:

PRIVACY

• Put your shoppers in control with a clear ‘opt-in’ privacy policy. Make sure shoppers know that every time they step foot in the store, they are always in full control over whether their location data is accessible and what level of location data is accessible — and know how to opt in or opt out of location services inside the store.
• **Educate your shoppers.** Help combat privacy fears by making sure shoppers understand what information is visible — and the circumstances that are required to make that information visible.

• **Wi-Fi location data access.** Until today, the moment a shopper entered a store, if the Wi-Fi radio in their smartphone was active, Wi-Fi locationing could track their movements in the store — even if they opted not to access the store Wi-Fi network. A new movement in smartphone technology is addressing this concern. Apple iOS 8 protects the shopper’s identity until the shopper decides to join a Wi-Fi network — and it is expected that other smartphone manufacturers will follow suit. Shoppers carrying an iOS 8-based smartphone will not be providing location-based data unless they opt in to the store Wi-Fi network. Make sure shoppers carrying other smartphones understand they truly are in control of their location data at all times — they can simply turn the Wi-Fi radio off to prevent retailers from accessing Wi-Fi location data.

• **Bluetooth location data access.** Make sure shoppers know they are in complete control over whether retailers can see their pinpoint location in the store at the product level (within 3 ft./1 m). Shoppers who opt to open the store loyalty app but leave the Bluetooth radio turned off can still obtain the benefits of Wi-Fi locationing, able to receive targeted offers based on known “macro” location data (department or aisle level), as well as the same step-by-step directions and the rapid assistance that Bluetooth Smart allows, putting shoppers in charge of the level of detail the retailer can see.

**OPTIMIZE CONTENT**

Offer high-value services. Give shoppers a good reason to keep their smartphone locationing services on and utilize the retailer’s loyalty app by providing high value “can’t-do-without” location-based services — it will take more than the standard coupons that are available to all shoppers via loyalty cards, printed paper coupons in mailers and coupon websites. (See the section entitled “What can retailers do with today’s indoor locationing technologies?” for more information on potential types of services.)

**PROVIDE FREE WI-FI ACCESS**

Give your customers incentives to opt-in as a guest on the store Wi-Fi network. Offer free in-store Wi-Fi for all shoppers who open the store loyalty app. Most shoppers want to use Wi-Fi in the store to eliminate the typical cellular network coverage issues, ensuring they can research product reviews, check pricing and more while in your store.

**WI-FI AND BLUETOOTH — COMPLEMENTARY TECHNOLOGIES FOR A COMPLETE INDOOR LOCATIONING SOLUTION**

Stores that utilize their Wi-Fi network today for locationing may be wondering why would they need both Wi-Fi and Bluetooth locationing technologies? Isn’t that a needless duplication of technology? Since Bluetooth Smart’s pinpoint locationing offers the most accuracy, isn’t Bluetooth Smart locationing enough?

The answer is no — and here’s why. Some shoppers may want to connect to the Wi-Fi network while they are in the store — but either do not have or do not want to open your loyalty app.

While Bluetooth locationing information will not be available for that specific shopper, Wi-Fi locationing data will. As a result, retailers can still “touch” the shopper. When the shopper logs on to the store Wi-Fi network, stores can provide customers with coupons for the weekly specials and items purchased in the past, and promote the benefits of opening the loyalty app.

In addition, once the shopper is logged on to the Wi-Fi network as a guest, the store can still capture standard Wi-Fi analytics to help better understand traffic patterns in the store to improve store layouts and the success of special promotions.

In addition, a shopper may enter your store with only one radio active — Bluetooth or Wi-Fi. With support for both locationing technologies, no matter which radio is active, you can prompt the shopper to open the store loyalty app and advertise the benefits of doing so. As a result, support for both Wi-Fi and Bluetooth Smart locationing technologies allows you to reach the most shoppers possible with the most relevant information possible, delivering a maximum return on investment and the ultimate in personalized customer service.
The combination of Wi-Fi and Bluetooth Smart beacon technologies helps ensure the success of an indoor locationing solution by helping retailers reach the maximum number of shoppers.

WHAT CAN RETAILERS DO WITH TODAY’S INDOOR LOCATIONING TECHNOLOGIES?

Deliver the service that shoppers dream about
With today’s indoor locationing solutions, when it comes to engaging with customers, the sky is the limit. If you can imagine it, chances are this next generation technology can deliver, turning shopper’s mobile phones into a personal concierge that is always at their fingertips.

Following are just a few of the ways retailers leverage today’s indoor locationing technologies to create a differentiating shopping experience.

Personalized greetings
Give every customer a personal greeting — without the cost and expense of physical greeters. Retailers can greet shoppers by name the moment they pull into the parking lot or enter the store; prompt shoppers to turn on their loyalty app; and explain the benefits they’ll receive as a result.

Dynamic couponing
Create a coupon program on the fly tailored for every customer and every shopping visit. Customers no longer need to clip or search the web for coupons, saving time as well as money. In addition, retailers can eliminate paper coupon and plastic loyalty card programs, reducing costs and increasing the ‘green score’ of the business.

• When a shopper is in a specific department or product category, appropriate coupons can be sent.
• Automatically send a special offer for a product based on customer dwell times.

Provide live assistance in record time
When shoppers need help, the less time they are kept waiting, the better. Now, shopper smartphones and the associated shopper location data can cut time spent waiting for an associate to a minimum.

When shoppers request help via the store loyalty application, their location and identity is known. Store managers can instantly send the right associate to assist, minimizing shopper wait times — and associates can greet the shopper by name. If the retail associates are carrying either their own Bluetooth Smart-enabled smartphone or a store-issued mobile computing device, store managers can instantly locate and dispatch the associate closest to the customer for the speediest possible response to every request for assistance.

Automatic wayfinding in the store
Customers no longer need to locate an associate to find an item, improving service quality, as well as associate productivity.

Now, shoppers can search through store inventory inside of the loyalty application and select any item in the store to receive step-by-step directions from their current location in the store to the item they are seeking.

• With a Bluetooth Smart Ready beacon at store entry points, retailers will know the moment a customer enters the store, able to automatically check past buying preferences and send coupons based on the frequently purchased items.
Unique services
In today’s busy world, every minute counts. With Wi-Fi and Bluetooth Smart real-time locationing information, retailers can create highly specialized services to help their shoppers remember everything they need and complete their shopping trips in record time.

• Customers who create shopping lists in the store loyalty app can be rewarded with multiple features that can help them get in and out of the store faster. Upon arrival, you can prompt shoppers to pre-order items on their list from the deli, bakery and butcher department to eliminate the typical waiting time in those departments. Retailers can also provide shoppers with a map of the most efficient path through the store for that particular shopping list.

• If a store is co-located next to other stores, since Wi-Fi range is 300+ feet, retailers can detect when customers are in nearby stores and send any helpful reminders to maximize the efficiency of their shopping trip. For example, a drug store can determine that a prescription for a shopper that is in the store next door or passing by is ready and waiting, and send a friendly reminder for pickup — eliminating a second shopping trip.

• Any store that carries greeting cards could allow shoppers to input a list of birthdays for family and friends. When the shopper enters the store, a reminder could be instantly delivered for upcoming birthdays — and a discount coupon could be issued when the shopper enters the birthday card aisle.

Deliver the intelligence that store managers dream about
Before indoor locationing technology was created, the point of sale was the only source of customer data — and that data was very limited. The only way stores could correlate foot traffic to sales to determine the success of promotions was to literally assign associates to count shoppers — a very costly proposition.

But today sophisticated indoor locationing software automatically turns shopper location into rich analytics that can provide managers with the answers to a multitude of location-based questions, such as:

• How many shoppers are in the store right now?
• What departments have the most shoppers?
• What areas of your store are most visited?
• Least visited?
• What makes a shopper stop and dwell in front of an item?
• When shoppers stop, are they buying?
• How long does a typical shopper who buys spend in front of an item?

The answers to those questions provide a window into real-time store conditions and trends over time, in turn giving managers the information they need to improve the current and future shopping experience.
For example:

- Visibility into real-time traffic patterns allows managers to spot high traffic areas and ensure ample associates are on-hand to help shoppers.
- Historical traffic patterns allow store layouts to be modified to eliminate ‘traffic jams’ and drive customers to less-visited store areas.
- The ability to monitor foot traffic for a promotional display allows managers to make changes to increase traffic and dwell times — and instantly see the impact of those changes.
- The ability to compare and contrast shopper traffic store-wide as well as chain-wide allows managers to determine which department in a specific store received maximum traction, measured by customer count or engagement time, as well as which store generated the most foot traffic for a specific promotion.

...and much more.

**THE MANY BENEFITS OF INDOOR LOCATIONING DELIVER A STRONG RETURN ON INVESTMENT**

A cost-effective indoor locationing solution can be one of the smartest and most strategic technology investments a retailer can make.

With this technology, retailers can:

- Deliver a new level of personalized service
- Increase shopper loyalty and retention
- Improve store traffic patterns to eliminate “choke points”
- Better utilize staff
- Optimize planograms
- Strengthen relationships with consumer product goods (CPG) manufacturers by:
  - Leveraging beacons to provide real-time intelligence on promotions: Armed with immediate information, Consumer Product Goods (CPG) manufacturers can adjust promotions as needed to maximize success
  - Leveraging beacons to reach shoppers at the point of decision: Beacons can enable manufacturers to not only know when a shopper is standing in front of their product, but to also take an action, such as send coupons for related products.
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ABOUT ZEBRA

Zebra Technologies Corporation is a global leader respected for innovation and reliability. Zebra offers an extensive range of asset-tracking technologies incorporating mobile computing, data capture, barcode, wireless LAN, RFID, location systems and Zatar™, the cloud-based Internet of Things (IoT) platform. These technologies make businesses as smart and connected as the world we live in. Zebra’s tracking and visibility solutions transform the physical to digital, creating the data streams businesses need in order to simplify operations, know more about their business, and empower their mobile workforce.

Zebra’s products and solutions are used around the world by industries including healthcare, retail, transportation and logistics, manufacturing and sports—for a variety of applications from improving patient safety; to eliminating checkout lines with mobile devices; to streamlining warehouse operations and adding a new dimension to professional sports and entertainment with real-time information.

1. www.wi-fi.org/who-we-are
2. Note: Stores cannot automatically "talk" to Wi-Fi radios in iPhone 8-based Apple mobile devices — shoppers will need to log-on to the store Wi-Fi network to enable visibility into their location data via Wi-Fi.