

Engage Users & Customers Within Your Location

An Overview of Proximity Detection Using Beacons



Table of Contents

Summary.....	3
How Do I Engage the Customer?.....	3
Location - An Important Part of Contextual Awareness.....	4
Geofencing vs. Proximity Beacons.....	4
What is the Potential for Proximity Engagement in Retail?.....	5
What are Bluetooth Smart Proximity Beacons?	6
Bluetooth Smart Technology.....	6
Bluetooth Smart Characteristics.....	6
Follow Us.....	7

Summary

The consumer and user experience has evolved from traditional brick-and-mortar retail through e-commerce to the current era of omni-channel convergence, fueled primarily by the rapid consumer adoption of smart, connected mobile devices.

As the digital experience that your customers have with your brand moves increasingly away from a PC towards smart, connected devices, the need to know a user's context increases. This is a new ball game for leading brands that want to deliver rich experiences to their customers and followers in environments as varied as retail, social, entertainment and sports venues.

Location and proximity-based awareness is the ability to know the context of your user so that you can deliver personalized, timely and valuable engagements; for example, sending a coupon to a customer's mobile device when she is near your store and not predisposed to purchasing from you. It enables mobile-app developers to create apps that are more relevant and useful. It helps businesses deepen their knowledge of their customers and gives the opportunity to increase customer loyalty & engagement through personalized content, offers and promotions.

Knowing your customer's location & interests and tailoring their experience accordingly are important steps on the road to delivering context-aware mobile applications. Geofencing your locations enables a mobile app to understand when it's within 50 meters or more of your place of business. Deploying beacons enables a deeper level of granularity, allowing a mobile app to know when a user is from inches to 50 meters away, enabling a multitude of use cases for engagements.

Proximity Bluetooth Smart® (Bluetooth

Low-Energy or BLE) beacons are a leading micro-location technology paving the way for more sophisticated, context-aware customer experiences. These experiences can include personalized content as users move among departments, sections and aisles; more enjoyable shopping as they compare products or brands; as well as other opportunities based on the presence of a valued customer in your place of business – whether in a retail, venue, transportation or other setting. Proximity is a powerful tool indoors, outdoors or anywhere you want to reap the benefits of greater user engagement and detailed analytics on behavior within your location.

This paper introduces venues, retailers, brands, out-of-home (OOH) networks and advertisers to the power of proximity beacons on Gimbal's platform and also describes their technical aspects at a high level. Readers will take away insights and selection criteria they can evaluate for giving their customers a more engaging and satisfying onsite experience.

Main Takeaways

- Micro- location technologies are a valuable tool for retailers & brands wanting to enrich the experience of their customers, prospects and users in environments like retail, social, entertainment and venues.
- Enabling users to have a more engaging experience requires a method for detecting proximity. Bluetooth Smart (BLE/Bluetooth Low Energy) proximity beacons are ideal for this use case.
- Brands and retailers building their proximity strategy should assess different products in light of cost, performance, security and ease of installation and maintenance.

How Do I Engage the Customer?

Delivering an engaging and personalized customer experience can benefit five main audiences:

- **Brands** seeking to deepen their name recognition and relationship with customers.

- **Retailers** looking for new ways to increase customer loyalty through updates & useful content that better utilize their physical, and digital, “shelf space”.
- **Venues** seeking to enhance the fan experience during an event by providing personalized experiences to build on fan loyalty.
- **Mobile-app developers** trying to differentiate their apps by providing location and proximity relevant experiences.
- **Advertisers & Out-of-Home Networks** looking to improve digital ad relevance through proximity to increase engagement. As well as create a new revenue stream using non-digital assets that trigger mobile experiences via beacons.

Meanwhile, all five audiences have their eyes on the best ways to answer a few simple questions:

- What are the demographics, interests and habits of my customer?
- What is my customer looking for?
- How can I tailor my messages, content and/or promotions to the interests of my customer?
- How can I make sure that I engage my customers in the right place at the right time?
- How do I address consumer concerns about privacy?

Obtaining (and optimizing) the answers to these questions can be difficult for brands, retailers, venues, advertisers and mobile-app developers alike. However, Gimbal is uniquely able to address these concerns.

Location – An important part of mobile strategy

The desire and ability to collect big data and turn it into actionable insights is accelerating among retailers and brands as online channels have matured and mobile technologies have become nearly ubiquitous. Forward-thinking businesses are tailoring the in-location experience based on consumer insights with stellar results. The ability to deliver an appropriately personalized user experience drives differentiation among retailers, brands, venues and advertisers and will enable businesses to bridge the digital and physical world.

Geofencing vs. Proximity

Geofencing, a leading option for macro-location, uses GPS (including Assisted GPS, Wi-Fi, a mobile network and other technologies) to allow a device to determine its location with respect to the geofence. A business can create a ‘geofence’, or virtual perimeter, that corresponds to a geographic area in the real world; for example, a store, a specific street address, a parking lot or a plaza (see Figure 1). When a smartphone user crosses (“breaches”) the geofence the app wakes and can trigger a notification or experience.

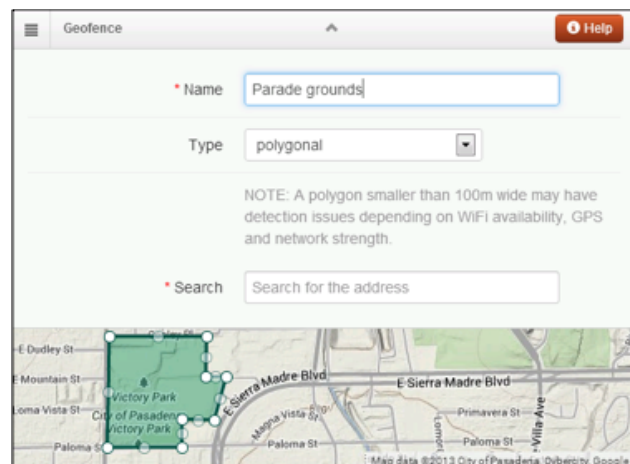


Figure 1

Proximity beacons go one step further. They complement geofencing by allowing devices and applications to derive their proximity to beacons at a micro-level not currently afforded by geofence technology on consumer devices – from about 50 meters down to a few inches.

A business that places a constantly transmitting beacon in a physical location has an opportunity to engage customers in places such as an end cap, a kiosk or a departure gate. Each beacon transmits information that allows an opt-in, beacon-enabled app running on a user's smartphone to know when it is within proximity of the beacon's physical location (see Figure 2).

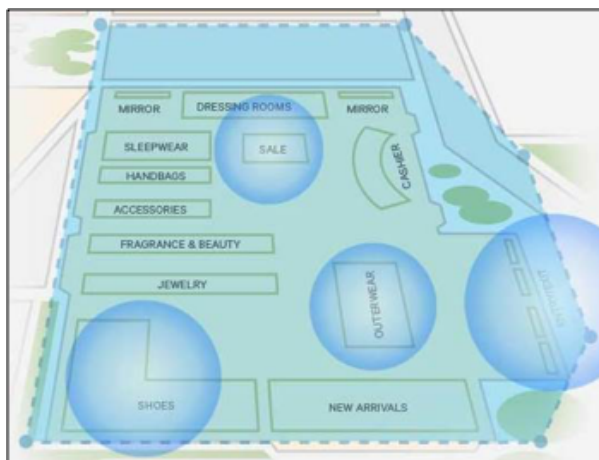


Figure 2 - Proximity (i) Beacons

An app can then be enabled to look for a beacon's transmission. When it is within physical proximity to the beacon and detects it, the app wakes and can trigger a notification or experience.

What is the Potential for Proximity Engagement?

Consider the potential use cases when a business knows that a customer is near a specific beacon:

- Traffic generation – On the way to his seat at a football game, a fan gets a buy-one-get-one meal coupon on his mobile device. The coupon suggests the nearest concession stand
- Cross-promotion – Later, the same fan receives a greeting from his favorite football team when he enters the location (e.g., auto dealership, bank, casino) of a team sponsor.
- Additional product information/research – As an art museum visitor studies a Renoir, she receives a link to a multimedia clip about the painting and an option to order for pick-up prints sold in the gift shop.
- Digital signage – A video display in a drug store shows ads for men's shaving products when men walk by and ads for beauty products when women walk by.
- Real-time targeted messaging – Five minutes before door close, an airline can sense that an outbound passenger is still in the airport but not at the gate. The app notifies the passenger to proceed to the gate.

These and similar scenarios emphasize three advantages of proximity detection for enterprises and brands:

1. Operational efficiency – Businesses can stop wasting time, money and effort on fruitless, scattershot promotions and messaging to the wrong audiences, since use of an end-to-end proximity and location mobile engagement platform allows for personalized and individualized marketing engagements.
2. Customer engagement – When customers or prospects receive engagements at the right time in the buying cycle or journey, they are far more likely to act on it compared to untimely delivered content.
3. Consumer insights – Businesses can capture and analyze data on how customers behave inside their place of business, then adjust digital content and physical

environment accordingly to maximize results, and ultimately revenue.

These advantages revolve around knowing their customers and their customers' location. The use of proximity beacons is an important tool to enable this.

What Are Bluetooth® Smart Proximity Beacons?

How do proximity beacons work, and what technologies do they use? Why has this market exploded with new ways for retailers, brands, venues and advertisers to design customer engagement?

At the heart of proximity beacons is Bluetooth® Smart.

Bluetooth® Smart technology

For years, many radio-frequency technologies have been competing in short-range wireless communication. Bluetooth has established itself prominently in mobile devices mostly by solving one problem well: helping phone and accessory manufacturers provide consumers with a way to use their mobile phones hands-free. First with wireless headsets, then through integration to vehicles, Bluetooth has become the de-facto standard for hands-free mobile phone usage. Its importance has also increased due to legislation banning in-hand mobile phone use while driving (now in force in almost half of the states in the U.S., for example).

Bluetooth has found broad acceptance as a standard for discovering and moving data among items such as computers, keyboards, mice, mobile phones, fitness devices, tablets, headsets, smart watches, automobiles and medical devices.

In 2010, the Bluetooth v4.0 specification (often referred to as Bluetooth Low Energy, BLE, and more formally since 2011, as Bluetooth Smart) was completed.

It includes not only the classic and high-speed standards, but also new functionality and a low energy feature.

Products using Bluetooth Smart technology – such as accessories, health devices, wearables and proximity beacons – communicate with Bluetooth Smart Ready devices like smartphones, wearables and tablets to open up new opportunities and means for interactions.

Bluetooth® Smart characteristics

Several characteristics of Bluetooth Smart make it optimal for proximity beacons:

- Smartphones are commonly Bluetooth Smart Ready and can detect Bluetooth Smart beacons.
- A proximity beacon designed for Bluetooth Smart need only transmit; receiving signals is not necessary. Combined with the low energy feature in Bluetooth 4.0, such a beacon consumes only a fraction of the power of a typical Bluetooth product, translating into extremely long battery life for the beacon (see Gimbal Proximity Beacons in Figure 3).
- A Bluetooth Smart Ready smartphone or tablet can detect a Bluetooth Smart device such as a proximity beacon without the traditional need to pair to it (e.g., pairing a headset and a mobile phone). This enables ambient discovery- or spontaneous interactions – and a new method for customer engagements with retailers and brands.
- Listening for Bluetooth Smart transmissions has minimal impact on the battery life of a customer's mobile device. So smart, connected devices and proximity-enabled applications running on them can listen for transmissions all the time without undue battery drain.

- Bluetooth usage is increasing along with the variety and functionality of available devices. This encourages smartphone users to keep Bluetooth enabled, as well as location services.
- With Bluetooth Smart, a transmit-only proximity beacon uses the three dedicated channels allocated in different parts of the wireless spectrum from other Bluetooth/802.11/Wi-Fi™ devices, preventing interference.



Figure 3 - Gimbal Beacons

Conclusion and Recommendations

With their strong technical fit, proximity beacons using Bluetooth Smart technology are an ideal approach for retailers and brands looking for ways to give onsite customers and prospects more of the relevant engagements they want.

In smartphones, wearables and tablets, high-level operating systems like iOS, Android and Windows continue to release

improvements that lend increasing credibility to this approach, and small companies have sprung up with point-solutions that support it, however Gimbal is the only comprehensive location and proximity partner.

For brands, retailers, venues and advertisers exploring an implementation of proximity beacons based on Bluetooth Smart, recommendations include:

- Choosing a reliable partner. Businesses should select a partner with extensive experience in wireless technology to advise on deployment options.
- Questioning battery life. While Bluetooth Smart provides for much longer battery life than traditional Bluetooth, poorly designed beacons can easily deplete batteries even while not transmitting often. Beacon providers should be prepared to state how long their battery lasts when transmitting ten times per second (e.g. every 100 milliseconds) and explain the testing behind their figures. Gimbal's superior engineering optimized performance with battery consumption, and leads the industry in our beacon offerings in their multiple form factors.
- Requiring enterprise-grade products. Smaller providers may claim to get proximity detection right, but given the sensitivity of beacons, it is important to ensure that products are suited to the environment. Providers should be able to prove that they have taken care to build a high-quality, well-designed product. With our extensive background and Qualcomm heritage, Gimbal produces the highest quality beacons and a robust platform supporting their deployment, maintenance and analytics.
- Looking for advanced features. Gimbal

beacons make available features that only come from experience, superior firmware and hardware engineering and advanced/unique antenna design. Implementation may require complex antenna designs, specialized mounting capabilities or weatherproof enclosures. Gimbal also provides proprietary security features, allowing for digital ownership of your proximity network.

- Considering a platform. While important, beacons are only one piece of the location & proximity-based engagement landscape that includes manageability, scale and ease of app development. Without a viable platform, brands and retailers will find themselves with basic, non-scalable offerings that fall short of true contextual awareness available on Gimbal's comprehensive suite.

- Checking certifications. Ensure that solution providers and technology partners have obtained appropriate certifications. Every country has different requirements governing technology specifications such as radio frequency transmissions, specific testing, performance benchmarking and privacy/security. Gimbal is TRUSTe certified and a member of the future of privacy forum.

Follow Us

The Gimbal™ platform for Android and iOS enables mobile application providers to deliver more timely, personalized and relevant content to mobile audiences. Follow us at gimbal.com.

Businesses can get started on their own tour of Gimbal by visiting gimbal.com. Besides the functions described in this paper, [Gimbal Manager](#) offers access to the Gimbal SDK, technical documentation and the support system.

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