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●屋内でGPSに代わるアップルの「iBeacon」

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アップルの「iBeacon」は、GPS が屋外で提供してきた機能を屋内で提供するもので、同技術を使ったアプリは数インチ内でユーザーを特定可能。これを応用してスマートフォンで駐車場内の空きスペースにユーザーを誘導したり、ショッピングモール内を案内するといったこともできるようになる。

同技術は、「Bluetooth」の低消費電力版といえる信号をビーコンと呼ばれるトランスミッターからおおよそ 500 フィート以内にあるスマートフォンに発信。対応アプリが信号に反応するようになっており、例えば、小売店内で客が特定の通路に入ったら、商品のクーポンを送るといった使い方ができる。

だが、プライバシーに関する懸念は根強く、アップルは現在位置が追跡されるという不安に根拠はないとしているものの、対応アプリが個人データを持っていれば、それに位置情報の詳細を付加する可能性はある。

アップルはこれに対して、ユーザーから iBeacon 信号受信の同意を得ること、その後のオプトアウト手段を提供することをアプリ開発者に義務付け。また、アプリが同社のプライバシー基準を守っているかどうかを自ら監視しているという。

(参考) 本件報道記事

Apple's Latest Offering Explores the Great Indoors

Tech Giant Will Provide iBeacon Plans at Its WWDC

By Daisuke Wakabayashi,

Apple's iBeacon allows apps to locate a user within a few inches, so that a phone can direct a driver to the nearest open spot in a parking garage or the shortest hot-dog line in a crowded stadium. It allows restaurant diners to pay the check and leave without a waiter's assistance or museum-goers to learn about exhibits by walking past. Soon, it might make shopping-mall maps unnecessary.

EBay Inc. 's PayPal and others are experimenting with similar technology. But Apple's support could propel the concept into the mainstream. Hundreds of millions of iPhones can detect iBeacon signals, and Apple is encouraging developers of more than one million apps in its App Store to use the technology. Yet the technology is still in its infancy and might not take hold broadly for

many years, or it could be supplanted by other innovations. Further, privacy concerns might give retailers pause about adopting beacons.

Apple has moved cautiously with iBeacon, in part because it might raise concerns about being tracked. Apple says iBeacon transmitters don't track users, because they only send out a signal, and don't receive information. The technology is in relatively limited use, deployed in many Apple retail stores and some Major League Baseball stadiums.

Apple CEO Tim Cook opens the annual Worldwide Developers Conference with a closely watched keynote at 10 a.m. Pacific time. The Journal is live blogging the WWDC opening Monday .

Meantime, here's a look at what to expect.

Apple is expected to reveal more iBeacon plans at its World Wide Developers Conference in San Francisco starting Monday, where it also intends to preview new versions of its iOS mobile-operating system and Mac OSX software. To promote iBeacon, Apple will place beacons throughout Moscone Center and offer sessions for developers on how to implement the technology.

Here is how the technology works: Transmitters called beacons emit a low-power Bluetooth signal to smartphones within about 500 feet, depending on conditions. Apps are programmed to respond to those signals, so that a retailer can beam a coupon for detergent when a shopper is in the appropriate aisle, for example.

By understanding a user's location, apps can begin to guess what users need or want to do next. It opens the door to a world of "ambient intelligence," an industry phrase describing an environment that senses a person's presence and responds accordingly.

Virgin Atlantic Airways Ltd. has installed beacons in London's Heathrow Airport so a passenger's smartphone automatically displays a boarding pass when he approaches the gate or airport security. LabWerk, a Dutch startup, has an app to help drivers navigate parking garages and alert them to empty spots or guide them to their cars.

"This has the potential to be transformative," said John Jackson, analyst at research firm IDC. "It could be the technology that underpins a future where anything you'd want or need to know is delivered to you in the most intelligent of ways."

Most early iBeacon deployments are focused on retail, because the technology

offers the promise of linking online purchases with in-store visits, a long-sought goal by retailers. Kenneth Cole Productions Inc. uses beacons from Boston-based Swirl Networks Inc. to send coupons to shoppers based on criteria such as how often they have visited a store recently; it then tracks campaign results.

Swirl Chief Executive Hilmi Ozguc estimates that more than half of the top 100 U.S. retailers will start testing beacons in stores this year. ABI Research said it expects beacons to be installed at more than 30,000 indoor locations world-wide by year-end.

Beacons are the latest, and most precise, location-based technology for smartphones. Global Positioning System signals enable features such as Google Maps, but don't work well indoors. Some companies use Wi-Fi signals indoors to track locations, but that can drain a phone's battery.

"'Where are you?' is not a question that a phone should ever ask," said Benedict Evans, a partner at venture-capital firm Andreessen Horowitz. "GPS gets you some of the way there. But iBeacon gets you absolute positioning."

Beacons are relatively cheap, between \$5 and \$20 apiece. Swirl's Mr. Ozguc said he expects prices to fall to less than \$2 next year, allowing organizations to deploy lots of beacons inexpensively.

Eventually, beacons will be "everywhere," said Steve Cheney, senior vice president for Estimote Inc., a startup based in Krakow, Poland, that creates hardware, services and software for iBeacon.

Nearly 20,000 developers are paying to use Estimote's software kits. The company worked with Virgin Atlantic on its Heathrow test. A passenger who downloads a boarding pass to Apple's Passbook can receive alerts such as offers to change currency with Virgin partner MoneyCorp or directions to the airline's Clubhouse. Reuben Arnold, the airline's director of brand and customer engagement, said iBeacon can provide passengers with a more personalized experience.

Privacy remains a concern. Apple says tracking fears aren't well-grounded because the signals are one-way and the beacons don't know anything about the user. But apps that use iBeacon might have personal data, to which they can add location details. "There are some privacy holes in there—people might not notice that they are giving up some information if it's not handled correctly," said Michael Healander, general manager for GISi Indoors, a company that specializes in geolocation technologies.

Apple requires app developers to have users opt in before receiving pings, and allow them to opt out later. Apple said it monitors apps' adherence to its privacy standards.

Currently, iBeacon is limited in part because the technology only works when users download an app or pass that works in conjunction with the signal. This adds an extra step, compared with the more privacy-invasive alternative of tracking users anonymously. That alternative provides businesses more latitude with the data they gather.

Airports, retailers and stadiums have invested in technologies in recent years that allow them to track customers without their knowledge by using sensors that pick up Wi-Fi and standard Bluetooth signals.

Regarding iBeacon, Mr. Healand said: "It's in its hype cycle right now."

Apple views iBeacon-enabled apps as an advantage for iPhones over those using the Android operating system from rival Google Inc. Some recent Android phones work with beacons, but many older models don't.

In recent months, Apple has made subtle changes to promote iBeacon. It turned on by default the Bluetooth connection that iBeacon uses, and made apps responsive to pings even when a user closed the app.

Some companies are considering beacons to smooth payments. PayPal has installed devices in a handful of stores in the U.S. and Australia that connect wirelessly to customers' PayPal apps, so that users don't need to pull out their smartphone to make a purchase. Provided customers opt in, the device alerts merchants when PayPal users enter the store and could supply them with other information, such as previous visits and purchases.

Apple has also expressed an interest in mobile payments, hoping to leverage its 800 million iTunes customers—the majority of whom have registered a credit card with the company. It hasn't indicated that iBeacon will be part of its strategy.

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