Microwaves in
Europe

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New Beacon System to Feature Batteries Lasting Up to Six Years

STARTUP COMPANY Kontakt.io, a beacon communication firm based in Poland, has specified Nordic's nRF51822 Systems-on-Chip (SoCs) to provide the Bluetooth Smart Wireless connectivity in its Cloud Beacon pre-integrated beacon hardware platform.

Kontakt.io beacons are delivered as ready-to-go devices and use Nordic Semiconductor's nRF51822 Systems-on-Chip to provide Bluetooth Smart wireless connectivity.

An important element of the decision by the Polish company to use Nordic's RF technology relates to the ultra-low-power operating characteristics of the nRF51822, which will assist each Kontakt.io Cloud Beacon to run for up to six years from an internal rechargeable battery.

The nRF51822 Beacon Kit allows engineers to develop their own beacon applications using Apple's iBeacon standards, or else create their own beacons based on their own specifications using Bluetooth Smart. Nordic's nRF51822 kit is a starting point for OEMs to begin development of beacon hardware to be used together with associated back-end services.

The kit works straight out of the box with companion smartphone apps for iOS and Android (4.1/4.3) smartphones. The firmware is available as source code from Nordic and allows example beacon scenarios to be set up quickly to test product ideas. This kit exploits the ability of the nRF51822 SoC to support full Over-The-Air Device Firmware Upgrade, enabling all beacon firmware to be updated in-situ.

The future of beacons has many exciting possibilities such as indoor micro-location or "indoor GPS." The most common use currently is for "contextual awareness,"' providing users with information relating their proximity to a Point of Interest (POI). While the beacon itself relays only its identity, it is the smartphone, through the use of an app or direct services, which provides all the information that the user can access that relates to the particular beacon's location. The range of use scenarios for beacons is virtually unlimited and could include special deals at retail stores, products available in stock, exhibits in public galleries and museums, train and bus terminals, and shopping-list reminders.

In operation, Bluetooth Smart beacons use advertising packets that include fields to indicate the beacons' identity. The smartphones use internal Received Signal Strength Indication to estimate distance between handset and beacons. While beacons themselves only relay advertising to the smartphones and not contextual information, the smartphones use the advertising packets to determine the beacon's identity and decide upon the information and/or actions that should be associated with that beacon's location. Permitted actions will vary between phone vendors, depending on imposed limitations, but may include audible alerts, vibrations, and triggering of other apps.

Kontakt.io customer application examples of the firm's Cloud Beacon platform include navigation solutions for the visually impaired (using their smartphones to navigate indoors and outdoors more autonomously) and indoor navigation of major public buildings and sites, including a current project to "beaconify" San Francisco International Airport.

The Polish company says its Cloud Beacon platform will eventually include a wearable rubber wristband option that will also incorporate Nordic wireless technology for tracking, for example, children in schools, healthcare patients, or workers in manufacturing facilities for health and safety purposes.

"We see a day where low-cost beacons will be used everywhere to take the hassle out of everyday life and make various everyday tasks easier and more efficient and intelligent, based on proximity interaction," said Jack Hassan, chief brand officer at Kontakt.io. "This is being driven by the advent of Bluetooth Smart wireless technology and its ubiquity in modern smartphones and computing devices, and its ultra-low-power operation that supports extended, multi-year battery lifetimes from small batteries." mw