

TECHNOLOGY TEARDOWN

BEACONS

Track Movement

Retailers can track customer movement throughout the store, and collect the data to analyze aisle and product performance.

Tiny & Low-Energy

Beacons as small as a quarter can be placed throughout the store, utilizing low-energy bluetooth technology to lower impact on battery life.

Promotions

Detect shoppers nearby, notify them of current sales and promotions.

Item Location

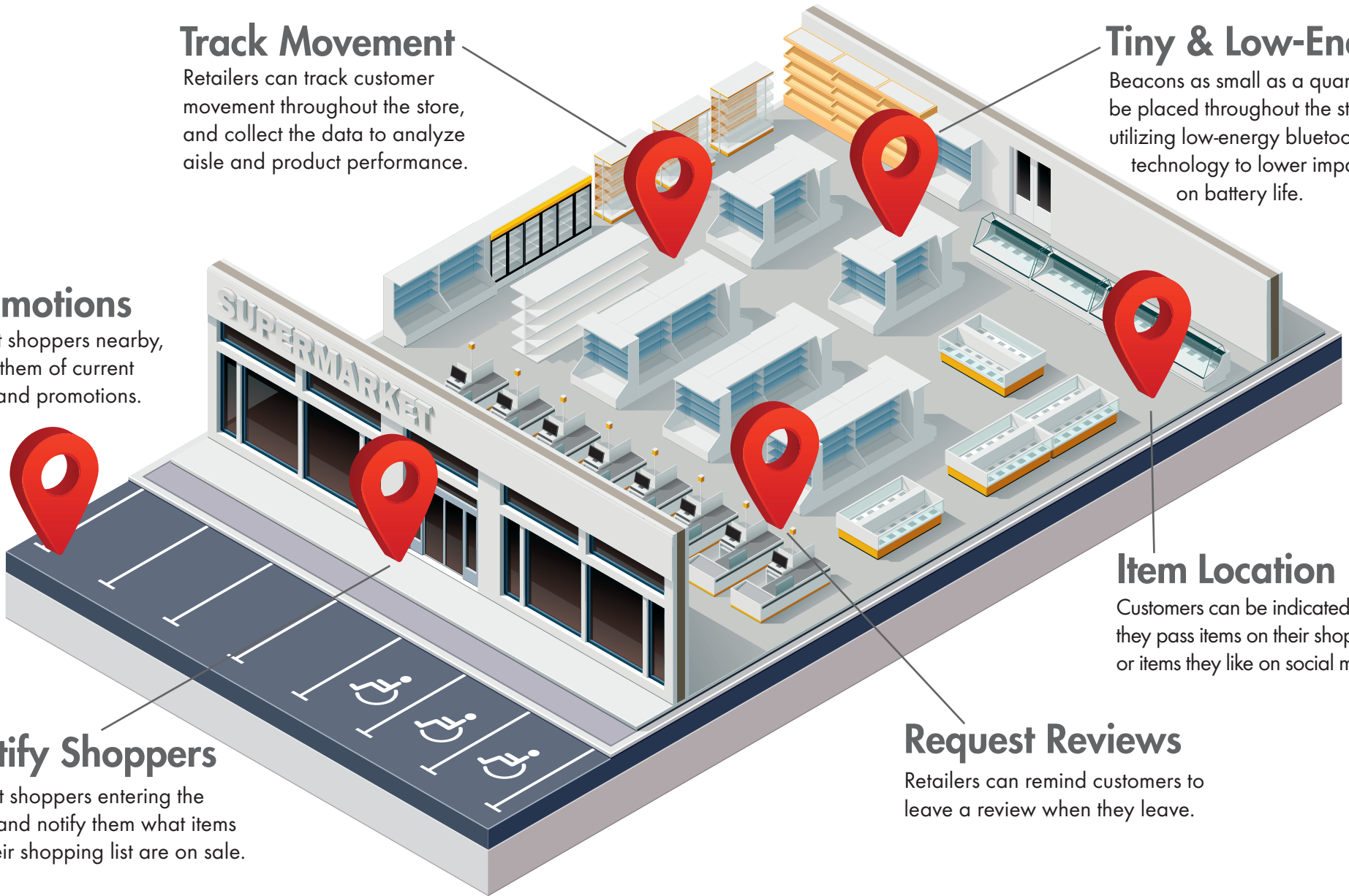
Customers can be indicated when they pass items on their shopping list, or items they like on social media.

Notify Shoppers

Detect shoppers entering the store and notify them what items on their shopping list are on sale.

Request Reviews

Retailers can remind customers to leave a review when they leave.



Component	Technology	Suppliers	Suggested Products	Development Kits
SENSORS				
Sensors	Optical, humidity, temperature, infrared, pressure	Silicon Labs, MuRata	Si1133, Si7059, Si7006, Si1143/44, IRA-S210ST01, ZPA2326-0311A	Sensor Puck, Thunderboard, IMX-070, MEX-1031
PROCESSOR/MCU				
MCU	8 - Bit, 32 - Bit, C8051	Silicon Labs	Giant Gecko, Wonder Gecko, Leopard Gecko	EFM32WG-STK3800, SLSTK3701A, SLSTK2030A, SLSTK2001A
CONNECTIVITY				
Bluetooth/NFC	Bluetooth Low Energy, Bluetooth Mesh, Bluetooth 5.0	Nordic Semiconductor (SoC), Telit, Taiyo Yuden (Modules), Silicon Labs	nRF52840 (BT/NFC), nRF8001, EYSHSNZWZ (BT/NFC), EFR32BG series, BGM13P, EFR32BG1	EKSHSNZWZ (BT/NFC), SLWSTK6020B, SLWSTK6101C, nRF52840, Preview DK (BT/NFC)
Beacon Reference Design	Bluetooth Low Energy	Nordic Semiconductor	nRF51822 Bluetooth Smart Beacon Kit	nRF51822 Bluetooth Smart Beacon Kit
Antenna	Internal (PCB, SMD), printed circuit, custom	Ethertronics	1001312 (2.4GHz)	Contact Symmetry Electronics for custom solutions
Connectors/Cables	Connectors and cables for most antenna configurations	EAD	RF240 coaxial cable, RF400, BWL 195, MMCX, FME, SMA, UFL, RPSMA, TNC, etc.	Contact Symmetry Electronics for custom solutions
Antenna Integration Services	Global design centers, antenna measurement systems, world's leading automotive test chamber	Ethertronics	Tuning, matching, custom casing, antenna testing & measurement services, standard and custom designs, engineering support services	Contact Symmetry Electronics for custom solutions
Programmer/Debugger	CMSIS-DAP JTAG debug probe	i-SYST, Nordic Semiconductor	IDAP-Link™ CMSIS-DAP Debug JTAG	IDAP-Link™ CMSIS-DAP Debug JTAG
Combo Modules	802.11 a/b/g/n/ac + Bluetooth LE/Classic	Taiyo Yuden, MuRata	WYSBHVXGXG, WYSEGVDXG, WYSAGVDXG, Type 1DX, Type 1BW	WYSBHVXGXG, WYSEGVDXG, WYSAGVDXG, i.MX 6UltraLite EVK
TIMING				
Clocks	Clocks, buffers, oscillators (XO, VCXO)	Silicon Labs	Ultra-low jitter, low jitter, general purpose crystal oscillators	Si5xx-EVB, Si5xx5x7-EVB, Si5xxUC-EVB