Silicon Labs Announces New Bluetooth® Location Services with Advanced Hardware and Software

Borda Technology Uses New Solution to Track Equipment in Hospitals for More Efficient Patient Care

AUSTIN, Texas, June 21, 2022 /PRNewswire/ -- Silicon Labs, a leader in secure, intelligent wireless technology for a more connected world, today announced its new, Bluetooth Location Services solution using accurate, low-power Bluetooth devices to simplify Angle of Arrival (AoA) and Angle of Departure (AoD) location services. Combining hardware and software, this new platform delivers industry-leading energy efficiency by using Silicon Labs' BG22 SiP modules and SoCs, which can operate for up to ten years on only a coin cell battery, with advanced software that can track assets, improve indoor navigation, and better locate tags with sub-meter accuracy. Borda Technology is one of the first companies to adopt this new platform. Borda provides "IoT for Healthcare" products such as Asset Management, Asset Utilization, Patient Throughput Management and Patient Flow, Patient Safety, and more through real-time location services (RTLS).

"As the largest, pure-play IoT company in the world, we focus on providing complete wireless IoT solutions for the edge, including silicon, software, tools, and support," said Daniel Cooley, CTO of Silicon Labs. "Today's new Bluetooth location services offering further proves our belief that we can deliver differentiated solutions to our customers by thinking of IoT as a complete platform, rather than a singular piece of hardware."

Location Services Propagate in Multiple Industries, but Barriers to Adoption Remain

In many industries, locating inventory and physical assets can often be a time-consuming process. It can also lead to waste, as assets are lost behind shelves or in unexpected locations. This is a problem across many industries, such as an assembly line for an automotive manufacturer with an average of 30,000 parts per vehicle, or a pharmaceutical company where quantities of drug ingredients need to be monitored to the smallest measure.

While there are several existing location-based technologies, they are plagued by limitations that affect their usefulness at scale. GPS is ineffective indoors, Wi-Fi has varying degrees of accuracy, and the very-accurate ultra-wideband (UWB) can be more expensive than other solutions and has high energy requirements.

Bluetooth is a mature technology that can overcome many of these barriers with new software.

Silicon Labs' Smallest SiP and SoC Gives Sub-Meter Accuracy with Bluetooth

When Bluetooth 5.1 was released in early 2019, some of the new key features were improved location services. Building off of that, Silicon Labs has developed new advanced software, designed to maximize the location-finding capabilities of our BG22 series of SoCs and SiP modules. The new features are comprised of the following:

- **Asynchronous continued tone extension (CTE) broadcasts** from the device to the locator. Asynchronous broadcast eliminates the need for synchronized transmission timings between the device and locator, thereby enabling the locators to track a large number of assets simultaneously and multiple locators to simultaneous to see the same asset at the same time for triangulation.
- **Broad spectrum CTE broadcast** across all 37 channels to reduce interference by moving the CTE transmissions from advertisement to data channels.

These new features enhance Silicon Labs' Bluetooth software portfolio, one of the most comprehensive set of solutions available for accelerating development of direction-finding applications. With additional development tools specifically designed to accelerate development of direction-finding applications. Silicon Labs' portfolio positions developers and designers to build a wide range of IoT location service applications that can meet the unique needs of every environment and deployment.

This new software runs on the BG22 family of Bluetooth low energy (LE) SoCs and SiPs, the smallest in Silicon Labs' portfolio. This product family combines best-in-class, ultra-low transmit and receive power (4.1 mA TX at 0 dBm, 3.6 mA RX) with a high-performance, low-power ARM® Cortex®-M33 core (27 µA/MHz active, 1.2 µA sleep). Altogether, these deliver industry-leading energy efficiency that can extend coin-cell battery life up to ten years.

Borda Technology Uses Silicon Labs AoA and AoD Location Services to Improve Operational Efficiency and Quality of Patient Care

Hospitals are constantly buzzing with activity, from specialized equipment moving from room to room, to patients moving throughout the facility, to drugs being administered, even down to cleaning and sterilization services. These tasks use countless pieces of individual hospital assets that must be carefully tracked in order to ensure they can be located when they're required, arrive on time, and are accounted for. This can be time-consuming when time is precious. One study recently found that in a single shift, nurses spend over an hour on average trying to track down the equipment they need to do their jobs.

Borda Technology seeks to change that by using RTLS asset tracking capabilities, which can reduce the time it takes to search for equipment, so employees can focus on patient care. Using the new Silicon Labs AoA and AoD software, running on BG22 Bluetooth SoCs, Borda introduced new tamper-proof asset tracking tags that not only can help to locate an item, but also provide staff with operational insights when making informed healthcare and business decisions. For example, the Borda solution prevents uncalibrated equipment from being used by setting alarms that can alert staff to equipment that needs attention, thereby preventing dangerous, and at times life-threatening, accidents.

Silicon Labs' holistic, platform-centric approach to Bluetooth location services and the simplicity of the BG22 has helped Borda dramatically decrease how long it takes to install its solution. What once took months, can now be up and running in just weeks

Read more about Borda Technology's use of Silicon Labs location services in an in-depth case study on SiLabs.com.

Begin Leveraging AoA and AoD with Silicon Labs

Silicon Labs's new Bluetooth Location Services solution is comprised of several parts, available to order today from Silicon Labs and distributors. The complete solution includes:

- Bluetooth software stack with Direction Finding support
- EFR32BG24 SoCs
- EFR32BG22 SoCs and SiP module
- AoA/AoD antenna array board and reference design

The solution is now available through Silicon Labs and our ecosystem partners.

About Silicon Labs

Silicon Labs (NASDAQ: SLAB) is a leader in secure, intelligent wireless technology for a more connected world. Our integrated hardware and software platform, intuitive development tools, unmatched ecosystem, and robust support make us an ideal long-term partner in building advanced industrial, commercial, home, and life applications. We make it easy for developers to solve complex wireless challenges throughout the product lifecycle and get to market quickly with innovative solutions that transform industries, grow economies, and improve lives. Silabs.com

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