Technical Article
How TI Helps Expand Connectivity beyond the Front Door with Amazon Sidewalk

TEXAS INSTRUMENTS

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From lights to locks, homes are becoming more connected – more sensors, more gadgets, more data. As technology continues to advance, consumers crave the ability to monitor, track and sense more, whether it's temperature, light or motion.

While people's dependency on technology increases, so does frustration if they're out of wireless network range, unable to connect, or losing time with network or application installations. Companies developing connected devices often use a variety of wireless protocols, but each protocol works within a certain range and may not talk to other devices.

To help device manufacturers extend the range of their connected devices and enable them to provide a more seamless user experience, TI is now supporting Amazon Sidewalk. Amazon Sidewalk can extend the range of low-bandwidth devices and make it simpler and more convenient for consumers to connect. Ultimately, it will bring more connected devices together into an ecosystem where products such as lights and locks can all communicate on the same network. Sidewalk can enable devices connected inside the home to effortlessly expand throughout the neighborhood.

For example, by utilizing the Sub-1 GHz wireless band (900 MHz), which leverages low data rates to create a long-range, low-power network, Sidewalk will make it possible for consumers to expand their networks into their back yards and stay connected to their other networked devices. This will enable scenarios such as a water sensor that lets you know it's time to water the garden in the backyard. The extended range can alleviate concerns of dropping connectivity and expands the use cases for connected devices.

To complement the Sub-1 GHz protocol, Amazon Sidewalk also works with *Bluetooth*® Low Energy to provide greater connectivity around the home.

TI devices supporting the Sidewalk protocol

TI is providing a suite of low-power, multi-band devices with various security enablers to support Amazon Sidewalk. This includes TI's CC1352R wireless microcontroller (MCU), which supports Sub-1 GHz and Bluetooth Low Energy, the CC1352P wireless MCU, which provides an integrated +20 dBm power amplifier (PA) for an extended range solution, and CC2652P a multi-protocol 2.4GHz wireless MCU with integrated PA. Developers seeking a single-band solution can leverage the CC1312R wireless MCU for 900 MHz or CC2642R wireless MCU for Bluetooth Low Energy. These devices enable developers to build applications that leverage the Sidewalk protocol as well as Bluetooth Low Energy for easy commissioning or over-the-air firmware updates. TI's Sub-1 GHz devices offer low power FSK (Frequency Shift Keying) modulation technology, which has high spectral efficiency enabling high density low cost applications.

Getting started with your Amazon Sidewalk network

The SimpleLink™ multiband CC1352R wireless MCU LaunchPad™ SensorTag kit (Figure 1) is a Sidewalk-ready development kit that combines integrated environmental and motion sensors with low-power Sub-1 GHz and Bluetooth Low Energy wireless connectivity. With this development kit and TI's CC1352 software development kit, you can build a Sub-1 GHz or Bluetooth Low Energy application and then in the future leverage Bluetooth Low Energy via a mobile app to load the Sidewalk image.

To stay up to date on the Amazon Sidewalk SDK availability, sign up here. All requests will be vetted and you will be alerted when the software is available.
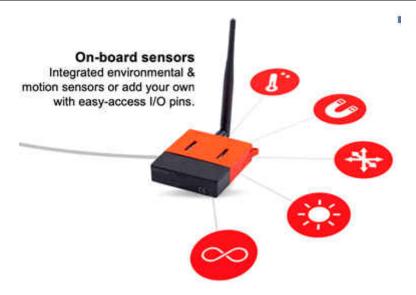
Figure 1. TI's LaunchPad Sensor Tag kit

With the number of connected nodes increasing within homes to the exterior and beyond, the capability to build reliable, long-range networks is critical. Long range connectivity extends our ability to collect more sensor data, monitor more devices and build smarter products. What will you connect next?

Additional resources
- Learn more about Amazon Sidewalk.
- Get started with our Amazon Sidewalk development tool kit (AMZ-3P-SIDEWALK-TOOLKIT).
- Explore the SimpleLink CC13x2/CC26x2 software development kit.
- Learn more about the benefits of Sub-1 GHz in the TI training video, "Connect: Why Sub-1 GHz?" or podcast.

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