SmartBond™ Wireless Ranging SDK

Dialog's Wireless Ranging (WiRa™) SDK enhances the DA1469x family of Bluetooth® LE SoCs with new, highly accurate and reliable distance measurement capabilities. The WiRa SDK uses radar-like implementation to greatly enhance distance measurement for connected devices, amounting to +/- 0.5 meters in typical situations. The result is a solution with 10x the accuracy of competing RSSI-based localization options.

The WiRa SDK's 2.4 GHz radio interweaves Bluetooth low energy data packets with constant tone frequency exchanges to generate phase-based ranging signals. The high-resolution, on-chip radio wave sampling provides high quality IQ samples, which form the inputs for distance determination. Data processing algorithms then filter the data for noise, interference and reflections. This process outputs the shortest over-the-air signal path length providing the application with a distance measurement value to be used.

The WiRa SDK leverages the existing DA1469x wireless MCU family – including its Arm® Cortex®-M33F application processor, Arm Cortex-M0+-based baseband processor and best-in-class radio performance – to provide distance measurements from a single chip. It also comes equipped with a Bluetooth LE 5.1 compliant stack and software implementation, eliminating the need for hardware adaptations or an external host processor and ensuring co-existence between the Bluetooth communication and the distance measurement process.

All of this adds up to a solution that provides end users with greater location and tracking accuracy, reliability and security for IoT devices in peer-to-peer applications.

Key Features:

- Add distance measurement as a feature to your wireless applications
- Achieve 10s of cm accuracy in typical use cases
- Distance reported out within 200 milliseconds.
- No additional HW needed compared to standard Bluetooth LE system designs
- A proprietary implementation that co-exists with Bluetooth LE communication
- Comprehensive SW suite including data processing algorithms, distance output, UI and SW application example

- Flexibility to further optimize, adapt or replace data processing algorithms
- Small RAM memory and MIPS requirements; runs on any DA1469x Bluetooth LE SoC variant
- Suitable for battery powered devices
- Benefit from DA1469x on-chip integrated battery charger
- Pre-programmed development kit including two DA14695 Development Kit-USB boards each fitted with a MikroBUS™ OLED display and SMA antenna.

Applications

- Asset tracking
- Indoor Positioning
- Social distancing assistance

- Smart locks
- Authentication (eg. for Mobile Payments)

Ordering Information

DA14695 Wireless Ranging Development Kit (2pcs)

Part number	Description
DA14695-00HQDEVKT-RANG	Pre-programmed boards with Wireless Ranging application

For more information and purchasing please visit:
www.dialog-semiconductor.com/products/connectivity/bluetooth-low-energy/products/smartbond-wireless-ranging-SDK

Dialog Semiconductor Worldwide Sales Offices

www.dialog-semiconductor.com   email: info@diasemi.com

United Kingdom
Phone: +44 1793 757700

Korea
Phone: +82 2 3469 8200

Hong Kong
Phone: +852 3769 5200

The Netherlands
Phone: +31 73 640 88 22

Germany
Phone: +49 7021 805-0

China (Shenzhen)
Phone: +86 755 2981 3669

Japan
Phone: +81 3 5769 5100

North America
Phone: +1 408 845 8500

China (Shanghai)
Phone: +86 21 5424 9058

Singapore
Phone: +65 648 499 29

Taiwan
Phone: +886 281 786 222