Technical Article
9 Reference Designs to Help You Get Started in the IoT This Summer

TEXAS INSTRUMENTS

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Summer stands as a season of chores and to-do lists. In order to help you better allocate your productive summer hours, we have rounded up nine of our best TI Design reference designs to help you create your Internet of Things (IoT) design and begin connecting right away.

1. SimpleLink™ Multi-Standard CC2650 SensorTag Reference Design

   There are endless possibilities for *Bluetooth*® Smart*,* 6LoWPAN and ZigBee® connected devices with our SimpleLink multi-standard CC2650 SensorTag reference kit, and their accompanying iOS or Android™ app. This kit is expandable with DevPack plug-in modules and comes with 10 low-power MEMS sensors, capable of getting your data online in three minutes. With 75 percent lower power consumptions than previous Bluetooth Smart products, all of your innovative summer projects can be powered for years.

2. DevPack-LED-audio

   Illuminate your home, office or workshop with the touch of your mobile phone by using our LED Audio DevPack for IoT lighting applications. Plug the kit into the SensorTag DevPack expansion header, place your four high powered LEDs from Osram throughout your building and begin controlling via Bluetooth Smart, or even connect to a ZigBee Lighting system using our ZigBee connectivity technology.

3. DevPack-Watch

   Employ a wearable display element within your IoT application by connecting our Watch DevPack to your SensorTag. Plug our 96 x 96 pixel graphical Display DevPack into the SensorTag DevPack expansion

header and begin portably monitoring any application that is displaying information from the web. There truly are not many things more enabling in the implementation of IoT than mobile capabilities.

4. SimpleLink Wi-Fi® CC3200 Smart Plug

Employ a Wi-Fi enabled energy measurement and control element to your network with the SimpleLink Wi-Fi CC3200 Smart Plug reference design. The CC3200 Smart Plug runs on a compact and efficient Flyback power supply unit and integrates within a single MCU the metrology data computation over Wi-Fi networks to handle all communication and connection to a cloud server from any mobile device. Include this design pack on all endpoints within your network to maximize efficiency and control.

5. Connected Home Network Reference Design

Our Connected Home Network Reference Design is a pure software design that can assist you in constructing a Sub-1 GHz star network enabling full house coverage for security and sensor applications. With a main powered central unit extending to battery-powered devices, this network is the perfect starting point to act as an IoT gateway and enable Internet connectivity for all other connected home end-products you wish to link.

6. SimpleLink Wi-Fi® Enabled NFC Card Reader

With our SimpleLink Wi-Fi Enabled NFC Card Reader reference design, we explain how to combine TI's CC3200 wireless MCU and the TRF7970 NFC BoosterPack from DLP Design to emulate a near field communication (NFC) reader, which securely transfers data scanned from an NFC card to any remote location or database, in real time over Wi-Fi networks. This design meets all NFC standards and comes with a complete system design, as well as a demo board, user guides and software to provide valuable assistance from beginning to end.

7. UART to Bluetooth Low Energy (BLE) Bridge Reference Design

This software reference design can increase your networks communication efficiency by demonstrating how to implement an UART to Bluetooth low energy bridge and to communicate serial data wirelessly bidirectionally between wired UART to a device supporting Bluetooth low energy. This ultra-low power SimpleLink Bluetooth Smart wireless MCU can also quicken your software design process by simply dropping modular code into existing and new products in order to enable IoT applications that connect wired series protocols. It really is as easy as copy and pasting into your next wireless project.

8. ETSI Cat 1 RF Layout Reference Design

Make certain that your network meets all of the requirements in the 868 MHz frequency band by referencing our ETSI Cat 1 RF Layout Reference Guide. This design includes a recommended PCB layout for optimum performance, and will show you how to successfully do all RF layout and filtering in order to help you meet the correct standards.

9. DLP Ultra-mobile NIR Spectrometer for Portable Chemical Analysis with Bluetooth Connectivity

The ultra-mobile near-infrared (NIR) spectrometer reference design utilizes our DLP™ technology in conjunction with a single-element InGaAs detector to deliver high performance measurements in a portable form factor. The reference design supports dual-mode Bluetooth to enable mobile lab measurements for hand-held spectrometers for applications including food, agriculture, pharmaceuticals, petrochemicals, and more. Using a TI TM4C MCU, databases in the cloud can be leveraged through cellular networks for real-time lab equivalent analytics, which allow food or skin analysis and wearable health monitor solutions. Developers can also create their own data collection and analysis through innovative iOS and Android applications.

For more information on our wireless connectivity technologies, visit: www.ti.com/wireless-connectivity/overview.html And be sure to share your summer #IoT projects with us on Facebook, Twitter, Google+ or LinkedIn

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