Technical Article
Getting Sensor Data to the Cloud at the Push of a Button (Well Maybe a Few Keystrokes)

TEXAS INSTRUMENTS

Remember when almost every box of electronics had an RS-232 port to get data out to a PC or bigger system? And then the world demanded that they have new-fangled USB interfaces. Well we have arrived at another similar moment in time again folks, this time the request is to connect our products to the "IoT or Internet of Things" or to "the Cloud." Sitting at my desk this morning, I can count more than 10 devices that are connected to "the cloud" by either Wi-Fi® or *Bluetooth*® low energy.

Just last week I had the opportunity to attend and speak at the Sensor Expo conference in San Jose, CA on this very subject. The show brought together a wide variety of sensor system developers, sensor manufacturers, semiconductor vendors and experts from their various fields with a common theme running throughout, the growing need for connectivity, in many cases wireless connectivity, to be added to devices for IoT data transfer, storage or processing.
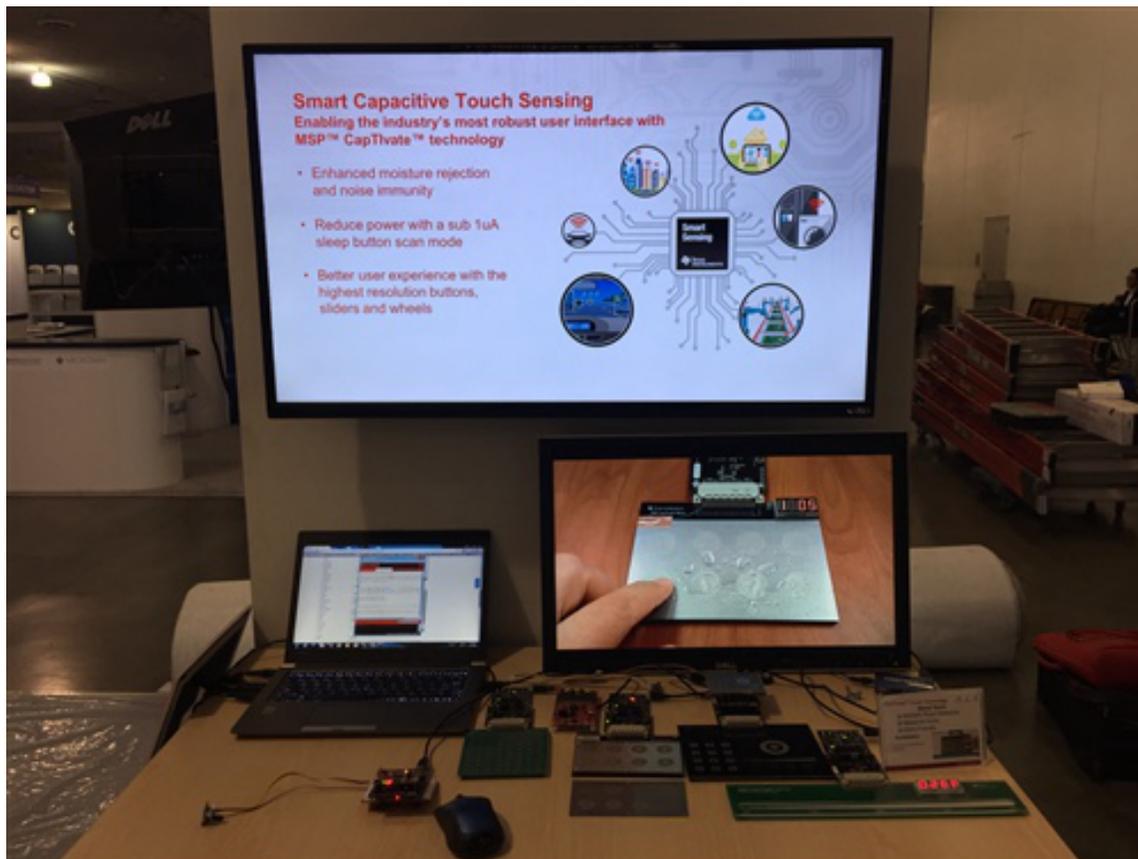
I was co-presenting with Temboo, who provides a range of easy to use tools to quickly generate Energia code to run on TI's LaunchPad™ development kits. As an example, the code could be configured to read an analog temperature sensor and then when the temperature exceeds a certain limit it will send an SMS message, update a spreadsheet, invoke a text to speech service or one of 100's of other functions. All of this can be accomplished in under one hour using just a few dollars of development hardware such as the MSP432 LaunchPad kit, a SimpleLink™ Wi-Fi CC3100 Booster Pack™ plug-in module and pretty much any sensor that can be connected to an MCU via an analog-to-digital converter (ADC), digital port pin or a serial port.

I know that I'm making this sound simple, and it really is. Here is a step-by-step tutorial that walks through building an MSP430F5529 MCU based plant watering reminder that upon detecting a low soil moisture content will trigger an SMS message to be sent to remind me to take care of my plants, now I just need to combine this with my Automated Chili-Gation system watering system and I can get an instant report on the status of my next recipe.

Create a WiFi-connected IoT sensor that calls you when censor values exceed a threshold

Take a look at the following links for more information on connecting TI MCU's and LaunchPad kits to the cloud by taking advantage of Temboo's capabilities.

- Take control of your LaunchPad sensor data with Temboo Streaming
- Program M2M Networks using Temboo and TI's LaunchPad kits

You can learn more about Temboo at www.temboo.com/hardware/ti

Remember that you can't spell IoT without TI.

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