The Tinker's Toolbox - Bernard Aboussouan of GainSpan on Developing Low-Power Wireless Networks

Hosted by Alix Paultre, the Tinker's Toolbox is the Advantage Design Group's web-based interview show where we talk about the latest technology, components, and design issues for the electronic design engineering community.

In this podcast we talk to Bernard Aboussouan of GainSpan about next-generation low-power wireless networking, the Cloud, and what it means to the design engineer. GainSpan is a leading ultra-low-power embedded Wi-Fi solutions company whose Wi-Fi chips and modules make it possible to quickly and easily add Wi-Fi to devices through a serial interface to a device microcontroller.

Right-click to download the podcast [1]

Here is a link to the podcast in case the play button isn't working: GainSpan Interview [1]

Here is a recent press release on the company's technology:

GainSpan announced it has added Limited Access Point (Limited-AP) capability to its family of embedded Wi-Fi modules. With this capability, any GainSpan enabled embedded Wi-Fi product can serve as an instant access point so that common consumer wireless devices, such as notebooks, tablets or smart phones, are very

easily able to establish a connection using Wi-Fi.

By providing embedded Limited-AP capability, GainSpan obviates the need for complex configurations of typical access points. For the end user, this translates into the Wi-Fi provisioning being fast, simple and a very familiar process.

Take an example of a low-cost Wi-Fi Smart Plug, which in most cases will have a load connected to it – a lamp, fan or an appliance for instance. Next, consider the challenge of configuring the Wi-Fi Smart Plug to join a Wi-Fi network, as it may not support a display screen, nor any visual LEDs/control buttons. With a GainSpan Wi-Fi module embedded in the Smart Plug, the Limited-AP capability enables a very familiar provisioning user experience, one akin to setting up your laptop on your home Wi-Fi network. The Wi-Fi Smart Plug simply powers up as an access point, allowing a handheld consumer Wi-Fi product -- such as a Smartphone – to connect to it using built-in highly secure WPA/WPA2-Personal wireless security modes. So by enabling the Wi-Fi on your Smartphone, you are then able to scan and discover the Smart Plug device. Next, by using the hosted web server within the GainSpan module, the Smart Plug can be configured to join one of the Wi-Fi networks that the Smart Plug discovers. The Smart Plug changes from being an Access Point into a client of a Wi-Fi network.

In another example, the same Smart Plug, using Limited-AP, can be configured to remain in access point mode instead of being turned into a client of another access point. The benefit of this mode is providing a universal solution that does not depend on the capabilities of the smartphone or the local AP, and enabling connectivity and data exchange amongst up to eight client Wi-Fi devices.

With GainSpan’s Limited-AP capability, a wide variety of deeply embedded Wi-Fi enabled products such as thermostats, in-home displays, sensors, appliances and even security locks can act as an access point and be easily provisioned to join a home Wi-Fi network.

“Many device manufacturers in the Smart Energy, Healthcare and Residential Control & Monitoring markets are developing products for everyday consumers. Consumers want to be able to easily connect these products to their smart phones, tablets and home Wi-Fi networks,” said Bernard Aboussouan, vice president of marketing, GainSpan. “Our Limited-AP feature helps OEMs improve the provisioning process and the out of the box user experience.”

GainSpan Wi-Fi Modules
The Limited-AP capability is supported by the complete line of GainSpan low power embedded Wi-Fi modules. All modules are pin to pin and footprint compatible: The GS1500M provides leading-edge 802.11b/g/n Wi-Fi connectivity with speeds up to 72 Mbps, while the GS1011M offers 802.11b/g/n connectivity with speeds up to 11 Mbps. The modules have a number of options of antenna and power amplifiers for range and power consumption optimization. Both modules provide serial interface (UART, SPI) to an 8/16/32-bit host microcontroller and use simple AT commands. The modules not only dramatically reduce RF design time but also remove the burden of testing and certification.

The GainSpan Wi-Fi chip handles all Wi-Fi functionalities, networking and security stacks, accelerating wireless device development cycles. GainSpan solutions feature an ultra low power SoC that consumes just a few µA of standby current and has a few ms of wake-up latency, ideal for battery operated devices requiring long life. Applications for the company's embedded Wi-Fi include healthcare, smart energy and control and monitoring for industrial, commercial and home markets. Based in San Jose, CA, the company has R&D facilities in Bangalore, India.
www.gainspan.com [2]

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