Embedded Europe
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Safety, security, and source code for industrial embedded systems: No shortcuts


Brandon Lewis, Technology Editor


For English-speaking embedded engineers the term ?safety,? as in functional safety, is used to imply the reliable and deterministic operation of electronic systems, particularly those capable of harming human beings. The term security, on the other hand, is used to describe safeguards present in an electronic system to protect it and its data against software-borne, network-borne, or physical vulnerabilities. For German-speaking embedded engineers the word ?sicherheit? is used to describe both. While the lack of distinction can be confusing at times, as more embedded?
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Addressing the OT and IT Data Integration Challenge in Next Generation IIoT and Industrie 4.0 Systems
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Businesses move from "Should we use the IoT?" to "How should we use the IoT?"


Erik Kling, Vodafone

From connected cars, to remote healthcare, to smart street lighting and smart homes, IoT applications appear to have countless opportunities to transform the way we live and work. As the world continues to adopt IoT technologies and we build connectivity into everything, these solutions will play a major role in how businesses engage with partners and customers, and, ultimately, how they drive innovation and revenue. With so much potential attached to IoT, it begs the question, what are the driving forces behind the adoption? **Continued...**

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Turning the Industrial IoT toolbox Blue(tooth)

Brandon Lewis, Technology Editor

Interview with Mats Andersson, Senior Director Technology, Short Range Radio Product Center, u-blox Given recent specification updates, what is Bluetooth?s outlook in the Industrial Internet of Things (IoT) sector? ANDERSSON: Bluetooth 5 introduces several enhancements on top of those enabled by Bluetooth low energy (BLE) technology that further allow Bluetooth to move from a cable replacement technology to a network-oriented technology, and thus better able to support IoT applications in all vertical segments. This evolution began with the Bluetooth Special Interest Group (SIG) adopting? **Continued...**

Go wireless with Bluetooth control

Jeremy Cook, Engineering Consultant

If you?ve been experimenting with development boards like the Arduino Uno , turning on a light automatically can be useful, and there is a wide variety of other things you can do with these versatile devices. On the other hand, controlling them wirelessly may seem like a challenge. After all, you have to figure out how to connect via WiFi, Bluetooth, or any other number of seemingly complicated control schemes. [An HC-06 module connected to a development board] The good news is that wireless? **Continued...**

RTOS source code, anyone?

Colin Walls Mentor Graphics Embedded Systems Division

When did you last purchase a software product in the form of source code? I am guessing that the answer may be either never or a long time ago. Of course, open source products are available in source code, but the average user never sets eyes on it. With software intellectual property (IP) ? libraries, networking protocol stacks, real time operating systems (RTOSs) ? the availability of source code is very common. The question is whether you really need it. Would not the binary? **Continued...**

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Core Independent Peripherals Simplify 8-bit MCU Development
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Big data for engineers and scientists, part 3: IT, enterprise applications, and big data


Dave Oswill, MathWorks


Read "Big data for engineers and scientists, part 2: Analyzing, processing, and creating models" here. Many organizations have realized the value in data that is collected from their products, services, and operations. They have created new executive positions, such as Chief Information Officer (CIO), whose main focus is on the proper use and protection of this new big data resource. The CIO subsequently enlists the information technology (IT) team to implement new policies and processes for data which includes: Governance: Ensure the integrity of? **Continued...**

Bluetooth audio streaming is everywhere and improving


Franz Dugand, CEVA

Audio devices using Bluetooth (BT) connectivity are becoming more ubiquitous than ever. Apple, among others, have eliminated the standard 3.5mm audio jack from their designs, inducing more consumers to switch to wireless BT headphones. From portable speakers and car infotainment systems to earphones and hearing aids, the Advanced Audio Distribution Profile (A2DP) is by far the most common protocol for wireless audio streaming. As part of the Bluetooth classic protocol, A2DP is designed to unidirectionally transfer an audio stream in up to two-channel stereo? **Continued...**

Self-healing mesh networks on the 8-bit Industrial Internet


Brandon Lewis, Technology Editor


One of the most interesting stories in the embedded processing market over the past decade has been not just the survival, but in many ways the triumph, of 8-bit microcontrollers (MCUs). Indeed, market projections from iSuppli (now part of IHS) have shown that not only is the 8-bit MCU market slated to grow through this year, but it will nearly kept pace with the 32-bit market and do so in spite of tapering 16-bit sales. [Figure 1 | The 8-bit MCU market continues to? **Continued...**

Flexibility to update firmware, a key to IoT devices

Hardik Patel, Microchip

Internet of Things (IoT) devices are being introduced into the market at a rapid pace ? from home appliances to medical devices to cars ? as manufacturers must stay ahead of their competitors with new innovations and the flexibility to adopt or integrate new technologies. Designers must build flexibility into their products to meet the evolving IoT ecosystem as new functionalities and regulations are adopted. Firmware updates not only allow customization during initial deployment at a customer site, but also enable new functions/features to? **Continued...**

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