

# 08/19

## Issue Preview

elektronik journal special issue “Embedded + IoT”  
in October:

- Security
- Wireless
- Hardware/software design
- Components
- CoM, display, HMI
- Power supply

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# EDITORIAL PREVIEW

## Security

### Designing at the edge

Edge computing runs through the whole of IoT, ranging from home applications to the most complex of all edge nodes: the networked vehicle. Technical implementation requires high-performance, networked platforms with optimum cybersecurity functions.

### Safeguarding IoT applications

Networking – ranging from lighting to monitoring and control systems – also means that the target for hacks is getting bigger all the time. The article highlights seven points that need to be taken into account when protecting IoT applications against cyber attacks.

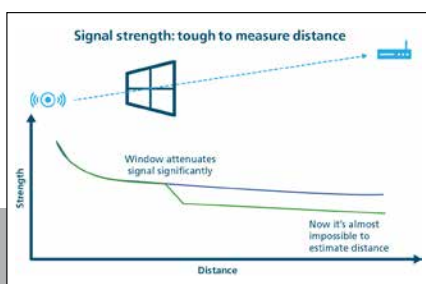
## Wireless

### No communication failure

Especially in critical IoT applications, disconnections of the network are not only irritating, they can also be dangerous. By using mesh networks based on 802.15.4 and sub-GHz frequencies, IoT nodes remain reliably networked.

### LoRa cloud geolocation

The capacity to determine the physical location of a device at the time it connects to the network virtually entirely automates the process of commissioning and providing IoT applications. The article explains the advantages of terrestrial time-of-flight systems as compared to GNSS for geolocalization – mainly to be found in the energy and cost requirements of the receiving device.



## Hardware/ software design

### Virtual machines

In a step-by-step guide to vRealize Automation REST APIs, the article explains how to use a virtual machine for software development. The automation software accelerates the implementation and management of applications and computing services.

### The potential of digital twins

Digital twins have evolved from a revolutionary aerospace concept to a promising tool with great economic appeal. As part of the digital transformation of businesses, a digital twin can provide a virtual model of a process, product or service to help make operations more efficient.

## Components

### Upgrading the power grid

The power grid is currently undergoing an unprecedented shift towards the Smart Grid. Sensors allow remote monitoring and provide data on weather conditions and temperatures of transmission lines. And electricity meters in the home are also becoming intelligent. This requires ICs that enable higher measurement accuracy and lower power consumption.

## CoM, display, HMI

### Benefits of form factors

System designers who would like to use CPU modules are often faced with the question of purchasing a standard module or a proprietary design. By purchasing a standard module, the devel-



opment project risk is greatly reduced, as the central component is added to the system having already been tested and qualified.

### 10 tips for better HMIs

Human Machine Interfaces (HMI) enable the execution of control functions while ensuring satisfactory user-friendliness. Consequently, the design of HMIs must take careful account of the purpose for which they are intended so as to enable efficient and timely interactions.

## Power supply

### Monitoring battery data

If you have problems charging your battery, you will inevitably have to rely on output measurement in your device – because the battery may fail at any time or the device may switch off suddenly. The article describes various techniques for battery monitoring, with a special focus on the necessary measurements of subsystem power supplies that prevent an abrupt shutdown.

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