

IEEE-SA Industry Connections - Convergence of Smart Home and Building Architectures

SmartAmerica Challenge
11 June 2014



Collaboration is our *Foundation*



In Academia



In Industry



In The Field



IEEE brings people and technology together for mutual benefit



About the IEEE-SA

**Globally
recognized
standards**

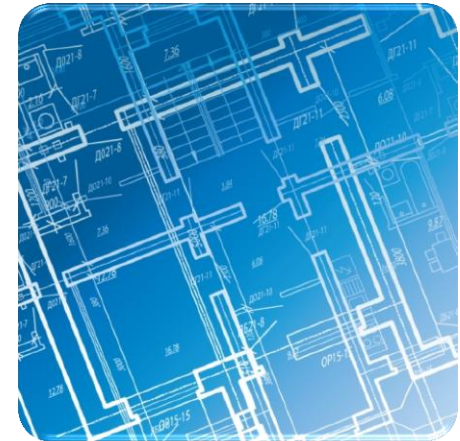
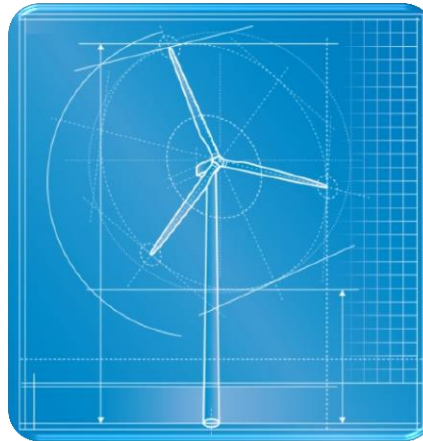
**Over 900
active
standards**

**More than 500
standards
under
development**

**7,000
individual
members**

**200
corporate
members**

**Over
20,000
standards
developers
worldwide**



IEEE-SA Industry Connections (IC) Program

An efficient, economical, safe-harbor environment for building industry consensus

- Facilitate collaboration
- Produce shared results

<http://standards.ieee.org/develop/indconn/>



Security and configuration concerns in CPS (IoT)

User Experience

- Ease of Use is the key to the adoption of any technology
- Security and Configuration must be simplified for a seamless user experience

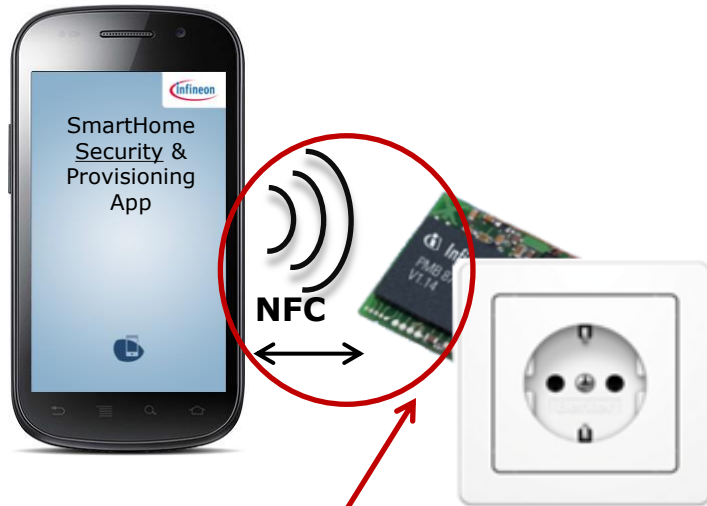
Security

- An authentication method should not rely on remembering lengthy or complicated passwords
- Secure communication channels have to be established
- Denial of Service attacks must be prevented

Configuration

- Enhanced comfort through minimized user interaction
- Automation of device properties configuration

Making SmartHome and IoT Network Security Easy



Security-Enhanced
SmartHome Wireless
Network Node

- Goal: Users can easily add their security-enhanced Smart-Home devices to their network (still using high security level)
- Presented Approach (Demo): SmartHome devices equipped with security-enhancements ("Secure Element") + passive NFC-Chip → exchange keys via a secure channel!
- Smart phone app to makes it easy to set up network encryption of any device in a secure manner, without typing long passwords (and even devices which normally do not have user interfaces)

Smart Device Control and Monitoring leveraging existing infrastructure



- Existing internet infrastructure can be leveraged to monitor and control Smart Home appliances.
 - No additional hardware investment
- Seamless control of Smart Home appliances
- Flexible Access Control
- Simple visualization of power consumption related information

Socio-economic benefits

- Improved application security through NFC-based device provisioning
- Improved energy efficiency through intelligent power management of smart devices
- Leveraging existing hardware infrastructure for new applications and services

Thank You!

