

# Technology for IoT challenges:



# Digital services

Management platforms for the home, for industry, and for processes; services for e-healthcare, wellness, and personalized monitoring; geolocation services; ease of implementation; maintenance



### Miniaturization and integration

Portability; integration of new functions; appropriate product packaging for different environments; miniaturization of electronics; embedded systems



# EA Tech technology

Software

Data analysis and tools

Microelectronics and electronics

Sensor systems and integration

Secure hardware implementation

Integrated circuits and architectures

Communication and protocols

**Energy solutions** 

HMI



#### Security and privacy

Ensuring information security, privacy, and data protection; secure communication; protecting industrial systems; resilience



#### **Energy solutions**

Energy efficiency; energy management (computation, measurement, connectivity); energy production and storage; self-powered sensor networks



### Communication and infrastructure

Communication protocols; connectivity between heterogeneous networks and transmission relays; reliability of connections; physical layers



#### Data creation and management

Optimizing data flows; analyzing large volumes of data; cyber-physical measurement systems



# CEA Tech can help the following businesses:

- IT outsourcers, electronic component and systems manufacturers
- Network administrators
- Companies that integrate internet-enabled solutions into consumer products for transportation, construction, sports, health, wellness, and more
- Companies that integrate internet-enabled solutions into commercial-grade products for the chemical, manufacturing, aerospace, and other industries

# Here are some of the ways CEA Tech can support your development:





## **Microelectronics and components**

Component miniaturization by vertical, heterogeneous, and multi-functional assembly; high-performance, energy-efficient resistive memory

#### **Custom sensors and switches**

Multi-parameter, biochemical, MEMS, and NEMS (accelerometers, gyrometers) sensors; imaging (THz, IR) sensors; piezoelectric switches; small form-factor, low-cost solutions

# Integrated circuits and architectures

Ultra-low-energy architectures for sensors specific to RF applications; components for embedded systems and software; alarms; microservers

## **Energy solutions**

Optimal energy conversion and system management; energy recovery and charging; custom batteries; microbatteries

### **Communication and protocols**

Reliability of communications and connections; sensor network security; energy-efficient protocols; real-time optimization of network selection

### Sensor systems and integration

Analysis of movements and activities; manufacturing process tracking; driverless cars; environmental control; cyber-physical systems

#### New HMIs and data creation

Augmented reality glasses; multimedia interfaces; haptic-feedback systems; large-area HMIs; touch-interfaces for the Internet

# Software, big data, and data analysis

Traffic management; remote coaching; network administrator platforms; geolocation; systems implementation, operation, and maintenance

# **Cybersecurity and security**

Sensor network security; secure, effective implementation of cryptography protocols; certification; software reliability and security; homomorphic encryption

# Operating security (real-time requirements)

System and software reliability; industrial infrastructure control; surveillance of aircraft structures

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