

Annual Conference of the IEEE Industrial Electronics Society (IECON 2022)

Special Session on

Smart Sensors/Actuators and IEEE 1451 Standards for SG/IoT/IIoT/CPS

Organized by

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Call for Papers

Theme:

Sensors and actuators are used in many applications, such as aerospace, automobile, environmental monitoring, asset tracking in the supply chain, smart buildings/homes/cities, healthcare, industrial automation, smart manufacturing (SM), smart grid (SG), internet of things (IoT), industrial internet of things (IIoT), and cyber-physical systems (CPS). A smart sensor consists of a set of sensors and/or actuators coupled with metadata and some capabilities, such as signal conditioning, analog-to-digital conversion, digital-to-analog conversion, sensor data processing, and timing and synchronization by an internal clock with an optional external time reference, and network communications. Thus, the smart sensor can have intelligent capabilities, such as self-identification, self-description, self-testing, self-diagnostics, self-validation, self-calibration, time and location-awareness, multi-sensing and actuation, and data fusion. Hence, smart sensors can play key roles in the applications mentioned above by providing data and status of systems deployed in these applications for real-time monitoring and control operations to improve overall system efficiency, performance, and reliability. However, sensor data exchange and interoperability are major challenges for all these applications. Standardization of smart sensor interfaces, for example, IEEE 1451 suite of standards, will help to achieve sensor data interoperability. Interoperability testing, measurement, and assessment methods of smart sensors are very helpful to achieving and assuring interoperability of smart sensors/actuators deployed in the applications described above.

1 Good quality papers may be considered for publication in the IEEE Trans. on Industrial Electronics, subject to further rounds of review.

Topics of interest include, but are not limited to:

1	Smart sensors/actuators
2	Smart sensors/actuators
3	Timing and synchronization for smart sensors/actuators
4	IEEE 1451-based smart sensor/actuator interface standards and reference implementations
5	IEEE 1451-based smart sensor/actuator interoperability and conformance testing methods and certifications
6	Smart sensors for smart grid applications
7	Smart sensors/actuators for IoT/IIoT applications
8	Smart sensors/actuators for cyber-physical systems
9	Wireless sensor networks for industrial applications
10	Sensor/actuator technologies for Industry 4.0

Sponsoring IES Technical Committee(s):

IEEE IES Technical Committee on standards, <https://sites.google.com/view/iesstandardstc/>

IEEE IES TC on Industrial Informatics, <https://tcii.ieee-ies.org>

IEEE IES TC on Industrial Cyber-Physical Systems, <https://icps.ieee-ies.org>

Submissions Procedure:

All the instructions for paper submission are included in the conference website: <https://iecon2022.org/>

Deadlines:

Full paper submission:	April 15, 2022
Paper acceptance notification:	June 17, 2022
Camera-ready paper submission:	July 29, 2022