IEEE Transactions on Industrial Informatics

CALL FOR PAPERS

for Special Section on

Green Industrial Internet of Things

Theme: Internet of things (IoT) which supports ubiquitous information exchange and content sharing among smart devices with little or no human intervention is a key enabler for various applications such as smart city, smart grid, smart health, intelligent transportation systems, and so on. With the evolutionary growth of IoT, it is estimated that almost 50 billion devices will be interconnected by 2020. Within the paradigm, the term industrial Internet of things (IIoT) is often encountered in the manufacturing industries, referring to the industrial subset of the IoT. IIoT is a new ecosystem that combines intelligent and autonomous machines, advanced predictive analytics, and machine-human collaboration to improve productivity, efficiency and reliability. It brings about a world where smart, connected embedded systems and products operate as part of larger systems.

IIoT connects billions of mobile digital devices, manufacturing machines, industrial equipment, etc., and generates an unprecedented volume of industrial data. The gap between the rapidly growing demands of data rate and existing bandwidth-limited network infrastructures has become ever prominent. Moreover, the interaction and connection of things in IIoT will consume substantial energy in contrast with limited energy storage of the things. Therefore, the greenness of IIoT is crucial for the success of IIoT. In particular, with the prevalence of mobile devices, electronic devices, cameras, social networks, social media, etc., our world is generating big data and multimedia big data, which further aggregate the energy demand in terms of the data transmission and processing of IIoT.

Fully utilizing advanced techniques can complement the current study of the IIoT and overcome the current limitations of such a highly distributed network. However, how to effectively utilize these techniques from communication, data processing, and computing etc, to improve the energy efficiency of IIoT needs for addressing many fundamental challenges in IIoT. Despite the development of IIoT, some fundamental problems are still open and require immediate studies, such as:

- How can we achieve much higher energy efficiency of the IIoT network with limited bandwidth provisioning and low transmit power?
- How can we utilize advanced capabilities of IIoT, such as storage and caching, to offload the data in order to release the traffic of the cellular networks and provide low-latency services in an energy efficient manner?
- Can we leverage recent advances in computing to design an energy efficient computing platform for IIoT?
- How can we design the lightweight security schemes, such as encryption, to reduce the energy consumption of a secure IIoT?

Therefore, the aim of this Special Issue (SI) is to solicit original contributions with novel contributions on the greening the IIoT,

This special section will focus on (but not limited to) the following topics:

Energy-efficient transmission, caching for IIoT
Energy-efficient resource allocation for IIoT
Energy-efficient computing, networking protocol for IIoT
Energy-efficient UAV, vehicular networking for IIoT
Energy-efficient IIoT architecture
Energy-efficient D2D/M2M
Energy-efficient Cognitive IIoT
Social networking and computing for green IIoT
Big data, Cloud computing, Edge computing for green IIoT
Network Virtualization, Software-defined networks for green IIoT
Middleware, Testbeds, Novel applications for green IIoT

Manuscript Preparation and Submission

Follow the guidelines in "Information for Authors" in the IEEE Transaction on Industrial Informatics http://www.ieee-ies.org/pubs/transactions-on-industrial-informatics . Please submit your manuscript in electronic form through Manuscript Central web site: https://mc.manuscriptcentral.com/tii . On the submitting page #1 in popup menu of manuscript type, select: SS on **Green Industrial Internet of Things**

Submissions to this Special Section must represent original material that has been neither submitted to, nor published in, any other journal. Regular manuscript length is 8 pages.

Note: The recommended papers for the section are subject to final approval by the Editor-in-Chief. Some papers may be published outside the special section, at the EIC discretion.

Timetable:

Deadline for manuscript submissions	**April 10, 2020**
Expected publication date (tentative)	October 2020

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