

IEEE Transactions on Consumer Electronics

Call for Papers

Special Section on “Smart Home Energy Management based on Consumer Electronics”

Theme:

The astounding rate of advance in consumer electronics industry has made a huge impact on smart home energy management. Besides the popular and dominating benefit in energy usage, it can improve comfort, safety and security. Key advantage is interoperability with replacement of devices easily if open standards are adopted.

Smart home energy management requires accurate information about the appliances' consumption pattern to help consumers save energy, control the usage by shifting to off-peak hours and reduce energy costs. With non-intrusive load monitoring (NILM), the home power consumption profile of appliances is extracted from the aggregated signal. The individual appliance consumption could be estimated from a group of connected electronic loads. Analysing the consumption of the individual appliance is challenging due to the high uncertainty in data and lack of load models involved. The emergent technologies for smart homes aim at improving power quality and achieve a more efficient power management. The role of the charging and discharging processes of the electric vehicles (EV) in smart homes could match the domestic electronic load and the fluctuating energy supply of decentralized and intermittent energy sources such as solar panels with energy storage.

Because of the decentralized property of the Blockchain, with smart contracts, all data exchanged by the individual devices on the network are recorded. The accessibility to the smart devices such as smart TV and smart air conditioners can be granted or reversed dynamically from anywhere on the globe safely and securely. Intelligent electronic devices, RFID tags, sensors are interlinked and connected via a common communication medium, that is different wireless communication protocols. As Internet of Things (IoT) and connected electronic devices become more affordable, people are investing in smart home technologies at a fast speed with IoT devices to interact with each other.

Topics of interest in this Special Section include (but are not limited to):

- Consumer electronics load modelling;
- Energy trading with blockchain and smart contracts;
- Artificial intelligence for characteristics of appliances;
- Wireless communication for smart home;
- Electric vehicle charging and discharging processes;
- Standards development for interoperability with consumer electronics; and
- Case study and demonstration projects.

Important dates:

- End of submission of Manuscripts: **January 1, 2023**
- Expected publication date (tentative): July 2023

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Instructions for authors:

Manuscripts should be prepared following guidelines at: <https://ctsoc.ieee.org/publications/ieee-transactions-on-consumer-electronics.html> and must be submitted online following the IEEE Transactions on Consumer Electronics instructions: <https://ctsoc.ieee.org/publications/ieee-transactions-on-consumer-electronics.html>. During submission, the Special Section on “**Smart Home Energy Management based on Consumer Electronics**” should be selected.

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