Call for Papers

Low Power Wide Area Networks Technologies for Internet of Things Symposium

The 16th International Conference on Wireless Communications and Mobile Computing

IWCMC 2020

IWCMC 2019 Website: http://iwcmc.org/2020/

Submission Link: https://edas.info/newPaper.php?c=26206

Limassol, Cyprus

June 15 — 19, 2020

Technically sponsored by: IEEE and IEEE Lebanon Section

Organizing Committee

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Scope

Low-power wide area network (LPWAN) technologies are emerging as key-enablers to support massive machine type connectivity in the internet of things (IoT). In recent years, both licensed and unlicensed LPWAN technologies are gaining significant attention. These technologies can operate in coexistence with the traditional cellular and short-range wireless technologies to enable connectivity for low power and low data rate devices. LPWAN technologies are applicable to a large range of IoT scenarios such as smart meter, smart parking, smart homes, smart tracking, smart logistics, e-health, industrial automation, etc.

Narrowband Internet-of-Things (NB-IoT), extended coverage GSM (EC-GSM) and LTE Category M1 (LTE-M1) are enabling licensed LPWAN low-complex cellular IoT communication technologies to support massive machine type communication in 5G. For example, NB-IoT was standardized in 2016 by the Third Generation Partnership (3GPP) in Release 13 to provide faster deployment and operation time to mobile network operators (MNOs), thanks to simple firmware upgrade on existing LTE infrastructure. Since 2016, the standard has been enhanced with several interesting features being proposed in Releases 14, 15 and upcoming Release 16, including support of time division duplexing, positioning, multicast, extended transport block size to manage

peak data rates, mobility, power consumption and latency reduction, and so on. With such prominent features, NB-IoT has become one of the dominating technologies in the LPWAN area.

In parallel, LoRa, SigFox, Ingenu, Weightless-SIG, Telensa, etc., are unlicensed LPWAN technologies that are under deployment or development, each employing various techniques to achieve long-range, low power operation, and high scalability, e.g., spread-spectrum technology with a wideband and data rates using encoded packets (LoRa) or (ultra)-narrowband technology and slow modulation rate for extended range (SigFox). Unlicensed technologies also get improved over time; for example, some of the latest developments in LoRa include firmware updates over the air, application layer clock synchronization, remote multicast, and fragmented data block transport.

However, LPWAN technologies are still considered in their early stage, needing on one hand, practical deployments and measurements, and on the other hand, deep theoretical investigation for modeling and optimizing system performance. Also, emerging applications that can be enabled by LPWAN technologies and implementation challenges therein need further exploration.
Thus, the objective of this symposium is to bring together recent progress in practical experiences, theory, modeling, designing, implementation, deployment, and management of LPWAN systems.

Topics

Authors are invited to submit previously unpublished papers to this Symposium. Topics include, but are not limited to:

- Channel modeling of uplink and downlink in licensed and unlicensed LPWAN
- Throughput modeling of uplink and downlink in licensed and unlicensed LPWAN
- Resource management in licensed and unlicensed LPWAN
- Interference management and prediction in licensed and unlicensed LPWAN
- Throughput optimization in licensed and unlicensed LPWAN
- Access control in licensed and unlicensed LPWAN
- Latency investigation in licensed and unlicensed LPWAN
- Joint optimization within licensed and within unlicensed LPWAN
- Hardware design and optimization of licensed and unlicensed LPWAN
- Merger of licensed and unlicensed LPWAN Heterogeneous technologies and systems
- Energy consumption analysis in licensed and unlicensed LPWAN
- Real-time deployments and networks experience
- Data Prediction in LPWAN Devices
- Data Analytics in LPWAN systems

- System architectures for applications enabled by LPWAN
- New application implementations by LPWAN
- Security issues of LPWAN
- Regulatory issues of LPWAN

Important Dates

- Submission: January 10, 2020
- Acceptance notification: March 30, 2020
- Camera-ready paper submissions: April 30, 2020

Submission Guidelines

Prospective authors are invited to submit original technical papers—up to 6 pages of length, using the EDAS link: https://edas.info/newPaper.php?c=26206 for possible publication in the IWCMC 2020 Conference Proceedings, which will be submitted to the IEEE Xplore. Selected papers will be further considered for possible publication in three special issues in the following Journals. For more information, visit: http://iwcmc.org/2010/

1. The International Journal of Sensor Networks (IJSNet) http://www.inderscience.com/browse/index.php?journalCODE=ijsnet
2. The International Journal of Autonomous and Adaptive Communications Systems (IJAACS) http://www.inderscience.com/jhome.php?jcode=ijaacs
3. KSII Transactions on Internet and Information Systems: http://www.itiis.org/
4. Peer-to-Peer Networking & Applications: http://www.springer.com/engineering/signals/journal/12083
5. Cyber-Physical Systems journal: www.tandfonline.com/loi/tcyb20

Note: There will be a best paper award, a best symposium award, and a best workshop award.

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