



Everlasting sensor networks

Laurent Clavier, Viktor Toldov, Román Igual, Nathalie Rolland, Rédha Kassi,
Christophe Lethien, Christophe Loyez, Alexandre Boe, Nathalie Mitton,
Thomas Vantroys

► **To cite this version:**

Laurent Clavier, Viktor Toldov, Román Igual, Nathalie Rolland, Rédha Kassi, et al.. Everlasting sensor networks. *L'énergie demain. Transition énergétique: recherches et ingénierie*, May 2013, Paris, France. 2013. <hal-00958130>

HAL Id: hal-00958130

<https://hal.inria.fr/hal-00958130>

Submitted on 13 Mar 2014

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

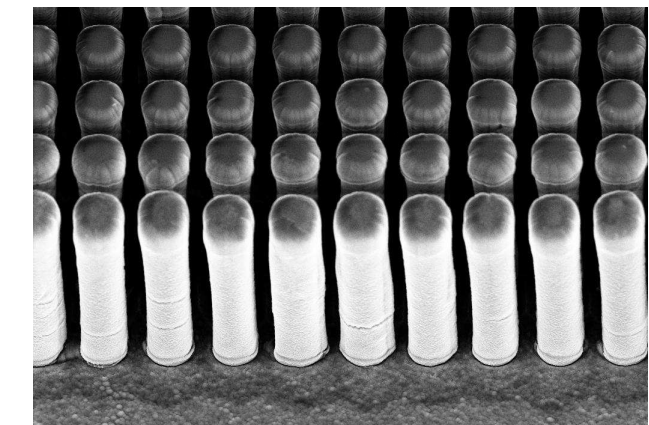
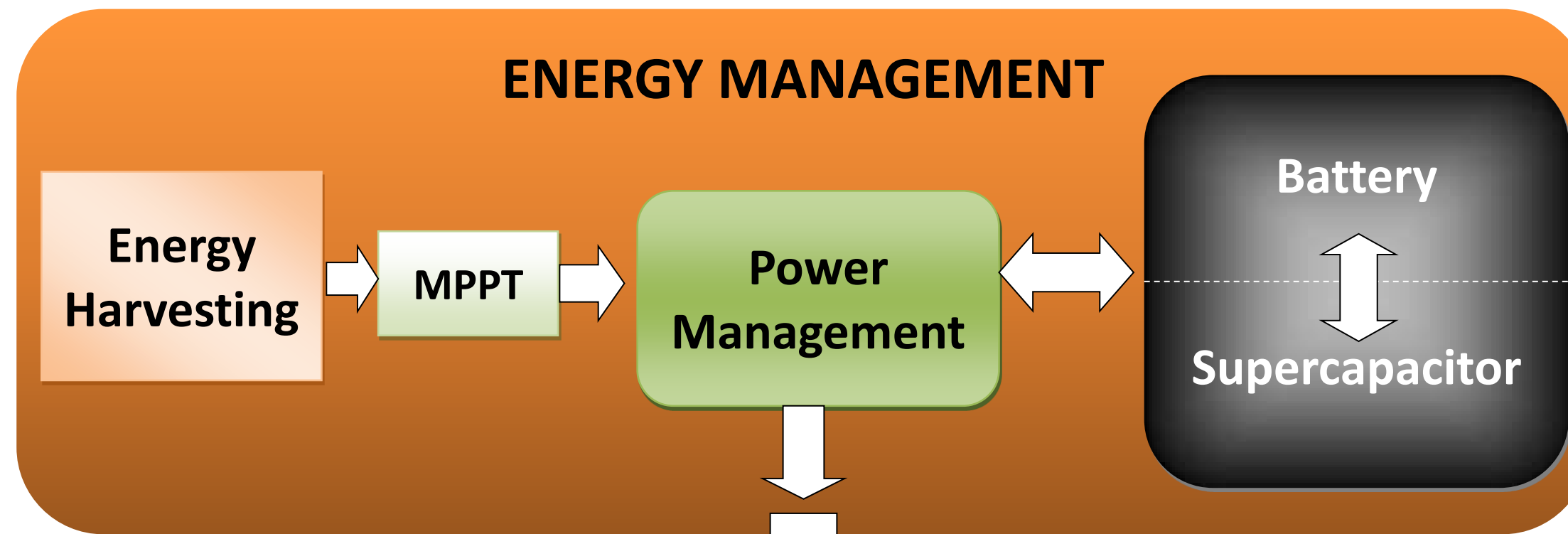
L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

Within the team CSAM (Circuits, Systèmes et Applications des Microondes) of IEMN (Institut d'Électronique, de Microélectronique et de Nanotechnologie) and within IRCICA (Institut de Recherche sur les Composants logiciels et matériels pour l'Information et la Communication Avancée - USR CNRS 3080) we develop a research on ultra low power sensor networks. Our goal is to minimize the energy consumption so that the life duration of the network could be infinitely long. We develop studies including nanotechnologies (energy harvesting, storage devices), RF front-ends design, energy management but also radio channel and interference modeling and MAC layer optimization.

Main contributors



Energy Optimization: from the node...



3D Li-ion microbattery

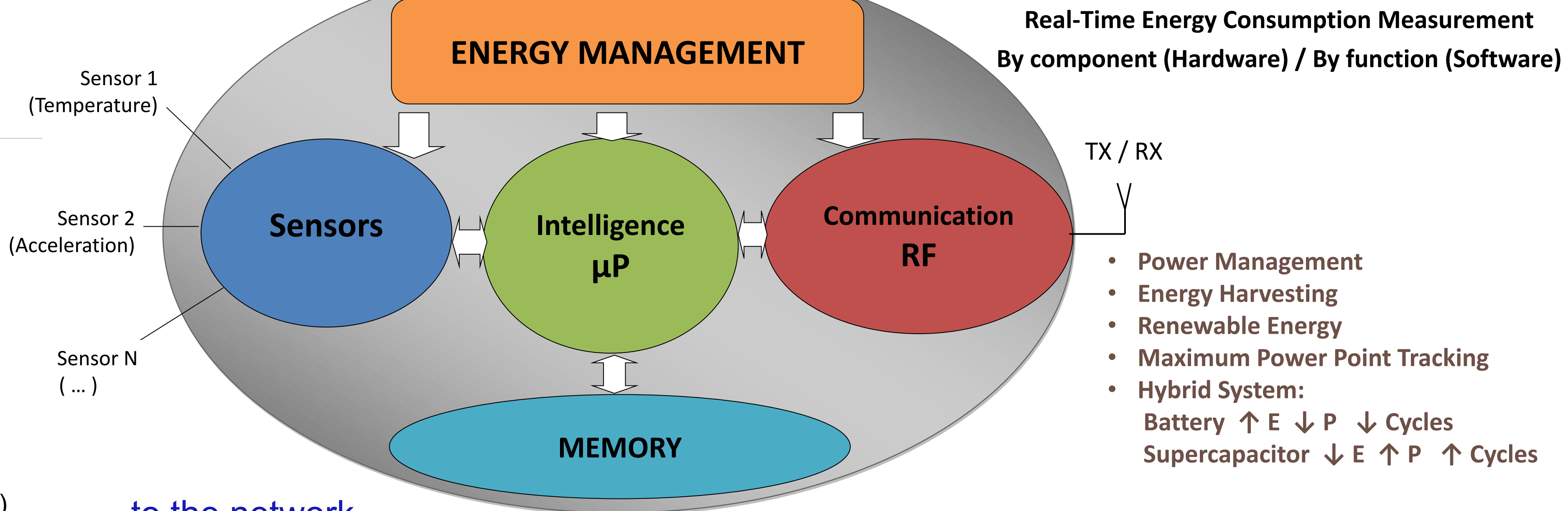


Supercapacitor

Authors

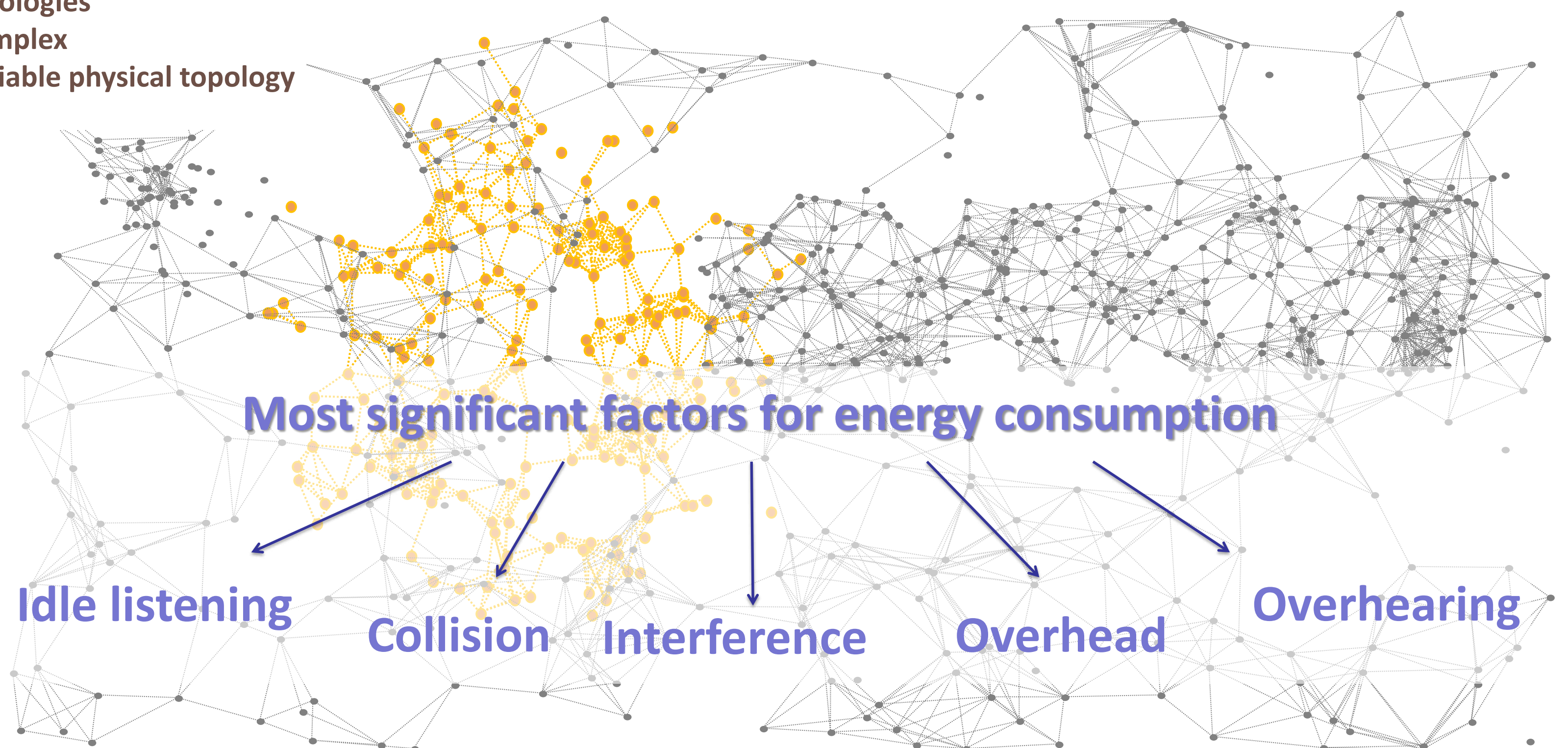
- Laurent CLAVIER
- Viktor TOLDOV
- Román IGUAL
- Nathalie ROLLAND
- Rédha KASSI
- Christophe LETHIEN
- Christophe LOYEZ
- Alexandre BOE
- Nathalie MITTON (Inria)
- Thomas VANTROYS (LIFL)
- ...

Partners



... to the network

- Large scale
- Different logical topologies
- Complex
- Variable physical topology



Conclusion

Our aim is to create an experimental environment where we can accurately evaluate the energy consumption and optimize at the node level and at the network level the main factors of energy dissipation.