

Editorial

Recent developments in MEMS-based technology have permitted miniaturization and increased power efficiencies of sensors, and integration of data into applications for building monitoring and computer interaction. Wireless sensor networks (WSN) in practice demonstrate an exceptional improvement over traditional wired sensors. However, there are still many challenges to be met before we see more widespread use of WSN in building monitoring applications.

This issue of the journal is devoted to the theme, "*Special Issue on Sensor Network for Building Monitoring: from Theory to Real Application.*" In this issue we have contributions on radio characteristics of indoor environments; the importance of using efficient, medium access control (MAC) protocols developed for wireless sensor networks, which can be potentially used in building automation systems; link quality distribution in sensor network deployment; a new MAC protocol which uses a backoff preamble with variable length to reduce the collision probability in WSN; a data mining technique that is particularly applicable for sensors' behavioural data; a new energy efficient distributed clustering algorithm for ad-hoc deployed WSNs in building monitoring applications; and also new ultra-wideband (UWB) technology tracking of concrete debris following an explosion. This issue serves as a comprehensive resource to gain more knowledge for monitoring and automatic control of the building environment using wireless sensor networks.

The guest editor is honoured to have Prof Clarence W. de Silva (Fellow Royal Society of Canada), a distinguished academic leader from The University British Columbia to write the *Foreword* for the special issue. We wish to give special mention to Mr. Massoud Sofi for all his support to make this happen and also to A/Prof Nick Haritos for his valuable guidance. On behalf of the Journal we wish to extend our sincere thanks to all our reviewers for their hard work.

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