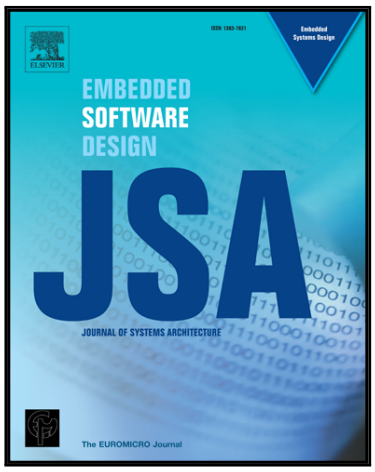

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Boo-Kwang Park , Hyun-Woo Kim , Jong Hyuk Park , Young-Sik Jeong

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Adaptive Power Management Scheme using Many-core for Maximizing Network Topology Lifetime based on Ubiquitous Computing

Boo-Kwang Park[1], Hyun-Woo Kim[1], Jong Hyuk Park[2], Young-Sik Jeong[1]*

[1]Department of Multimedia Engineering, Dongguk University, Seoul, Republic of Korea
[2]Department of Computer Science and Engineering, Seoul National University of Science and Technology, Seoul, Republic of Korea

pbg0517@dongguk.edu, hwkim@dongguk.edu, jhpark1@seoultech.ac.kr, ysjeong@dongguk.edu

Abstract

In recent years, the use of ubiquitous computing has increased continuously so that studies on ubiquitous computing have been conducted in various life fields. Ubiquitous computing provides any services anywhere and anytime through networks conveniently to improve the quality of life of users. Ubiquitous computing is constructed via a variety of invisible sensors, networks, and computing environments. For multi-purpose sensors, deployment of the topology and topology lifetime are very important depending on wired or wireless sensors. Uneven energy consumption due to integrated routing sensors according to topology deployment types is a factor that degrades the quality of service (QoS) about user convenience services and lifetime of total topology. As a result, a number of studies on maximization of topology lifetime have been conducted. However, previous studies focused on deployment environments and limited sensors so that they cannot be deployed to real sites. Therefore, this study proposes an adaptive power management scheme (APMS) that manages sensor power adaptively according to deployment environments to maximize topology lifetime. The APMS maximizes topology lifetime by changing routing paths according to lifetime log to manage sensor power. Furthermore, active responses for optimum topology can be achieved by deploying sensors via simulation prior to sensors deployed to the real environments by users.

Keywords: Power Management, Topology Lifetime, Ubiquitous Computing, Cloud Infrastructure, Graphic Processing Unit

* Co-Corresponding author : Young-Sik Jeong(ysjeong@dongguk.edu) and jhpark1@seoultech.ac.kr