

{tag} International Journal of Computer Applications
Foundation of Computer Science (FCS), NY, USA

[Volume 139](#)

-
[Number 8](#)

Year of Publication: 2016

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10.5120/ijca2016909230

{bibtex}2016909230.bib{/bibtex}

Abstract

Recently, many data processing applications in wireless sensor networks (WSNs) works efficiently by using a coverage percentage of a target sensing area and a satisfaction percentage of collected data. Therefore, the whole coverage and complete satisfaction are not needed. As a result, finding new data processing techniques that can successfully minimize the data traffic and energy consumption for maximizing the network lifetime are required. In addition, using clustering with data processing techniques is an effective topology control approach in wireless sensor networks, which can increase network scalability and lifetime. In this paper, a (α -cov, β -sat) data processing problem is introduced and a new mobile agent clustering data processing methods are proposed. The proposed methods use a clustering with a mobile agent to cover α percentage of the target area such that the satisfaction percentage of collected data is β percentage. Simulation results show that the proposed methods achieve higher improvements in network lifetime, load balance and energy consumption than the existing methods.

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Index Terms

Computer Science

Wireless

Keywords

Mobile agent, cluster head , partial coverage, satisfaction