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20 février 2018

1 Introduction

Most of the previous clustering approaches have been done aiming to balance the energy consumption of the nodes over the network. In this section, we briefly introduce some of these proposed algorithms.

In Low-energy and adaptive clustering hierarchy (LEACH) [9], Energy-Efficient Unequal Clustering (EEUC) [5], Cluster Head Election mechanism using Fuzzy logic (CHEF) [6] and Multi Objectives Fuzzy Clustering Algorithm (MOFCA) [2] a probabilistic and distributed method is used, where, the node enters into a competition only if its random generated number is less than a predefined threshold value Th. For [5] [6] and [2], the competition is made by neighbors, they communicate and decide together the best node eligible to be elected as CH

The remainder of this paper is organized as follows : Section II discusses some of the existing clustering techniques ; in Section III the system model is presented ; Section IV and V present the proposed algorithms CHEREDC and evaluate its performance comparing with previous algorithms. Finally, we conclude the paper and discuss some possible future works in Section VI.

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paramter	value
N (Number of deployed nodes)	22
R (Range of nodes in meter)	10
Eelec	50nJ/bit
ϵfs	10pJ/bit/m
ϵmp	0.001pJ/bit/mp4
E (Initial energy of nodes)	1J
ctrPacketLenth	2000bits
PacketLenth	4000bits

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6 Tableau II

(XBS,YBS)	FND	HNA	LND
((100,100))	1003	1521	2693
(0,0)	119	1009	2457
(250,250)	40	470	2063

7 Tableau II separation horizontal

(XBS,YBS)	FND	HNA	LND
((100,100))	1003	1521	2693
(0,0)	119	1009	2457
(250,250)	40	470	2063

8 Tableau II separation horizontal entre colonne

(XBS,YBS)	FND	HNA	LND
((100,100))	1003	1521	2693
(0,0)	119	1009	2457
(250,250)	40	470	2063

9 Tableau II separation vertical

(XBS,YBS)		FND	HNA	LND
((100,100))		1003	1521	2693
(0,0)		119	1009	2457
(250,250)	Value	40	470	2063