LELE-OM: Leader Election with Load balancing Energy in Optimum Multiple sinks Wireless Sensor Network

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Abstract

Wireless sensor networks have gained extensiveapplications, and have significantchallenges. One of the research areas of the researchers is the increase in the stability period of these networks. The more increase in network lifetime and the duration of the network performance, the better. In this paper, a protocol is proposed that postponesthe observation of thefirst sensor losing its energy using energy balance and with the help of the multiple sink sensor network.In the new protocol, the network lifetime increases, andcompared to one of the best energy balance protocols in network named LELE, it has the abilityto reduce the network unstable period.

Keywords: leader election, energy balance, multiple sink, wireless sensor network

1. Introduction

Wireless sensor networks are a collection of random sensors that monitor a specific variable, and sendthe collecteddatato the data collection center [1]. The main and important characteristic of wireless sensor networks is that they have the ability to self-organize in the environment, and communicate with each other in short rangesthrough amulti-stage routing. Also, these networks have variable topology due to malfunction, energy limitations, memory and ability to communicate. These groups of sensors have a limited memory capacity [3], [2].

 Another problem of wireless sensor networks isthe increase in network lifetime, reduction of energy consumption and improvement of the costs [3-7]. Sensor networks architecture permits sensorsto be distributed randomly in a region, and after diagnosis and control, send the events to sink stations [8].

Some of the wireless sensor networks useclustering with the purpose ofload balancing, scalability, error tolerance, increase in communication and reduction in delays [9].