Multi Objective Cluster Head Selection in Wireless Sensor Networks using Social Spider Optimization Technique

Sarala R and Vigneshwari K

Pondicherry Engineering College, Puducherry, India

ABSTRACT

Wireless sensor networks are networks of huge quantities of compact micro-sensors with wireless communication property. Reducing the energy consumption and delay in the data transmission are the main challenges in them. The existing techniques used in literature are methods like dynamic selection of nodes and other routing based on protocols. Clustering is an efficient topology control method to reduce energy consumption of the sensor node for maximizing the lifetime and scalability of wireless sensor networks. In this paper, a social spider optimization algorithm is used to find the multi-objective optimal best cluster head to maximize the network lifetime efficiently as well as for reducing the energy consumption and delay. Experimental results have shown that the proposed algorithm gives the best outcome with various parameters like packet delay ratio, average end to end delay, throughput, alive and dead node analysis.