

عنوان مقاله:

Cluster-head Election in Wireless Sensor Networks Using Fuzzy Logic

محل انتشار:

دوفصلنامه مجله کامپیوتر و رباتیک, دوره 3, شماره 1 (سال: 1388)

تعداد صفحات اصل مقاله: 8

نویسندگان:

Hamid Reza Bakhshi - *Electrical Engineering Department, Shahed University, Tehran, Iran*

Maryam Benabbas - *Electrical Engineering Department, Shahed University, Tehran, Iran*

خلاصه مقاله:

A wireless sensor network consists of many inexpensive sensor nodes that can be used to confidently extract data from the environment. Nodes are organized into clusters and in each cluster all non-cluster nodes transmit their data only to the cluster-head. The cluster-head transmits all received data to the base station. Because of energy limitation in sensor nodes and energy reduction in each data transmission, appropriate cluster-head election can significantly reduce energy consumption and enhance the life time of the network. In the proposed algorithm, a modified fuzzy logic approach is presented in order to improve the cluster-head election based on four descriptors energy, concentration, centrality and distance to base station. Cluster-head is elected by the base station in each round by calculating the chance each node has to elect as a cluster-head by considering descriptors. Network life time is evaluated based on first node dies metric, so energy depletion of one node causes the network to die. Simulation shows that the proposed algorithm can effectively increase the network life time. Sensor network is also simulated when sensor nodes move with random velocity in random direction in each round. Simulation shows that network life time is increased by considering this assumption in the proposed algorithm and can develop a better performance.

کلمات کلیدی:

Wireless sensor networks, Fuzzy logic, Cluster-head, Life time, First node die

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/682909>

