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Cluster Head Selection Using Novel Algorithm in Leach Protocol for Wireless Sensor Networks

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Abstract

As a novel network design for the smart world, Internet of Things (IoT) mainly founded on the Wireless Sensor Networks (WSNs). In WSN as a layer of perception consisting of many sensor nodes scattering in the atmosphere condition for collection of intended data's. The designateddata is then forwarded to a base station (BS) for further processing on the cloud server. Since sensor nodes energy is limited, reducing network energy consumption is the most important challenge of these networks. The division of the network into clusters has been shown to significantly reduce energy consumption. The low energy adaptive clustering hierarchy is the clustering protocols in WSN's (LEACH). The cluster heads (CH), which results in poor presentation in real scenarios, are selected randomly in this protocol. In this study, a novel CH selection algorithm constructed on the energy residue, the position and central characteristics of the nodes is proposed. It uses a variable range, which calculates the centrality of each node and the sum of neighbours. Simulation results demonstrate that, in terms of decreasing energy consumption, increasing life and increasing network confidence, the proposed algorithm outperforms Leach Enhanced Leach (E-LEACH) and Multiple Hope Routing LEACH (MR-Leach).