Performance Analysis of Deterministic Stable Election Protocol Using Fuzzy Logic in Wireless Sensor Network

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Abstract : In Wireless Sensor Network (WSN), the sensor containing motes (nodes) incorporate batteries that can lament at some extent. To upgrade the energy utilization, clustering is one of the prototypical approaches for split sensor motes into a number of clusters where one mote (also called as node) proceeds as a Cluster Head (CH). CH selection is one of the optimization techniques for enlarging stability and network lifespan. Deterministic Stable Election Protocol (DSEP) is an effectual clustering protocol that makes use of three kinds of nodes with dissimilar residual energy for CH election. Fuzzy Logic technology is used to expand energy level of DSEP protocol by using fuzzy inference system. This paper presents protocol DSEP using Fuzzy Logic (DSEP-FL) CH by taking into account four linguistic variables such as energy, concentration, centrality and distance to base station. Simulation results show that our proposed method gives more effective results in term of a lifespan of network and stability as compared to the performance of other clustering protocols.

Keywords : DSEP, fuzzy logic, energy model, WSN

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