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AN EFFICIENT NEURAL NETWORK BASED CONVERGECAST FOR WIRELESS SENSOR NETWORKS

VEENA K. N. AND VIJAYA KUMAR B. P.

Abstract

The most important challenge in Wireless Sensor Networks (WSNs) is to improve the operational efficiency in highly resource constrained environment based on dynamic and unpredictable behavior of network parameters and applications requirement. In Wireless Sensor Networks the process of dissemination of data among various sensors (*broadcast*) and collection of data from all sensors (*convergecast*) are common communication operations. Most sensor applications involve both convergecast and broadcast. The power, time taken, bandwidth, to complete either of them has to be kept minimal. In this paper a Neural network approach is proposed to find the Convergecast route from node to the sink, so that the network consumes less power. The Hop Field Neural Network (HNN) is used to find the efficient convergecast route. It is seen that convergecast route found by HNN is efficient in minimizing power, band width, time and balancing of the network and hence increasing the network life time.

Keywords : WSN, Convergecast, Neural networks, KNN and HNN