

A MULTI-HOP NETWORKING PROTOCOL FOR WIDE-AREA ENERGY HARVESTING SENSOR NETWORK DEPLOYMENTS

ABSTRACT

The present invention provides an EHSN communication protocol that uses a beaconing scheme to facilitate communication between multiple low power sensor nodes. In the illustrative embodiment, the desired sensor data flows through a series of sensor nodes from the origin sensor to a destination node through a set of intermediate relay nodes. Transmissions from one node to another occur using a receiver-initiated beaconing scheme, in which beacons are sent by each node when they have harvested sufficient energy to relay data. The specific set of relay nodes is chosen opportunistically from the total set of nodes in the network, based on which nodes have harvested sufficient energy (and broadcasted the appropriate beacon), and which nodes are optimally positioned to forward data to the destination node.

FIGURE 1