

Abstract:

A leader node in Ad hoc networks and especially in WSNs and IoT networks is needed in many cases, for example to find a node with minimum energy or situated on the extreme left of the network. For this kind of applications, algorithms must be robust and fault-tolerant since it is difficult and even impossible to intervene if a node fails. Such a situation can be catastrophic in case that this node is the leader. In this paper, we present a new algorithm, which is based on a tree routing protocol. It starts from local leaders which will start the process of flooding to determine a spanning tree. During this process their value will be routed. If two spanning trees meet each other then the tree routing the best value will continue its process while the other tree will stop it. The remaining tree is the dominating one and its root will be the leader. This algorithm turns out to be low energy consuming with reduction rates that can exceed 85%. It is efficient and fault-tolerant since it works in the case where any node can fail and in the case where the network is disconnected.