

Adaptive dynamic routing for IEEE 802.15.6 wireless body area networks

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Abstract:

We propose a modification to the Adaptive Multihop Routing (AMR) protocol used in wireless body area networks. In these networks, sensor nodes, which may be worn on the body or implanted in it, are battery-powered with a limited supply of energy. Moreover, they may have a small transmission range due to limited transmission power and attenuation of their signal by the human body. The IEEE 802.15.6 standard is concerned with hop-by-hop communication at the physical and medium access layers. However, to conserve energy, multihop communication is used, which necessitates the development of appropriate routing protocols. Our protocol operates over IEEE 802.15.6 and aims at increasing network lifetime by initially routing traffic, then dynamically rerouting it so as to avoid depleting the energy of forwarding nodes. Simulation results show around 50% to 70% improvement in network lifetime when compared to the original protocol version. © 2018 IEEE.

Reference:

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