

Mobility-Aware Energy-Efficient Routing Objective Function for IoT-Based Healthcare Systems

Radwan S. Abujassar

Faculty of Computer Studies, Arab Open University-Kuwait , Alardiya, Kuwait

Abstract:

Healthcare Internet of Things (IoT) deployments rely on wearable and implantable sensors that are energyconstrained and frequently mobile, which complicates reliable multi-hop communication. We propose MAEER-OF, a Mobility-Aware Energy-Efficient Routing Objective Function for RPL that jointly considers link reliability, residual energy, and node mobility for parent selection. Implemented in NS-2, MAEEROF improves network lifetime, reduces control overhead, and sustains higher packet delivery ratios than baseline RPL and MRHOF across mobility and density regimes. The results indicate a practical path to long-lived, mobility-robust eHealth networks.

Keywords:

IoT, eHealth, NS-2, mobility-aware routing, energy efficiency, RPL.