Routing in wireless mobile ad hoc networks (MANETs) is a challenging task. Geographic routing protocols offer promising solutions for routing in MANETs. Their advantages are eliminating the need of topology storage and the associated costs. A disadvantage is that all nodes must be equipped with GPS receivers to be aware of their own positions which consume money and energy. Besides, GPS receivers may not work in areas that are mostly concentrated with computing devices. This work proposes a new routing algorithm that is suitable for network where some nodes may be aware of their position through GPS while others are not. In the proposed algorithm, routing decision is made by the combination of greedy forwarding mechanism and on-demand routing one. Packets are forwarded in greedy mode when position information is available and routed using a reactive on demand procedure when this information is missed. Simulation results show that the proposal achieves better performance compared to GPSR and the DSR protocols concerning end-to-end delay, throughput and packet delivery ratio.
References


Index Terms

Computer Science  Networks
Keywords

Mobile ad hoc network (MANET); Routing protocol; topology-based routing; Position-based routing; DSR; GPSR.