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Refining Location-Aided Routing (LAR) through Proactivity

One of the weaknesses in Location-Aided Routing (LAR) is the latency due to partial flooding of data packets throughout the ad hoc network during route discovery. Systematic literature review indicates that very little or no studies conducted to seek a solution to this routing weakness in LAR. This study proposes introduction of periodic updates of location information among the nodes as a solution to minimizing latency. Proactive-LAR (P-LAR) eliminates partial flooding, thus reducing latency while advancing routing performance of traditional LAR. As a research scope, this study uses Angle of Arrival (AoA) and the expected distance of nodes as the only location information details. Moreover, the simulation is limited to the initial expected zone of LAR. Simulation of the modified LAR algorithm indicates that inclusion of proactivity as an algorithmic aspect of LAR augments general data packets throughput, delay, packets delivery ratio while minimizing the number of packets dropped. The results suggest that proactive algorithmic element in LAR routing algorithm can potentially minimize partial flooding thus improving routing performance while minimizing routing overheads such as latency.

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