

FANET: Efficient Routing in Flying Ad Hoc Networks (FANETs) Using Firefly Algorithm



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Abstract In recent years, the use of emerging technologies and the role of flying ad hoc networks (FANETs) have rapidly changed. Flying ad hoc networks are generally used in different areas such as media, agriculture, business, entertainment, security services, and various emergency services. Flying ad hoc network provides highly dynamic environments. The unmanned aerial vehicles (UAV) depend on nodes (packets) where nodes are moving very fast and thus packets loss during transmission. In this paper, define an approach that is based on the firefly algorithm (FA). The proposed algorithm applied the firefly algorithm's idea on flying ad hoc networks where geographical position mobility-oriented routing protocol (GPMOR) objectives to reduce the number of hops based on Gauss Markov (GM) mobility model. It improves the performance of routing by efficient packets.

Keywords Unmanned aerial vehicle (UAV) · Flying ad hoc network (FANET) · Routing protocol · Firefly algorithm

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work is based on FA's steps to UAV parameters such as packet delivery ratio (PDR), end-to-end (E2E) delay, speed, and performance. This work shows the best route of the UAV nodes in terms of scalability and less execution time. The major concept is load balancing in the ad hoc network. The load balancing needs to be taken as a research part in the future. The same method would consider for the traffic of UAVs in a dynamic environment. It is interesting to analyze and investigate more about the different altitude scenarios.

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