



**RESEARCH ARTICLE**

# COMPARATIVE STUDY OF NODE ENERGY CONSTRAINTS FOR MANET ROUTING PROTOCOLS

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*Abstract—Ad-hoc routing technology has been developed primarily for networks of mobile nodes. Mobile nodes have limited battery energy, when a battery discharges then it becomes very difficult to recharge or replace the battery of the nodes. These nodes need to be energy conserved to maximize the battery life as well as lifetime of nodes. The routing protocols affect the performance of the mobile node energy. There are three types of routing Protocols i.e. Proactive, Reactive and Hybrid Routing protocols. We have considered one protocol from each type: AODV, ZRP & STAR. By using the protocols in mobile ad hoc networks the energy performance metrics, routing power and residual energy in all the three modes (transmitting, receiving, and idle) are evaluated. The other performance metrics of application layer are also evaluated i.e. throughput and average jitter. The simulation has been carried out using QualNet 5.0.2. Finally, the observations are compared and the impact of energy constraints on a node in physical layer of the networks the STAR protocol offers the best combination of energy consumption and throughput performance*

*Keywords: Wireless Sensor Network; TCP; throughput; delay; jitter; Qualnet*

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