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(57) Abstract :
The invention discloses an energy-efficient scheduling algorithm (102) for multi-hop IoT communication systems. It integrates IoT devices (101), route selection logic (104), slot assignment module (103), and a transmission schedule manager (105). By analyzing residual energy, link reliability, and traffic load, it dynamically allocates transmission slots and optimal routes. The system reduces energy consumption, enhances packet delivery, and prolongs network lifetime. The invention is particularly suited for large-scale IoT deployments requiring adaptive, decentralized communication strategies with efficient energy management.

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