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(57) Abstract :
A self-healing IoT mesh architecture for smart city infrastructure is disclosed. The architecture includes a plurality of intelligent nodes (101) each with a microcontroller unit (102), communication module (103), diagnostic engine (104), and route management unit (105). Nodes monitor network health, detect failures, and autonomously reconfigure routing paths. The system supports predictive analytics, energy efficiency, and security, ensuring resilient and continuous smart city operations. The invention enables seamless scaling and autonomous recovery in dynamic environments, making it suitable for traffic, utility, safety, and environmental systems.

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