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(57) Abstract :
The present invention relates to a circuit for power-efficient data transmission in IoT devices, comprising an adaptive modulation unit (101), power management controller (102), low-power switch module (103), transmitter/receiver section (104), and energy storage interface (105). The invention ensures minimal energy consumption during communication by dynamically adjusting transmission parameters, reducing idle power through intelligent switching, and minimizing retransmissions with error-control coding. Experimental validation confirms significant improvements in energy efficiency and device lifetime, making it highly suitable for large-scale IoT deployments across healthcare, industry, and smart infrastructure.

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