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(57) Abstract :  
 A low-power edge computing device (100) comprises a microcontroller unit (102), memory module (103), AI coprocessor (104), sensor protocol interface (105), adaptive power unit (106), scheduler (107), and thermal module (108). The invention enables decentralized processing, real-time AI inference, and energy-aware task execution with multi-sensor compatibility. Designed for minimal latency and cloud independence, the device (100) is suitable for remote or mobile environments, ensuring secure, efficient, and intelligent data management at the source.

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