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Nota di contenuto	Section 1: Embedded Systems for Power and Energy Optimization -- Design of a Voltage-Mode Controlled Buck Converter for Energy Harvesting Power Management Systems -- State-Space Modeling and Observer-Based Fault Detection in Buck DC-DC Converters -- AI-Driven Optimization of a Cascaded H-Bridge 11-Level Converter Using Reinforcement Learning -- Q-Learning and Deep Deterministic Policy Gradient Method for Energy Optimization in HVAC System -- Soft Computing based Optimal Solar Tracking and MPPT -- Section 2: Robotics and Intelligent Automation -- Optimized Path Planning for Indoor Environments with Ant Colony and Curve Smoothing Algorithm -- Automata-Driven Fire Rescue Bot: Leveraging NFA and TM for Efficient Pathfinding -- Comparative Analysis of Finite Automata and Pushdown Automata for an Elevator System -- Section 3: Embedded System Design and Validation -- Multilevel Crop Image Segmentation Using Two-Dimensional Histogram on Raspberry Pi -- Sustainable

	UAV-Assisted Data Collection in Wireless Sensor Networks Using Renewable Energy and Wireless Charging Platforms -- etc.
Sommario/riassunto	This volume comprises selected peer-reviewed proceedings of the 12th International Conference on Signal Processing and Integrated Networks (SPIN 2025). It aims to provide a comprehensive and broad-spectrum picture of state-of-the-art research and development in signal processing, IoT sensors, systems and technologies, cloud computing, wireless communication, and wireless sensor networks. This volume will provide a valuable resource for those in academia and industry.