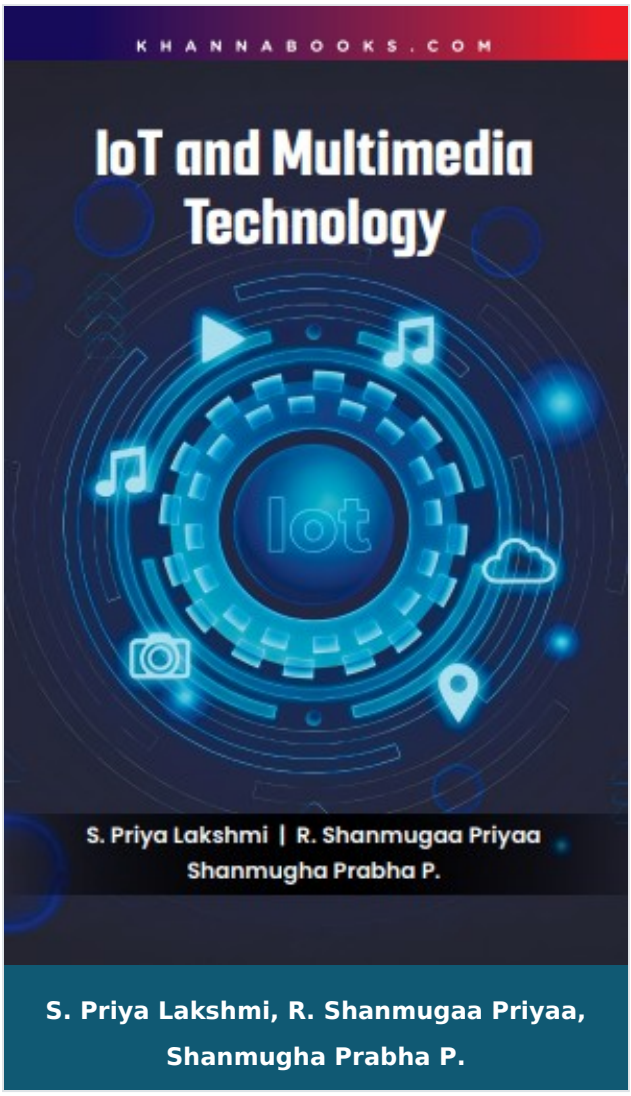

S. Priya Lakshmi, R. Shanmugaa Priyaa, Shanmugha Prabha P.

IOT and Multimedia Technology

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Product Description

IOT and Multimedia Technology

The book IOT AND MULTIMEDIA TECHNOLOGY serves as a comprehensive and essential guide to the transformative convergence of the Internet of Things (IoT) and Multimedia Big Data (MMBD) Computing. This powerful synergy is fundamentally reshaping the digital landscape, enabling intelligent data processing, real-time analytics, and innovative applications across critical sectors such as healthcare, smart cities, and industrial automation.

The primary purpose of this text is to provide a profound understanding of the interconnected evolution and far-reaching impact of these technologies by examining both fundamental principles and state-of-the-art solutions. A core theme addresses the critical challenge of effectively managing the massive volume and velocity of multimedia data while ensuring minimal energy expenditure in resource-constrained IoT devices. Readers will delve into complex technical areas, including the architectural foundations for real-time data stream monitoring, advanced transport protocols, and the deployment of guaranteed Quality of Service (QoS) models like DiffServ and IntServ. The book maintains a structured, academic approach that skillfully balances theory with practical application, featuring numerous case studies from military surveillance to precision agriculture.

This resource is an indispensable tool for a broad target audience, including students and academics seeking advanced knowledge, technology enthusiasts, and industry professionals or researchers looking to master the multidisciplinary approaches required to navigate and contribute meaningfully to this rapidly advancing field.

Salient Features:

- **Deep Learning Analytics**: Explores Deep Learning models like CNNs and RNNs, demonstrating their efficacy for Multimedia Big Data analysis, pattern recognition, and anomaly detection in vast IoT data streams.
- **Network QoS Models**: Detailed coverage of Guaranteed Service Models such as DiffServ and IntServ, alongside QoS-aware routing and queuing techniques, crucial for reliable multimedia delivery.
- **Energy-Efficient Design**: Addresses the critical challenge of Energy Conservation in multimedia IoT, presenting solutions like energy-efficient protocols, cross-layer optimization, and energy harvesting technologies for resource-constrained devices.
- **Multimedia Transport**: In-depth analysis of transport protocols (TCP and UDP) for interactive and non-interactive applications, including techniques for jitter removal and transcoding considerations in streaming.
- **Embedded Network Evolution**: Traces the development of the Embedded Internet through WSNs, M2M Communications, and the innovative architecture of Information-Centric Networking (ICN).
- **Key Protocol Standards**: Focuses on essential hardware and session control protocols that form the backbone of advanced systems, including H.322, SIP, MGCP, RTSP, and RTP/RTCP.
- **Real-World Case Studies**: Features practical applications in Precision Agriculture, Military Surveillance, Smart Cities, and Video Conferencing, highlighting the limitless frontiers of multimedia big data in IoT.

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