Connected Horizons
Exploring the Intersection of IoT and Everyday Life

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In recent years, the Internet of Things (IoT) has emerged as a transformative force, revolutionizing various aspects of our daily lives. From healthcare to transportation, from agriculture to urban planning, IoT technologies are reshaping the world around us in profound ways. In this anthology, we delve into the diverse applications of IoT, exploring its impact on animal healthcare, power systems, pandemics, wastewater treatment, logistics, agriculture, smart buildings, smart homes, artificial intelligence, and more.

IoT in Animal Healthcare and Location Tracking

Afzalur rahman, Syed Abid Hussain, and Tanveer Baig Z kick off our exploration by examining the application of IoT in animal healthcare and location tracking. By leveraging IoT technologies, veterinarians and livestock owners can monitor the health and whereabouts of animals in real-time, leading to more efficient management practices and improved animal welfare.

The Vital Role of IoT in Modern Power System Applications

Ravi V Angadi, Vijayalakshmi A. K, and Suresh Babu Daram shed light on the crucial role of IoT in modern power system applications. From smart grid management to predictive maintenance of power infrastructure, IoT enables utilities to optimize operations, enhance reliability, and integrate renewable energy sources seamlessly into the grid.

E-CARE: A Telemedicine Application for Pandemics

Divya Rani MS, Mr. Syed Abrar Ahmed, Pallavi, and Mrs. Annapurna H S present E-CARE, a telemedicine application designed to address the unique challenges posed by pandemics. By providing remote medical consultations and monitoring, E-CARE facilitates timely healthcare interventions while minimizing the risk of disease transmission.

IoT Communication Technologies

Mr. Krishnakant Soni explores IoT communication technologies, laying the groundwork for efficient data exchange and connectivity in IoT ecosystems. From wireless protocols to edge computing, the seamless integration of communication technologies is essential for realizing the full potential of IoT solutions.

Implementation of a Floating Wetland for Wastewater Treatment

Harshavardhana and Jagdish. H. Godihal introduce an innovative approach to wastewater treatment using a floating wetland equipped with IoT-based open-channel ultrasonic flow

meters. This novel solution improves the efficiency of wastewater treatment plants, reduces environmental pollution, and enhances water quality in aquatic ecosystems.

IoT in Logistics and Transportation

Gulshan Kumar and Jagdish H Godihal explores the application of IoT in logistics and transportation, highlighting its role in optimizing supply chain operations, enhancing fleet management, and improving the efficiency of transportation networks. By leveraging IoT technologies, businesses can achieve greater visibility, traceability, and efficiency in their logistical operations.

IoT in Agriculture

Manjula K B and Jagdish H Godihal delve into the realm of IoT in agriculture, where IoT sensors, drones, and automated systems revolutionize farming practices. From precision agriculture to smart irrigation, IoT empowers farmers to monitor crop health, optimize resource utilization, and increase agricultural productivity sustainably.

The Role of IoT in Today's Global Business Landscape

Syed Abid Hussain and Afzalur Rahman discuss the transformative impact of IoT on the global business landscape. By enabling real-time data collection, analysis, and decision-making, IoT empowers businesses to enhance operational efficiency, optimize resource allocation, and deliver superior products and services to customers worldwide.

Smart Buildings

Shobha L and Nakul Ramanna explore the concept of smart buildings, where IoT sensors and automation systems enhance energy efficiency, occupant comfort, and building security. By integrating IoT technologies into building infrastructure, property owners can create sustainable, intelligent, and responsive environments that adapt to the needs of occupants and the surrounding environment.

Internet of Things in Smart Homes

Muruli A V, Mahesh M R, Bibang Gwar Basumatary, and Nakul Ramanna discuss IoT-based solutions for smart homes, where interconnected devices and systems automate household tasks, monitor energy consumption, and enhance home security. From smart thermostats to intelligent lighting systems, IoT transforms traditional residences into connected, energy-efficient living spaces.

AI and IoT in Building Smart Offices

Mohammed Mujeer Ulla, Preethi, and Sapna R explore the synergy between artificial intelligence (AI) and IoT in building smart offices. By integrating AI-powered analytics with IoT sensors and devices, organizations can optimize office layouts, improve employee productivity, and create adaptive work environments that promote collaboration and innovation.

Intelligent Street Lighting and Parking Systems

Dayalan J, Bhavankumar, Venkatesha Raju, and Jagdish H Godihal present intelligent street lighting and parking systems enabled by IoT technologies. By deploying smart sensors and data analytics, cities can reduce energy consumption, alleviate traffic congestion, and enhance public safety through efficient lighting and parking management solutions.

Safe Riding using IoT

Ila Chandrakar and Gopal K Shyam discuss IoT applications for safe riding, where connected vehicles and infrastructure improve road safety, mitigate traffic accidents, and enhance emergency response capabilities. By equipping vehicles with IoT-enabled sensors and communication systems, riders can receive real-time alerts and assistance to navigate hazardous road conditions safely.

Battery Monitoring and Management for Electric Vehicles

Sreenivasappa B V introduces a battery monitoring, protection, optimization, and management system for electric vehicle applications. By leveraging IoT sensors and predictive analytics, this system ensures the reliable operation of electric vehicle batteries, prolongs their lifespan, and optimizes charging infrastructure to support widespread adoption of electric mobility.

IoT in Communication Technologies

Chaithra S and Jagdish Godihal explore IoT applications in communication technologies, where interconnected devices and networks enable seamless data exchange and connectivity. From wireless sensor networks to satellite communication systems, IoT revolutionizes communication infrastructures, driving innovation and connectivity in the digital age.

IoT and Artificial Intelligence

Arjun M, Bibang Gwra Basumatary, and Shwetha A examine the convergence of IoT and artificial intelligence (AI), where machine learning algorithms and predictive analytics enhance the capabilities of IoT systems. By analyzing vast amounts of data in real-time, AI-powered IoT solutions enable proactive decision-making, predictive maintenance, and intelligent automation across various domains.

Practical Applications of IoT in Smart Homes

Ruchitha C R, Tushara M, Bibang Gwra Basumatary, Shwetha A, and Nakul Ramanna discuss practical and innovative applications of IoT in smart homes, where interconnected devices and systems transform residential living experiences. From voice-controlled assistants to smart appliances, IoT-enabled smart homes offer convenience, comfort, and energy efficiency to occupants.

Innovative Applications of IoT in Smart Cities

Milan Lal, Abhay Vyas, Bibang Gwra Basumatary, Nakul Ramanna, and Shwetha A explore innovative applications of IoT in smart cities, where interconnected systems and digital technologies enhance urban sustainability, efficiency, and livability. From smart transportation to environmental monitoring, IoT solutions address complex urban challenges and create vibrant, resilient cities of the future.

Communication Technologies in IoT

Atharsh J R, Naren M, Karthik M H, Nakul Ramana, and Dr. Shwetha A, discuss the communication technologies within IoT ecosystems, highlighting the critical role of reliable, low-latency communication infrastructures in enabling seamless connectivity and data exchange. From wireless protocols to satellite networks, IoT communication technologies form the backbone of interconnected systems, supporting diverse applications across industries and domains.

Bio mimicry: A Mimesis of Communication from Nature

Rajesh Sisodia, Archan Mitra, and Sayani Das explore the concept of bio mimicry as a source of inspiration for communication technologies in IoT. By studying nature's communication strategies and adapting them to technological contexts, researchers can develop innovative solutions that enhance efficiency, sustainability, and resilience in IoT ecosystems.

Concluding concisely, the diverse range of topics covered in this book illustrates the multifaceted nature of IoT and its far-reaching impact on various aspects of modern life. From healthcare and agriculture to transportation and urban planning, IoT technologies continue to drive innovation, efficiency, and sustainability across industries and domains. As we navigate the connected horizons of IoT, it is imperative to harness its transformative potential responsibly, ensuring that it benefits society as a whole and contributes to a more equitable, resilient, and sustainable future.