

RFID Technology in Retail: A Study on IoT-Based Shopping Cart System

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Abstract: The emergence of the Internet of Things (IoT) technology has revolutionized various industries, and the retail industry is no exception. The application of IoT technology in the retail sector has led to the development of smart and connected devices that enhance the customer experience and streamline operations. One such application is the IoT-based shopping cart, which uses sensors and microcontrollers to automate inventory management and real-time monitoring. The proposed IoT-based shopping cart is designed to automate and optimize the shopping experience. The RC522 sensor enables accurate and fast RFID scanning of products, which ensures real-time inventory management and tracking. The NodeMCU microcontroller handles data processing and wireless communication with the cloud server, ensuring seamless communication between the shopping cart and the backend system. The system is designed to provide personalized recommendations to customers based on their shopping history, which can enhance the customer experience and increase sales.

Keywords: NodeMCU microcontroller, RC522 RFID sensor module, Wireless Sensor Networks (WSNs), Real-time Data Acquisition, IoT, inventory management, smart cart, cloud, data processing, Wifi Connectivity

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"Internet of Things (A Hands-on-Approach)"

Book • 2014

Edited by: Arshdeep Bahga and Vijay Madisetti

The book is a practical guide that provides an in-depth understanding of IoT concepts, architectures, and applications, along with hands-on exercises using popular IoT platforms and technologies. The book covers topics such as sensors, actuators, communication protocols, cloud computing, and security, making it a valuable resource for students, researchers, and practitioners in the field of IoT.

"RFID Handbook: Fundamentals and Applications in Contactless Smart Cards, Radio Frequency Identification and Near-Field Communication"

Book • 1999

Edited by: Klaus Finkenzeller

It is a comprehensive guide to the fundamental principles, technologies, and applications of RFID. The book provides an overview of the history and development of RFID, as well as the different types of RFID systems and their components.