

**IES****COLLEGE OF ENGINEERING**

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Chittilappilly P.O., Thrissur, Kerala - 680 551, Ph : 0487-2309966, 2309967

Fax: 2307077, E-mail: mail@iesce.info, www.iesce.info



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Smart Shopping Cart

ABIN SANTHOSH [Reg. No. IES22CS006]**ADHITH SUNIL [Reg. No. IES22CS007]****ADHWAITH T T [Reg. No. IES22CS008]****ANITTA RAPHI E [Reg. No. IES22CS025]**

Department of CSE,
IES COLLEGE OF ENGINEERING, THRISSUR

Under the Guidance of
Ms. MEETHU M B
Assistant Professor
Department of CSE
IES COLLEGE OF ENGINEERING, THRISSUR



TARGETS OF THE PROJECT WORK

Activities		Activities	
Domain and Problem Identified	Yes	Development of product	No
Literature Review	Yes	Testing	No
Objectives formulated	Yes	Obtained Result	No
Methodology/ Design	No	Documentation	No
Created work plan and task allocation	No	Report submission	No



INTRODUCTION

- Highlights the need for a more efficient billing system in shopping malls to reduce customer wait times.
- Utilizes RFID tags instead of barcodes to streamline the shopping process.
- Employs an RFID reader with an LCD display mounted on the shopping cart to show the price of each scanned item.
- The system automatically performs all billing actions and displays the total price on the LCD screen.
- Aims to enhance the shopping experience by reducing time spent at billing counters.
- Provides a more secure and efficient method for tracking items and preventing theft.
- Improves overall customer satisfaction and operational efficiency in shopping malls.



PROBLEM DEFINITION

The increasing congestion in shopping malls necessitates a more efficient billing system. Current methods often rely on barcode scanning, leading to significant delays at billing counters. As a result, customers waste unnecessary time waiting in long queues, which diminishes their shopping experience. A more streamlined and automated billing system is crucial to enhance customer satisfaction and operational efficiency. It's essential to have a system in place that reduces wait times and improves the overall shopping experience for customers.



LITERATURE REVIEW

SL NO	Name of the Paper	Outcome	Author and Publication details
1	Data transmission using RFID system on smart shopping carts for checkout process efficiency in supermarket at indonesia	A Smart Shopping System using RFID technology, achieving 99.2% item detection accuracy, 83.3% checkout efficiency improvement, and 98.95% customer satisfaction.	Martinusa , Metta Saridewi Wahaba , Yudia , Hanry Ham Published on January 2021
2	.Smart shopping cart using rfid technology	RFID-enabled smart shopping carts automate item reading and billing, reducing manual scanning and staff needs. This system enhances inventory management and speeds up the shopping process, improving customer satisfaction.	Susanna M Santhosh, Cemone P Babu, Jills Joseph , Preethu Benny Published on June 2020



LITERATURE REVIEW

SL NO	Name of the Paper	Outcome	Author and Publication details
3	IoT-based Smart Shopping Cart using RFID	This system uses RFID technology, Arduino microcontroller, and Bluetooth module to track items in real-time and streamline billing. It reduces checkout times, provides product information, and maintains inventory control by updating purchase details and generating bills automatically.	Seshagopal , Harish D , Ashwinth Fatin , Dr. Antonidoss Published on April-2021

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LITERATURE REVIEW

SL NO	Name of the Paper	Outcome	Author and Publication details
4	RFID Based Smart Shopping Cart for Smart Shopping Enhanced with IoT	Utilizing RFID technology, this system automates the billing process in supermarkets. Each product is tagged with an RFID, which is scanned when added to the cart. The system displays the product details and total amount on an LCD screen, reducing wait times and enhancing the shopping experience. The integration of GSM modules allows for real-time updates and notifications, ensuring a seamless and efficient checkout process.	K Sreenivasa Rao, Ayesha Shaik, N Dineshsairamreddy, H Anusha, A Guru Rajesh Published on March 2024



LITERATURE REVIEW

SL NO	Name of the Paper	Outcome	Author and Publication details
5	Research on Smart Shopping Cart	RFID-based smart shopping carts streamline the shopping experience by automatically detecting and billing items as they are placed in the cart. This system reduces checkout times, minimizes human error, and provides real-time updates to a central billing unit, ensuring a seamless and efficient shopping process. .	Prof. Roopa C , Nivas Chandra Reddy Published on May 2022



LITERATURE REVIEW

SL NO	Name of the Paper	Outcome	Author and Publication details
6	Design and development of RFID based smart shopping cart using Arduino	RFID-based smart shopping carts integrated with Arduino, enabling automatic item detection, billing, and real-time data synchronization with central servers. This system enhances customer experience, reduces queue times, and improves overall shopping efficiency.	Peeyush Garg , Sanjay Koli, Tanvi Joshi , Deepika Bansal Published on February 2023.

LITERATURE REVIEW

SL NO	Name of the Paper	Outcome	Author and Publication details
7	Enhanced Shopping Experiences: The Role of RFID Technology in Smart Carts	RFID technology in smart shopping carts automates item identification and billing, reducing wait times and enhancing customer satisfaction. By embedding RFID readers and LCD screens in carts, customers can view item costs and the total cost in real-time, streamlining the shopping process and reducing congestion at checkout counters. This innovation improves operational efficiency and offers a more convenient shopping experience for consumers. .	<p>Ipshita Datta , Anjali Garg , Anu Tonk , and Pankaj Rakheja</p> <p>Published on December 2023</p>



OBJECTIVE

To develop a smart shopping cart system using RFID technology, leveraging an RFID reader and microcontroller. The system aims to streamline the shopping process by accurately scanning items and displaying prices in real-time on an LCD screen. This integration ensures a seamless and efficient checkout process, reducing wait times and enhancing the overall shopping experience for customers. The approach addresses limitations in existing systems, such as manual barcode scanning, inefficiency, and long queues. The paper also outlines a robust implementation plan and demonstrates the system's effectiveness with improved billing accuracy and customer satisfaction.



SCOPE OF PROJECT

- ☐ Use RFID technology to streamline the shopping process without needing barcode scanners.
- ☐ Automatically display the price of each scanned item on the LCD screen mounted on the shopping cart.
- ☐ Improve Billing Efficiency: Reduce the time customers spend at billing counters, enhancing their shopping experience.
- ☐ Use Existing Infrastructure: Leverage already available RFID tags and readers, making it cost-effective and easier to implement.
- ☐ Enhance Security: Minimize theft and errors using advanced RFID techniques, ensuring reliable item tracking and billing.



CONCLUSION

The smart shopping cart system using RFID technology significantly enhances the shopping experience by reducing wait times at billing counters. The system efficiently scans items, displays prices, and calculates the total bill in real-time, ensuring a seamless and quick checkout process. By improving accuracy and minimizing human errors, the system effectively addresses the challenges of traditional barcode-based billing. Future enhancements, such as integrating advanced payment methods and personalized shopping experiences, can further elevate its impact, potentially transforming the retail industry and boosting customer satisfaction.



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