# Online Shopping System with Extended Functionality: A Hybrid Sales and Rental Model

Ronak Bokhiriya, Vaibhav Sangani, Simran Parekh, Nidhi Patel
Department of Computer Engineering Parul Institute of Technology, Parul University
Vadodara, Gujarat, India
Email: ronak.bokhiriya@paruluniversity.ac.in

Prof. Shubham Upadhyay
Faculty Guide Department of Computer Engineering
Parul Institute of Technology, Parul University Vadodara, Gujarat, India

***Abstract*—The sudden boom of e-commerce has revolutionized the retail sector, especially in the area of fashion and apparel. Nevertheless, traditional platforms are mostly sales-oriented, not fully responding to concerns of affordability and sustainability. This paper describes the design of an Online Shopping System with Extended Functionality (OSSEF), a hybrid system that com- bines both sales of clothes and rental services in one system. The system has been designed with modules for user management, inventory management, payment processing, review, and returns management. Developed with PHP and MySQL in the back-end and HTML, CSS, and JavaScript in the front-end, the system follows a three-tier architecture that includes strong security and scalability features. Results show that the OSSEF enhances consumer affordability, enables sustainable fashion practices through reusing garments, and provides a scalable solution that can be used to accommodate future AI-based personalization and blockchain-based rental tracking.**

***Index Terms*—Online Shopping, E-commerce, Clothing Rental, Sustainable Fashion, Hybrid Systems, Database Management**

## I. INTRODUCTION

With the advent of e-commerce as a key driver of contempo- rary retailing, clothing is one of its biggest and fastest-growing segments. Not only do consumers now seek convenience but also sustainability and affordability in their shopping experience. Although traditional e-commerce sites concentrate exclusively on sales, they overlook the growing demand for reuse and circular economic models in apparel.

Clothing rental has become a competing business model, whereby consumers are able to enjoy trendy clothing at reduced prices and lower the ecological footprint through the reuse of garments. The majority of solutions available concentrate either on rentals or sales, opening a void for models that are hybrids. This study proposes the Online Shopping System with Extended Functionality (OSSEF) that combines both sales and rentals within one system.

### *A. Objectives*

The main goals of the system are:

- To offer customers the ability to buy or rent clothing.
- To support functionalities like user reviews, rental history, return handling, and secure payments.
- To foster environmentally friendly fashion habits by en- abling garment reuse.
- To create an extensible architecture for supporting emerg- ing technologies like AI and blockchain.

## II. LITERATURE REVIEW

Existing research points to opportunities as well as chal- lenges in e-commerce and sustainable fashion platforms:

- **Conventional e-commerce:** Existing literature [1] indi- cates that although e-commerce enhances convenience and accessibility, it hardly incorporates sustainability into fashion retailing.
- **Rental models:** Lang and Armstrong [2] highlighted that rental platforms advance affordability and sustainability but are hindered by garment maintenance, logistics, and on-time returns.
- **Collaborative consumption:** Belk [3] and Becker-Leifhold [4] researched consumer sentiments toward col- laborative fashion, deducing that trust and security are critical to adoption.
- **Big data and personalization:** Hofacker et al. [5] demonstrated the power of AI-based recommendation and data analysis in enhancing consumer involvement and retention.

These researches justify establishing a hybrid sales-rental system that fuses both affordability and sustainability.

## III. PROPOSED SYSTEM

The OSSEF is made a hybrid e-commerce site that allows the users to rent or buy clothes. The system consists of three significant modules:

- **Customer Module:** Browsing, registration, purchasing, renting, reviewing.
- **Admin Module:** Rental tracking, order tracking, inven- tory management, reporting.
- **Delivery and Return Module:** Coordination of returns, shipping, deposits, handling of late fees.

### *A. Key Features*

- Single platform for rentals and sales.
- Rental tracking with penalties, deadlines, and deposits.
- User reviews for trust and transparency.
- Payment gateway with encryption.
- Future integration with AI-driven recommendations and blockchain-supported rental records.

## IV. SYSTEM ARCHITECTURE

The architecture is three-tiered:

- **Presentation Layer:** Offers a user-friendly interface for browsing and transactions.
- **Business Logic Layer:** Manages purchase and rental regulations, payment validation, and review systems.
- **Data Layer:** Keeps track of user, product, rental, pay- ment, and review records.

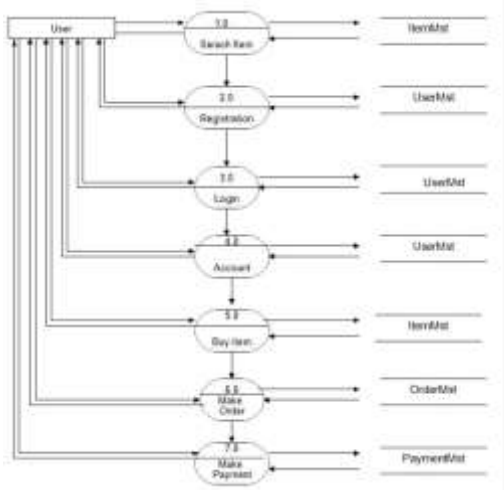

Fig. 1. Data Flow Diagram (DFD)

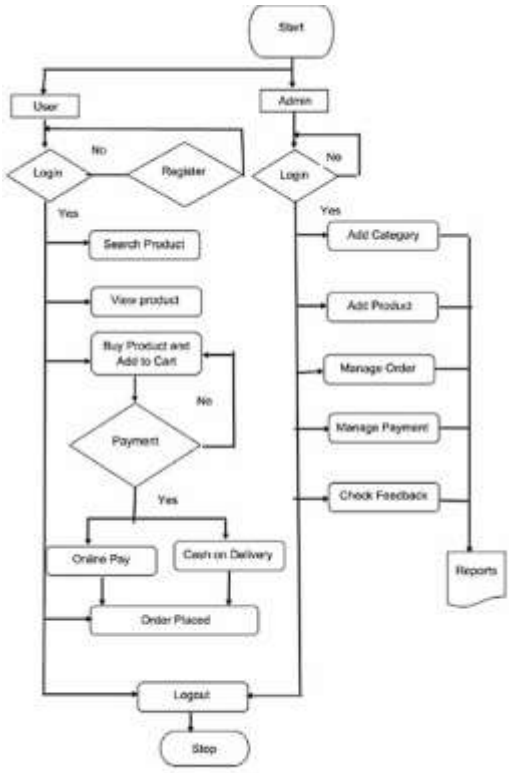


Figure 4.3: Flowchart of User and Admin Flow

Fig. 2. Flowchart of User and Admin Flow

## V. IMPLEMENTATION

The system was implemented utilizing:

- **Backend:** PHP and MySQL database for storage and transaction handling.
- **Frontend:** HTML, CSS, and JavaScript for a responsive interface.
- **Security:** Encrypted storage of sensitive information, secure payment handling, and role-based authentication.
- **Testing:** Performed unit testing, integration testing, and user acceptance testing (UAT).

## VI. RESULTS AND DISCUSSION

The prototype was tested with 25 simulated users, and the following results were obtained:

### *A. Positive Outcomes*

- Customers appreciated the convenience of having both buying and leasing options.
- Availability of rental facilities greatly enhanced afford- ability for price-sensitive customers.
- Return management with deposits and penalties mini- mized disagreements and late returns.
- Automated reporting streamlined administrative opera- tions.

### B. Challenges

- Damage to garments during rentals necessitated the use of a deposit system.
- On-time returns were imposed with late fee policies.
- Users asked for future mobile app functionality and personalized recommendations.

### C. Discussion

In comparison to the current rental-only or sales-only platforms, OSSEF presents an equitable balance between affordability and sustainability. Inclusive of redundancy (sales
+ rentals) and solid security, the system proves functional usability in both urban and semi-urban environments.

## VII. CONCLUSION

The Online Shopping System with Extended Functionality successfully merges sales and rentals into one e-commerce platform. It solves affordability among consumers while pro-moting sustainable fashion retail practices.
Future work will extend the system with:

- AI-powered recommendation systems.
- Blockchain-based rental tracking for transparency.
- Multi-language and multi-currency support for global scalability.

## REFERENCES

[1] K. C. Laudon and C. G. Traver, *E-commerce: Concepts of Business, Technology, and Society*. Pearson, 2021.
[2] C. Lang and C. M. J. Armstrong, ”Fashion leadership, uniqueness, and materialism as drivers of clothing rental and swapping practices,” *Sustainable Production and Consumption*, vol. 13, pp. 37–47, 2018.
[3] R. Belk, ”Access-based identity: Understanding sharing and collabora- tive consumption online,” *Journal of Business Research*, vol. 67, no. 8,
pp. 1595–1600, 2014.
[4] C. Becker-Leifhold, ”Values shaping collaborative fashion consumption: An exploration,” *Journal of Cleaner Production*, vol. 199, pp. 781–791, 2018.
[5] C. F. Hofacker, E. C. Malthouse, and F. Sultan, “Big data in consumer behavior: Emerging opportunities and insights,” *Journal of Consumer Marketing*, vol. 33, no. 2, pp. 89–97, 2016.