

MOBILE SHOPPING WEBSITE WITH INVENTORY MANAGEMENT

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ABSTRACT

The Mobile Shopping Website with Inventory Management is a modern web-based application that is developed with the objective of simplifying the shopping experience of the end-users while at the same time allowing the administrators to efficiently manage the inventory of the products that are being sold by the shopping website. The rapid advancement of digital technology and the increased popularity of using smartphones, the importance of online shopping has become an integral part of the lives of people around the globe. The main objective of this project is to develop a highly efficient shopping website that is user-friendly, allowing the end-users, i.e., the customers, to efficiently perform their shopping activities by using their mobile devices. The system has been developed with an efficient, well-structured interface that helps the end-users register their names, log in, search products, view the description of the products, and add the products to the cart, making the entire shopping process highly efficient and smooth.

KEYWORDS

Mobile Shopping, E-Commerce, Inventory Management, Online Transactions, User Interface, Product Management, Stock Tracking, Order Processing, Database Management, Secure Payment

INTRODUCTION

In today's digital world, online shopping has emerged as one of the most popular and convenient methods for customers to purchase products. The widespread adoption of mobile devices and increased internet

connectivity has led customers to prefer mobile-based online shopping. This has motivated businesses to adopt online shopping solutions for their businesses.

The Mobile Shopping Website with Inventory Management is designed to provide an efficient and convenient platform for both customers and administrators. The application allows customers to access a wide variety of products and shop online through their mobile devices. This eliminates the need for customers to physically visit stores and saves their precious time and energy.

In addition to online shopping, the application also includes an inventory management module. This feature helps administrators manage inventory levels and product details effectively. The inventory management module eliminates errors such as selling products that are out of stock.

The main objective of this project is to design an application that integrates online shopping and inventory management. This application aims to increase customer satisfaction and business efficiency. The application automates several business processes, including online shopping. This eliminates manual work and increases efficiency.

PROBLEM MOTIVATION WITH REAL-WORLD STATISTICS

The popularity of e-commerce is increasing day by day, which has created a need for more efficient and smarter online shopping systems. In India, the number of internet users has grown rapidly, reaching around 342 million users by 2025. With more people getting access to the internet, the use of e-commerce platforms is

also increasing. In fact, nearly 60% of internet users in India regularly shop online, making it a widely accepted method of shopping.

The e-commerce industry in India is growing at a fast pace. The market size has reached around \$151 billion in 2025 and is expected to grow to \$345 billion by 2030. India has already become one of the largest e-retail markets in the world. However, with this rapid growth, the system is also becoming more complex, increasing the need for better and more intelligent e-commerce solutions.

Despite this growth, many businesses still face challenges, especially in inventory management. Poor inventory handling can lead to problems such as stock shortages, overstocking, delayed deliveries, and reduced customer satisfaction..

LITERATURE REVIEW & REVIEW OF RECENT RELATED STUDIES

The growth rate of e-commerce has increased the importance of efficient inventory management systems. The traditional method of inventory management is not efficient, as it relies on manual tracking and physical verification. Recent research has highlighted the transition towards efficient, automated, and intelligent methods of inventory management. Recent studies have emphasized the role of digital technology, such as Artificial Intelligence (AI), Internet of Things (IoT), and Machine Learning (ML), in efficient inventory management.

According to Tuli et al. (2023), machine learning algorithms improve the accuracy of demand forecasting, which in turn enables companies to keep optimal levels of inventory, reducing storage costs. Zhou (2024) also found that AI-based inventory management systems improve stock monitoring, preventing excess stock as well as stock shortages.

Another significant area of research in the field of efficient inventory management is related to the optimization of inventory in the field of e-commerce. Ridwan et al. (2024) proposed the application of Random Forest algorithm for preventing stock shortages in e-commerce stores. Recent research in 2025 has highlighted efficient optimization models for jointly managing product selection and inventory levels, thus improving order fulfillment rates for customers.

Omnichannel retailing has also created new challenges for inventory management. Research has shown that inventory management through different retailing channels, both online and offline, necessitates sophisticated strategies for demand management and minimizing losses from product returns.

DATASET DESCRIPTION

The data set used in the Mobile Shopping Website with Inventory Management system comprises structured data about the users, products, orders, etc. This data is necessary for the overall functioning of the application.

The data set about the products contains information about the products, including the product ID, name, category, description, price, stock, etc., along with the images of the products. This data is necessary for the overall functioning of the application.

The data set about the users contains information about the users, including the user ID, name, email, password, contact information, etc.

The data set about the orders contains information about the orders, including the order ID, user ID, product ID, etc.

The data set about the inventory contains information about the inventory, including the product ID, available stock, etc.

PROBLEM STATEMENT

In the current digital world, the demand for online shopping has increased at a rapid rate, but various problems are being faced by different businesses in managing their products and inventory in an efficient manner. The traditional method of inventory management is considered manual, time-consuming, and prone to errors, resulting in various problems such as incorrect stock levels, excess stock, and stock shortages. These problems are affecting various businesses in terms of timely processing of orders, satisfying customers, and incurring heavy losses.

Most of the existing online shopping websites are not providing proper

updates regarding the stock level of the products, which may result in customers purchasing products that are out of stock. This is creating problems for both customers and sellers. Additionally, small and medium-sized businesses are not using an integrated system that combines mobile shopping features with efficient inventory management.

Hence, there is a need to develop a Mobile Shopping Website with Inventory Management, which will provide a user-friendly interface for customers as well as an efficient system for administrators to manage products in an efficient manner.

EXISTING SYSTEM

1. Traditional E-Commerce System:

The majority of the existing mobile shopping websites are designed to allow users to view products, place orders, and make payments. The data related to the products, such as stock level, may be managed manually, resulting in potential errors.

2. Lack of Real-Time Updates:

The existing systems are not designed to offer real-time updates to the users about the products they ordered. This may cause confusion for the users, as they may see products in stock when, in reality, the stocks may be finished.

3. Limited Automation

The majority of the existing systems are not highly automated. For example, these systems are not designed to use AI technologies to predict the demand of products.

PROPOSED SYSTEM

The proposed system is "Mobile Shopping Website with Integrated Inventory Management," which will address all the limitations associated with the existing system. This system will provide a platform for customers to shop, make orders, and pay securely, while the administrators will be able to manage their business.

The proposed system will provide various facilities for customers, such as registering, logging in, searching for products, viewing product information, adding items to the cart, and shopping. It will also provide facilities for tracking orders, which will result in greater transparency and satisfaction for customers.

One of the key features of the proposed system is "Real-Time Inventory Management." This system will reduce the problems associated with inventory, as the database will be updated in real time. When a product is sold, the database will be updated, ensuring that the product is available in the required quantity. This system will prevent problems such as excess stock or insufficient stock.

RESEARCH DESIGN METHODOLOGY

1. Research Design

The research design of the project is based on a systematic approach in which a Mobile Shopping Website with Inventory Management is developed. The main idea is to develop an efficient and user-friendly

system that allows online shopping and inventory management in real time.

2. Development Model

The project is developed using the Waterfall Model. It is a step-by-step model in which each step is completed before moving on to the next one. It is a simple and easy model.

3. Requirement Analysis

In this phase, the requirements of the users and administrators are analyzed. The requirements are analyzed based on the existing system and features such as user registration, browsing, and shopping are analyzed.

4. System Design

The design of the system is developed in this phase. It includes the overall structure of the system in which the user interface, database, and modules such as product management and inventory management are included. Diagrams such as DFD and ER diagrams are used in this phase.

5. Implementation

The system is implemented using programming languages such as HTML, CSS, and JavaScript for the front end and Node.js and PHP with MySQL as the backend. It is designed in such a way that it is mobile-friendly.

MODEL COMPARISON

In developing the Mobile Shopping Website with Inventory Management, different software

development models can be considered. The most common models are the Waterfall Model, Agile Model, and Spiral Model.

The Waterfall Model is one in which the development phases are completed one by one in a linear sequence from the requirement analysis to the implementation and then testing and deployment. It is simple to understand and manage but cannot accommodate changes.

The Agile Model is one in which the development phases are completed in small increments or sprints. It is more flexible and can accommodate changes in the software development life cycle.

The Spiral Model is one in which the development phases are completed in a spiral sequence from the requirement analysis to the implementation and then testing and deployment.

The Waterfall Model is selected as the software development model for the project as the requirements are already well defined. It is also more suitable as the project is not highly complex. It is more structured and hence easier to design and implement the system step by step. It is more suitable than the Agile and Spiral Models as the project is not highly complex.

INTEROPERABILITY AND DATA INTEGRATION

Another important aspect of designing an effective mobile shopping website with inventory

management is the integration and sharing of data across the various components of the system. The proposed system allows for the integration of the various modules in the system, ensuring interoperability in the entire system.

The proposed system integrates the data in the following ways:

Heterogeneous Data Sources:

The proposed system integrates the data from the various sources, including the product databases, customer information, order data, and payment information.

Standardized Data Formats:

The proposed system processes the data in a standard format through normalization and preprocessing techniques.

API and Service Integration:

The proposed system integrates the application programming interface (API) with the external services, including the payment systems.

Cross-Platform Interoperability:

The proposed application allows the integration of the mobile platform with the web platform, ensuring that the data does not get inconsistent in the entire system.

Real-Time Data Synchronization:

The proposed system allows the inventory data to be updated in real-time, ensuring that the orders are fulfilled without running out of the product or having excess in the inventory.

CONCLUSION

The Mobile Shopping Website with Inventory Management system is an effective solution to the problems faced in traditional shopping and inventory management systems. The system is designed in such a way that it includes online shopping features with inventory management. This way, the system is able to provide an accurate inventory management solution.

The project is a success in demonstrating the benefits of automation in reducing manual work and increasing efficiency. Customers are able to enjoy the benefits of a user-friendly interface, easy access to products, and secure transactions. Similarly, administrators are able to effectively manage products, inventory, and sales data.

The Mobile Shopping Website with Inventory Management system is a reliable and cost-effective solution, especially for small and medium-sized businesses that want to create an online presence. It is an effective tool in providing better solutions and increasing efficiency. In the future, the system can be developed in such a way that it is able to incorporate advanced technologies such as artificial intelligence.

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