



Design and Development of a User-Centric E-Commerce Website

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ABSTRACT: E-commerce, which stands for electronic commerce, has become a prominent way of doing business via the internet. In recent years, the E-commerce industry in India has witnessed exponential growth, accompanied by intense competition. Researchers have demonstrated that E-commerce has been contributing significantly to the country's economy, with continuous year-on-year growth. Various aspects such as website design, security, payment methods, and cart technology are critical areas of research in the field of E-commerce. In recent years, substantial progress has been made in the areas of security and design.

In this study, we have developed an E-commerce website using Django, a Python module, and HTML/CSS technologies. The website includes functionalities such as a shopping cart, online store, and payment gateway. The product details are stored in a Sqlite database. The objective of this research is to analyse the working and design of the E-commerce website and make efforts to improve user experience.

Keywords: E-Commerce, Internet, Security, design

I. INRODUCTION

Business has been a pivotal contributor to the economy since ancient times. Over the years, numerous techniques have been developed to enhance business operations, and one of the most significant advancements in recent times is E-commerce. E-commerce, which stands for electronic commerce, refers to conducting business transactions via the internet, providing a graphical user interface (GUI) for consumers to engage in convenient trade [1-3].

There are four main types of E-commerce, namely business to business (B to B), business to consumer (B to C), business to government (B to G), and consumer to consumer (C to C). This defines E-Commerce as a way of electronic shopping which allows its customers and seller to interact through there devices sitting anywhere.

[2].

However, despite the significant benefits of E-commerce, challenges such as design complexities and security issues have emerged in recent years [4][9]. Many E-commerce platforms have encountered security breaches, resulting in data leaks and compromising user information. Additionally, complex and cumbersome designs of larger E-commerce platforms can hinder business operations and user experience.

This research paper aims to address the challenges in designing and securing user data in the field of E-commerce. The paper will delve into the issues faced by E-commerce platforms and propose solutions to improve the design and security of E-commerce websites. The research findings will contribute to the existing body of knowledge in the field of E-commerce and provide valuable insights for businesses, web developers, and researchers in the quest for creating secure and user-friendly E-commerce platforms.

A. Reasons for Growth of E-Commerce:

- **Internet:** Internet has changed the world we live in. It has influenced every sector of our life like education, business, communication and it has made information gathering a lot easier. With the steep increase of internet users ranging from common people such as carpenters, labours to many important people like big business personalities it has made vendor consumer interaction a lot easier.
- **Payment Gateways:** Payment gateways has been a huge problem for E-Commerce as the payment methods earlier available are very hectic, but with the advent of digitalization and online payment, it has become a lot easier.
- **Social media:** Increase in internet usage also led to the increased use of social networking sites. Before the boom in social networking marketing of E-Commerce was difficult for start-ups as the key marketing before were only advertisement but with the advent of social media marketing has become a lot easier and simpler. Any start-up E-Commerce can easily market their services on any social networking.
- **Analytics:** The study on data conducted to extract useful information out of it is known as Analytics. Analytics is very useful for businesses to gather the consumer information because it helps them to view consumer's interest. This data is used for optimal marketing strategies. The analysis also keeps a track for demand of consumers thereby maximizing sales.

B. BOOM OF E-COMMERCE:

E-Commerce has now become a primary choice for businesses having influenced both marketers and consumers. It is not just a boom in businesses but a change in traditional way of trading all over the globe. The E-commerce is a nature friendly and a faster way of business ever made.

This new way of business has given consumers the flexibility to choose a product from anywhere, from any seller and to order it any desired location. Trading worldwide has been revolutionized through availability of online information. Anything which is available in physical stores can be bought through an E-Commerce just at your doorstep. This great convenience has made E-Commerce best choice for shopping among people.

This spread of E-Commerce globally in nearly every area has led to the development of new ways of businesses for finding and interacting with customers such as Online Advertising, Online marketing etc. The main advantage of seller is to avoid the huge chain of intermediate vendor which also charge their amount. In India, E-Commerce is still at very mediocre stage as it is popular mostly in main cities, in more smaller cities people still rely on local vendors.

C. Features of an E-Commerce

- **Design:** The design of an E-Commerce is one most important factors which effects its popularity within its competitors.

The website must be responsive (which means it must not distort on devices with different screen dimensions) and must contain interactive images which make sense.

- **Security:** Security is one of the major concerns of an E-Commerce website because various important information about customers like his address, phone no., and credit/debit card details must be protected. This can be done through SSL encryption, firewall etc. There is standard known as PCI Compliance which tells us how secure a particular E-Commerce is. Websites which do not fulfil the PCI Criteria are at risk of getting hacked or sensitive information may be stolen.
- **Functionality:** The E-Commerce must contain a range of features which make user interaction easy. These features include shopping cart. Searching products, reviewing its previous customer feedback and related product recommendations.

Another important functionality is to tell customers the availability and left in stock items so that he can buy before it gets out of stock.

- **User Experience:** User experience is most important since it will decide whether the customer would consider your website for future purpose. The website should be easy to use with clear product details. Personalized recommendations based on customers user data is also necessary.

II. RELATED WORK

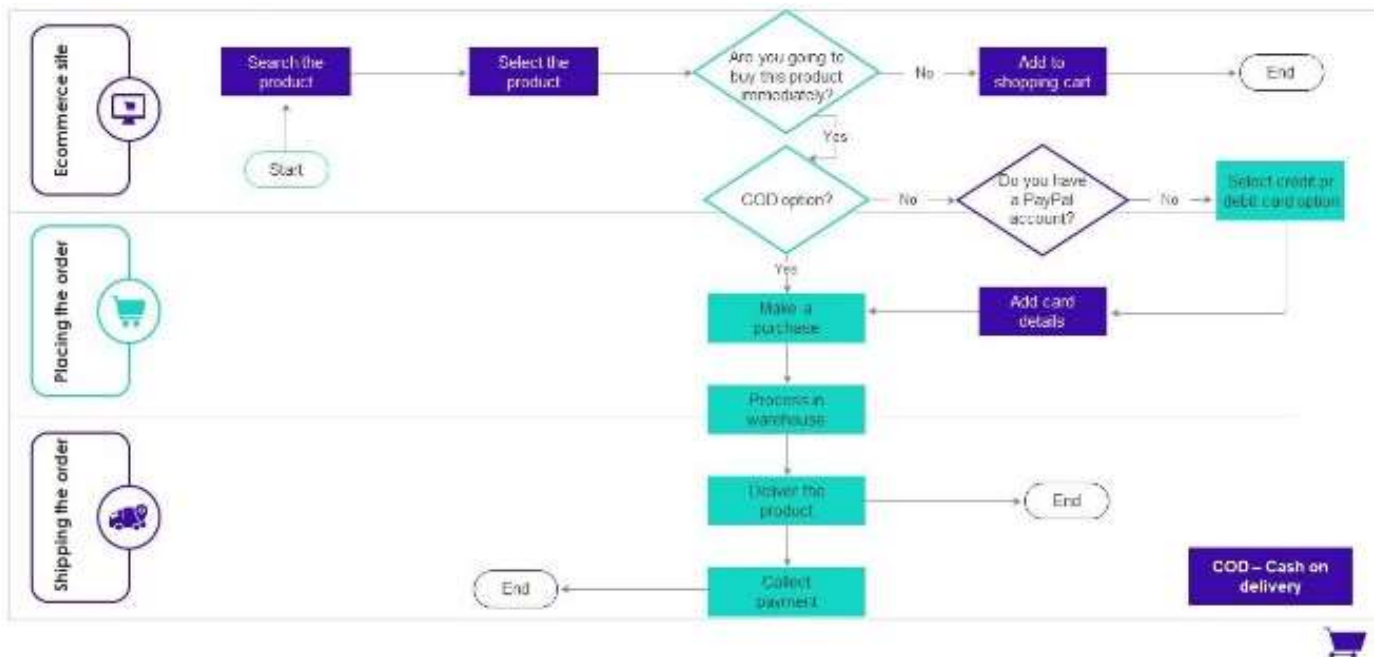
Ozok et al (2007) identified ten item they have done various research on e-commerce identifying various flaws in security and integrity of online payment methods. This research puts light on the required issues to be solved which pass through.

III. METHODS AND FLOWCHART

The E-Commerce website is created by HTML, CSS, JavaScript and Django (which is a web development module in python). The Frontend or precisely design and look of this website is created using HTML5 and CSS. The transitions and session storage within a browser are created using JavaScript.

The Backend of the website is created using Django framework

The E-Commerce flow chart:



IV. IMPLEMENTATION WORK:

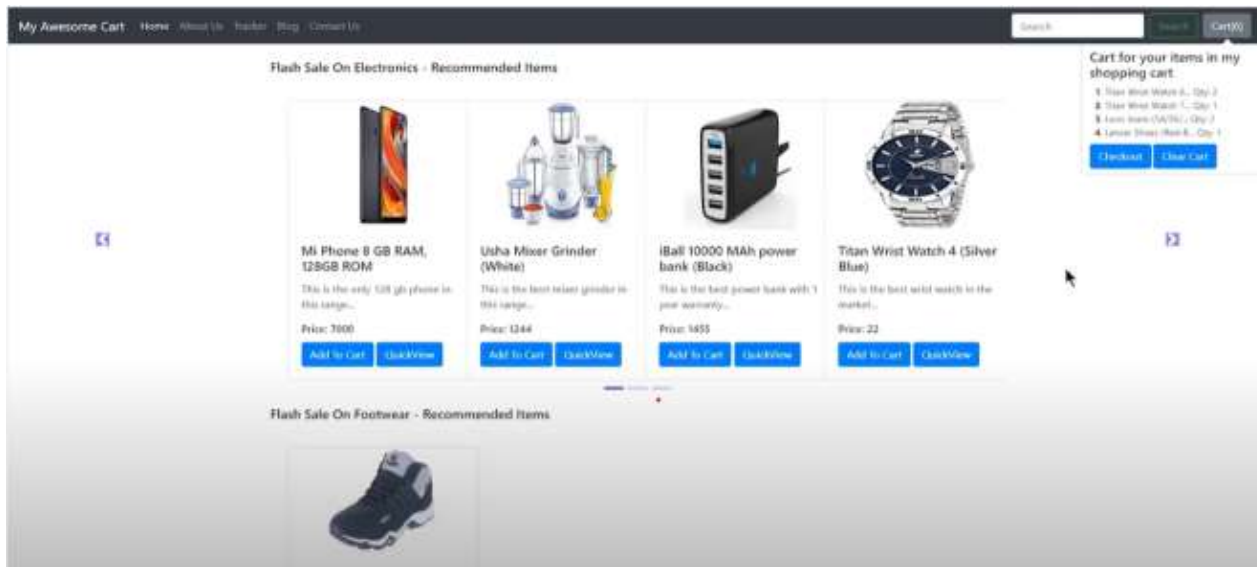
The Frontend Html Code Snapshot of homepage:

```

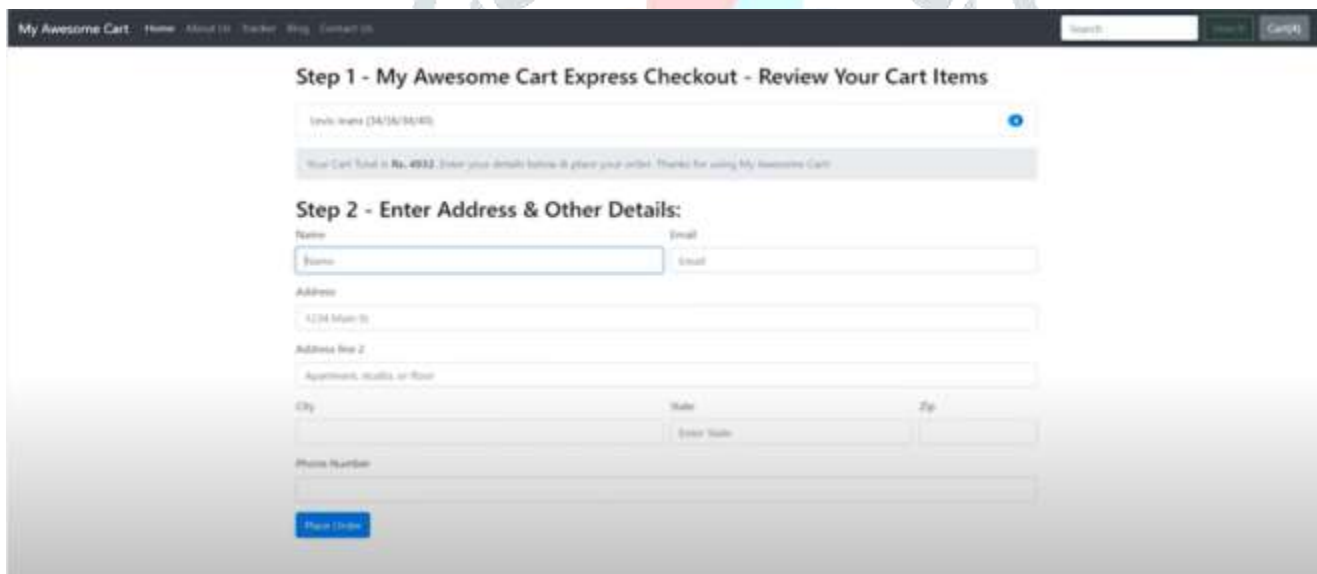
{% load static %}
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta http-equiv="X-UA-Compatible" content="IE=edge">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Document</title>
  <link rel="stylesheet" href="{% static 'itemStyle.css' %}">
  <link rel="stylesheet" href="{% static 'style.css' %}">
</head>
<body>

  <header>
    <ul>
      <div id="inner">
        <span>EasyBuy</span>
        <li><a href="{% url 'HomePage' %}">Home</a></li>
        <li><a href="{% url 'ProductPage' %}">Products</a></li>
        <li><a href="#">Contact Us</a></li>
      </div>
      <div id="outter">
        <input type="search" name="" id="" placeholder="search">
        <button type="submit">Search</button>
      </div>
    </ul>
  </header>
  {% block content %}{% endblock content %}
</body>
</html>
  
```

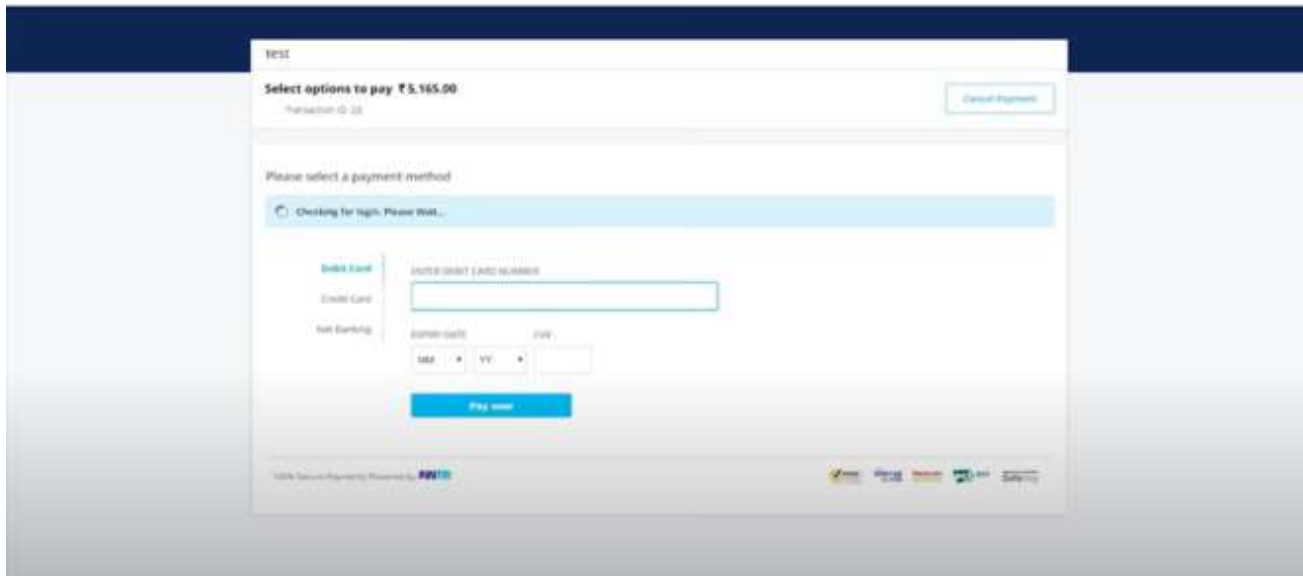
Home Page of E-Comm Website:



Products Order Page



Online Payment Gateway



V. CONCLUSION

We can conclude that E-Commerce websites have become an important part of our life, and its depends on various variables such as design, functionality, security and user experience. The creators of the website must ensure easy website experience, secure user data and various payment options are available.

ACKNOWLEDGMENT

I would like to express my sincere gratitude to Prof. Mahesh Sir for their invaluable assistance in this research project. Without their support, this study would not have been possible. I am also grateful to M.I.T.S for making this research possible.

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