

# E-Commerce Application for Visually Impaired

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## ABSTRACT

The ecommerce application for visually impaired individuals is an assistive technology that aims to enhance the online shopping experience of people with visual impairments. This application is designed to provide accessibility features that will allow visually impaired users to navigate, search, and purchase products on ecommerce platforms with ease. The application incorporates features such as text-to-speech functionality, screen reader compatibility, and high-contrast options, which enable users to browse products, read descriptions, and make purchases without any difficulty. Additionally, the application includes features such as enlarged font sizes, voice commands, and alternative input methods, making it more accessible to people with varying degrees of visual impairment. The ecommerce application for visually impaired users has the potential to improve the quality of life for visually impaired individuals by providing them with greater autonomy and independence in online shopping. It can also benefit ecommerce platforms by making their services more inclusive and accessible to a wider audience.

**KEYWORD:** E-commerce, visually impaired, accessibility, assistive technology, text-to-speech, screen reader, high-contrast, font sizes, voice commands, alternative input methods, independence, inclusion.

## I. INTRODUCTION

The advancement of technology has enabled people to perform various tasks with ease, including online shopping. Ecommerce platforms have become increasingly popular over the years, providing convenience and accessibility to people worldwide. However, visually impaired individuals

face significant challenges when accessing and using these platforms, hindering their ability to make purchases independently. To address this issue, an ecommerce application designed specifically for visually impaired individuals has been developed. This application incorporates accessibility features that aim to improve the shopping experience for visually impaired users [5]. These features include text-to-speech functionality, screen reader compatibility, high-contrast options, and alternative input methods, among others. This application has the potential to make online shopping more accessible and inclusive for visually impaired individuals, providing them with greater independence and autonomy. In this article, we will explore the key features of the ecommerce application for visually impaired users and the potential benefits it offers. We will also discuss the impact this application could have on ecommerce platforms and the wider community.

## II. LITERATURE SURVEY

Several studies have been conducted on the development and effectiveness of ecommerce applications for visually impaired individuals. These studies have highlighted the importance of accessibility features in improving the shopping experience for visually impaired users.

One study conducted by R. S. Ganapathy and S. S. Mahajan (2019) aimed to develop an ecommerce application for visually impaired users and assess its usability. The application included features such as text-to-speech, voice recognition, and high-contrast options. The results showed that the application was effective in improving the shopping experience of visually impaired users and could significantly increase their independence in online shopping [1].

Another study conducted by Y. Gao and Y. Zhang (2021) focused on developing an ecommerce application that incorporated a haptic feedback system to assist visually impaired users. The study found that the haptic feedback system significantly improved the usability of the application and helped visually impaired users make more accurate selections when shopping[2].

Furthermore, a study by R. Kumar et al. (2020) aimed to evaluate the accessibility of popular ecommerce websites for visually impaired users. The study found that many of these websites had significant accessibility barriers, making it challenging for visually impaired users to navigate and complete purchases. The study concluded that the development of ecommerce applications with accessibility features was critical in improving the online shopping experience for visually impaired user[3]s..

### III. PROPOSED METHOD

#### A. Front End and Back End

The application is accessed by two entities namely, Admin and User. Admin can login with their valid login credentials in order to access the application. Admin can add products to the website, and he/she can also manage products by adding new, updating existing category details and can also delete categories and products. Admin can view registered, Order and Payment details. Admin can also view all the details regarding the confirmed order. The admin side of the system is developed using H2 Database server and InteliJ.

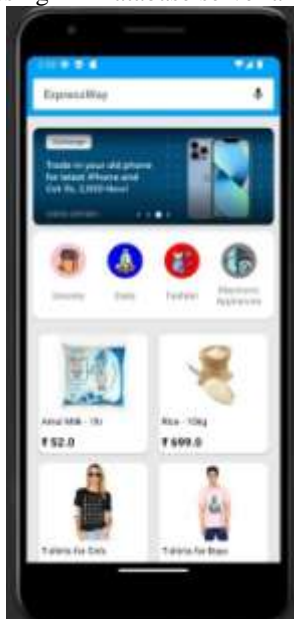


Fig no.1 Home Page

The home page of an Android app, also known as the main or landing page, is the first screen that users see when they launch the app. The content and features displayed on the home page can vary depending on the app's purpose and functionality, but in general, the home page is designed to give users a quick overview of the app's key features and content[7].

Here are some of the things that the home page of an Android app may provide to users:

**Navigation:** The home page may provide a menu or other navigation elements that allow users to easily access different parts of the app, such as settings, account information, or other features.

**Search:** Some apps may include a search bar on the home page, which allows users to quickly search for specific content or features within the app.

**Promotions or featured content:** Depending on the app's purpose, the home page may highlight promotions, featured content, or new features to encourage users to explore and engage with the app.

**Personalization:** Some apps may use the home page to display personalized content or recommendations based on the user's preferences or behaviour within the app.





Fig no.2 Shopping Cart And Checkout

A shopping cart is a virtual feature that allows customers to select and store products they want to purchase in an online store. A shopping cart works by keeping track of the items that a customer selects, the quantity of each item, and the total cost of the order. Customers can add or remove items from the shopping cart at any time until they are ready to checkout and complete their purchase.

The checkout process is an essential part of the online shopping experience, allowing customers to purchase products or services from an e-commerce website. The checkout process is typically designed to be simple, efficient, and secure, providing customers with a seamless experience from start to finish.

The checkout process begins with the customer reviewing the items in their shopping cart. They can make changes, such as adding or removing items, and review the total cost of their order. Once they are satisfied, they can proceed to the next step of the checkout process[8].

At this stage, customers will need to provide their shipping and billing information, including their name, address, email, and phone number. They may also need to select a shipping method, such as standard shipping, expedited shipping, or in-store pickup.

Next, customers will need to provide their payment information. This may include their credit card number, expiration date, and security code, or they may be able to use a digital wallet such as PayPal or Apple Pay. The checkout process is

typically designed to be secure and ensure that customer's payment information is protected.

Once the customer has provided all necessary information, they will have the opportunity to review their order one final time before submitting it. This may include confirming the items, quantities, and total cost of the order. Once they are satisfied, they can submit their order and receive a confirmation page or email.



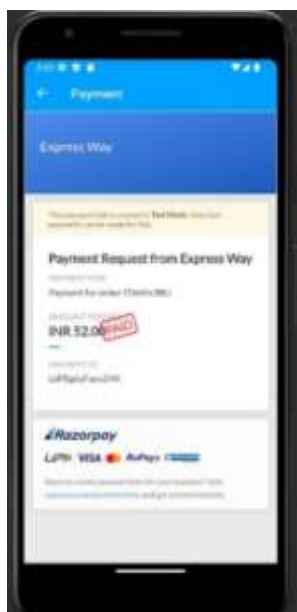


Fig no.4 Payment Process

The payment process is the final stage of a customer's purchase journey. The customer selects their desired items and proceeds to checkout, where they choose a payment method such as credit card, PayPal, or bank transfer. The customer then provides their payment information, including the card number, expiration date, and billing address. The ecommerce application securely transmits this information to a payment gateway, which verifies the payment details and either approves or declines the transaction. If the payment is approved, the payment gateway sends a confirmation message back to the ecommerce application, which confirms the order and sends a confirmation message to the customer. Finally, the order is fulfilled and the customer receives their purchased items. The entire payment process is designed to be fast, secure, and hassle-free for both the customer and the ecommerce business[9].

#### IV. CONCLUSION

In conclusion, developing an ecommerce application requires careful planning, design, and execution to create a user-friendly and efficient platform that meets the needs of both customers and business owners. Throughout the development process, it is important to focus on the user experience, ensuring that the application is easy to navigate, visually appealing, and optimized for mobile devices. Key features such as product listings, search and filtering options, user accounts, shopping carts, checkout and payment pages, and order status and details must be integrated seamlessly to provide a smooth and hassle-free

shopping experience. To ensure the success of an ecommerce application project, it is also essential to consider factors such as security, scalability, and marketing. Robust security measures must be implemented to protect user data and prevent fraud, while the application must be designed to scale effectively as the business grows. Marketing strategies such as search engine optimization (SEO), social media marketing, and email marketing can also be leveraged to drive traffic and sales to the ecommerce application. Overall, developing an ecommerce application is a complex but rewarding project that has the potential to transform the way businesses sell their products and services. By prioritizing the user experience, focusing on key features, and implementing effective marketing and security strategies, ecommerce applications can help businesses to increase their online visibility, attract new customers, and drive revenue growth.

#### V. FUTURE WORKS

Looking to the future, an exciting potential development for ecommerce applications is the integration with voice assistants such as Amazon Alexa, Google Assistant, or Apple Siri. By combining an ecommerce application with a voice assistant, customers could potentially make purchases, check order status, and receive product recommendations using only their voice. To achieve this, the ecommerce application would need to be designed with natural language processing (NLP) capabilities, allowing it to understand and respond to customer requests in a conversational manner. Integration with a voice assistant would also require the development of custom voice skills or actions to enable the application to communicate with the voice assistant platform. Furthermore, voice assistants could also be used to enhance the user experience of an ecommerce application by providing personalized recommendations, assistance with finding products, and even voice-based navigation of the application. This could potentially make the ecommerce experience even more convenient and accessible for customers, particularly those who prefer hands-free interaction with technology[10]. Overall, the integration of ecommerce applications with voice assistants has the potential to transform the way customers shop online and create exciting new opportunities for businesses to engage with their customers. As this technology continues to evolve, it will be important for ecommerce developers to stay up to date with emerging trends and best practices to ensure that their applications remain competitive and offer the best possible user

experience.

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