Design and Implementation of Homemade Food Delivery Mobile Application Using Flutter-Flow

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Abstract:- The E-commerce industry has gained popularity in recent years. One of the revolutions in the e-commerce industry is online food delivery which integrates restaurants for the delivery of food. However, post-COVID people have gained health consciousness, which led them to change their food preferences to choose homemade food over restaurant-made food. This enabled the necessity of homemade food delivery. In this context, this paper presents the design of a mobile application that integrates cloud kitchens for the delivery of homemade food. This app has been designed using Flutter-Flow and Firebase to integrate cloud kitchens with functionalities like adding food items to the cart, checkout page, payment gateway, and live order tracking that facilitates a seamless food delivery experience for the consumers.

Keywords:- Mobile Application Development, Flutter-Flow, Firebase, Home- Made Food.

I. INTRODUCTION

E-commerce websites and delivery apps have emerged as the leading platforms for online transactions, promoting the buying and selling of goods and services via the Internet. This sector is experiencing rapid growth in today's digital environment, representing a remarkable technological advancement for marketing across multiple countries and supporting expansive business opportunities on a global scale.

The usage of e-commerce websites and delivery apps has experienced rapid growth during the COVID-19 pandemic. Since then, these platforms have gained widespread popularity, easing transactions ranging from large-scale to small-scale operations through the Internet. This widespread usage has established a new sense of trust and reliability among consumers towards e-commerce platforms. Thus, improved customer satisfaction has resulted in repeated online transactions, highlighting the importance and effectiveness of these digital marketplaces in modern commerce.

These websites and mobile applications serve many business models, including online ticketing, shopping, banking, order tracking, and transaction processing. These applications find usefulness across diverse sectors including clothing, healthcare, food services, electronics and various other industries, offering a seamless and efficient means of conducting business transactions and delivering services to customers worldwide.

A large number of e-commerce platforms such as Amazon, Flipkart, Shopify, Myntra, OLX, Swiggy, and Zomato are accessible both through their websites and mobile applications, providing users with convenient access to a large variety of products and services at their fingertips. Food delivery apps and websites like Swiggy, Zomato, Uber Eats, Eat Sure, Domino's Pizza and many others have gained immense popularity in India. They offer convenient features such as online food ordering and delivery, secure online payment transactions, and real-time order tracking. These advancements have remarkably simplified the process of ordering food, allowing people to enjoy their favorite meals at any time, from the comfort of their homes or workplaces.

Restaurant-prepared foods are high in energy density, fat, and sodium levels, often lacking essential nutrients required for the body. Research indicates an increased risk of developing conditions such as obesity, type II diabetes, and cardiovascular disease among individuals who frequently consume meals from restaurants. Thus, homemade food is a better choice over restaurants in the context of healthy food choice.

However, the availability of homemade food online is a major challenge. To overcome this challenge, cloud kitchen is a solution that offers food businesses a space to prepare homemade delivery and takeout orders, cutting down on overhead costs compared to traditional restaurants. Moreover, many individuals, particularly women, are utilizing social media platforms to sell homemade food and strengthen their businesses. By creating a platform that bridges the gap between customers and home food makers, the goal is to improve the economic opportunities for home-based cooks. This initiative also empowers them to grow their

businesses while working from the convenience of their own homes.

In order to address this problem, the following objectives are framed.

➢ *Objectives*

- To understand the study of consumer preferences for online food ordering services.

- To develop a Mobile Application to deliver home- made food to consumers using the no-code tool Flutter-Flow and integrate it with the Firebase database.

The remaining sections of the paper are organized as follows, Section II explains the methodology involved in designing the mobile application, and Section III offers a comprehensive description of the results. Finally, Section IV summarizes concise conclusive remarks of the study.

II. METHODOLOGY

This section discusses about the technologies used and study of the survey analysis in detail.

A. Technologies Used

➢ *Front End:*
Food delivery applications have a lot of demand in the present day. It is prone to many several reasons. Every food delivery app has its mechanism and functioning which makes the app unique from the other apps. Even the developers and programmers see this aspect as the utmost priority while developing the application. To develop this application a no- code platform called Flutter Flow is used. With Flutter-Flow, we can build apps and release mobile apps in IOS and Android using no code or less code. It helps the user to design an app without using any code. Flutter Flow provides a drag-and-drop functionality for reforming the pages of the mobile application.

Flutter Flow provides a front-end design for your app, but to store the data or login authentication or any other form of data we must use another backend storage. Flutter Flow can work with many backend database integrations that are available on the internet. But it is most compatible with a few platforms like Firebase, Supabase, and SQLite. Firebase is a cloud storage database where it allows Flutter Flow to store its data in it. Let us segregate it into two main steps to know better about it. In the front end, we design the pages of the app.

➢ *Back End:*
The backend works as a backbone to the application and for a website. The backend manages the data of the application and performs the required actions. Any changes in the backend are reflected in the performance and actions of the application. In the above application, firebase is used as a backend. As it is a Google Cloud storage it provides storage for vast amounts of data. At the same, it also enables authentication for user login along with hosting of the mobile application.

Database Creation is one of the crucial steps. The data is stored in the form of collections where each collection has its collection ID. All the kitchens are stored under one collection of restaurants or kitchens. Similarly, each kitchen has its collection of named products which contains the options that are available in each kitchen.

The online homemade food ordering app, "Delish, " was developed specifically for the food delivery industry. This innovative mobile application provides a platform for both Cloud Kitchens and Home Makers to expand their businesses while reducing labor costs. With a user-friendly interface, Delish simplifies the management of online menus, allowing customers to browse and place orders with just a few clicks easily.

Upon receiving orders through the app, the Application Admin efficiently assigns them to designated delivery partners, ensuring prompt delivery to customers. This seamless process enhances convenience for users, leading to increased takeaway orders compared to traditional restaurant visits or food station purchases.

Delish simplifies the creation of online menus for every cloud kitchen, enabling customers to effortlessly browse and order their desired items with a simple click. Moreover, the app's mobile functionalities enable easy order tracking, customer database management, and overall improvement of food delivery services.

To access Delish features, users are required to create an account within the mobile application using their name, email address, and password. Rest assured, user details are kept confidential, adhering to privacy regulations. Upon registration, users can securely log in to the application using their chosen credentials, ensuring a personalized and secure ordering experience.

An online food delivery app was built using a no-code platform called Flutter Flow. Below is the flowchart which shows the functioning of the delivery app.
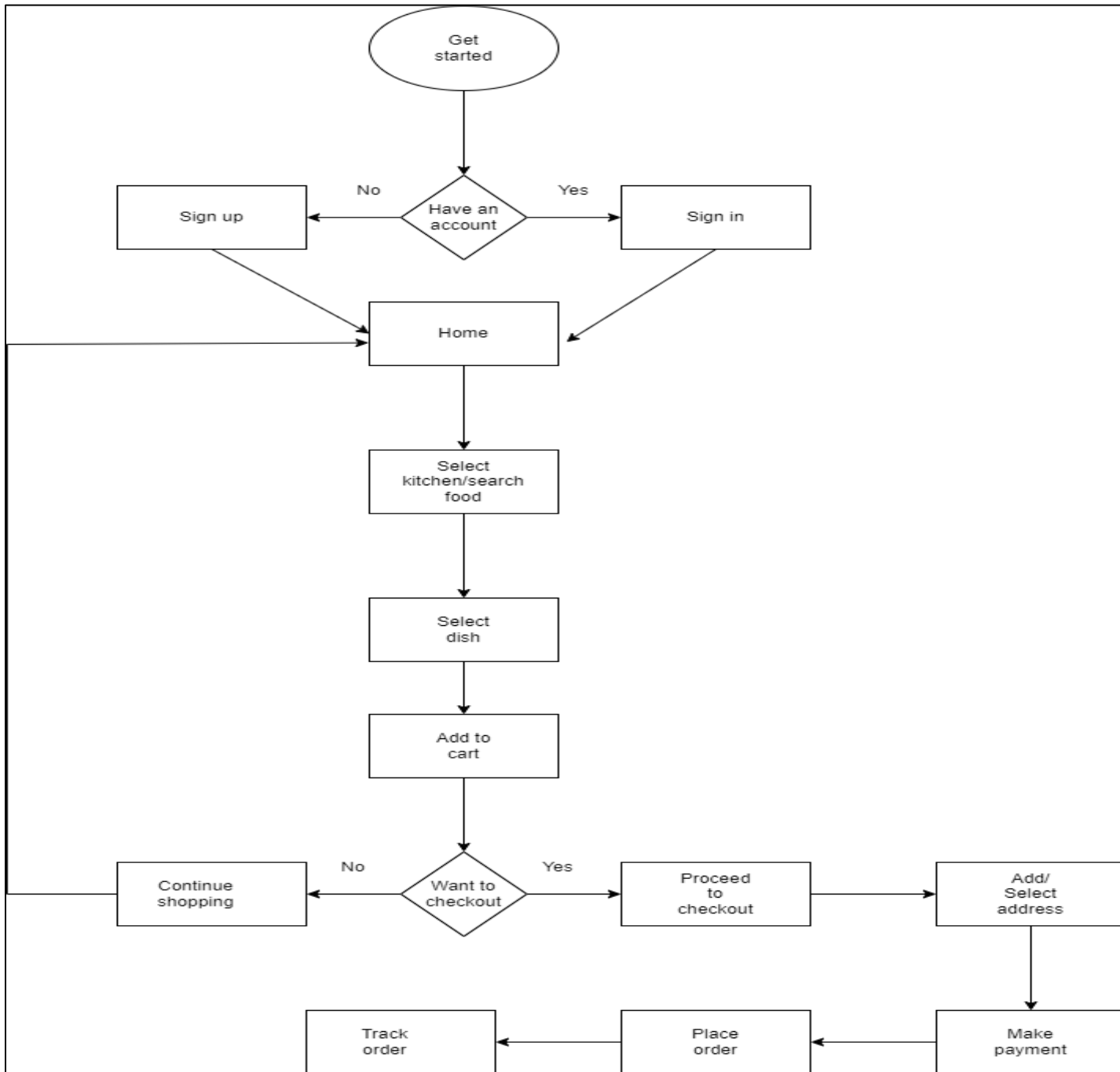
Fig 1: Flowchart of the App

A comprehensive survey data was undertaken to measure the sentiments of the people regarding food applications. Two crucial criteria were used in classifying their perspectives: the frequency of food orders and the affordability of the offerings. Each factor was carefully charted to provide a visual representation of the data. Below clearly explains the findings along with their corresponding graphical representations.

Table 1: Illustration of the Frequency of Utilization of Food Applications

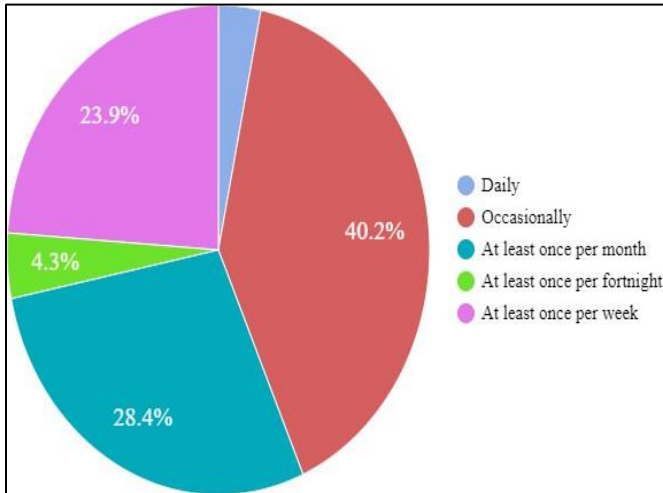| How often do you use food apps?	Percentage
At least once per week	23.89%
At least once per fortnight	4.3%
At least once per month	28.37%
Occasionally	40.21%
Daily	3.23%

Fig 2: The Frequency of Utilization of Food Applications

From Table 1 and Fig. 2, it is interpreted that 23.89% of respondents use food delivery applications once per week, 4.3% use it once per fortnight, 28.37% use it once per month,40.21% use it occasionally and 3.23% use it daily.

Table 2: Public Opinion Concerning the Affordability of Food Offered Through Food Applications

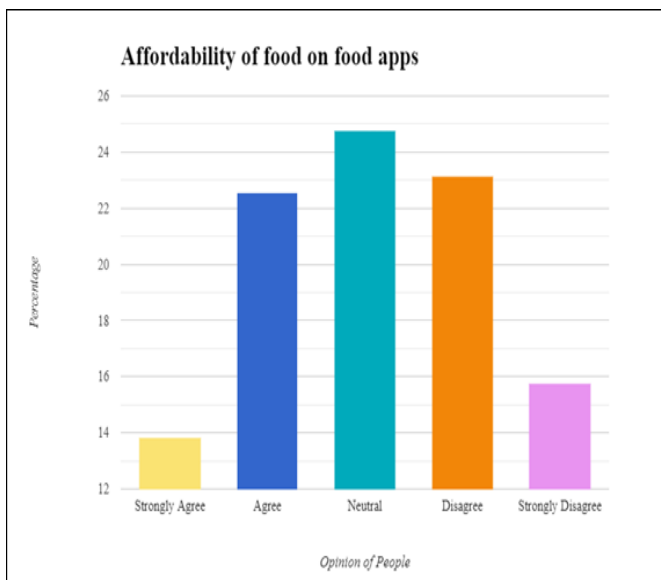| The cost of food is affordable on food apps?	Percentage
Strongly Agree	13.8%
Agree	22.56%
Neutral	24.77%
Disagree	23.12%
Strongly Disagree	15.75%

Fig 3: Public Opinion Concerning the Affordability of Food Offered through Food Applications

From Table 2 and Fig. 3, it is interpreted that 13.8% Strongly Agree that the cost of the food is affordable, 22.56% of the respondents agree with the pricing of food apps, 24.77% of the respondents have a neutral opinion on the pricing of food apps, 23.12% Disagree with the pricing of the food apps and 15.75% of the respondents Strongly Disagree with the pricing of the food apps.

III. RESULTS

This section outlines the step-by-step implementation of the home made food delivery mobile application.

Fig 4: Onboarding Page

The figure 4 depicts the initial page of the app, serving as the starting point for users. Upon clicking the "Get Started" button, users can enter the app and begin browsing.
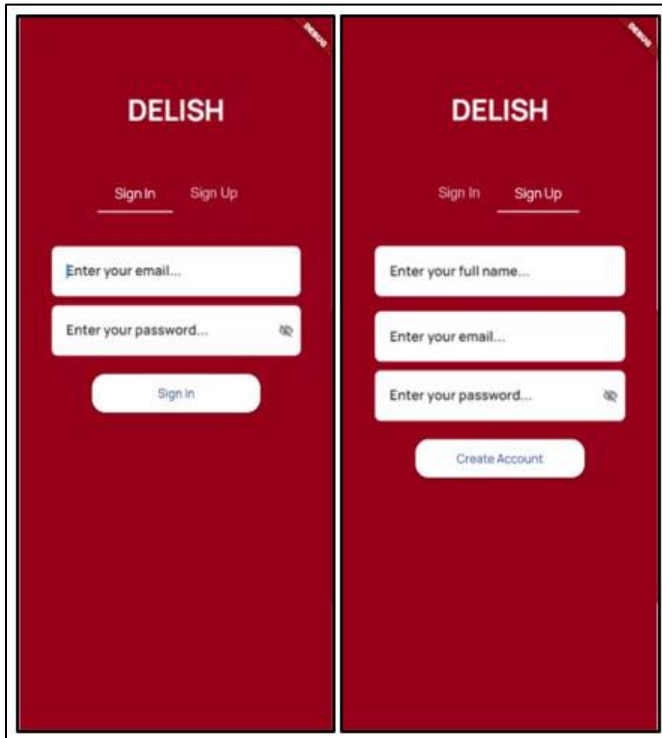
Fig 5: Login and Signup Pages

Following the "Get Started" page, users encounter an authentication screen where they can either sign up or sign in. Existing users can log in directly with their credentials, while new users must create an account by entering the necessary information.
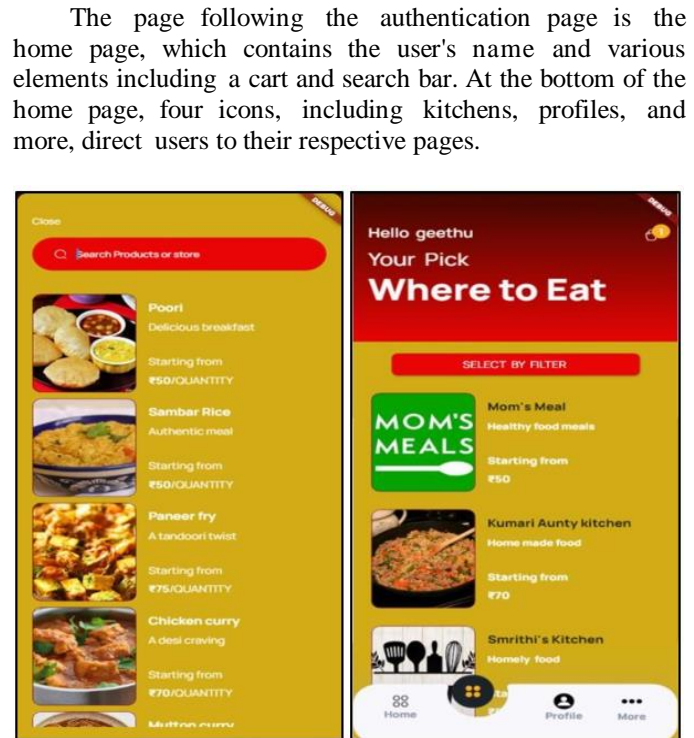

Fig 6: Home Page

The page following the authentication page is the home page, which contains the user's name and various elements including a cart and search bar. At the bottom of the home page, four icons, including kitchens, profiles, and more, direct users to their respective pages.

Fig 7: Kitchens and Search Pages

Users can access a list of kitchens within the app by clicking on the kitchen's icon, allowing for filtering of kitchens. Additionally, if the user wants to search for a specific food, they can do so by clicking on the search bar and entering the dish name.
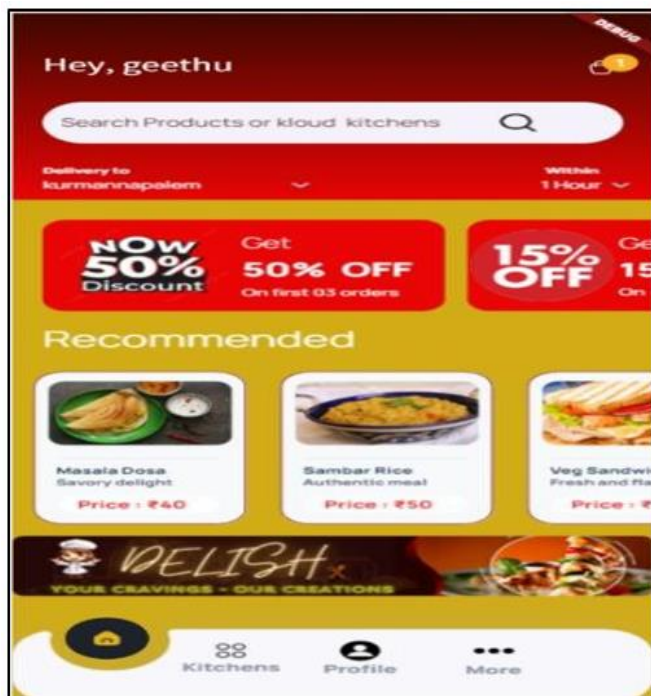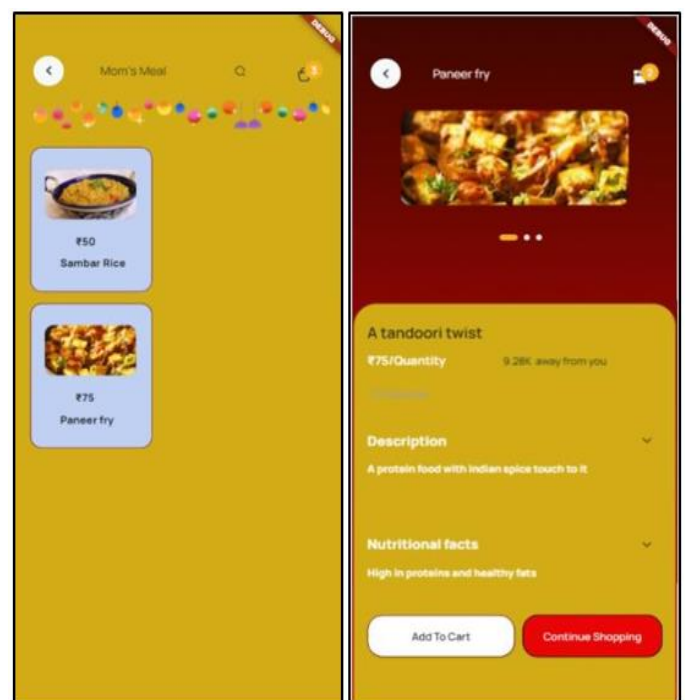

Fig 8: Dishes and Dish Details pages

After selecting a kitchen, users can view the corresponding dishes. Upon clicking on a dish, users are directed to the dish details page, where they can select the dish and add it to their cart.

Fig 9: Shopping Cart Page

After adding the dish to the cart, the user can either continue shopping, allowing them to add more dishes to the cart, or proceed to checkout directly.

Fig 10: Address Page

The subsequent screen following the "Proceed to Checkout" is the address screen, where users can either add a new address or select an existing one for delivery.
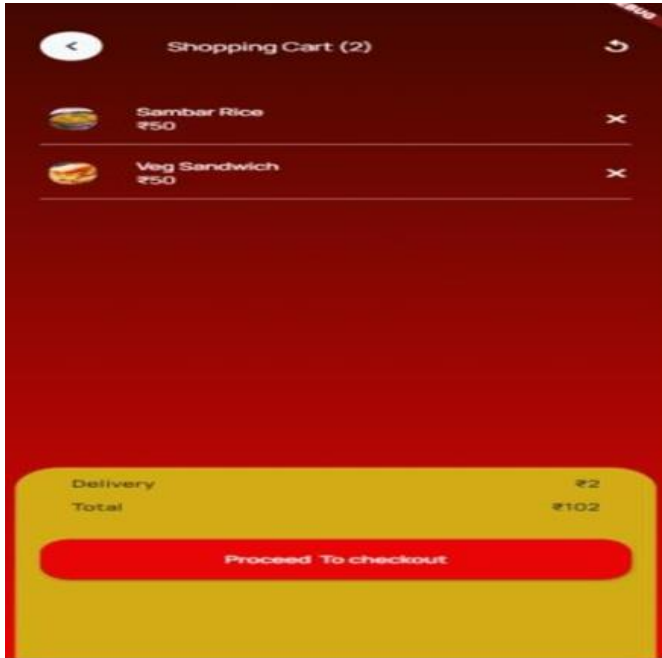

Fig. 11. Order Successful Page

Upon clicking "Place Order," the order will be successfully placed. Users can continue shopping by clicking the 'Go Home' button.

Fig 12: Orders Page
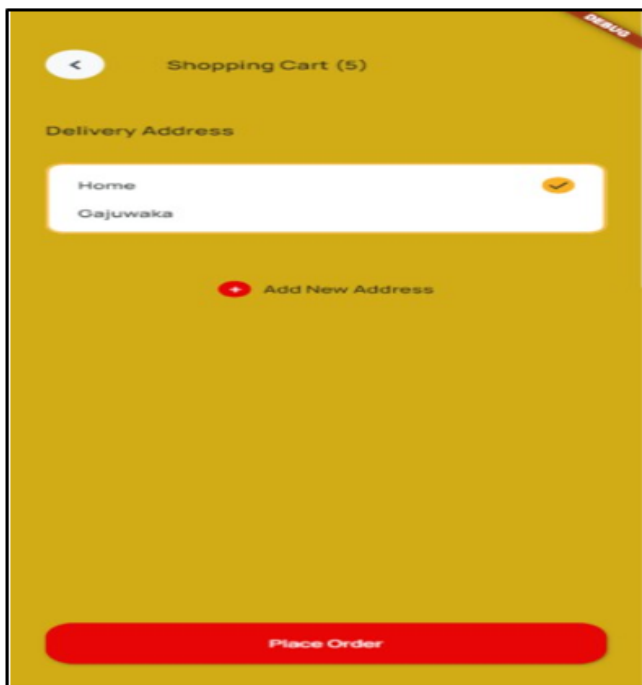
The orders page displays items that have been successfully ordered. Users can track order locations by clicking on specific orders.
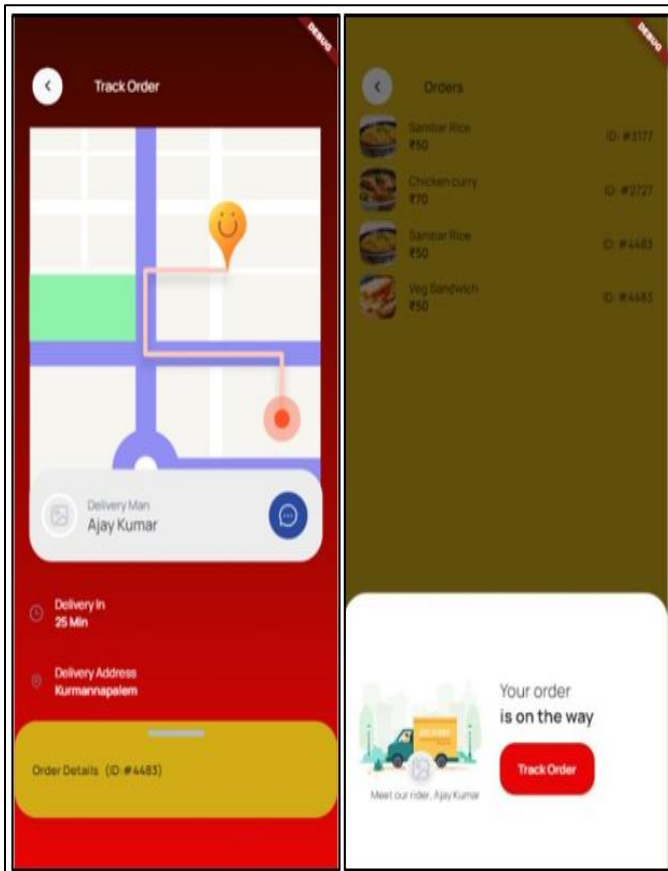

Fig 13: Track Order Page

Through the "Track Order" option, users can monitor the order's journey from the kitchen to its destination.

IV. CONCLUSION

This paper presented the implementation of a mobile application to integrate cloud kitchens to deliver home made food. This application is built using Flutter Flow and Firebase technologies with functionalities such as selecting the kitchens, a menu list, product details, cart, checkout, payment, and order tracking.

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