AUTO PARTS BD: DESIGN AND DEVELOPMENT OF AN ANDROID BASED APPLICATION

BY

Saikat Rahman
ID: 171-15-9504
And
Biprojit Saha
ID: 171-15-9513
And
Md. Islam Khan
ID: 171-15-9537

This Report Presented in Partial Fulfillment of the Requirements for the Degree of Bachelor of Science in Computer Science and Engineering

Supervised By

Raja Tariqul Hasan Tusher
Sr. Lecturer
Department of CSE
Daffodil International University

Co-Supervised By

Mr. Abdus Sattar
Assistant Professor
Department of CSE
Daffodil International University

DAFFODIL INTERNATIONAL UNIVERSITY

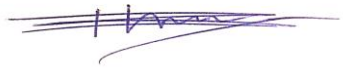
DHAKA, BANGLADESH

JUNE 2021

APPROVAL

This Project titled “Auto Parts BD: Design and Development of An Android Based Application”, submitted by “Saikat Rahman” and “Biprojit Saha” and “Md. Islam khan” to the Department of Computer Science and Engineering, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on 01/06/2021.

BOARD OF EXAMINERS



Dr. Touhid Bhuiyan — **Chairman**
Professor and Head
Department of Computer Science and Engineering
Faculty of Science & Information Technology
Daffodil International University

Subhenur Latif — **Internal Examiner**
Assistant Professor
Department of Computer Science and Engineering
Faculty of Science & Information Technology
Daffodil International University

Internal Examiner

Md. Abbas Ali Khan
Senior Lecturer
Department of Computer Science and Engineering
Faculty of Science & Information Technology
Daffodil International University

External Examiner

Shah Md. Imran
Industry Promotion Expert
LICT Project, ICT Division, Bangladesh

DECLARATION

We hereby declare that, this project has been done by us under the supervision of **Raja Tariqul Hasan Tusher, Sr. Lecturer, Department of CSE** Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

Supervised by:

Raja Tariqul Hasan Tusher
Sr. Lecturer
Department of CSE
Daffodil International University

Co-Supervised by:

Mr. Abdus Sattar
Assistant Professor
Department of CSE
Daffodil International University

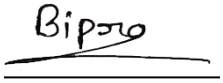
Submitted by:

Saikat Rahman

ID: 171-15-9504

Department of CSE

Daffodil International University



Biprojit Saha
ID: 171-15-9513
Department of CSE
Daffodil International University

Md. Islam Khan
ID: 171-15-9537
Department of CSE
Daffodil International University

ACKNOWLEDGEMENT

First, we express our heartiest thanks and gratefulness to almighty God for His divine blessing makes us possible to complete the final year project successfully.

We really grateful and wish our profound our indebtedness to **Raja Tariqul Hasan Tusher**, **Sr. Lecturer**, Department of CSE Daffodil International University, Dhaka. Deep Knowledge & keen interest of our supervisor in the field of **Android Application** to carry out this project. His endless patience, scholarly guidance, continual encouragement, constant and energetic supervision, constructive criticism, valuable advice, reading many inferior drafts and correcting them at all stage have made it possible to complete this project.

We would like to express our heartiest gratitude to **Dr. Touhid Bhuiyan**, **Professor and Head,** Department of CSE, for his kind help to finish our project and also to other faculty member and the staff of CSE department of Daffodil International University.

We would like to thank our entire course mate in Daffodil International University, who took part in this discuss while completing the course work.

Finally, we must acknowledge with due respect the constant support and patients of our parents.

ABSTRACT

Our project Auto Parts BD is an online eCommerce and service provider application. This application provides both online shopping and services through one application. If we look at the developed countries of the world, we can see that they have been familiar with this type of service provider applications for a long time. Our neighboring country India also has such applications. Then why the people of our country will be deprived of all these services. As ideal citizens, our first duty is to work for the development of the country. When epidemics like corona have spread all over the world, people are being forced to shop online with all their necessities at home through their smartphones. Our application is mainly for car or bike users. Car or bike users will be able to purchase all the necessary parts of their car through our application. Our users will be able to purchase their essentials as well as get a variety of car services. Our admin will be able to add and update products, services. Admin will be able to add different types of carousel sliders, which will make users interested in using this application. Admin will be able to control the order status by using this application so that users can easily know the status of their order. As a result of using this application, users no longer have to go to the store to buy products by consuming car oil. This will reduce our environmental pollution, which will play an important role in saving our environment. They will now be able to purchase products very easily, in a very short time, at a very low cost, sitting in the comfortable corner of their house. We believe that this application will benefit both the user and the admin.

TABLE OF CONTENTS

Figures List

Figures:

Table List

Tables

CHAPTER 1
Introduction

1.1 Introduction:

Autoparts BD is a mobile application for all vehicle users. It is an online eCommerce and service provider application designed for all vehicle users. Using it, users will be able to easily buy the products they need. Without wasting time at a very low cost, users will be able to purchase car parts purchase through this app. Through this application users will get many more services like car wash, car maintenance, car repair which will make their daily life enjoyable and hassle free.

This application has two parts, one for users and the other for admin. Users will be able to easily purchase products and receive services like car repair, car wash.

On the other hand, the admin can easily control the whole system. Admin can do everything from product addition to product price control, product delivery control. Admin also adds service and controls the service delivery process. Admin can add a beautiful carousel slider that actually helps to promote business. That actually increases the user attraction for buying products. It's really helpful for increasing sells ratio. Admin can see the total number of users, the total number of products, the total number of services, the total number of categories, brand, and the total number of orders. Admin can also see the total revenue from order and service.

Users will be able to easily open an account via their email and receive all exciting services. It is hoped that using this application will save them valuable time and money. By using this application consumers and sellers are going to be benefited.

The project is developed by Dart programming language through the Flutter framework. The easy interface and functionality help users and admin to manage the applying simply.

1.2 Motivation:

In this Motivation section, we will be able to discuss my motivations, the motivations involve online marketplace as a result of many days past we seen few e-commerce business holders begin their business domestically that point we made a decision to begin our new business online, we think about our career if we begin on online business, we

can reduce time-consuming for setting new live shop business. Online business is amazing for everybody you will be able to get the product online and that we will sell product through online primarily we are functioning on The Fiverr marketplace and that we have seen most of the work are the demand on e-commerce some goal setup we will be able to create one thing on behalf of us one thing for my shopper, and currently we are extremely proud of our work. Our project introduces new products and services, it takes advantage of brand and country name. Our project increases sales and reduces transaction costs. Initial of all, Thanks, our all-team members and second our honorable supervisor sir Raja Tariqul Hasan Tusher, his also supporting us for our project he is our favorite remarkable teacher we are really grateful about our teacher because he's very close to discussing any problem and making way to the solution.

1.3 Objectives:

The objective of the project Daily online searching is to switch searching system that helps the client to order product and conjointly the sellers to manage the sell simply and paying the bill exploitation online devices like pc, Smartphone, Tablet, etc. Though some days ago, People are worried the shopping goes to market physically and buy the specified products or service by the exchange of money during a selected time. But nowadays, The act of shopping for products or services over the web. Online searching has grown up in quality over the years, mainly because people find it convenient and simple to bargain shop from the comfort of their home or office. one among the chief alluring components about internet shopping, especially during a get-away season, is it reduces the need to go to in long queues or search from store to store for a particular item. Also, the seller may not head to the precise location in an exceedingly particular period to sell their products. In online shopping sellers get their freedoms to sell their products 24/7 during a very week from anywhere.

There are several objectives of the project. they're as follows:

- To provide a user-friendly interface to seem at different products which the consumer wants to shop for.

- Reduce management costs.
- Providing a unique customer experience.
- The number of loyal customers is increasing.
- To provide all exciting service features such as car wash, car maintenance, car repair, car denting and painting, car tire replacement, car windshield replacement, etc.
- To give a chance to open an account if any products are chosen by a customer online.
- To give a chance to pay product price online without being physically present in a specific place.
- To make the shopping system hassle-free and time-saving.

1.4 Expected Outcome:

1. Users can easily buy products through this app.
2. Users can easily receive all the exciting services.
3. Users can select their schedule for order service.
4. Users can gain so much flexibility for online shopping through this app.
5. Users can pay the bill through the online payment system.
6. User can be able to pay the bill in cash at the delivery system.
7. User can give product ratings and reviews.
8. User will see the status of the order.
9. Admin can control order status.
10. Admin can add products and services.
11. Admin may update or delete products and services.
12. Admin can add a beautiful carousel slider.
13. Admin can make total income.
14. Users can view product reviews and reviews.
15. Products can be ordered at multiple user addresses.

1.5 Project Management:

When we are creating this project, we want to solve people's problems. In fact, we want to help people with this hassle-free online shopping app Auto Parts BD. Auto Parts BD is not only an eCommerce application, it also provides a variety of car services.

First, we have collected the requirements of our project. We then analyzed the feasibility of our project. We then determined the final features. Then we did a hardware study of our project. Then we designed a beautiful user interface for our project. Then we applied those beautiful interfaces, animations to our project.

We have designed our interface so simple that users can easily understand our user interface. After implementing the user interface, we start implementing Cloud Firebase which means the back part. After finishing the front and back end we start to test our application. Then we fix this error when we find some error. Finally, we successfully completed our entire project.

1.6 Report Layout:

In the first chapter, we discuss the aim of the project, the motivation to work with the expected outcome.

In the second chapter, we fix the content of the discussion of the background circumstances of our project. We also mention the challenges that we have faced, adding related work and the future scope of our project.

In the third chapter, kinds of requirements like business process model, requirement collection and Analysis, Use Case Modeling and Description, the Data Flow Diagram Model, the Entity Relationship Model, Design Requirements are defined.

The fourth chapter describes the design of my project's visual view and details about the front end and the back-end design.

In the fifth chapter, execution and testing parts we discuss the execution of the database, execution of authentication system, interaction, and test result of this project.

The sixth chapter, discussing the impact on society, the environment, and the sustainability of this project.

The seventh chapter, discussing the conclusion and future scope for the development of our project. Finally, all report references which are related to our work ensure the information in the report is correct.

CHAPTER 2
Background

2.1 Terminologies / Preliminaries:

This mobile application is easy to use for people of all ages. This application is an e-commerce and service provider application. Using this app, users can easily get rid of all the hassle of controlling their car or bike. With this application, users can easily buy all the products they need at home at a very low cost. Through this application, users will get many more services like a car wash, car maintenance, car repair, car body painting, car tire replacement, car windshield replacement which will make their daily life enjoyable and hassle-free. This application is user-friendly and very easy to use. This application has a beautiful User interface and beautiful animation and more.

2.2 Related Works:

Our project is an eCommerce and service provider application. If we look at countries like Uk, Japan, the Philippines, Nigeria, New Zealand, we can see that they have different auto parts service applications. Even in our neighboring country India, the apps of these service providers are very available. But the number of apps providing such services in Bangladesh is very low. There are few apps in our country that provide these services. We have developed our application with ideas from applications in our country and abroad which will be very useful for car or bike user's daily life.

2.3 Comparative Studies:

Before starting this project, we have learned various tutorials on Java, Futter, Dart, Cloud Firebase, Firebase Authentication, Firebase Storage from various websites. We did a lot of project practice that's are related to our project. We have read various books about flutter, dart, and java. Lecture slides and books on data structures, object-oriented programming, algorithms, database management systems, software engineering, wireless programming are also very helpful in completing our project and writing our project report.

2.4 Scope of the Problem:

- Updated user and admin information.
- User-friendly interface for admin and user.
- Database management.
- Transaction privacy policy of the system.

2.5 Challenges:

- Creating a user-friendly user interface.
- Creating user-friendly animations.
- Collect information about administrators and users.
- Collect information about products.
- Collect information about the service.
- Maintaining a cloud firebase database.
- Maintain firebase storage.
- Checking code errors.
- Debugging and testing.
- Checking background errors.
- Checking for authentication errors.
- Google sign-in error is being checked.

CHAPTER 3
Requirement Specification

3.1 Business Process Modeling (BPM):

It is a graphical presentation as a means of identifying potential improvements to an organization's business processes or workflows. The purpose of business process modeling is to improve the efficiency of the business by optimizing the ability to connect activities in the delivery of a product or service. Concerned about mapping and workflow to enable business process modeling strategies to be understood, analyzed, and positively changed.

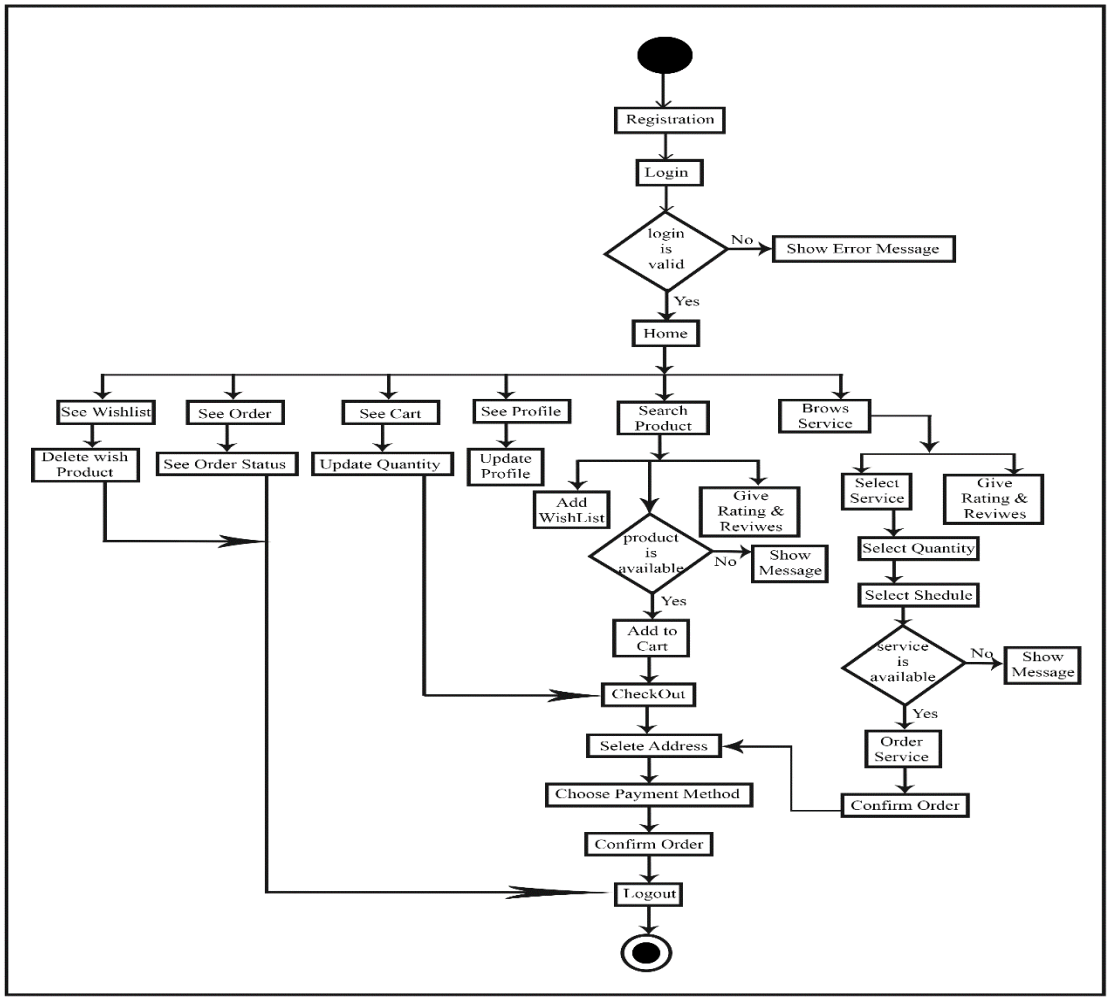


Figure- 3.1.0: User Business Process Model

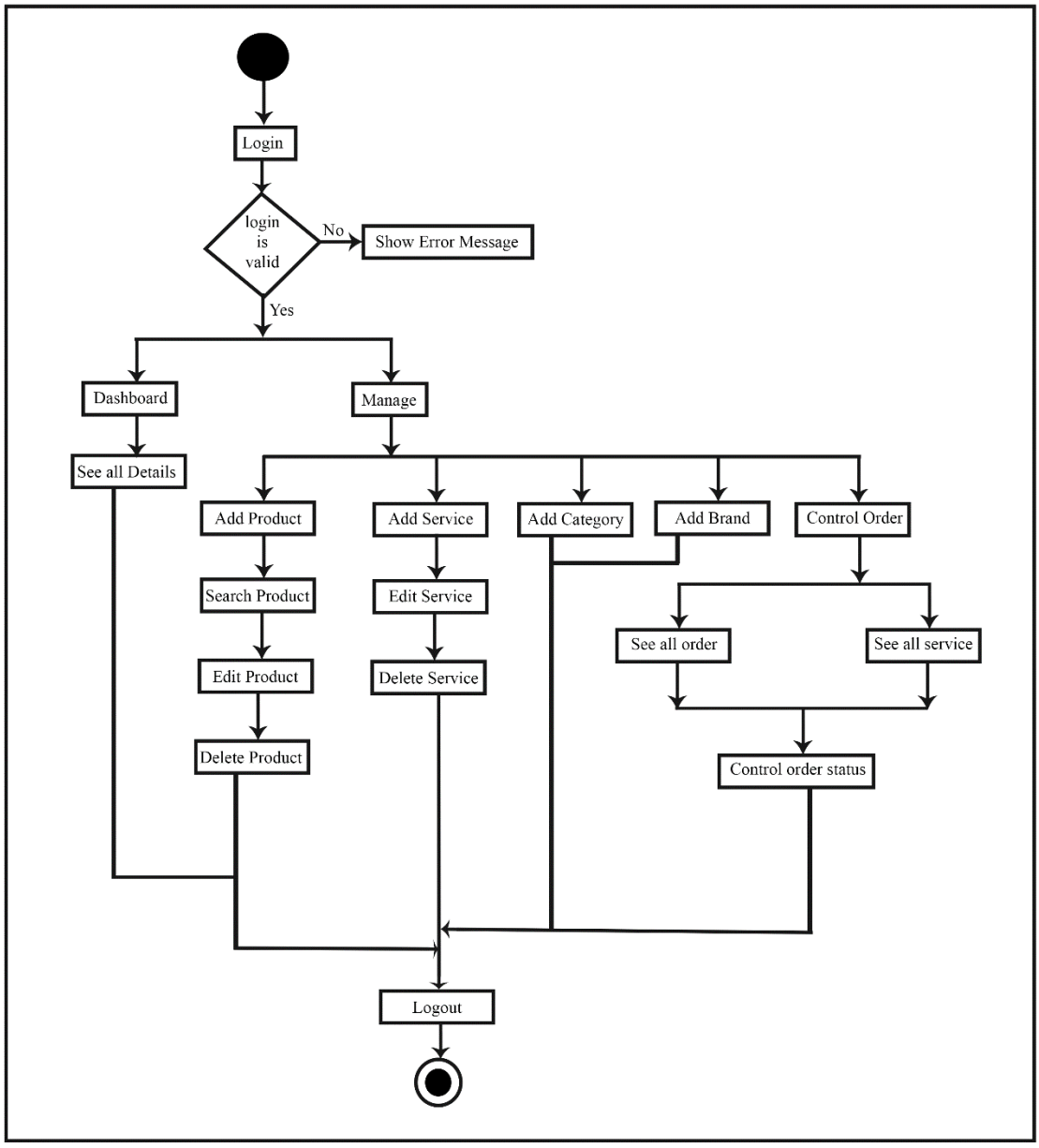


Figure- 3.1.1: Admin Business Process Model

3.2 Collection of Requirement and Analysis:

3.2.1 Software Requirements of our Projects:

- Android Studio
- AVD
- IOS Simulator
- Visual Studio Code
- Cloud Firebase Database
- Firebase Storage
- Firebase Authentication

3.2.2 Hardware Requirements of our Projects:

- OS
- Android Support Device
- IOS Support Device
- Flutter SDK
- Computer Configuration:
    1. Processor -Clock Speed 1.60GHZ(Min)
    2. Ram -4GB(Min)
    3. SSD -128GB(Min)
    4. Hard Drive -150GB(Min)
    5. Graphics - Integrated Graphics

3.3 Use case modeling and its details:

It describes the user's goals, the interaction between the user and the system, and the behavior of the system to satisfy these goals. The most important model elements are the use case, the actor, and the relationship between them. A use-case diagram is used to illustrate a subset of the model to facilitate communication. Usually, there will be images

for different uses associated with a given model, each showing a subset of the components of the relevant model for a specific purpose. The material of the same model may appear in the diagram for several uses but each example must be consistent. If the tools are used to maintain the model in use, this continuity constraint is automatically created so that any changes to the model element (the name is changed for example) are automatically reflected in the diagram for each user that the element shows.

Use Cases	User, admin and system
Primary Actor	User, admin
Pre-Condition	Users must have an account for login. If the user doesn't have an account, he/she needs to give all the correct information for creating an account.
Description	If user have an account, he/she will get access all services.
Post - Condition	Showing an acknowledgment to the user “logged in Successfully”. Then they are able for taking all the services.

Table No -1: Shows the Use Case Diagram of this AutoParts

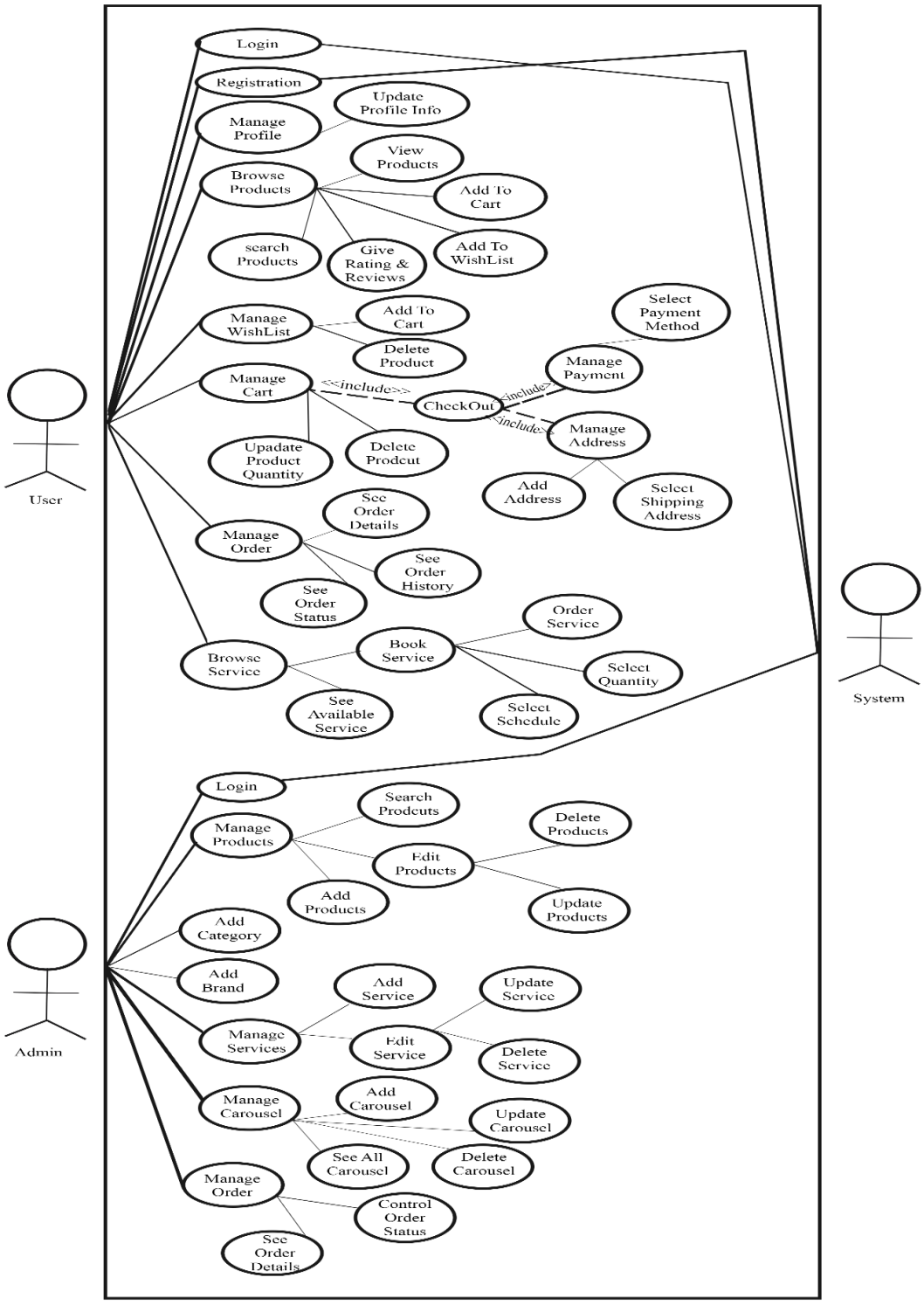


Figure – 3.3: Use Case Diagram

3.4 Data Flow Diagram Model of our project:

It shows how information enters and leaves the system, what information changes, and where information is stored. The purpose of DFD is to show the area and boundaries of a system as a whole. It can be used as a communication tool between system analysts and any system partner who serves as the starting point for redesigning the system. Data flow diagrams visually represent systems and processes that are difficult to describe in one part of the text. Visualizing each component makes it easier to identify inefficiencies and produce the best possible system.

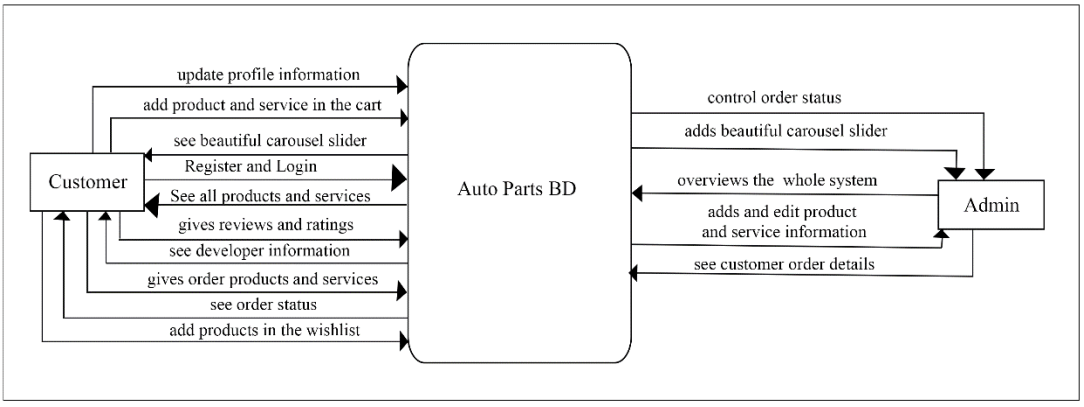


Figure – 3.4.1: Data Flow Diagram (DFD-0)

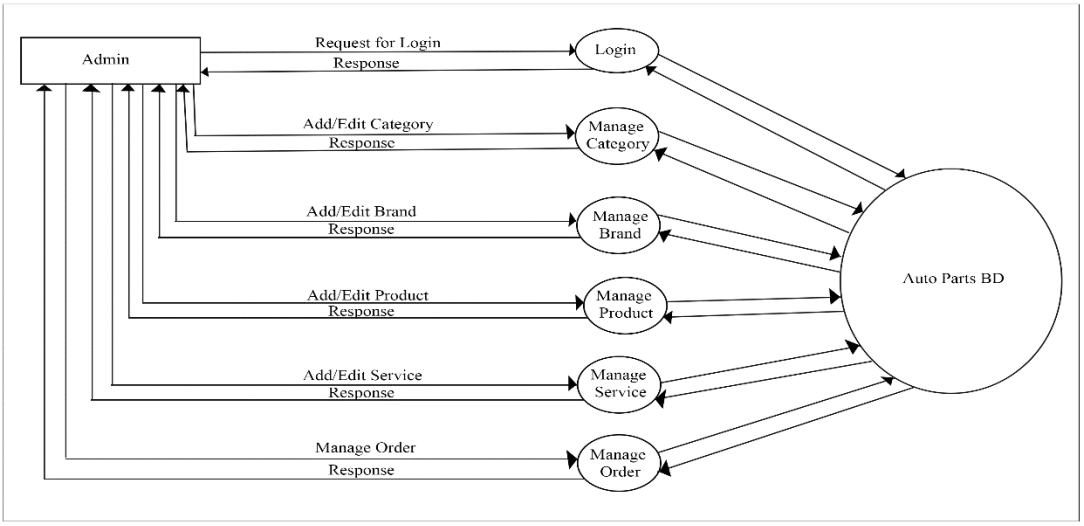


Figure – 3.4.2: Admin Data Flow Diagram (DFD-1)

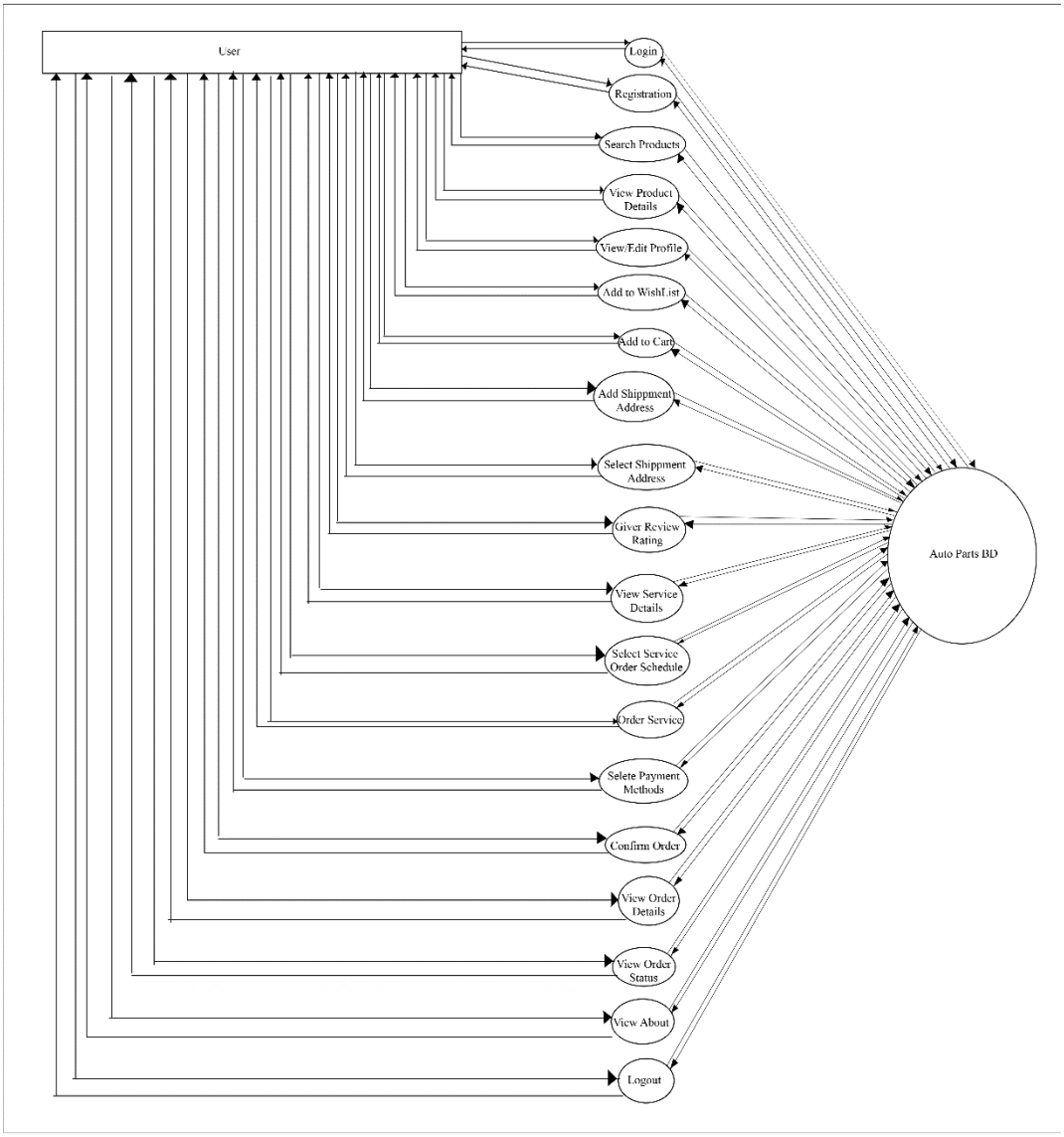


Figure – 3.4.3: User Data Flow Diagram (DFD-1)

3.5 Entity Relationship Model of our project:

An entity-relationship diagram (ERD) is crucial for creating a good database design. It is used as a high-level logical data model, which is effective in creating conceptual designs for databases. Entity Relationship Modeling (ER Modeling) graphical approach to

database design. It uses entities/relationships to represent real-world objects. An entity is a thing or object in the real-world that is separate from the surrounding environment. An ER model is usually applied as a database. In the implementation of a generally related database, each row of the table represents an example of an entity type and each field of the table represents a feature type. In a relational database, a relationship between entities is applied by storing an entity's primary key as a pointer or "foreign key" in another entity's table.

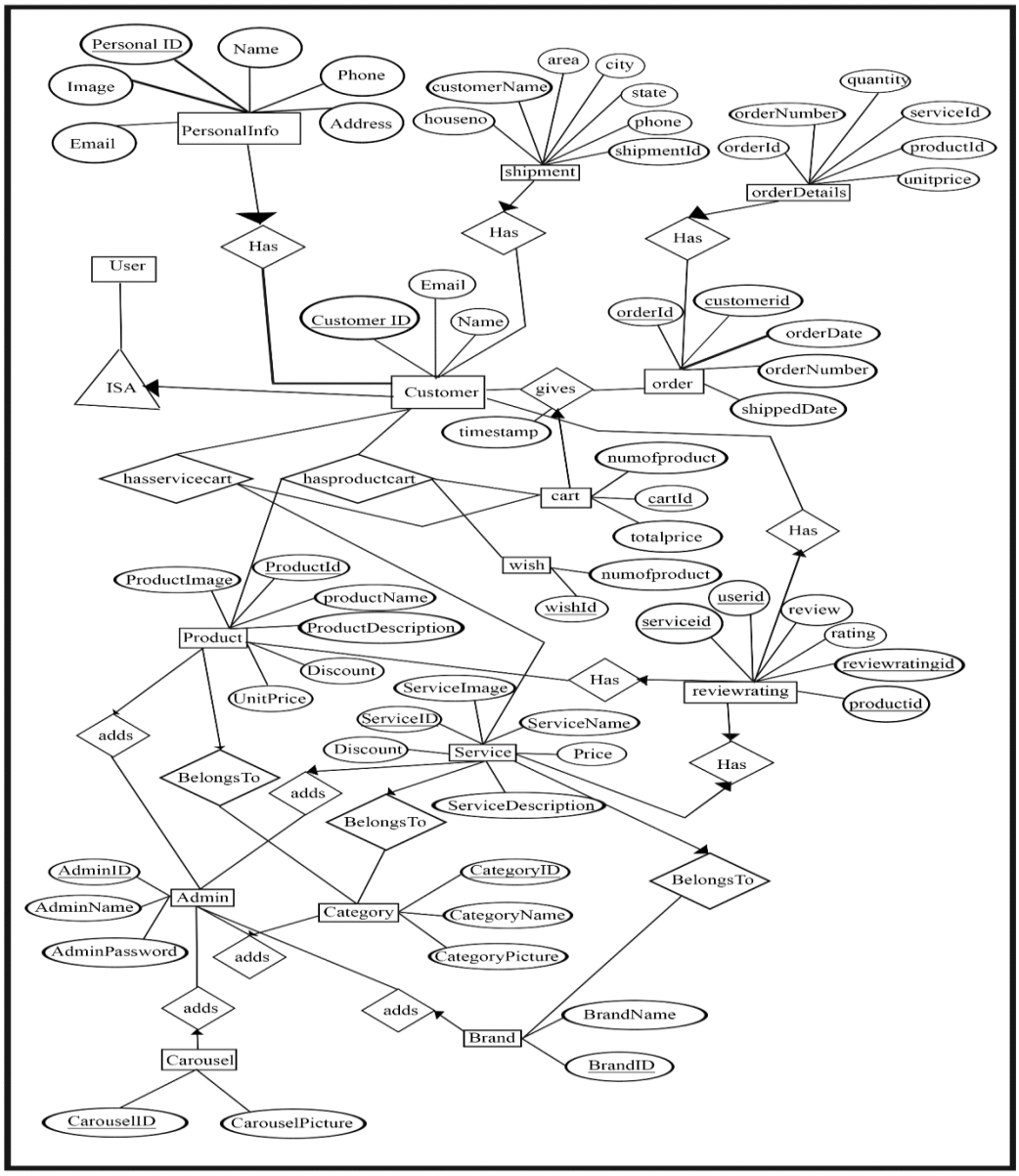


Figure – 3.5: Entity Relationship Model

3.6 Requirements Design:

We use the DART programming language and the Flutter framework to design our project requirements. For background design, we use Material Widget, Cupertino Widget, Material Icon, Navigation Rail, etc. We use Adobe Photoshop for modeling, data flow diagram model, entity-relationship model, business process model. In this process, we can design our requirements.

CHAPTER 4
Design Specification

4.1 Design Specification for front-end design:

For front-end design, we are using the DART programming language and Flutter Framework. For a nice user interface, we use different dependencies. The dependencies are"Carousel_Pro","Capertino_Icons","Flutter_Spinkit","Flutter_Staggered_Grid_View", "Path_Provider", "Provider", "Rating_Dialogue", "Shared_Preferences", "Timego". We have created such a simple interface that our users can easily understand. We give a beautiful carousel slider that, the user shows different events from this beautiful carousel slider. We have created several categories that are helpful for finding products. We've created a search button that helps users find the products they need. We've created a nice rating dialog to help users leave valuable comments for products and services. We've created a variety of error warning dialogs that are really helpful for users to understand what's wrong. As a general example, if the user has no internet connection, then "No internet connection, please try later!" Show. If the user presses the back button to close the app, it shows, "Are you sure you want to close the app?" If the user does not have a product in the cart, show "Show your cart is empty, please add the product to cart". We used a variety of animation buttons. We have used beautiful icons for different uses. Our users show their order status in real-time. Our admin part is easy to understand for admins. Our admin easily adds product or service images using a mobile camera or gallery which is really helpful for choosing a beautiful image for products, services. Admin can easily add, update or delete products and services. Admin easily adds a nice carousel slider. Admin easily controls order status. We are trying our best to create such a beautiful user interface. So lastly, we are saying that both the user and the admin are benefiting from using this application.

4.2 Design Specification for back-end design:

For the back-end design, we use dart language and flutter framework. We use different packages to create our back end. We use Cloud Firestore, Firebase Auth, Firebase Core, Firebase Storage, Google Sign In, Intel, Path Provider, Provider, Shared-Preferences, those packages for the end of our project. We are using Cloud Firestore for our project. We have implemented all Cloud Firestore back-end through this Cloud_Firestore package. For all sign-in authentication, we are using the Firebase_Auth package. We are using the Google_Sign_In package to sign in to Google. We are using Firebase storage in the database storage of this project so we are using the Firebase_Storage package. Our application is so much more user-friendly. This project has many animations, icons, widgets which are very helpful for understanding all the features. Both the user and the admin will benefit from using this Auto Parts BD application.

4.3 Logo Design for our project:

We are creating a beautiful logo for our project. Our project has two parts, the first is the user and the other is the admin part. So we have two logos. We create our logos based on the application of our ecommerce and service providers. It looks so beautiful. Anyone can easily understand the meaning of our logo.

Figure- 4.3.1: Logo for User

Figure- 4.3.2: Logo for Admin

4.4 Requirements Implementation:

- Cloud Firestore Database
- Firestore Storage
- Android Studio
- Visual Studio Code
- Firebase Authentication
- Packages:
    - Cloud_Firestore
    - Connectivity
    - Carousel_Pro
    - Cupertino_Icons
    - Firebase_Auth
    - Firebase_Core
    - Firebase_Storage
    - Flutter_Spinkit
    - Flutter_Staggered_grid_view
    - Google_Sign_In
    - Image_Picker
    - Intl

- Path_Provider
- Provider
- Shared_Preferences
- Rating_Dialog
- Timeago

CHAPTER 5
Implementation and Testing

5.1 Database Implementation:

We are using Cloud Firebase Database and Firebase Storage for our AutoParts BD project. Users will only be able to use the data. The entire database will be controlled by the admin only. The admin will keep and manage all the necessary data and this data will be stored in the Cloud Firestore database. All data will be saved in the section. The admin panel will manage it and manage it properly to maintain the database.

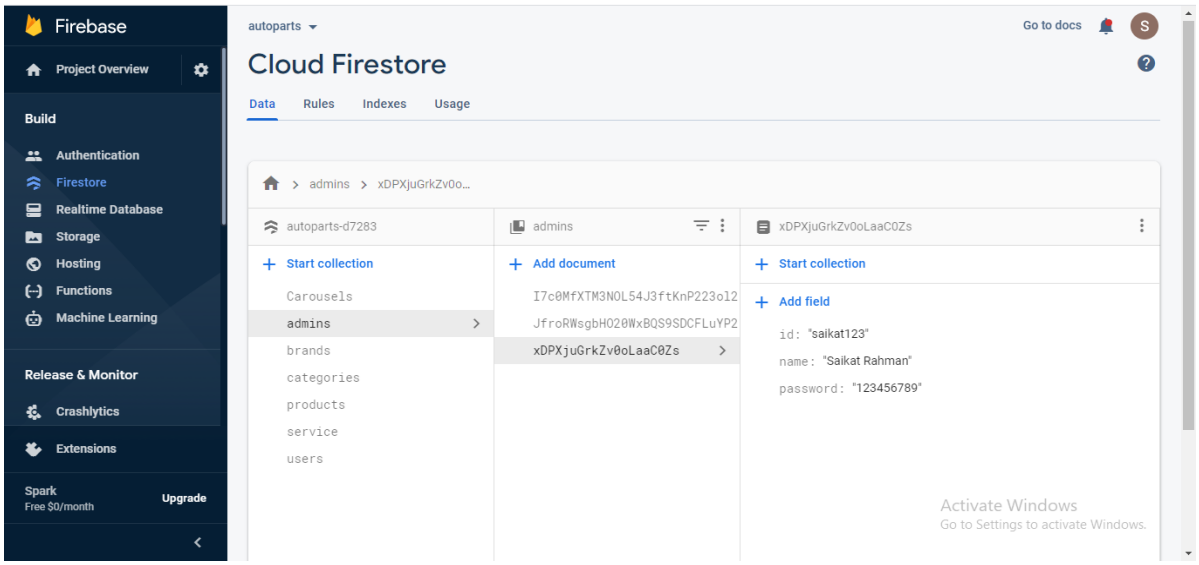


Figure- 5.1.1: Cloud Firestore database structure for admin

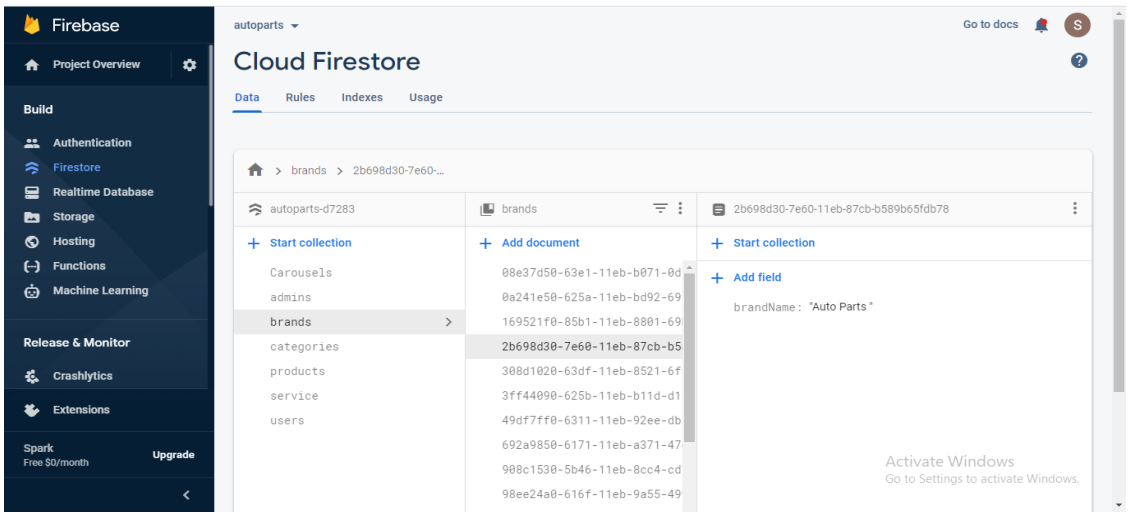


Figure- 5.1.2: Cloud Firestore database structure for brands

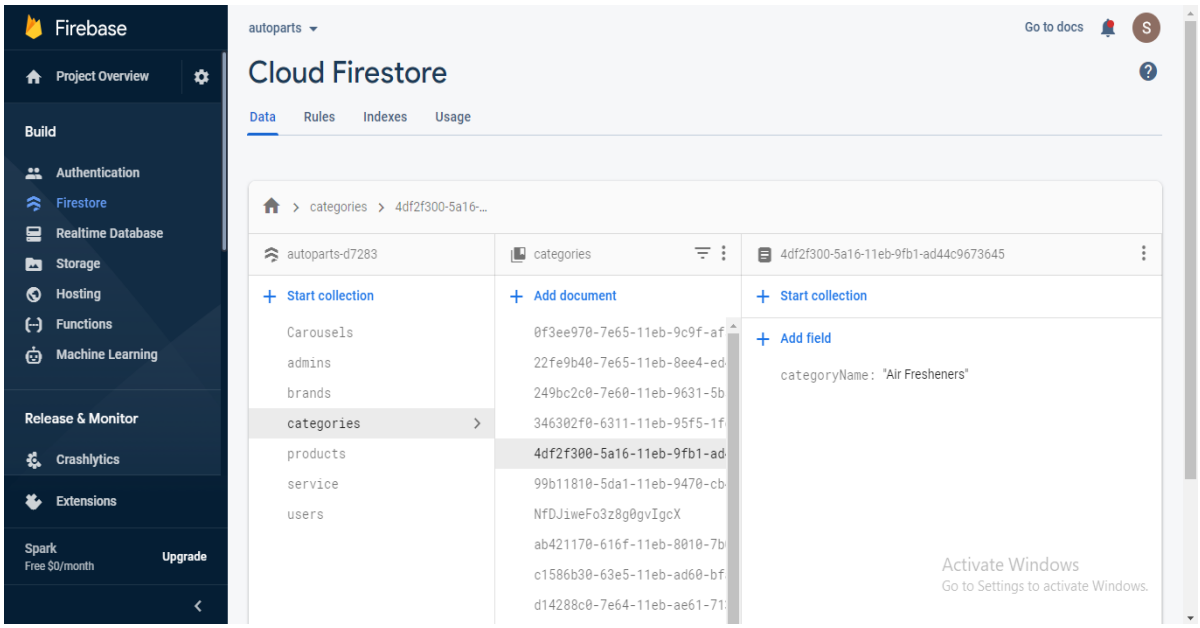


Figure- 5.1.3: Cloud Firestore database structure for categories

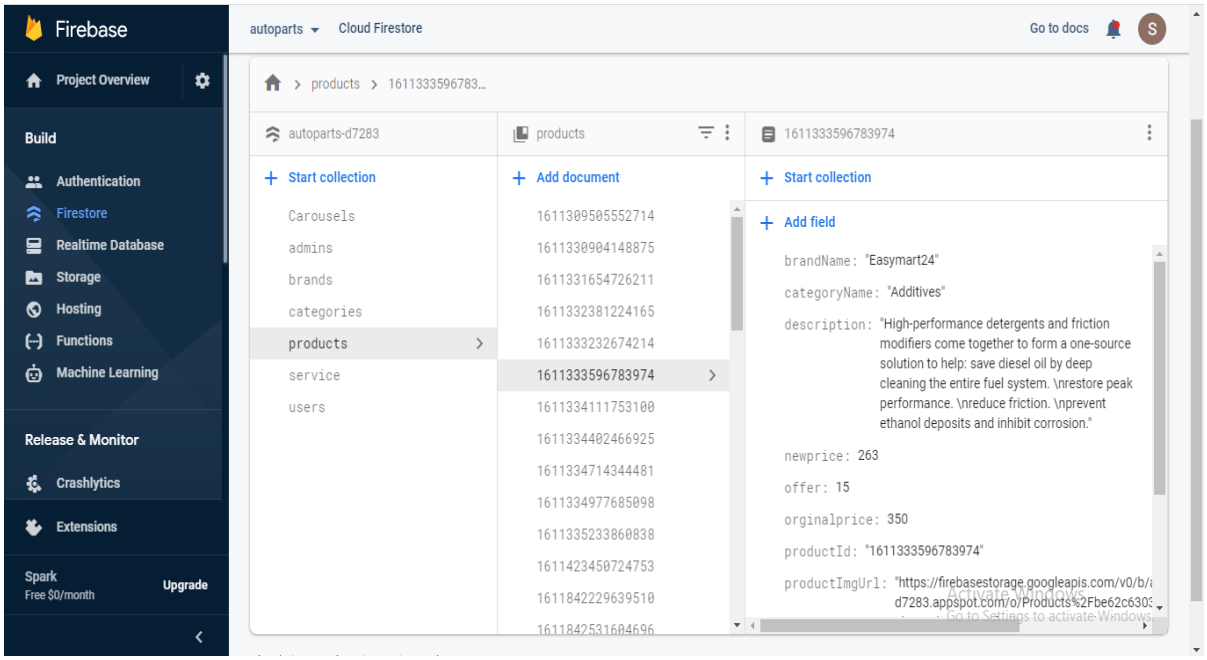


Figure- 5.1.4: Cloud Firestore database structure for products

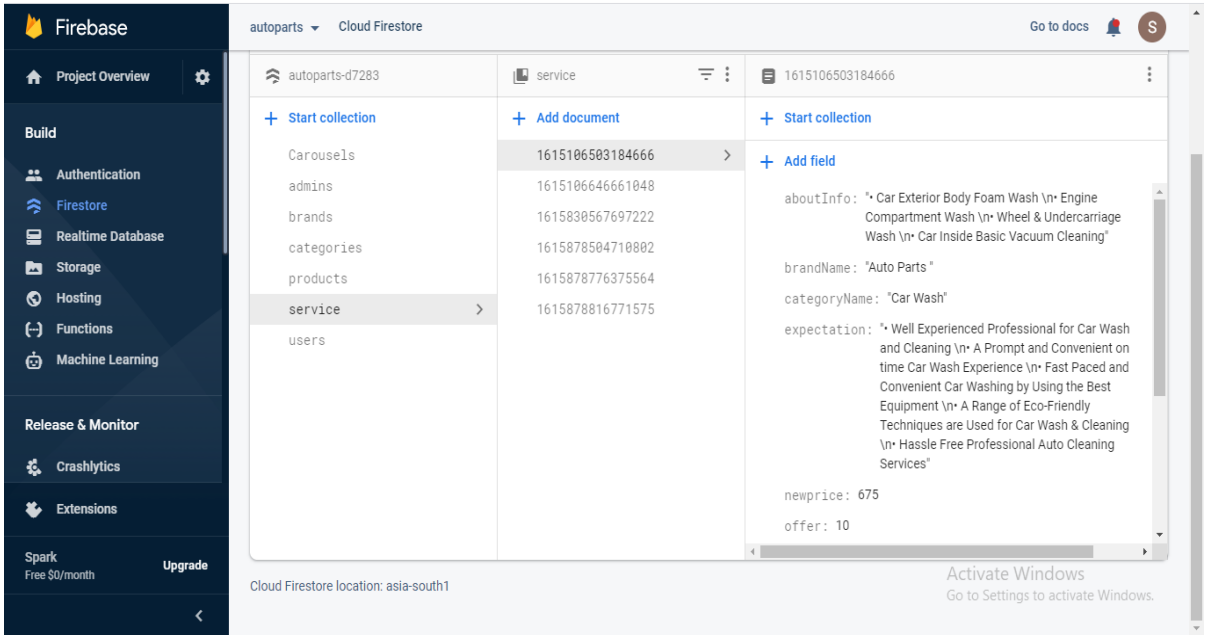


Figure- 5.1.5: Cloud Firestore database structure for service

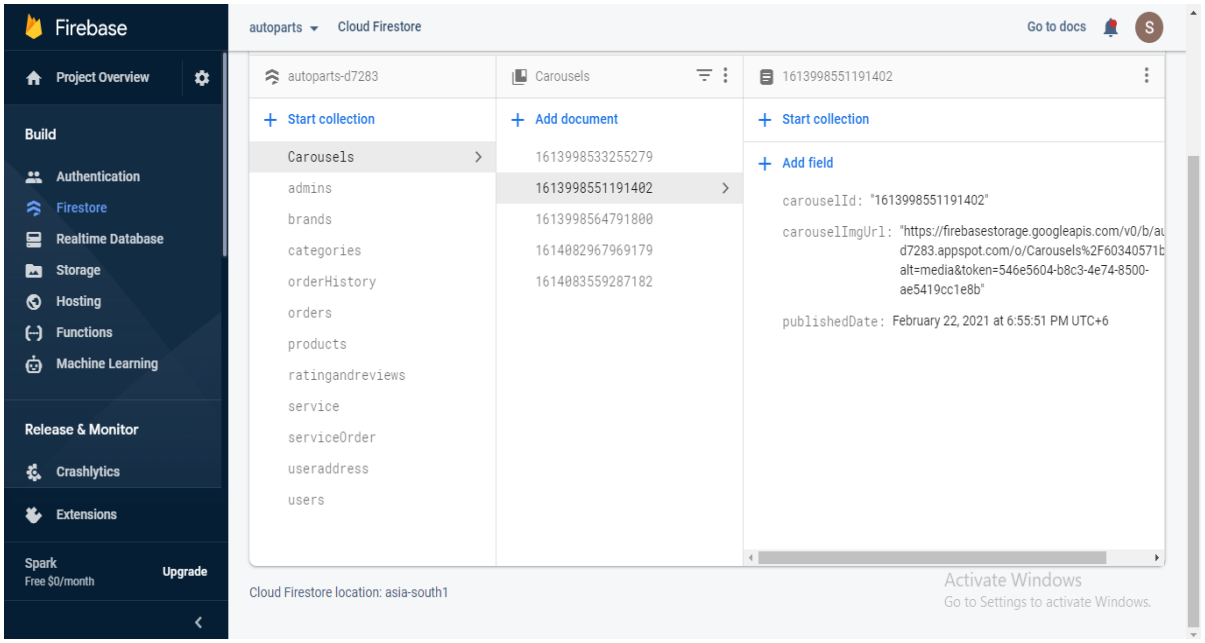


Figure- 5.1.6: Cloud Firestore database structure for carousels

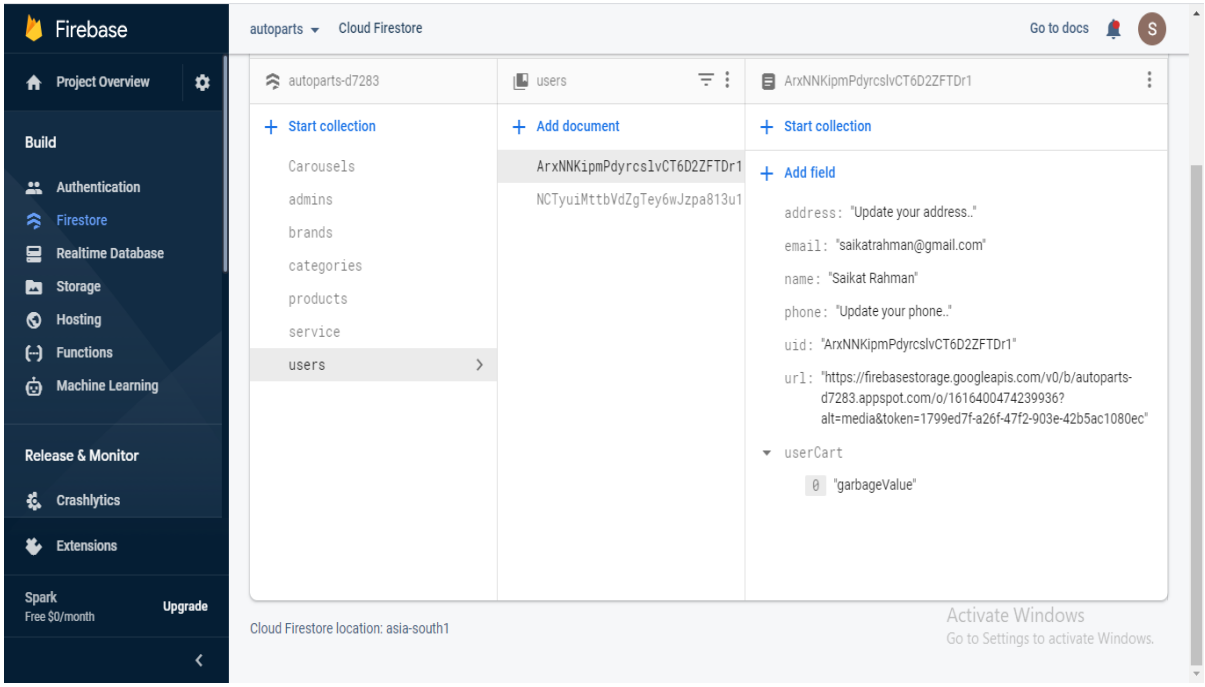


Figure- 5.1.7: Cloud Firestore database structure for user

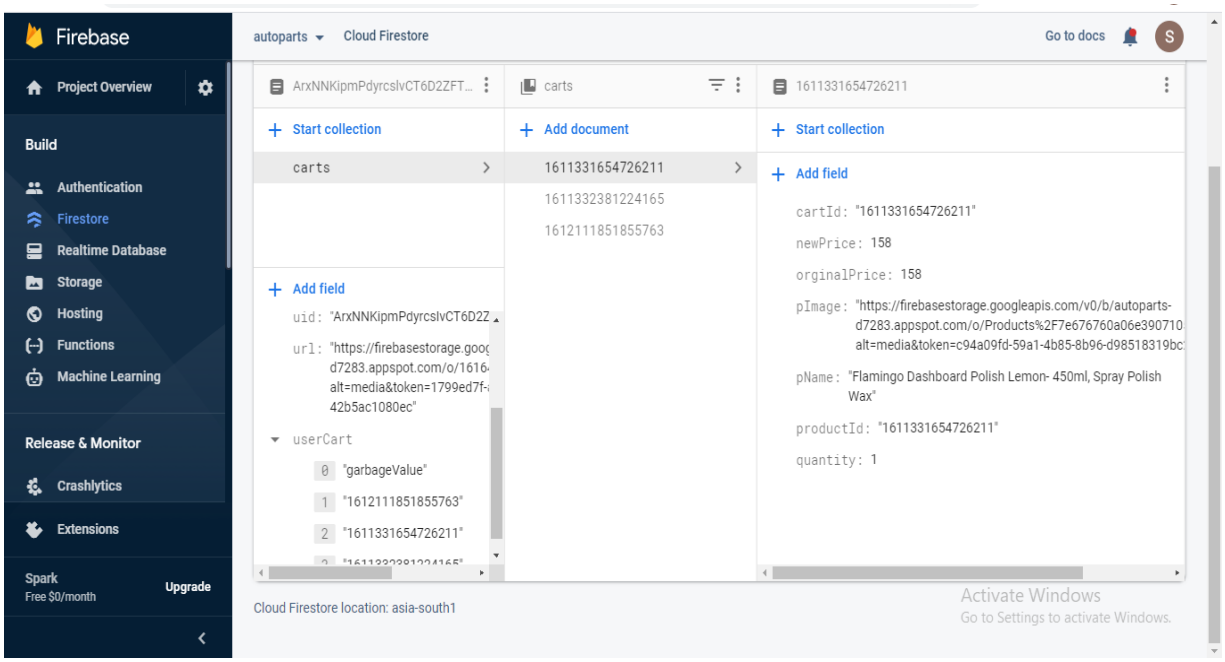


Figure- 5.1.8: Cloud Firestore database structure for user carts

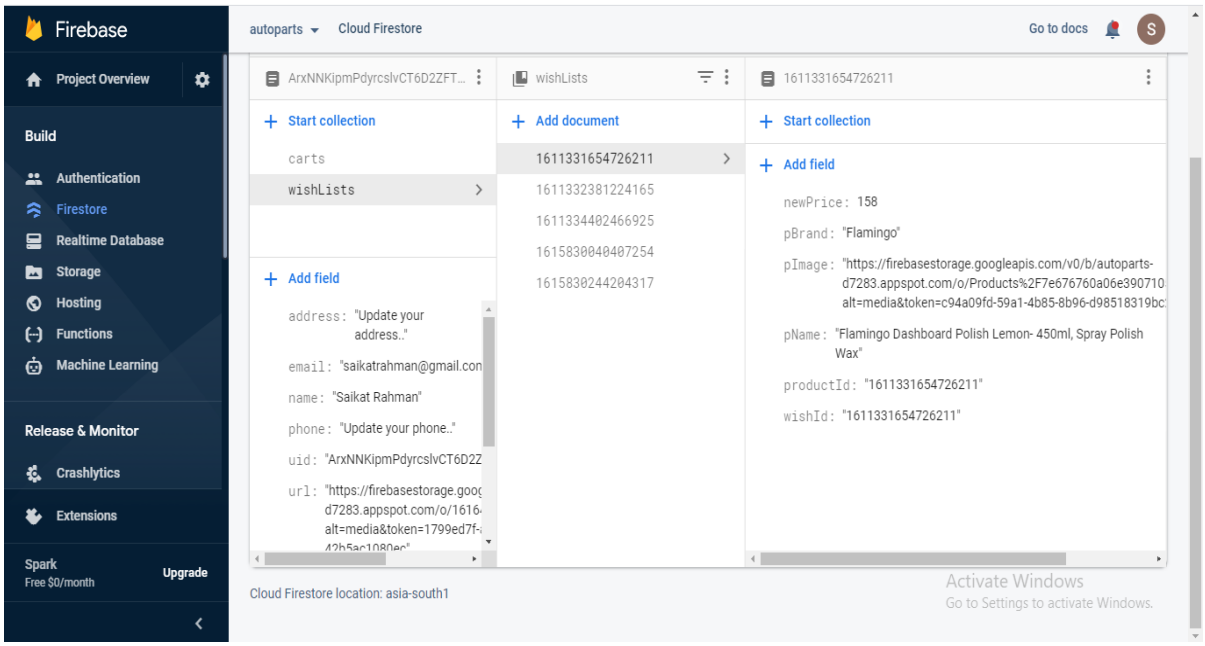


Figure- 5.1.9: Cloud Firestore database structure for user wish lists

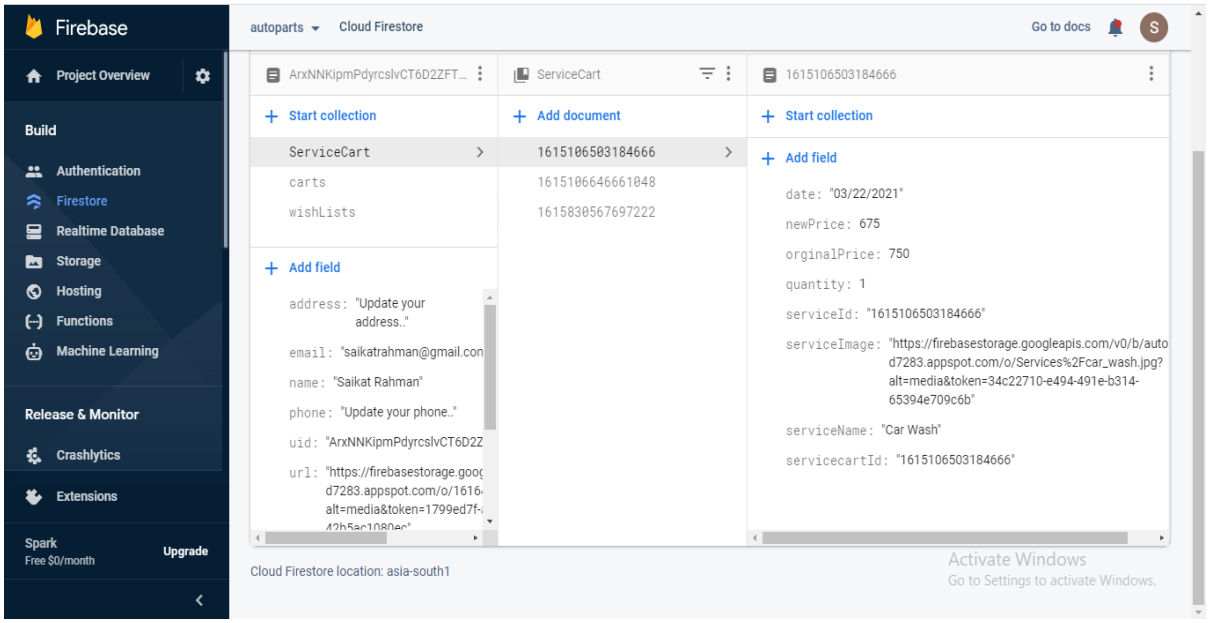


Figure- 5.1.10: Cloud Firestore database structure for user service cart

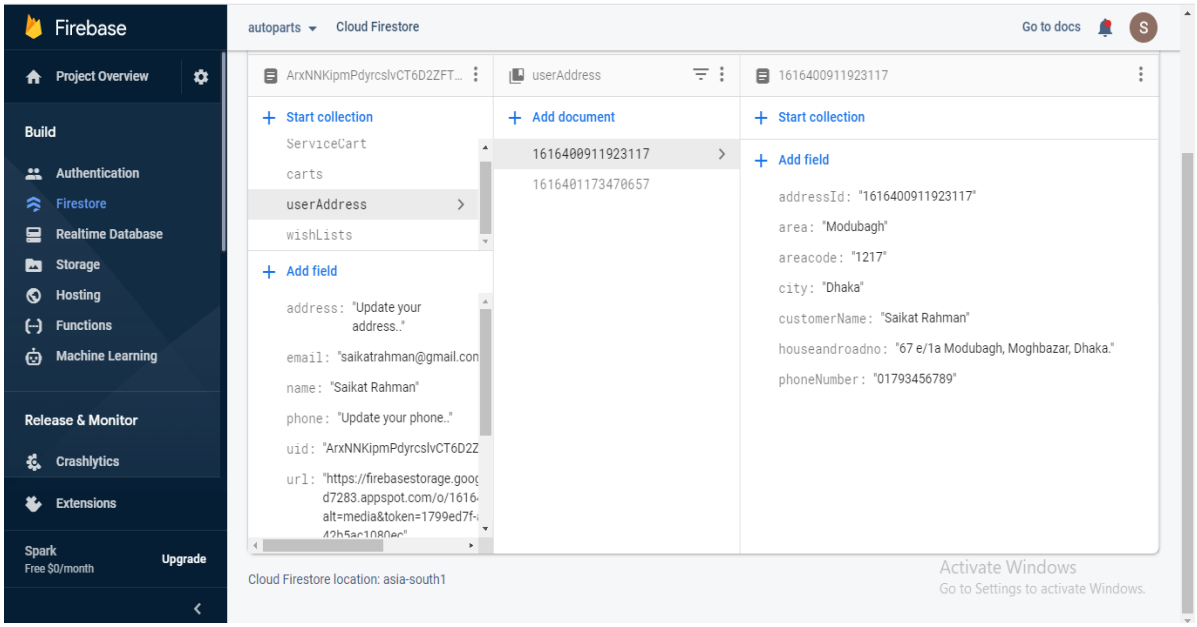


Figure- 5.1.11: Cloud Firestore database structure for user shipping address

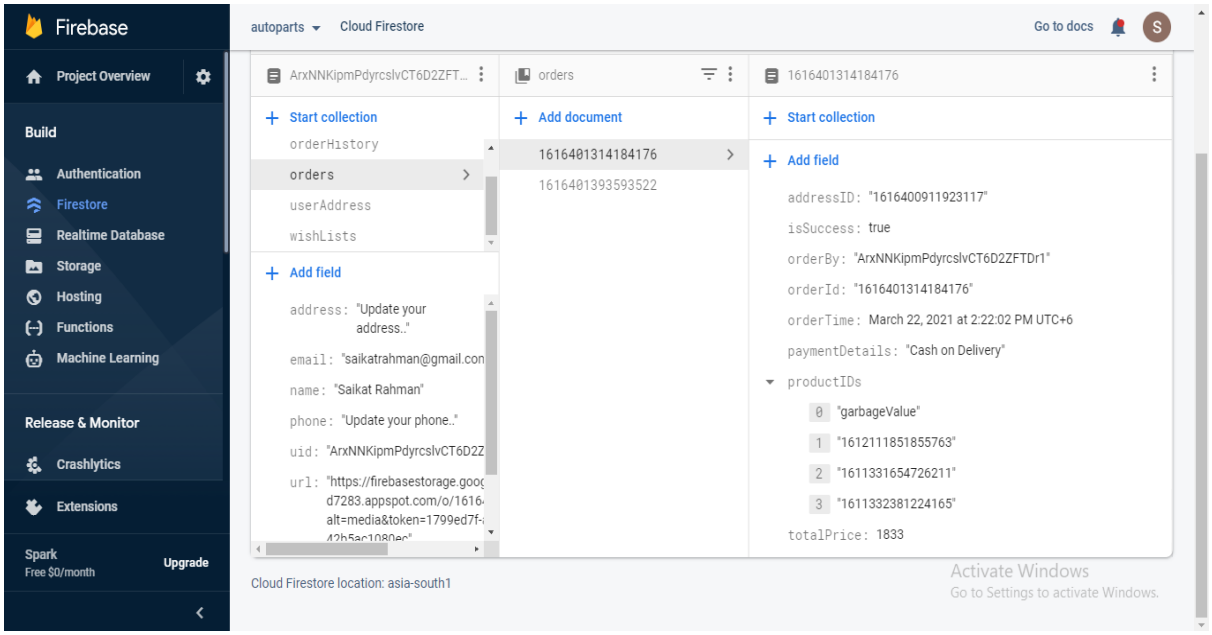


Figure- 5.1.12: Cloud Firestore database structure for user orders

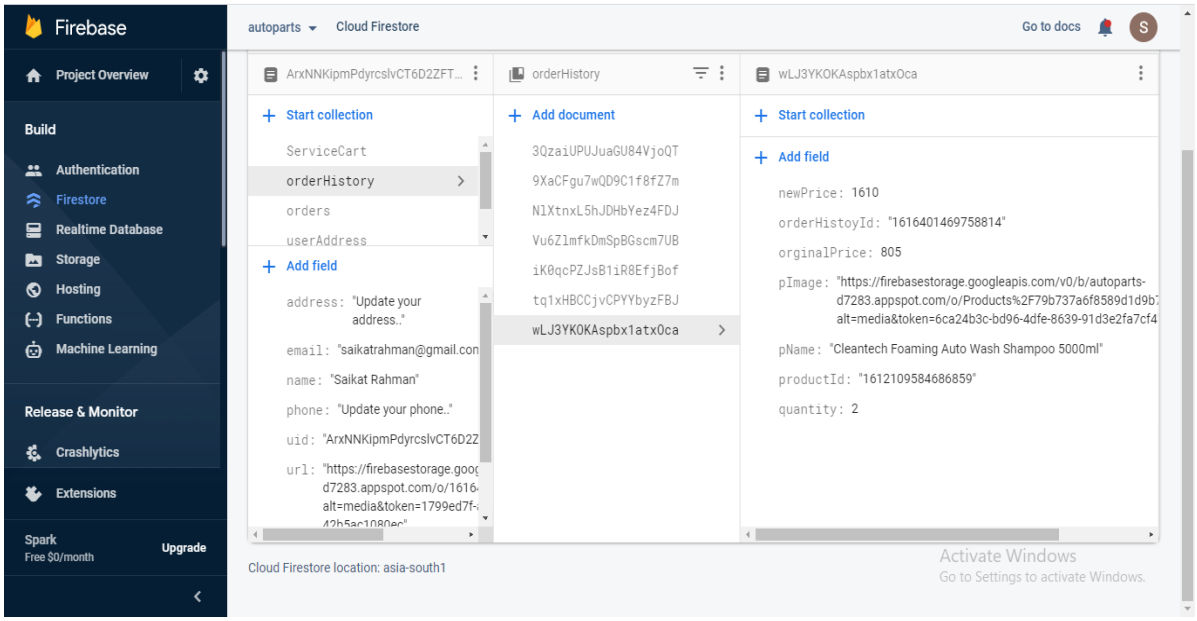


Figure- 5.1.13: Cloud Firestore database structure for user order history

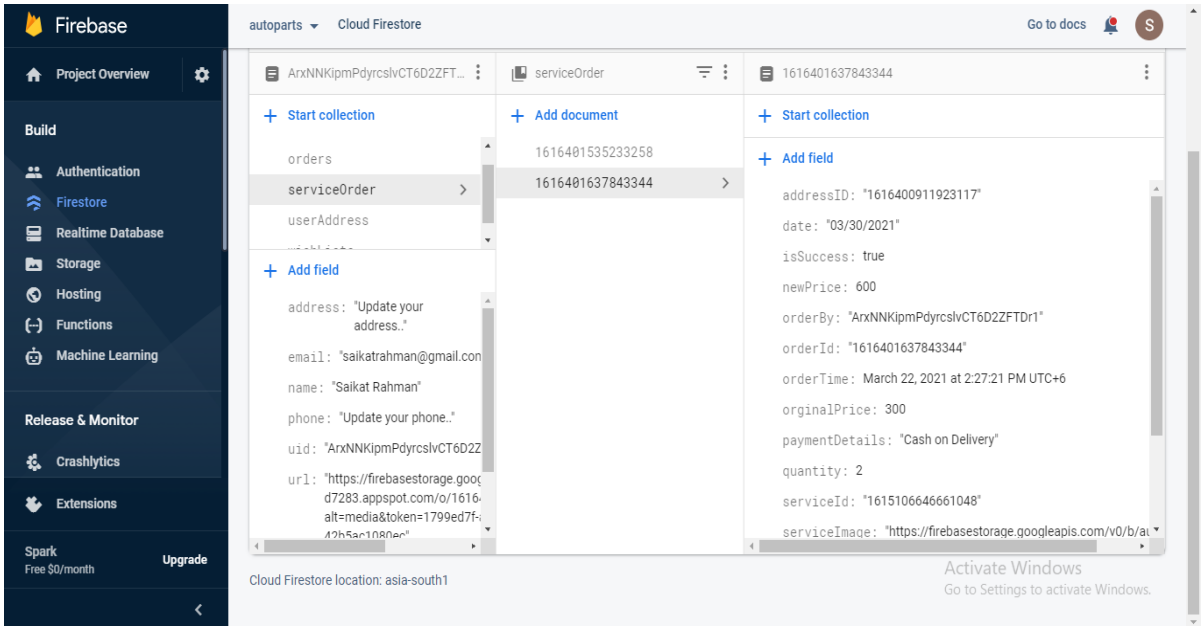


Figure- 5.1.14: Cloud Firestore database structure for user service order

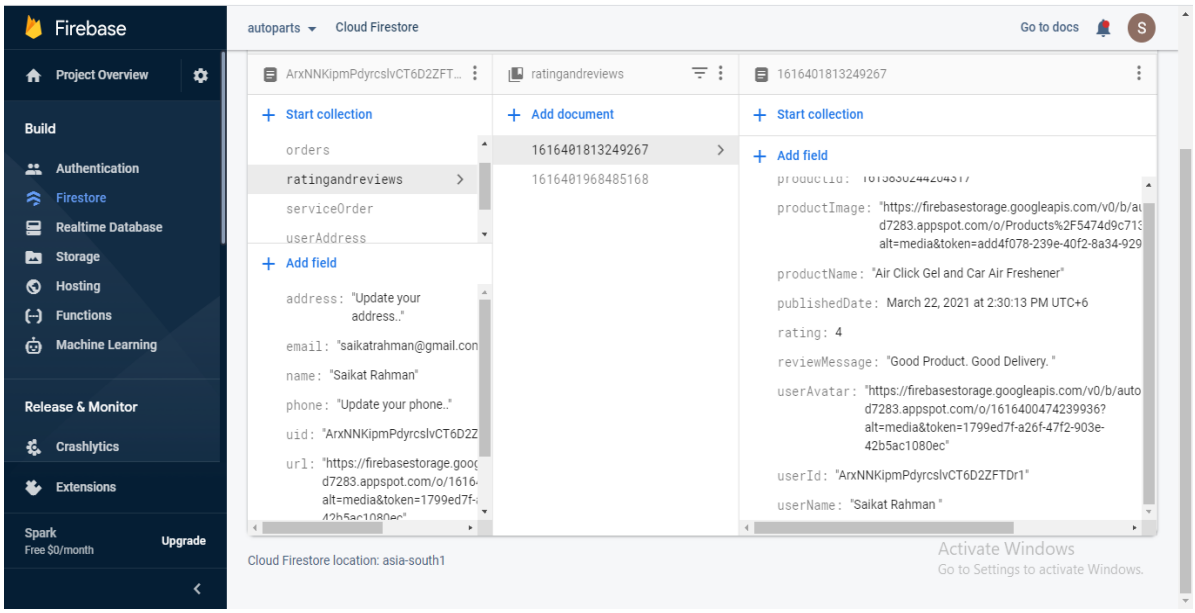


Figure- 5.1.15: Cloud Firestore database structure for user rating and reviews

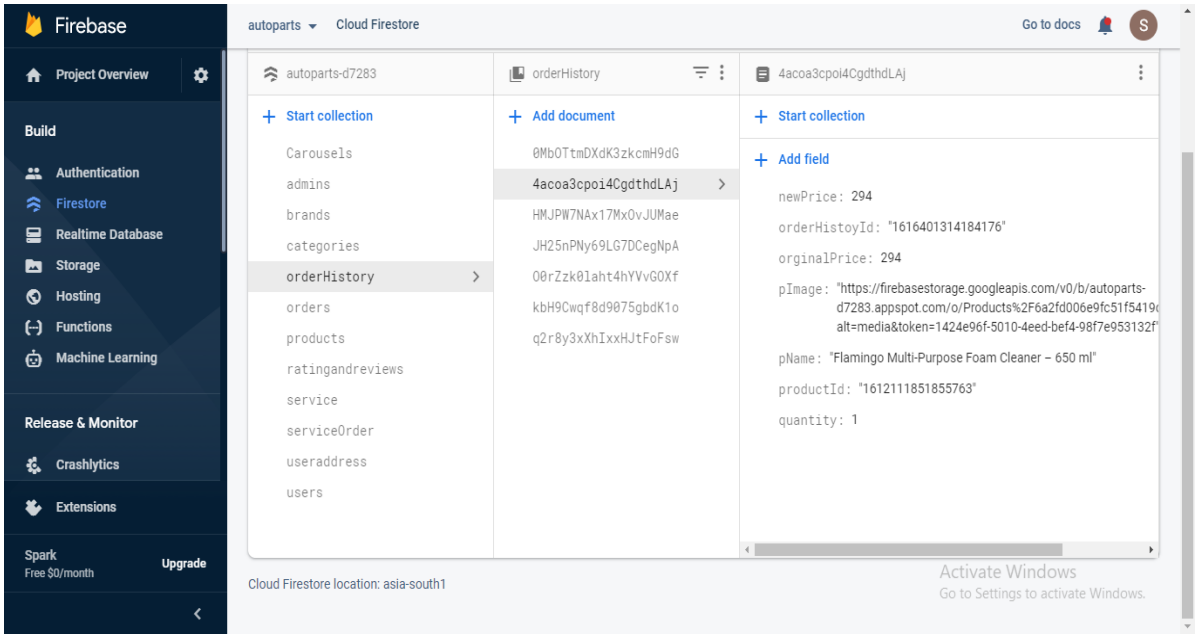


Figure- 5.1.16: Cloud Firestore database structure for user order history for admin

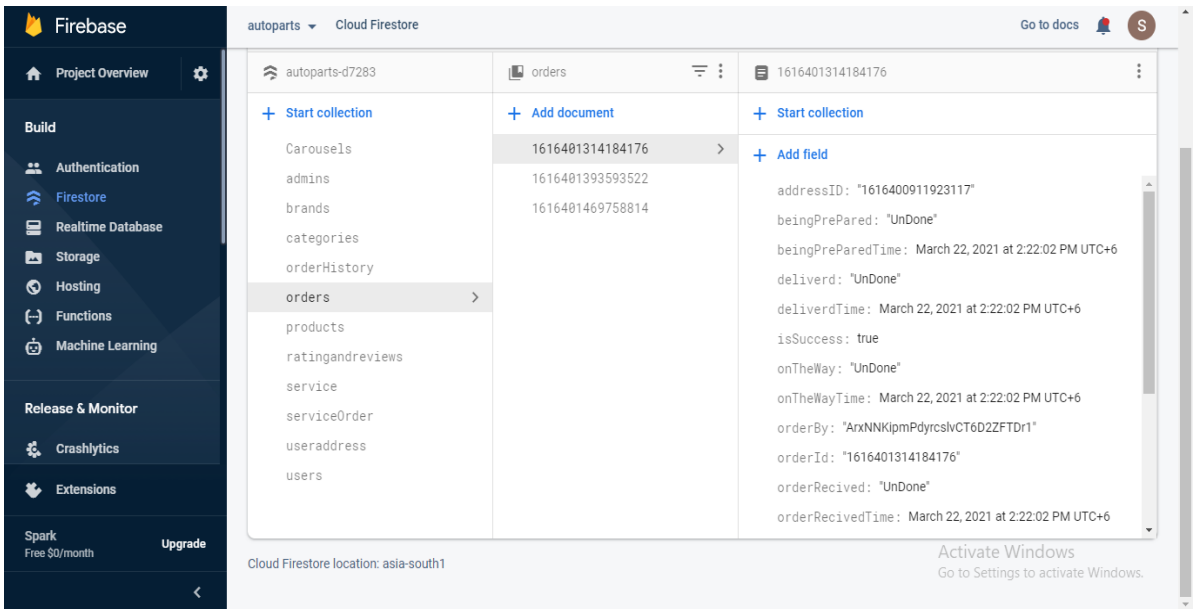


Figure- 5.1.17: Cloud Firestore database structure for user orders for admin

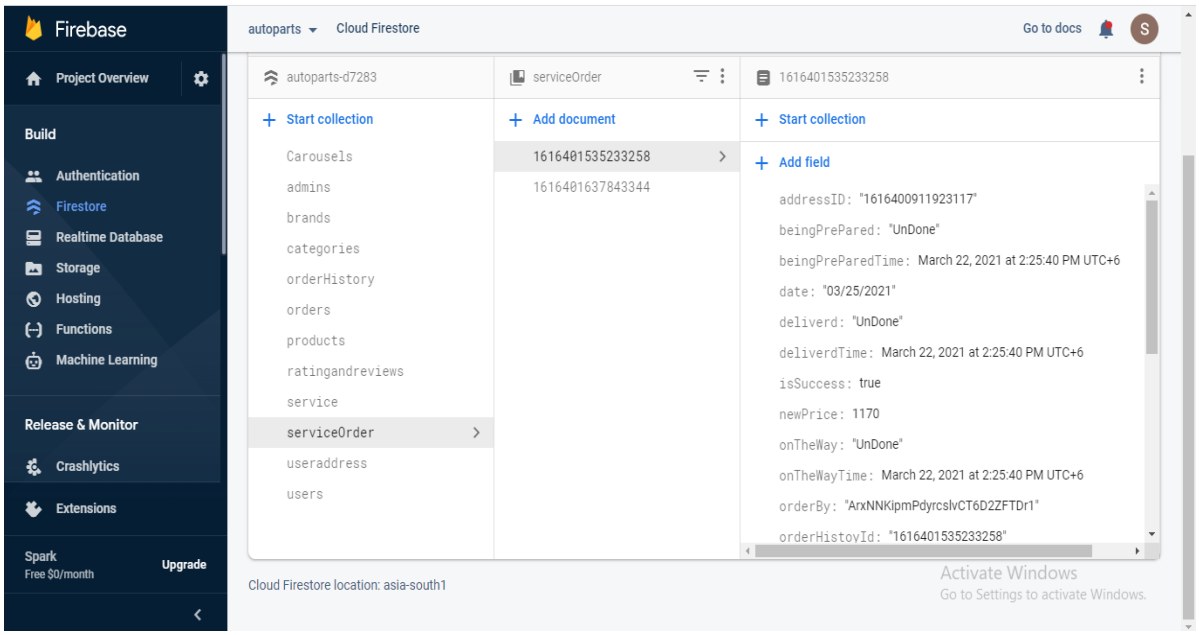


Figure- 5.1.18: Cloud Firestore database structure for user service order for admin

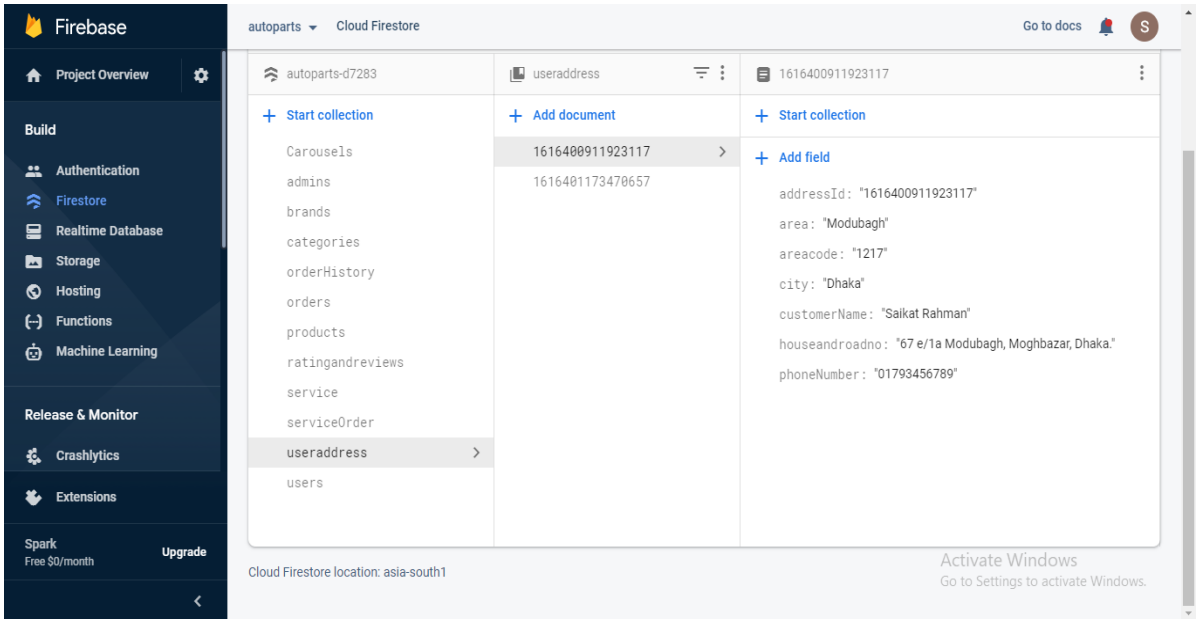


Figure- 5.1.19: Cloud Firestore database structure for user shipping address for admin

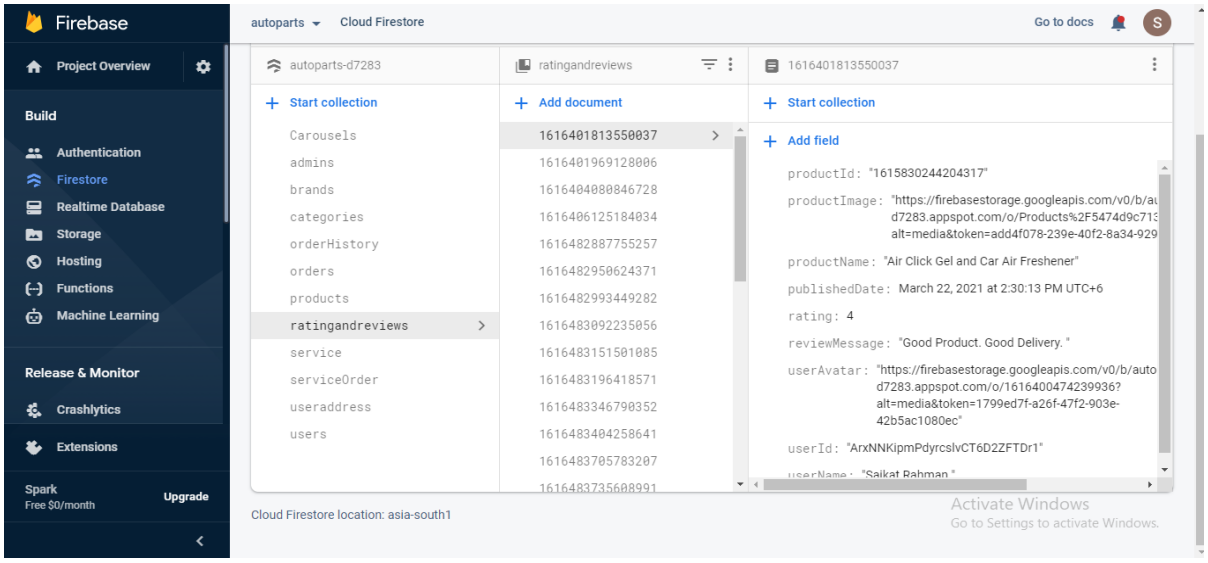


Figure- 5.1.20: Cloud Firestore database structure for user rating and review for all users

5.2 Implementation of Storage:

For real-time image storage, we used Firebase storage. Save all product images, all service images, all carousel images, and user profile images here.

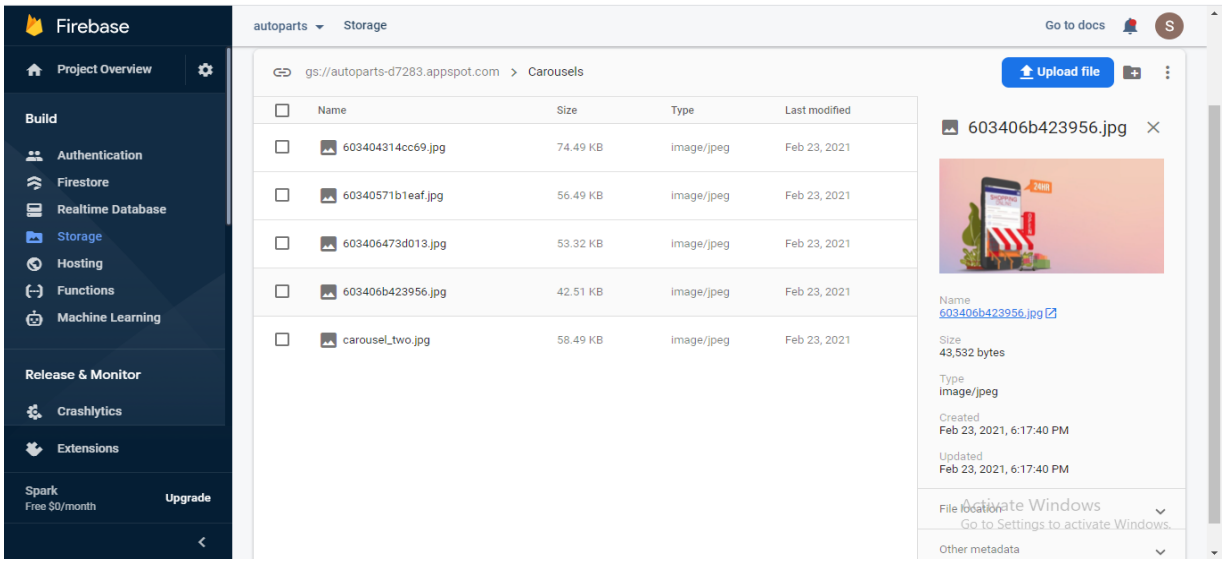


Figure- 5.2.1: Firebase Storage for carousels image

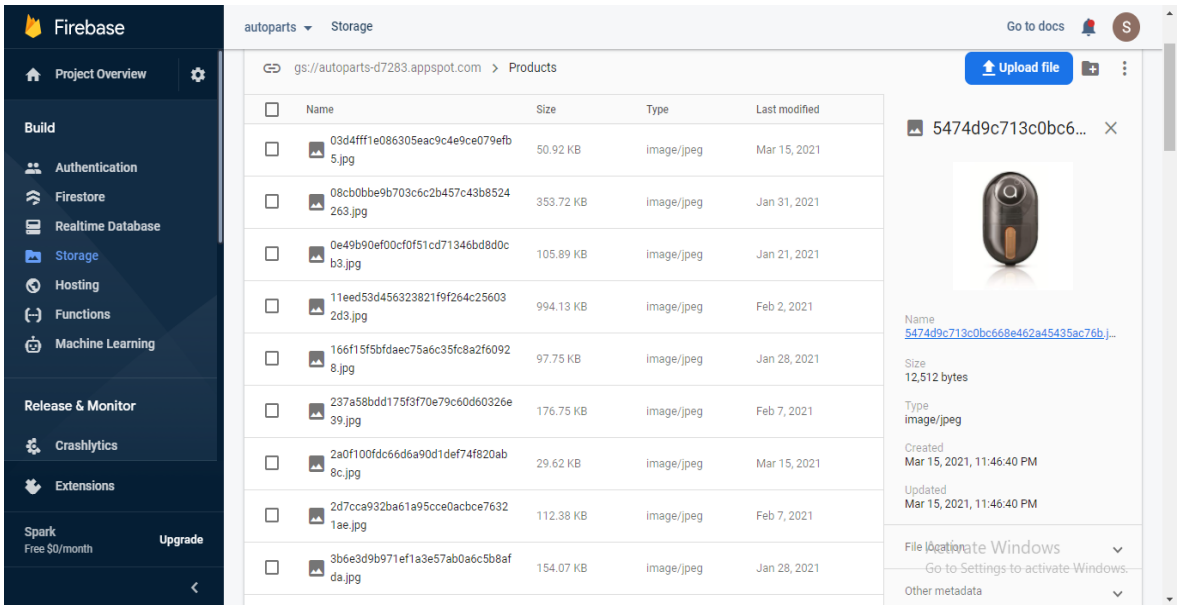


Figure- 5.2.2: Firebase Storage for products image

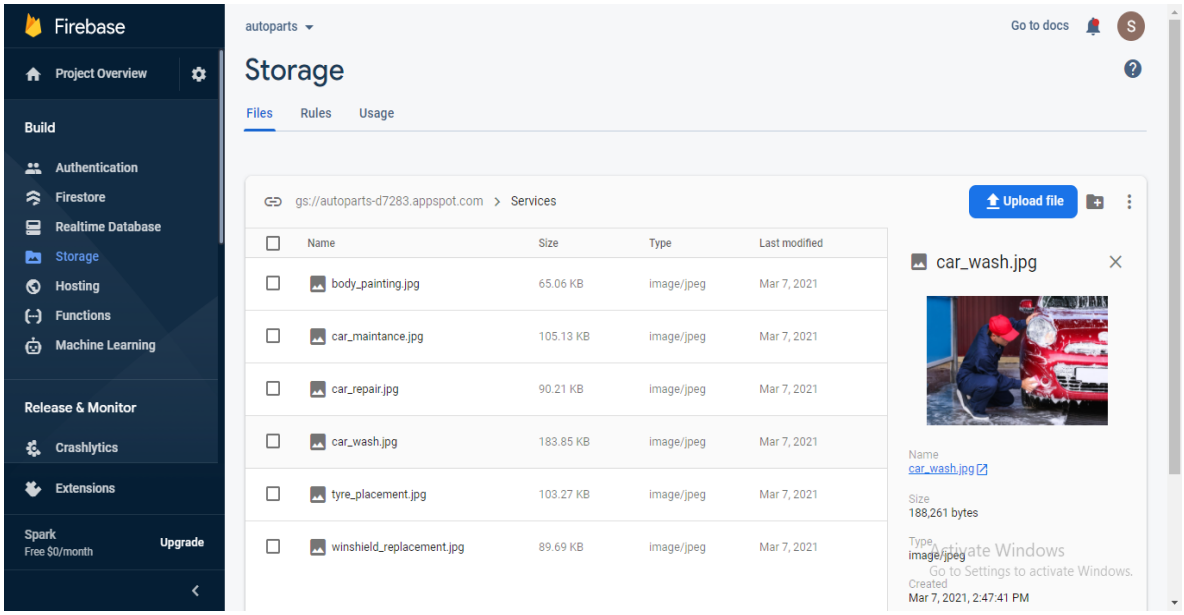


Figure- 5.2.3: Firebase Storage for services image

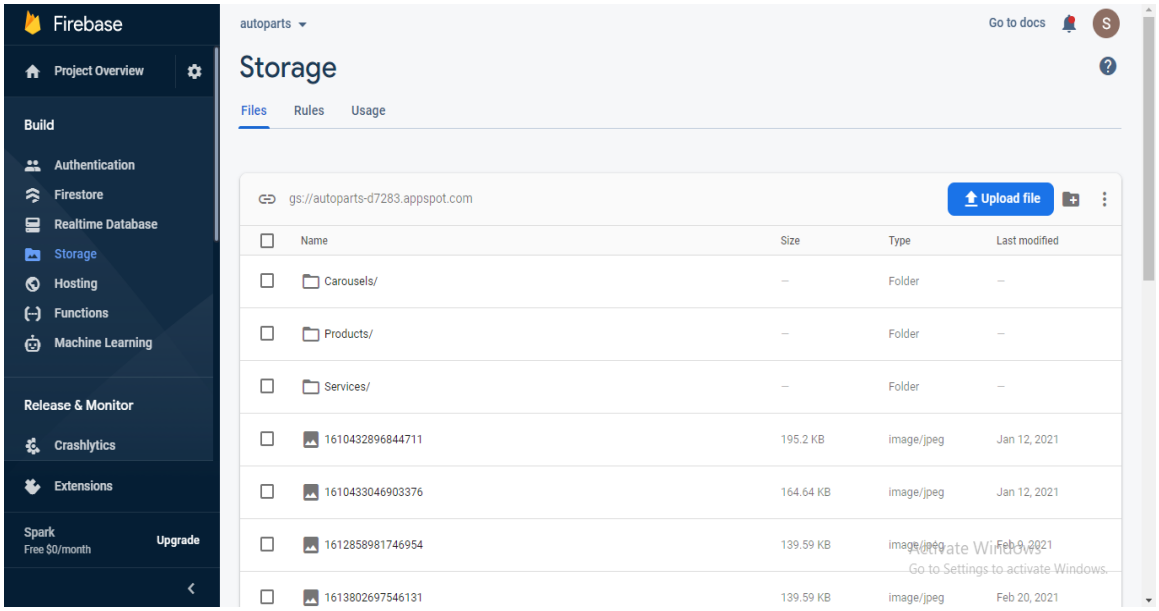


Figure- 5.2.4: Firebase Storage structure

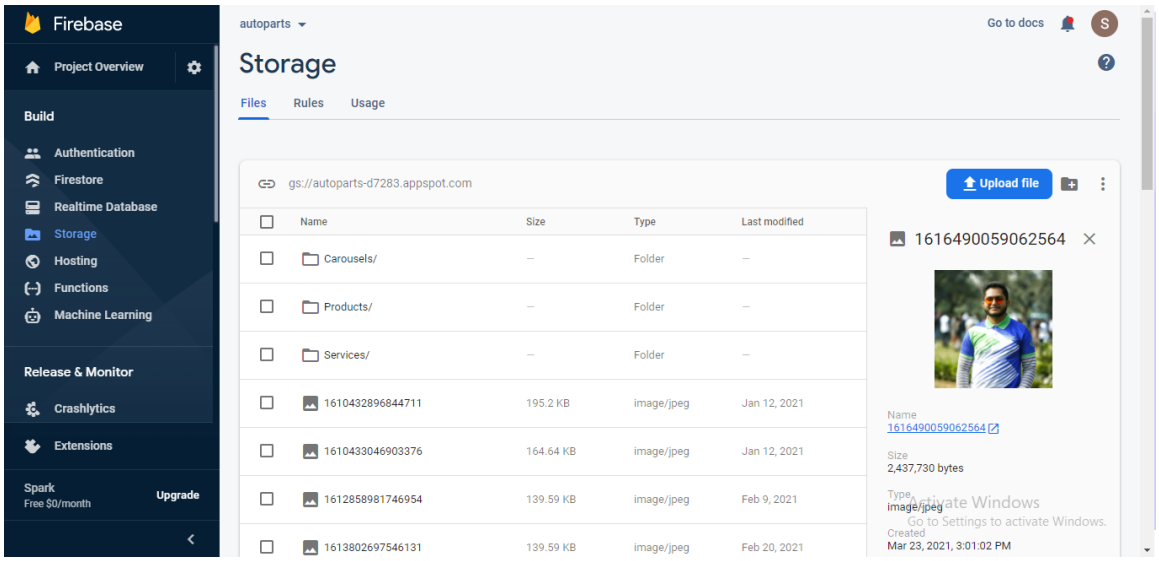


Figure- 5.2.5: Firebase Storage for user image

5.3 Implementation of Authentication System:

For authentication, we use a Firebase authentication system. It is also a real-time authentication system. We use email sign-in and Google sign-in authentication through this Firebase authentication system.

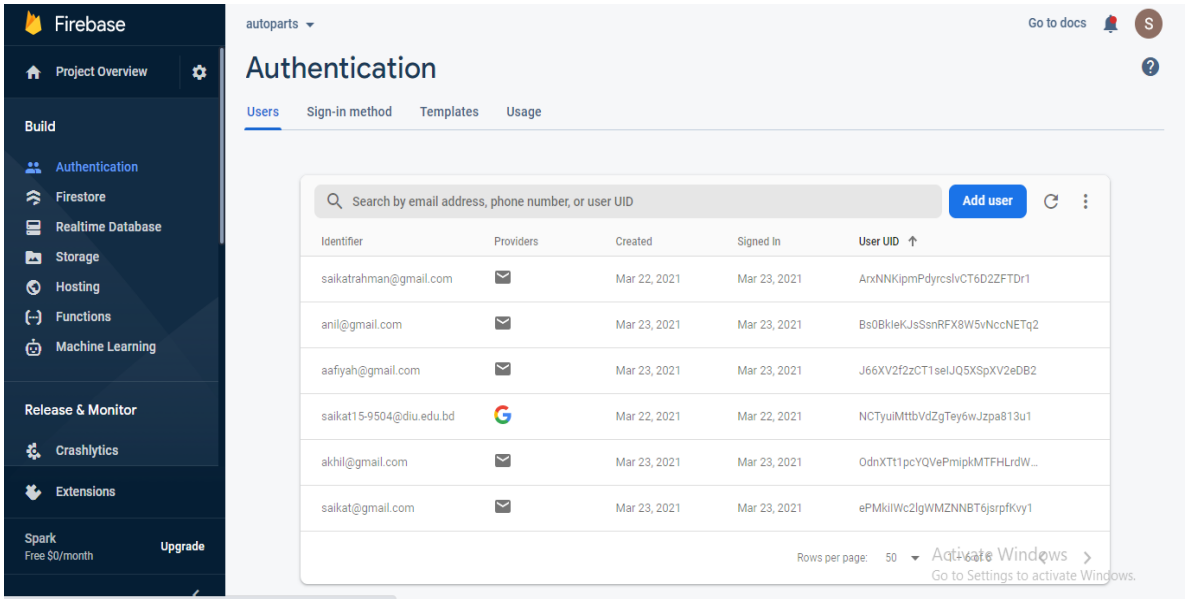


Figure- 5.3: Implementation of Authentication System

5.4 Front-end-design Implementation for User:

For user front-end design, we are using Material Widgets, Cupertino Widgets, Material Icons, Material Buttons etc. We are creating a user-friendly beautiful interface. Users can easily understand our user interface.

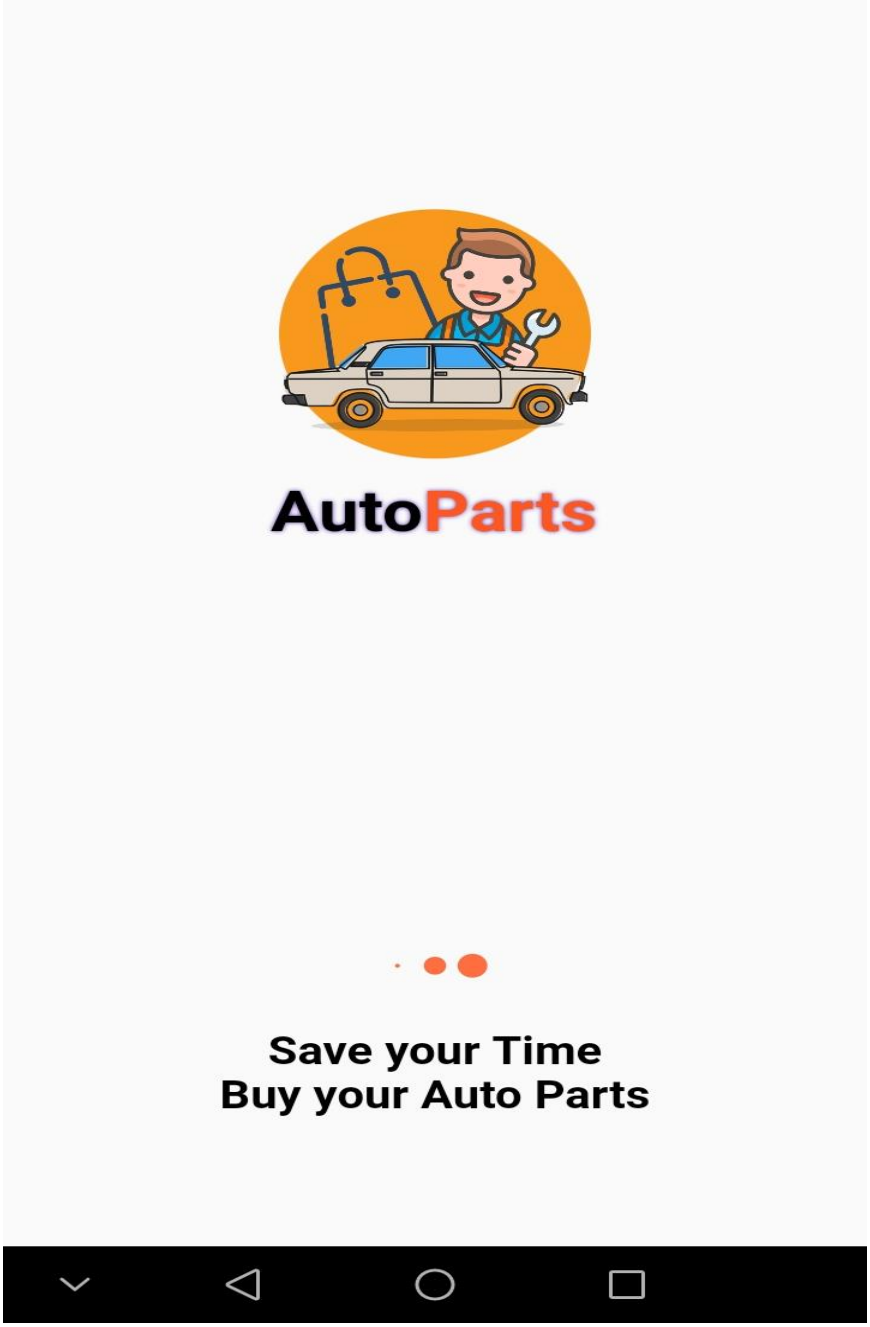


Figure- 5.4.1: User Splash Screen

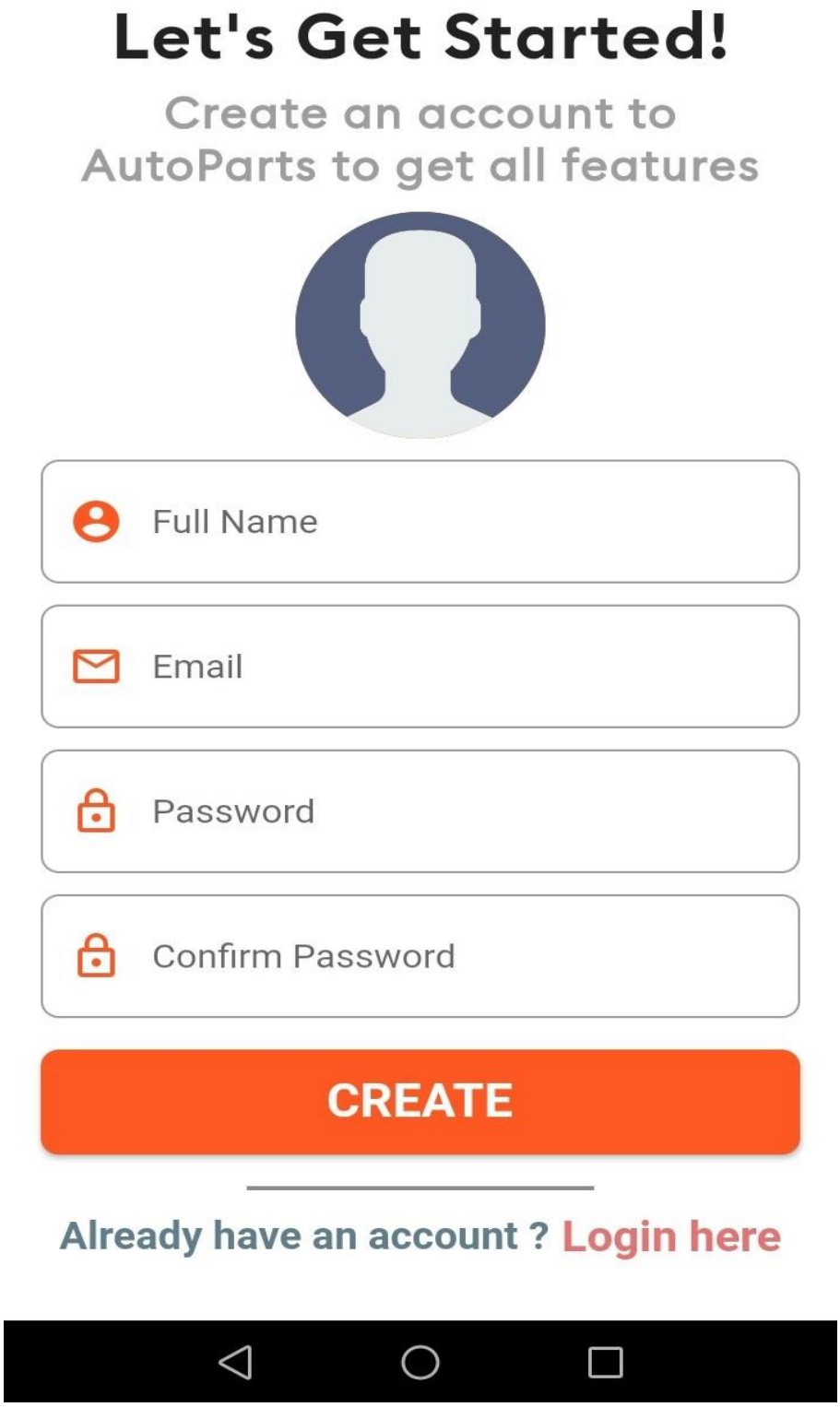


Figure- 5.4.2: User Sign Up Screen

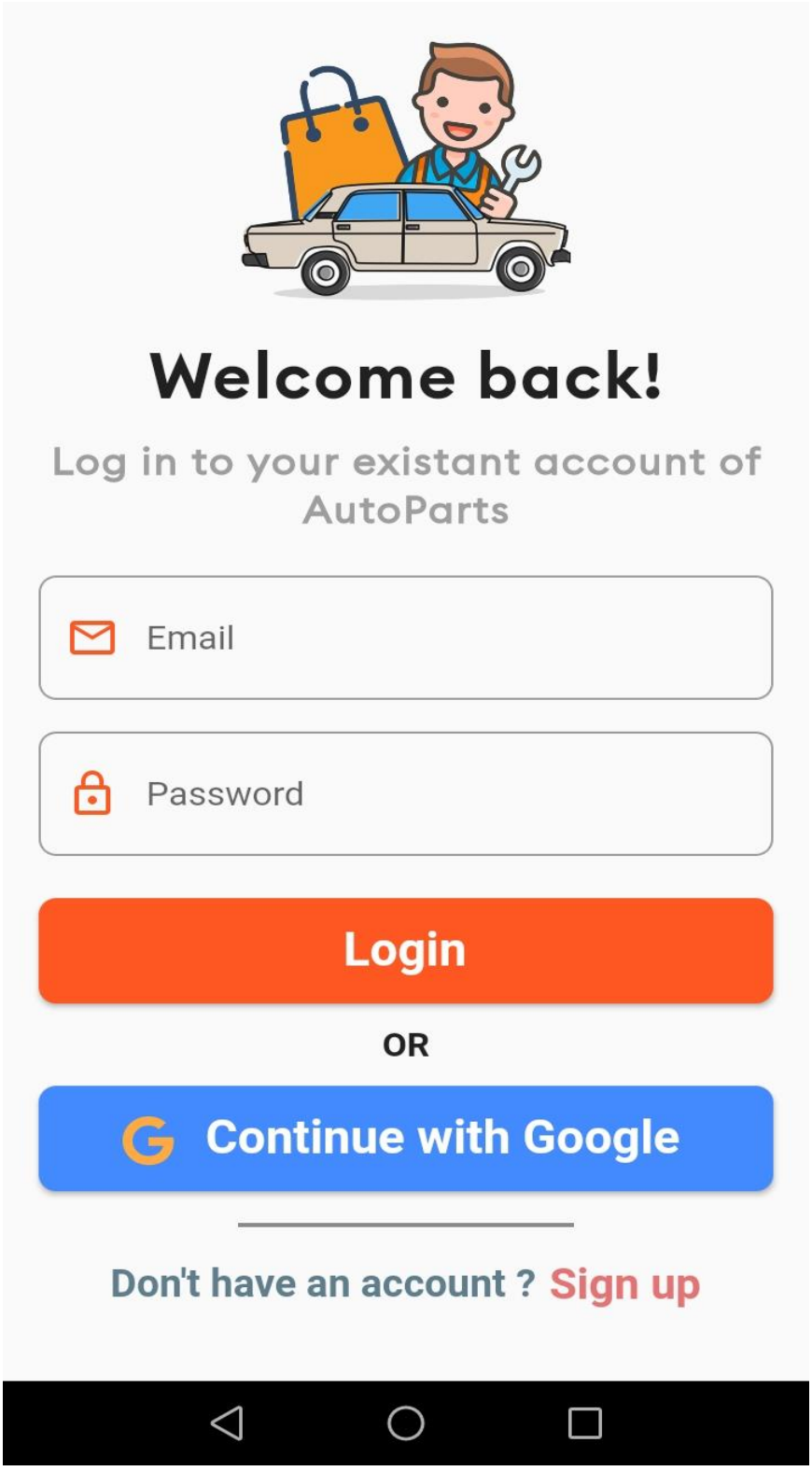


Figure- 5.4.3: User Login Screen

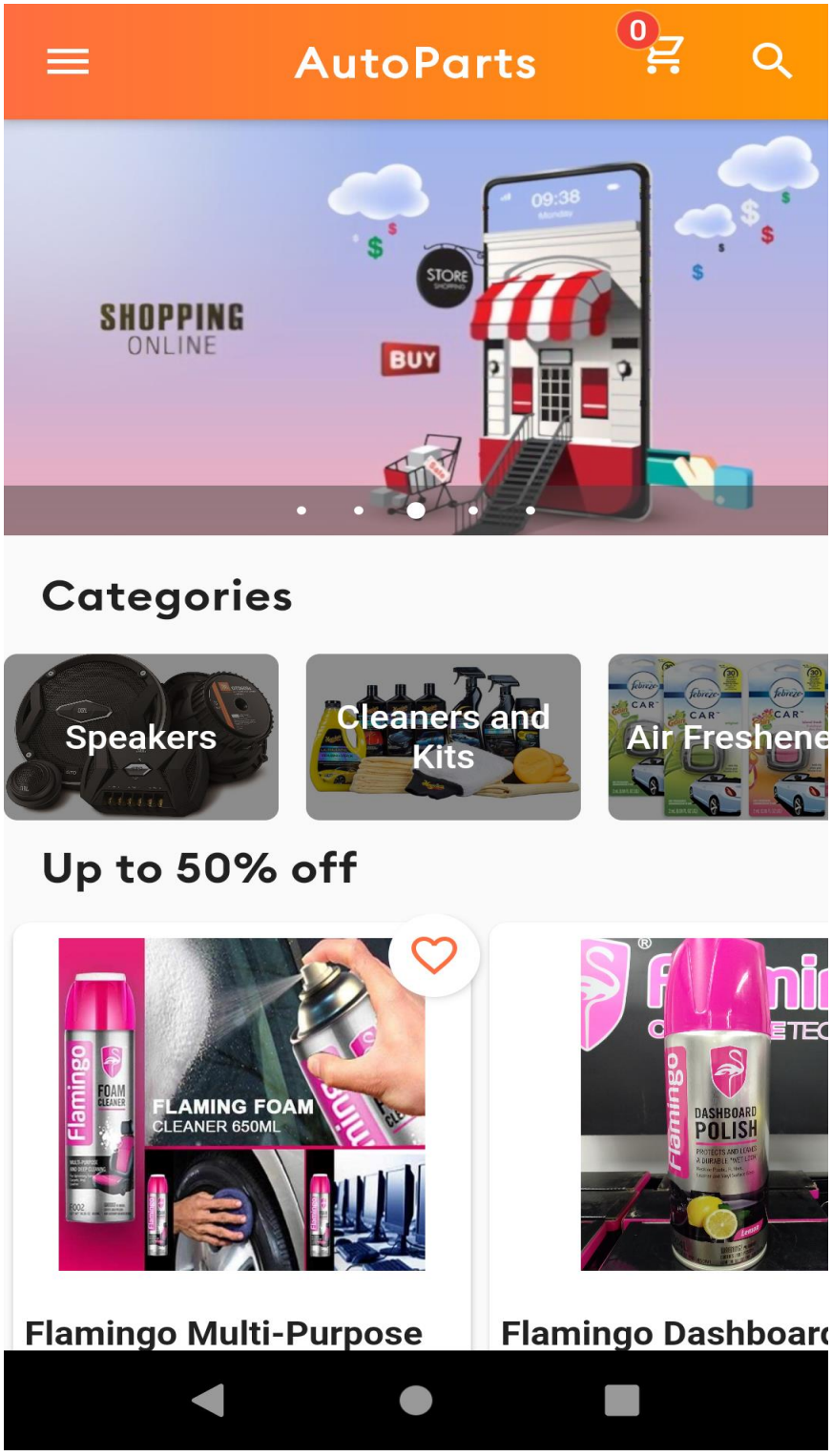


Figure- 5.4.4: User Home Screen

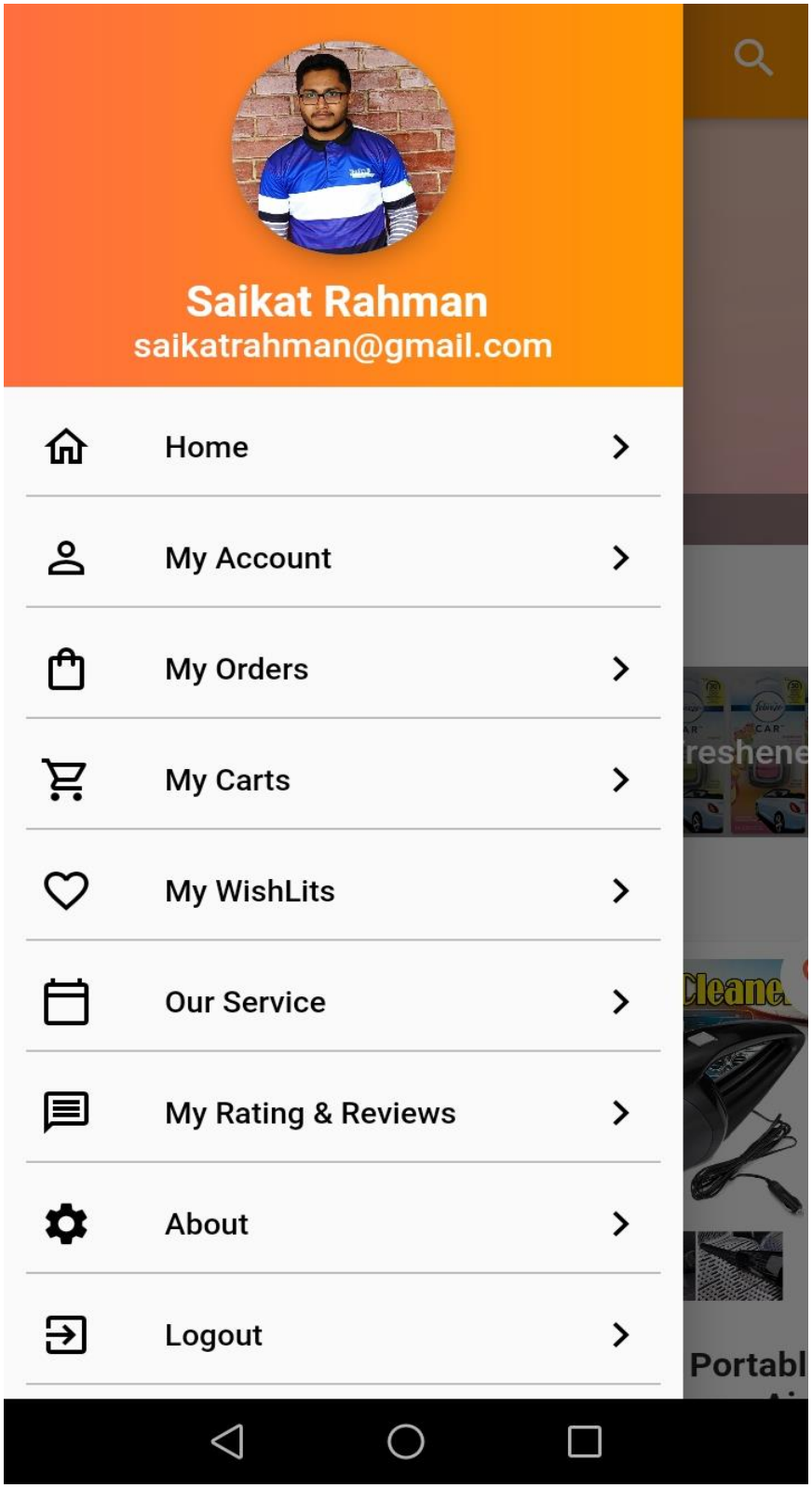


Figure- 5.4.5: User Drawer Screen

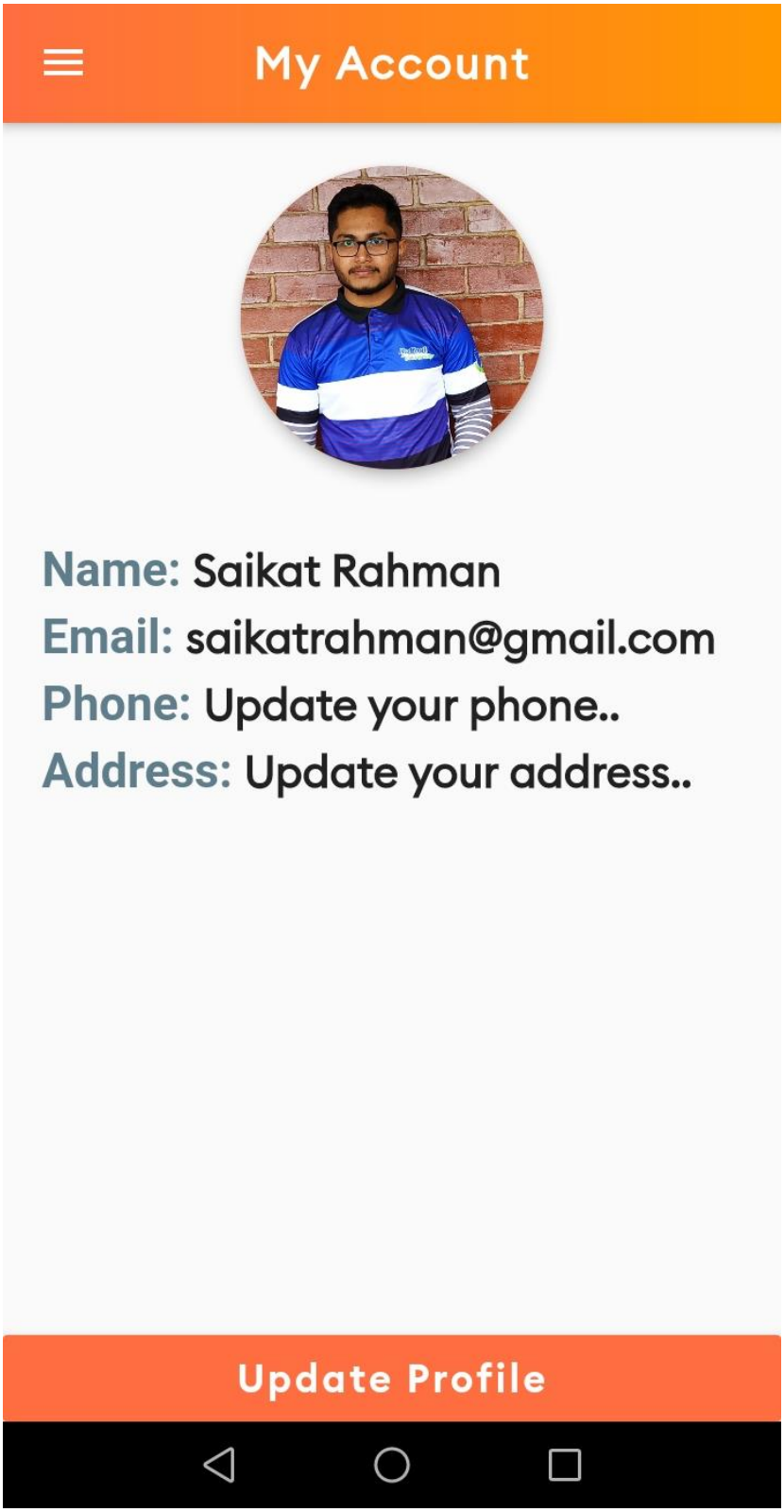


Figure- 5.4.6: User Profile Screen

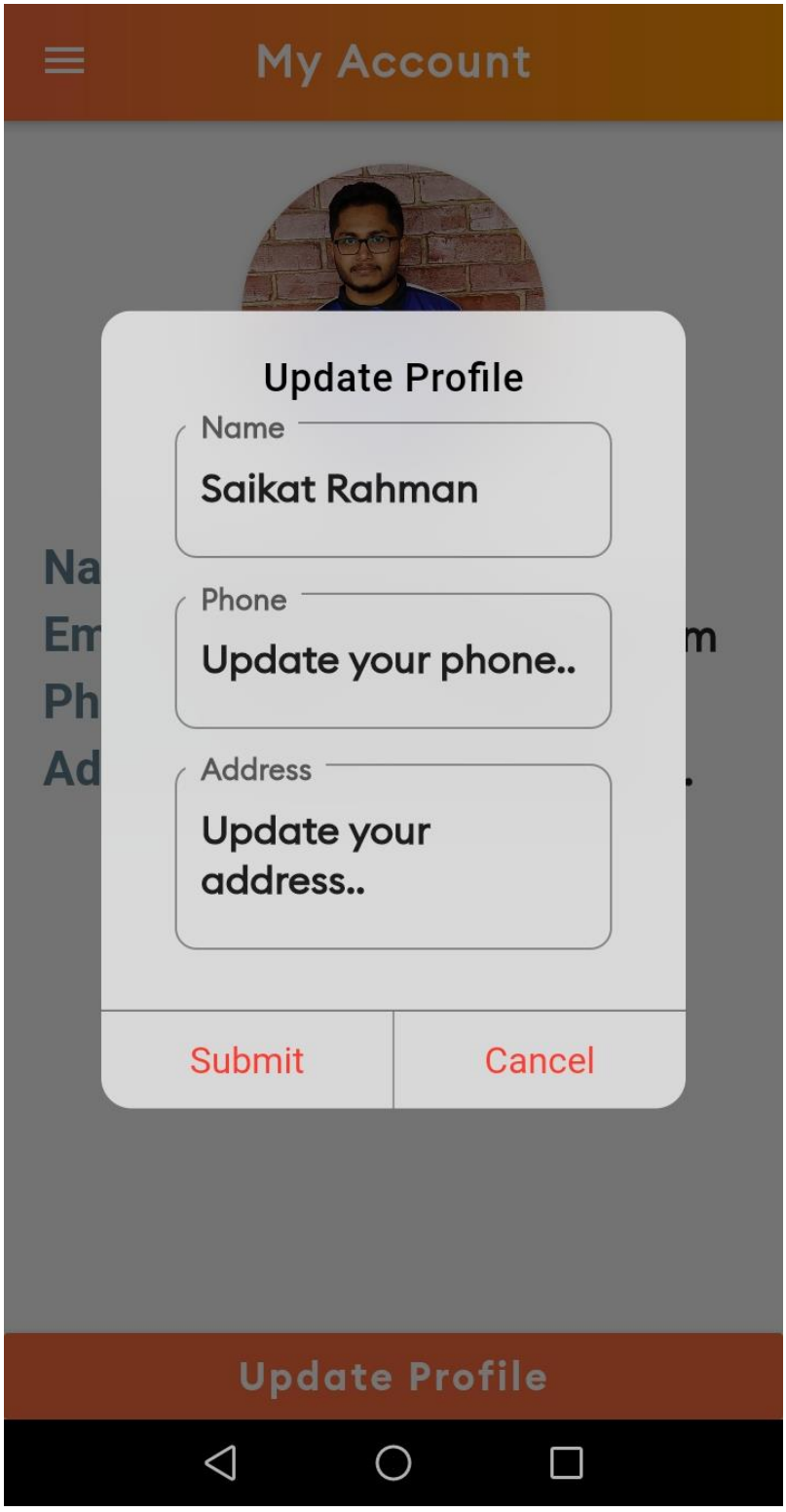


Figure- 5.4.7: User Profile Update Dialog Box

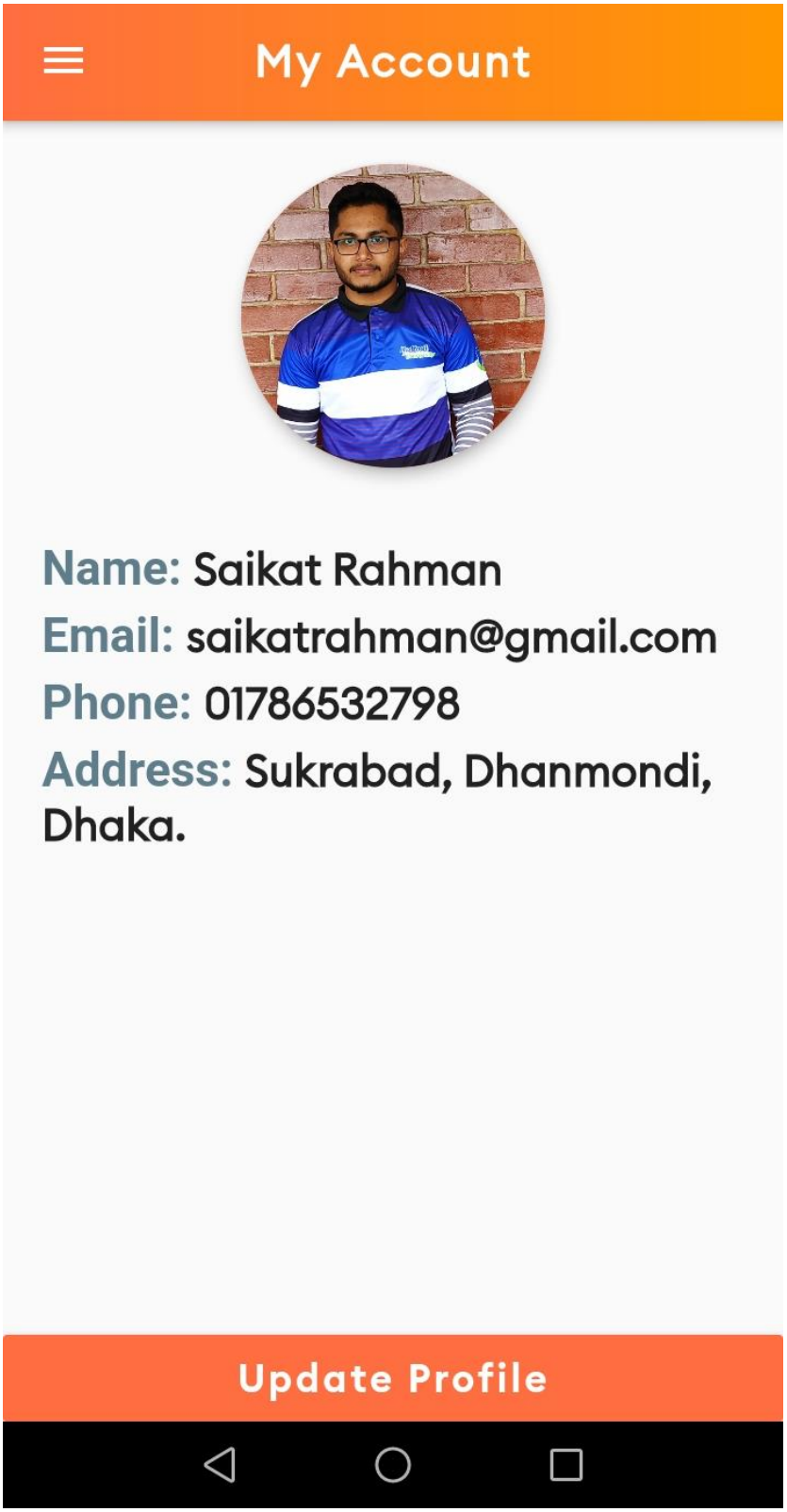


Figure- 5.4.8: User Updated Profile Screen

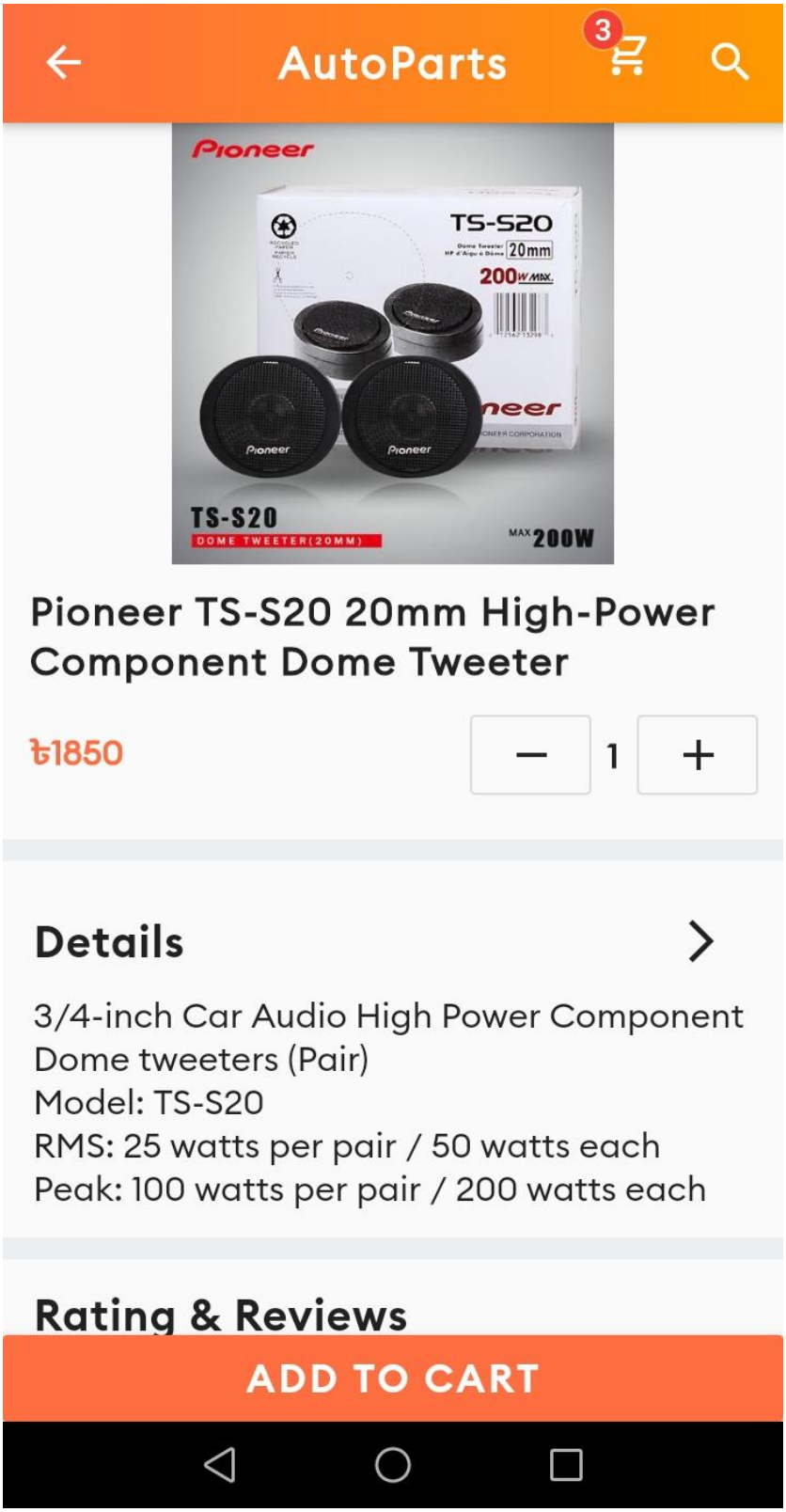


Figure- 5.4.9: Product Details Screen

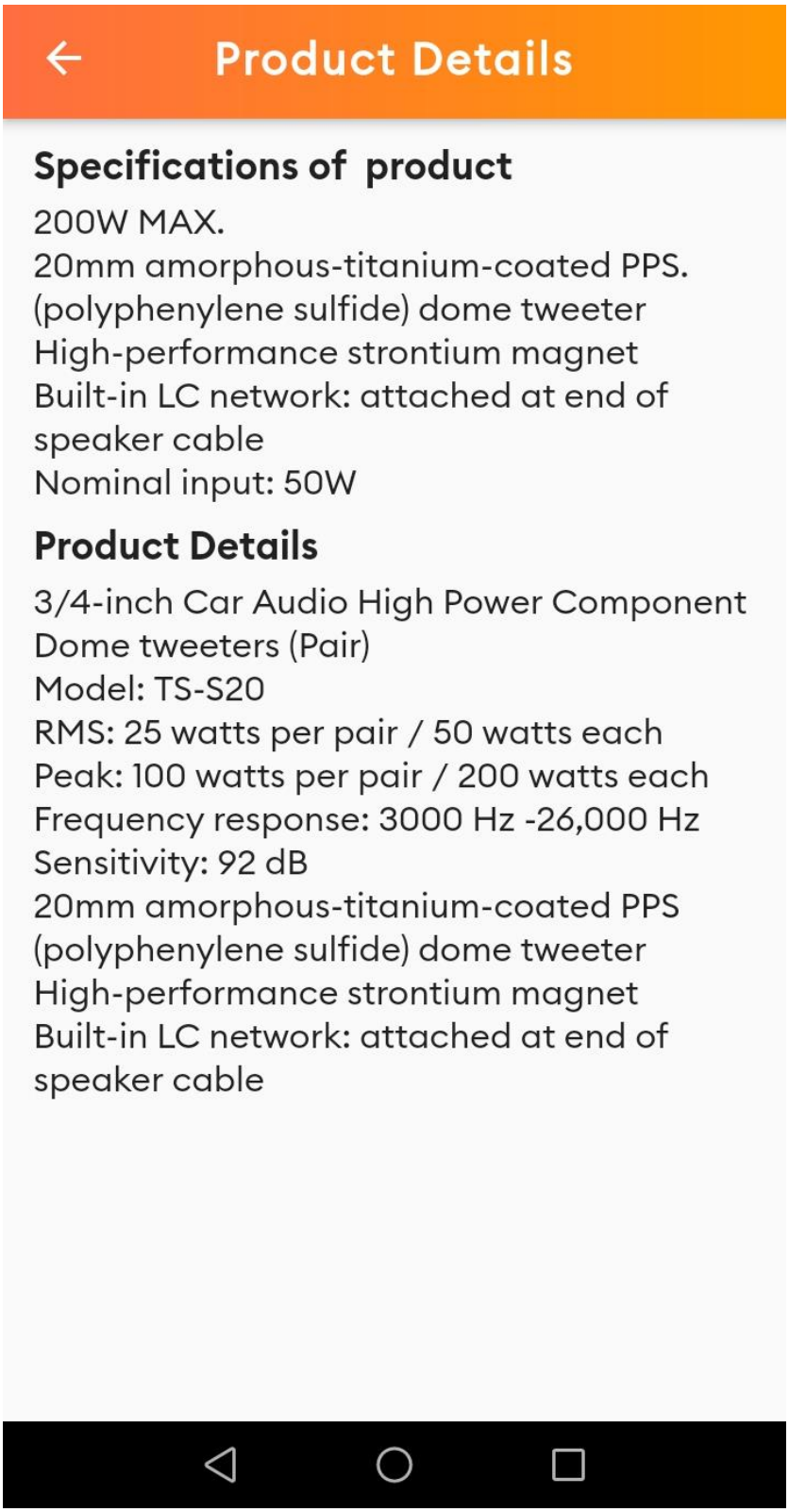


Figure- 5.4.10: Products Specification Screen

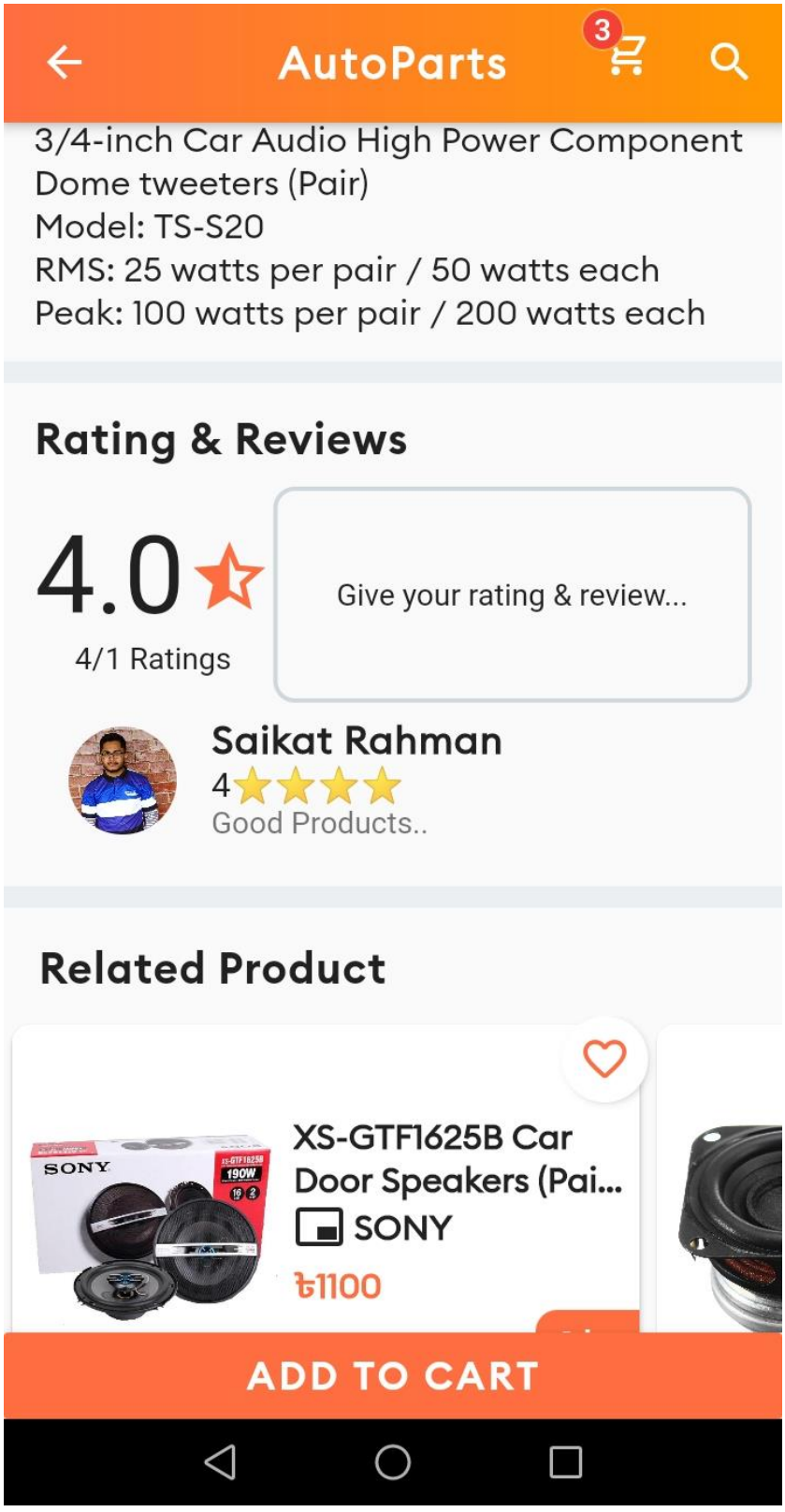


Figure- 5.4.11: Product Rating and Review and Related Product

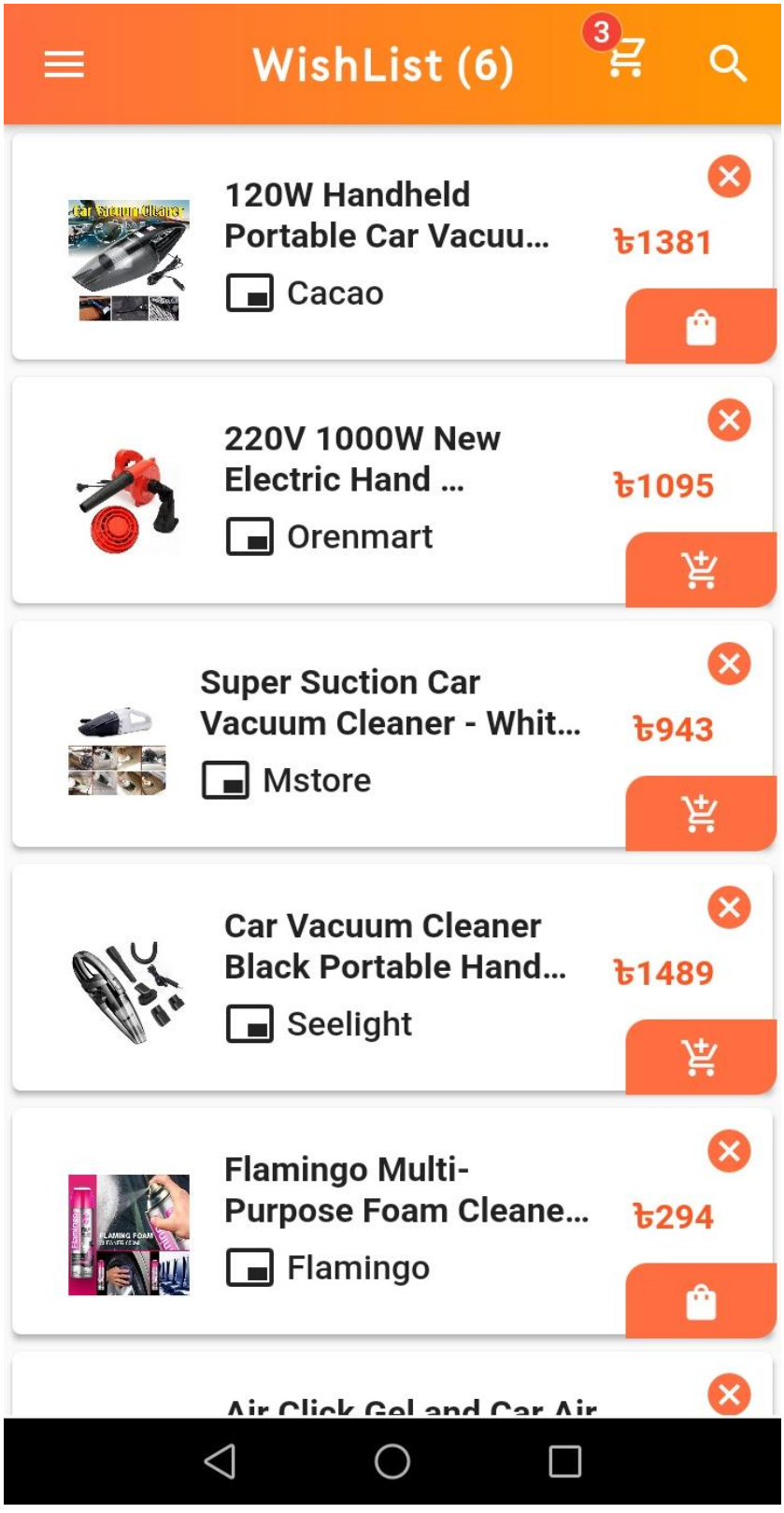


Figure- 5.4.12: User WishList Screen

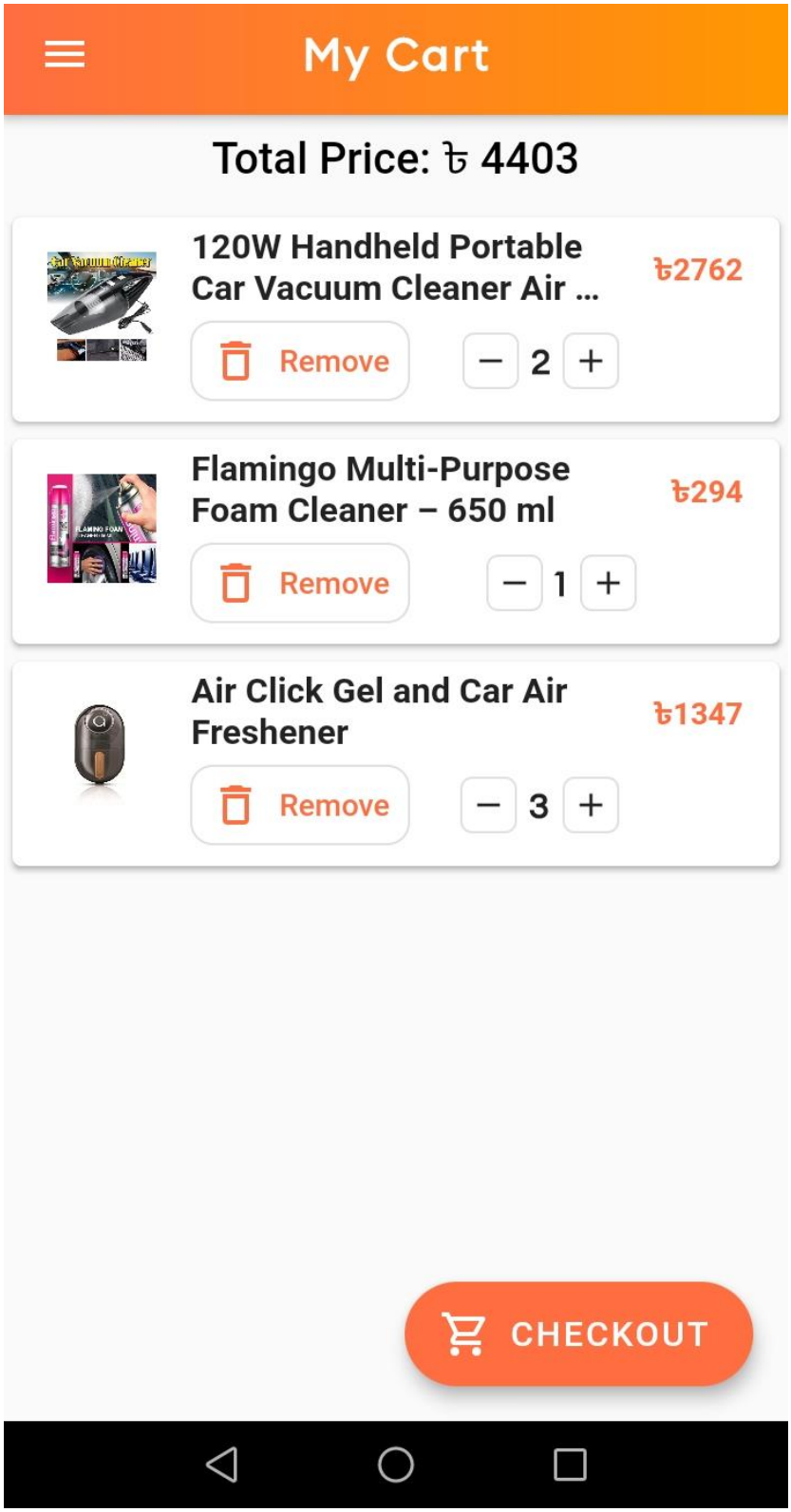


Figure- 5.4.13: User Cart Screen

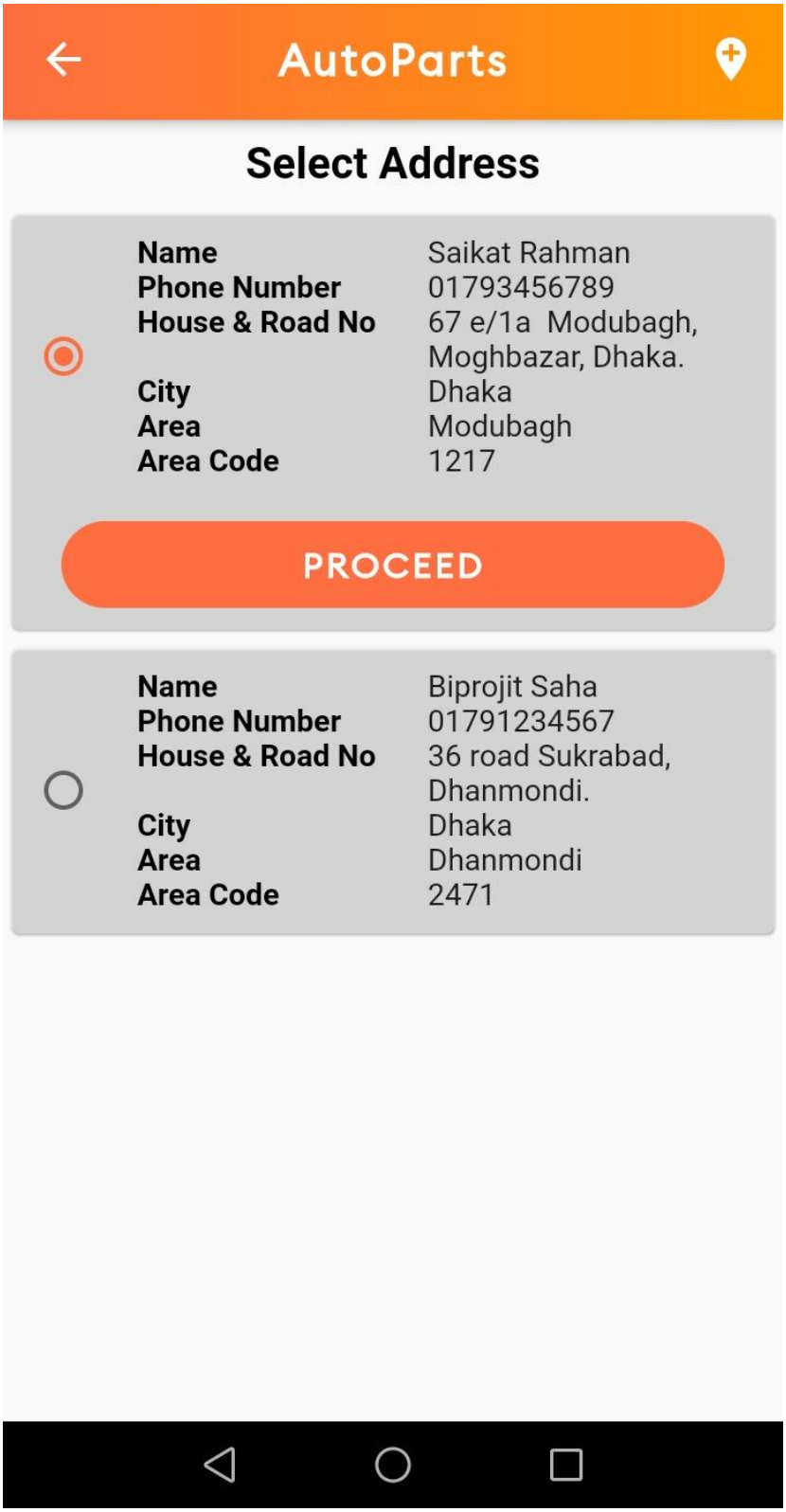


Figure- 5.4.14: User Shipment Address Selecting Screen

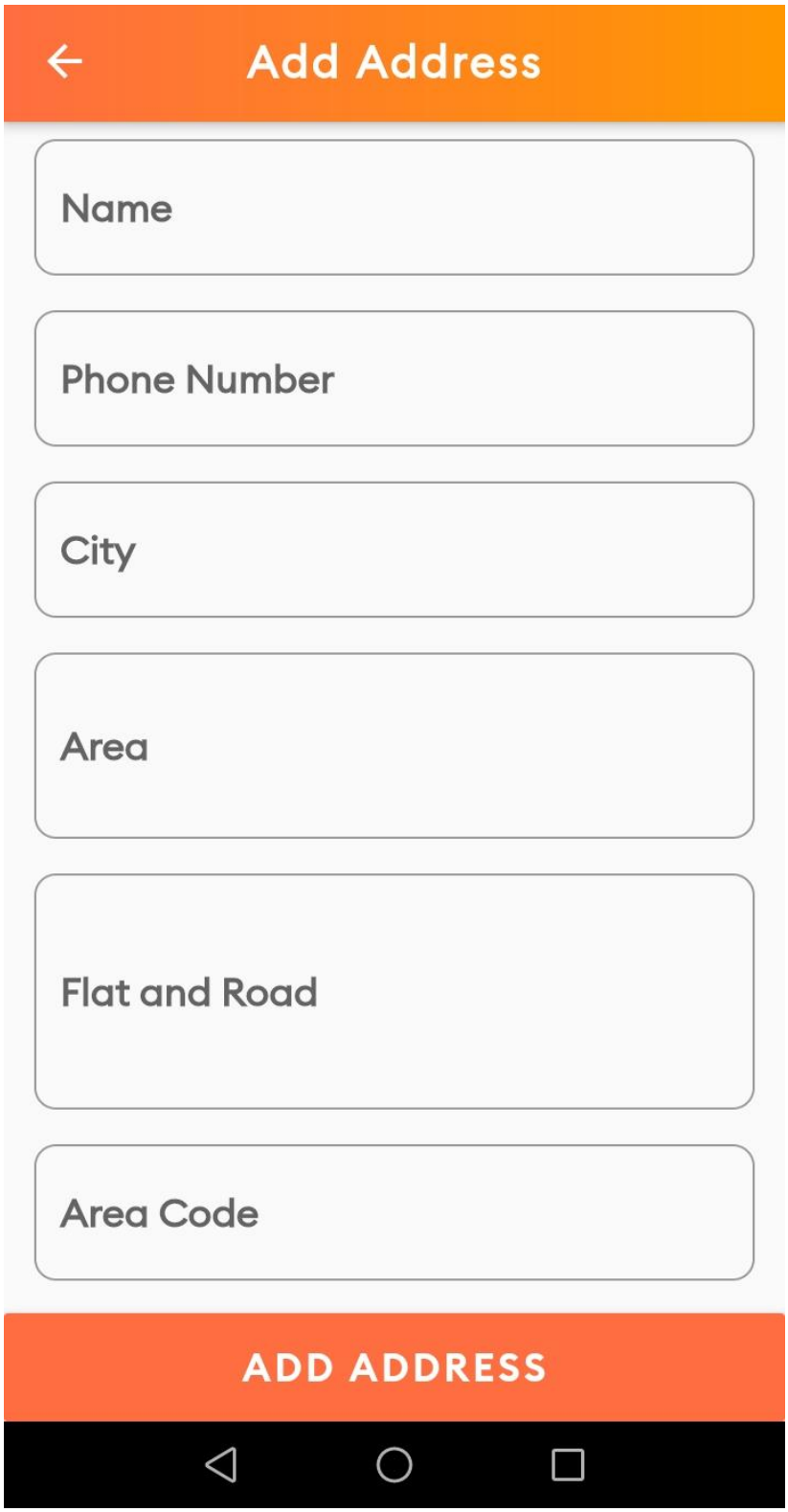


Figure- 5.4.15: User Shipment new address add Screen

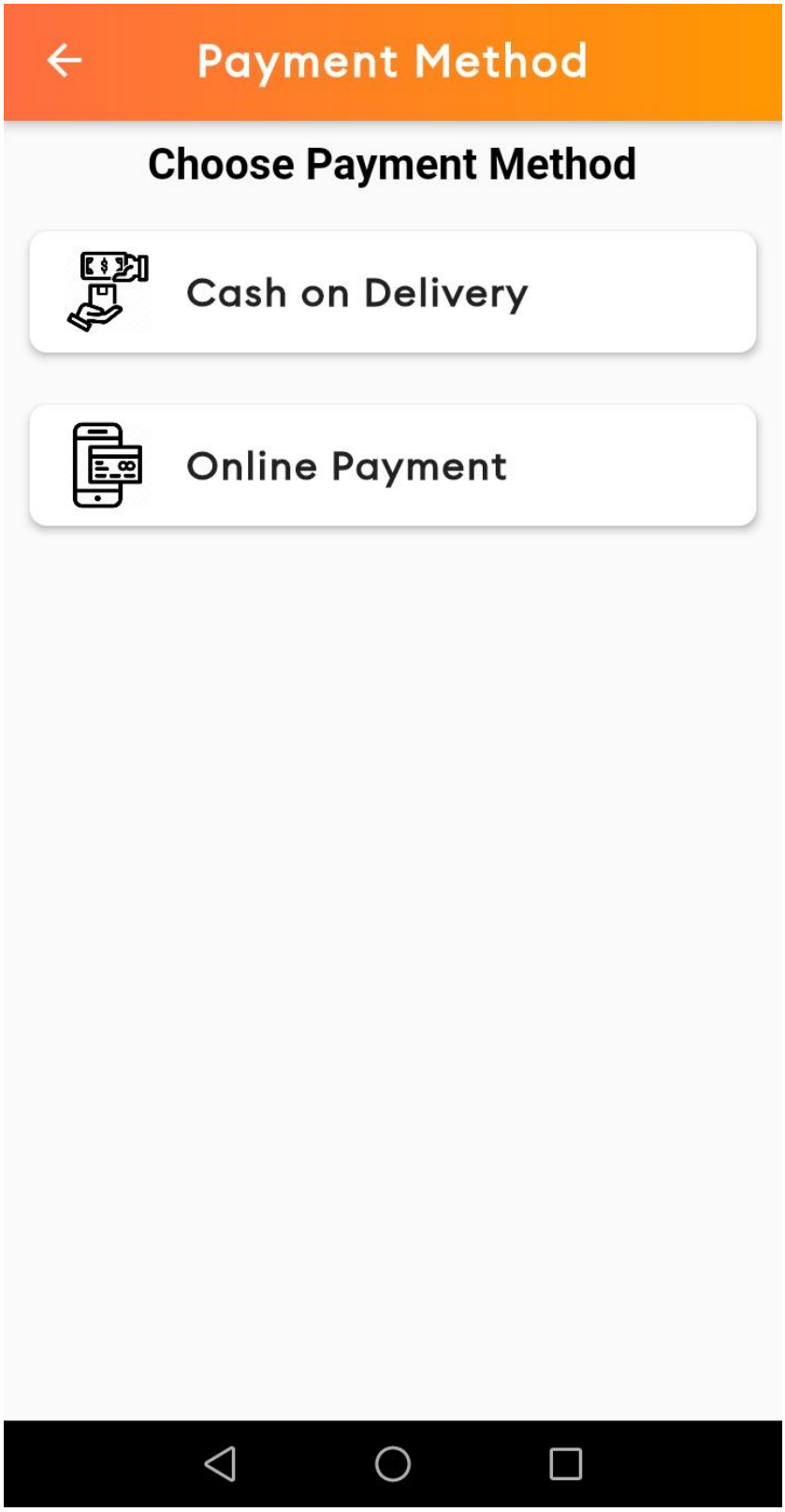


Figure- 5.4.16: User Payment method choosing Screen

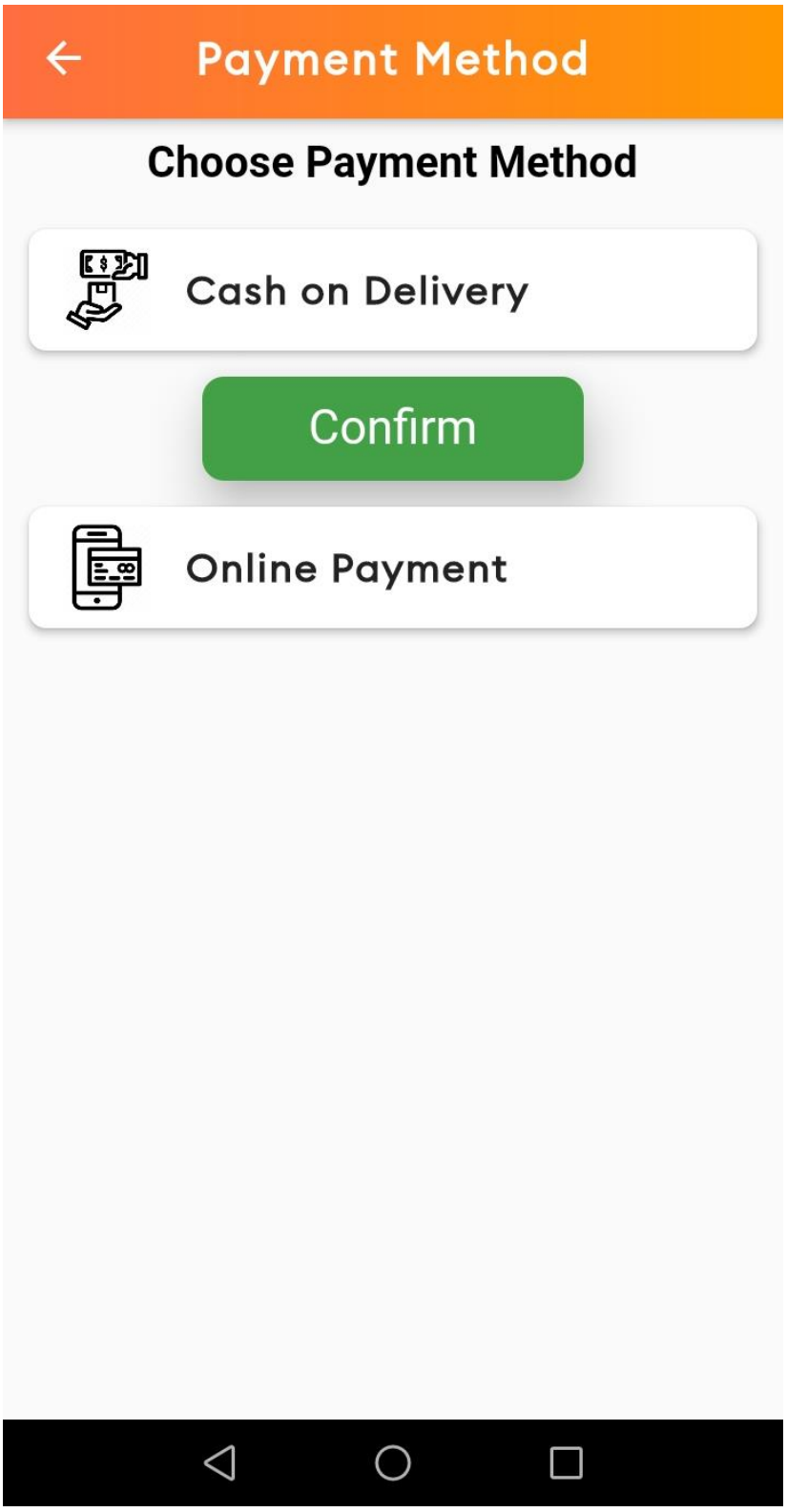


Figure- 5.4.17: User Order Confirm Button

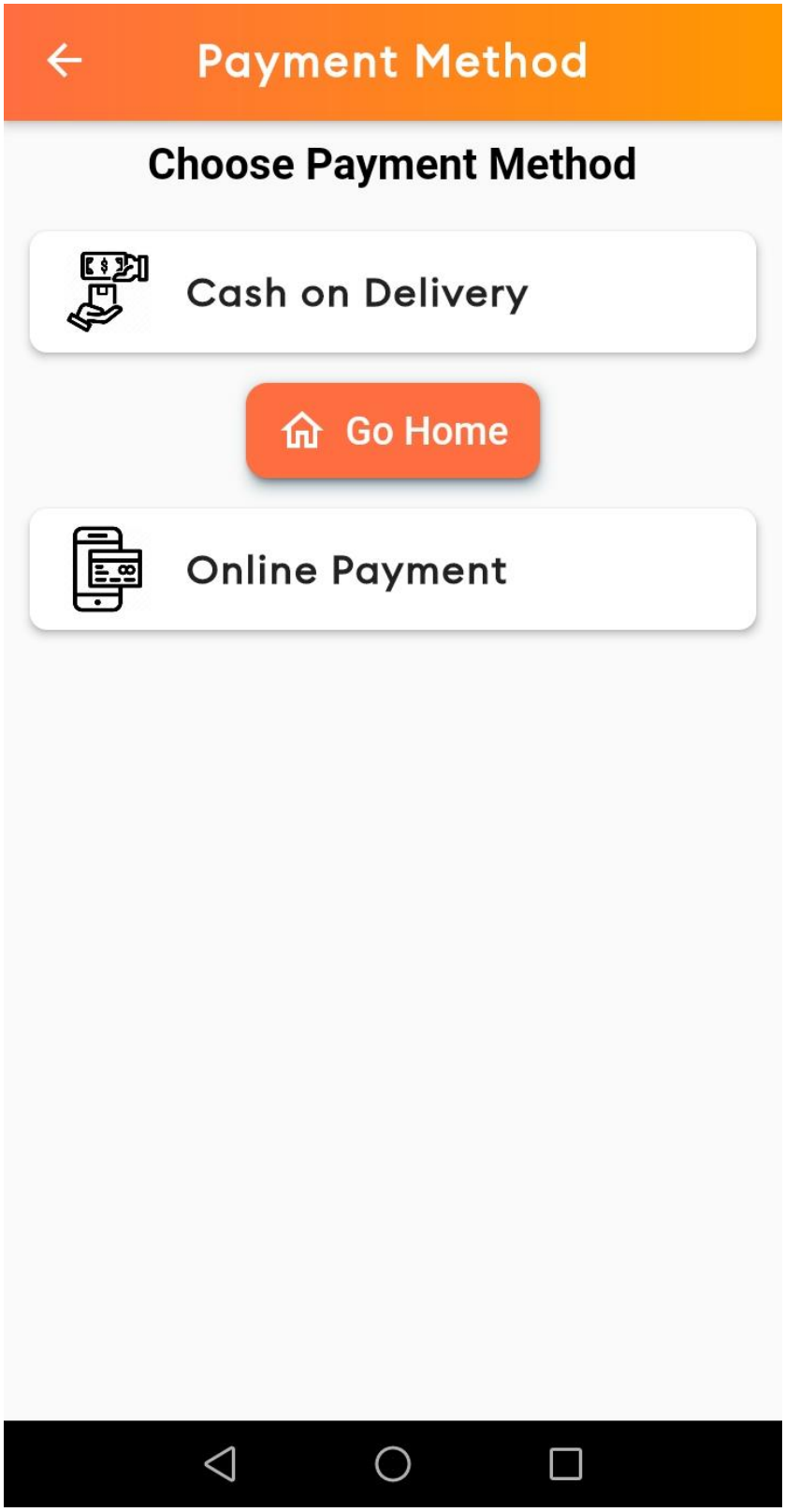


Figure- 5.4.18: User after clicking confirm button show Go Home Button

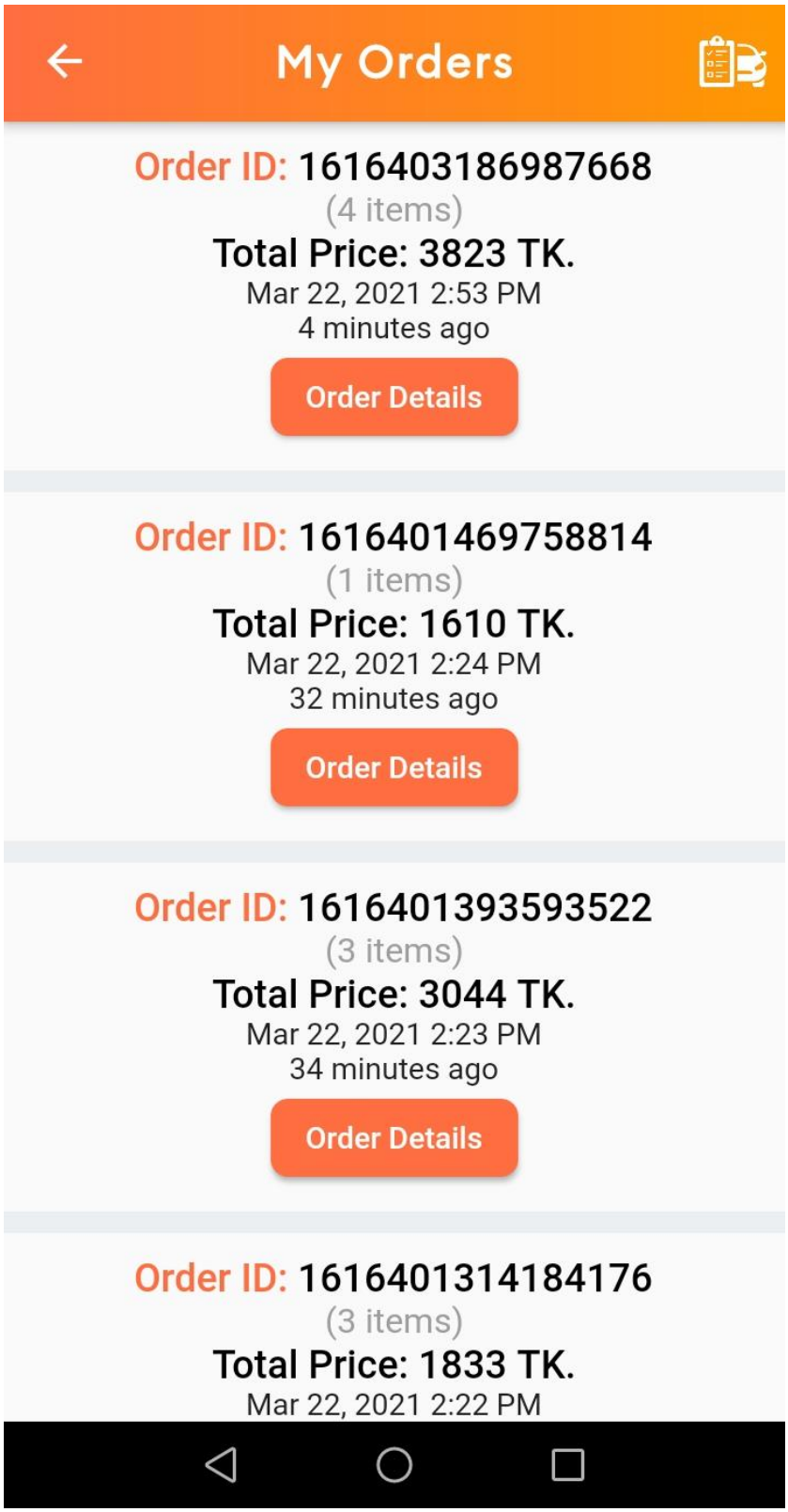


Figure- 5.4.19: User Order Screen

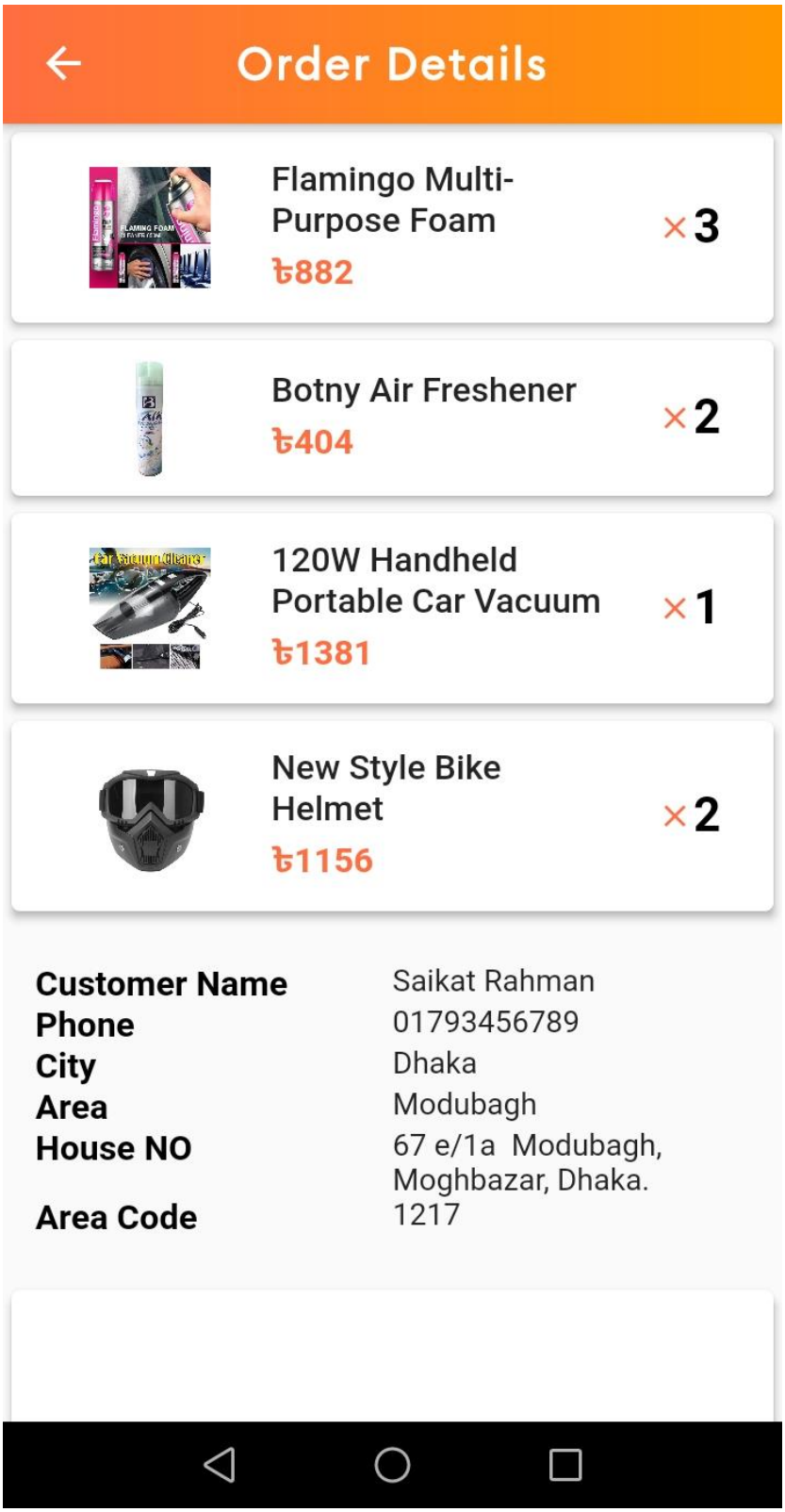


Figure- 5.4.20: User Order Details Screen

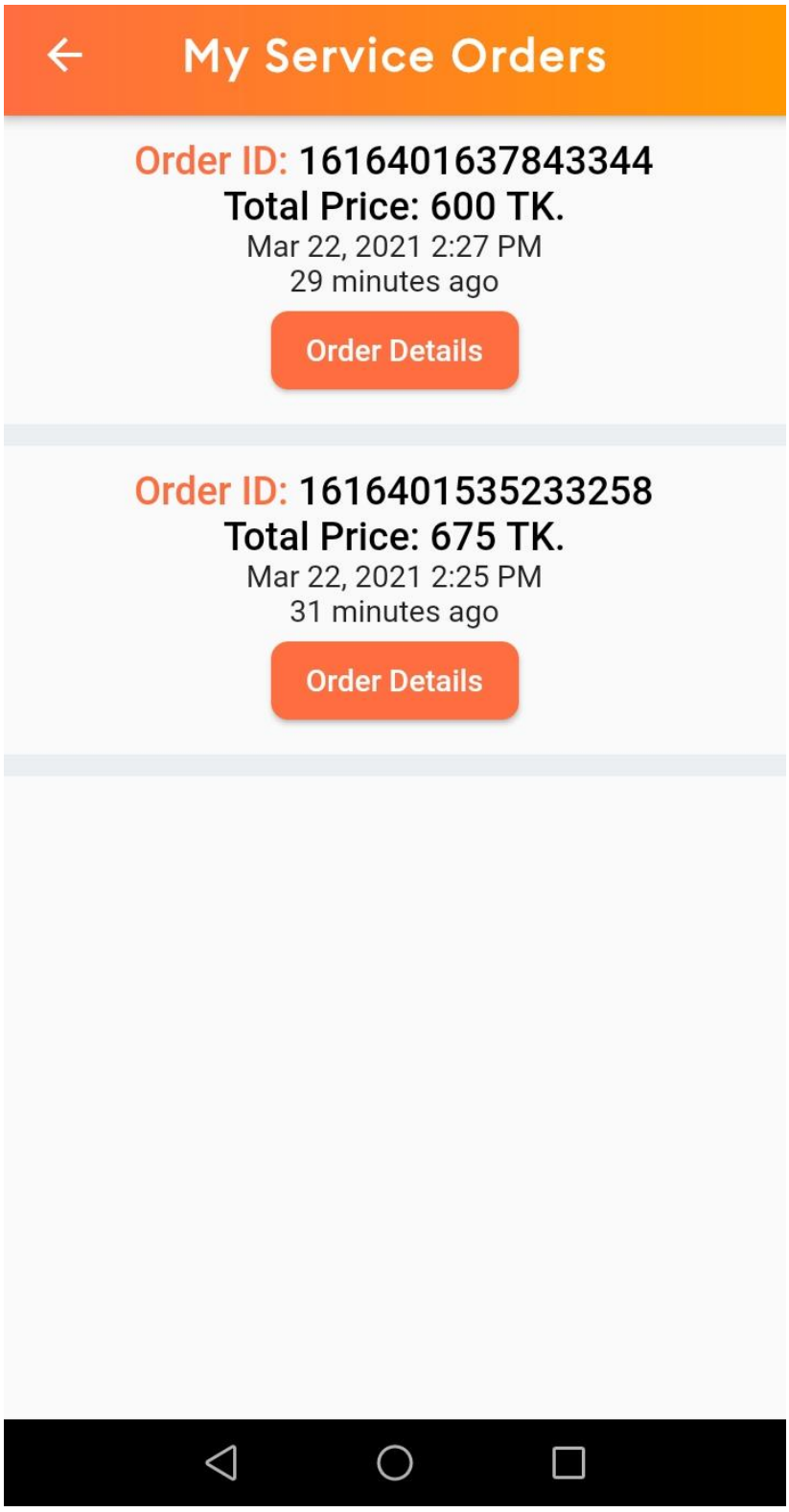


Figure- 5.4.21: User Service Order Screen

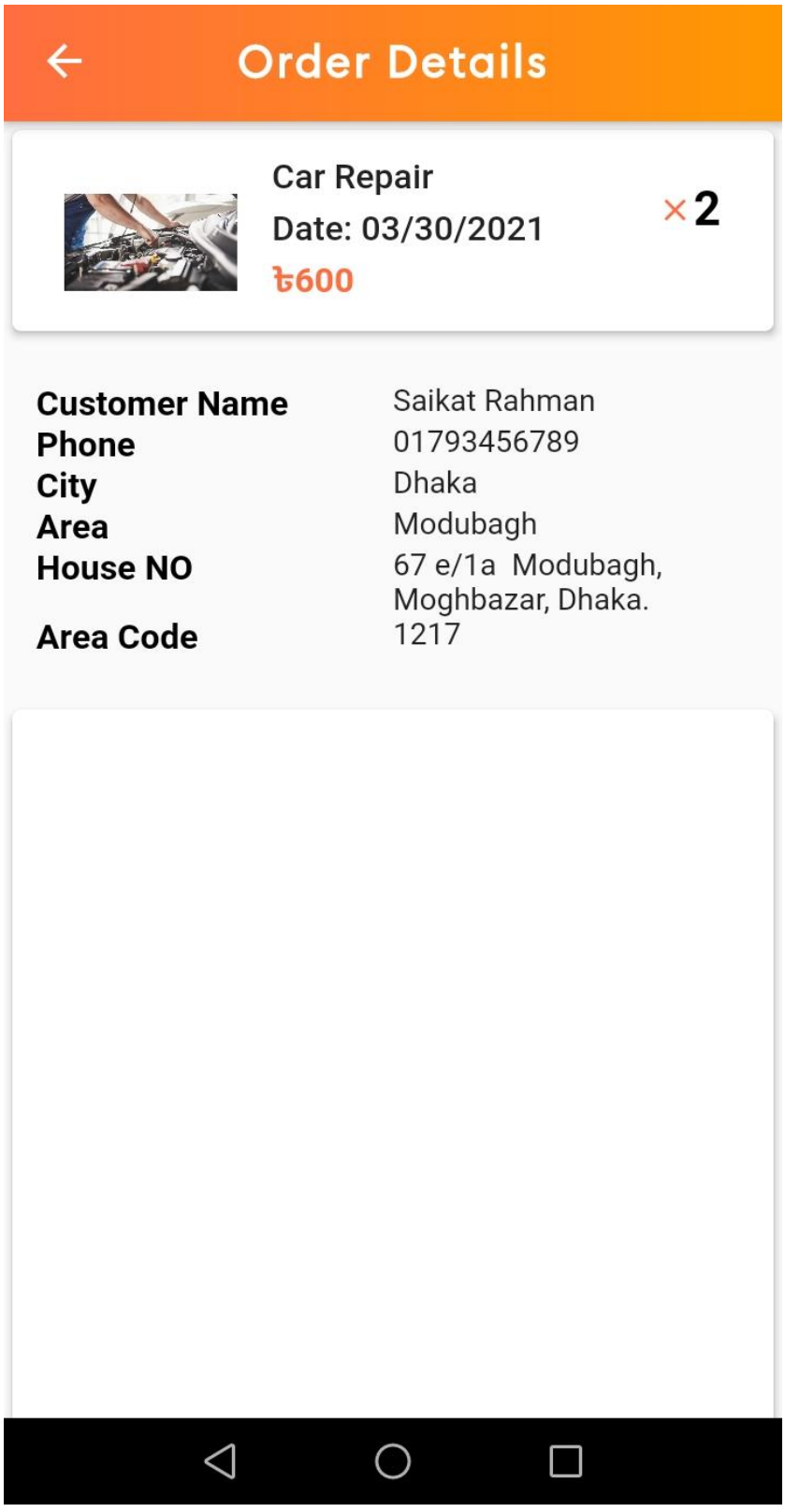


Figure- 5.4.22: User Service Order Details Screen

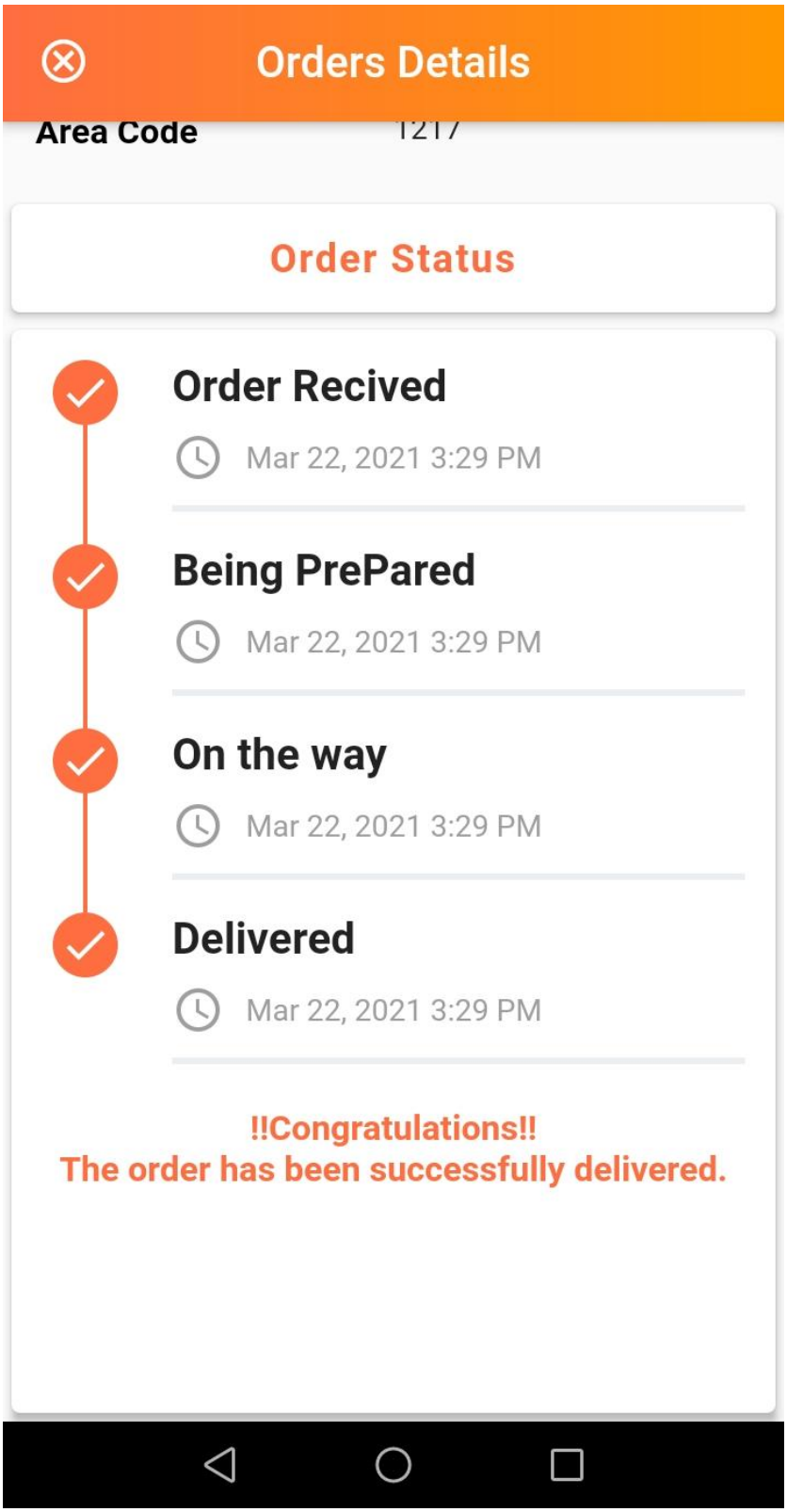


Figure- 5.4.23: When admin response the order then shows user order status

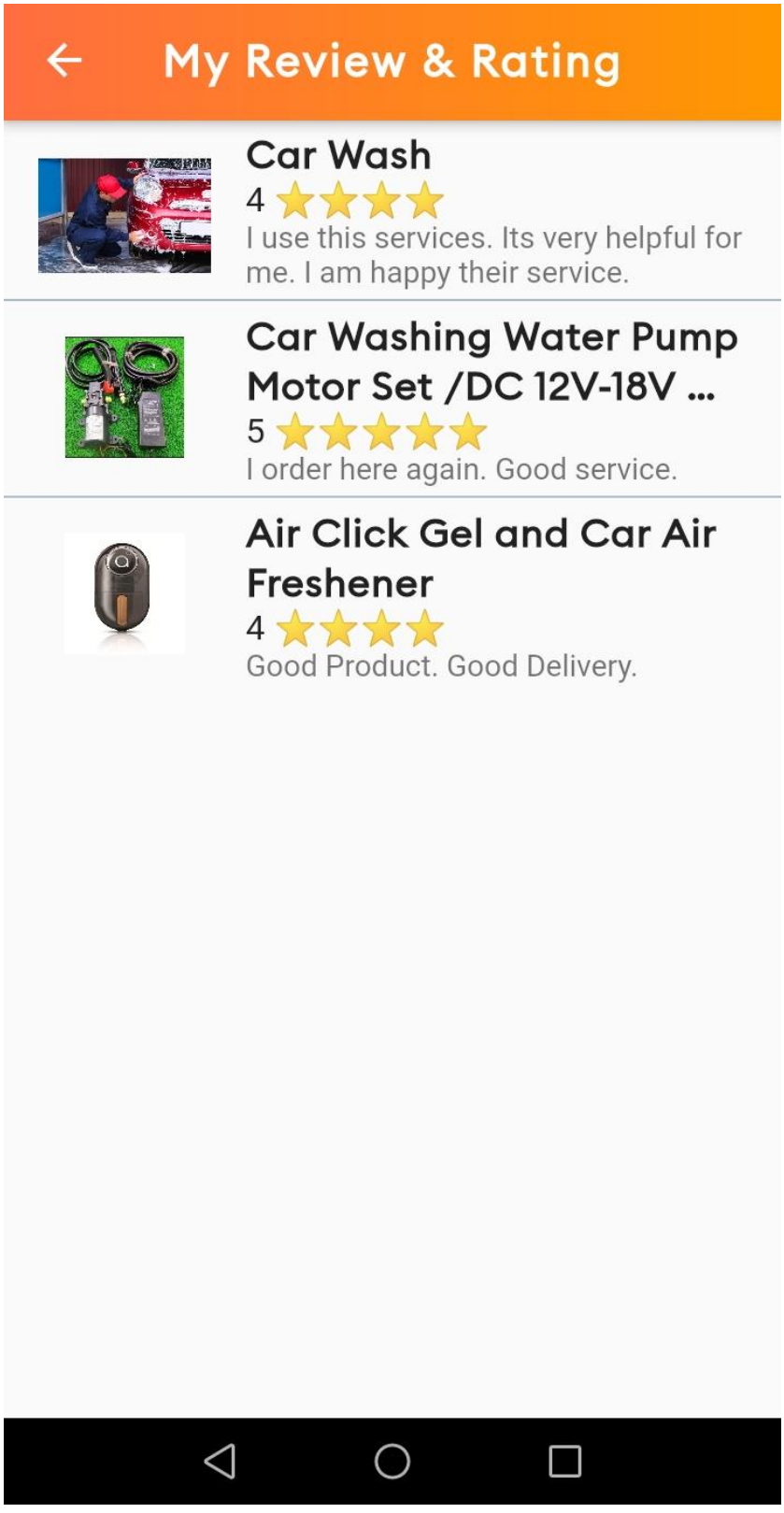


Figure- 5.4.24: User Review and Rating Screen

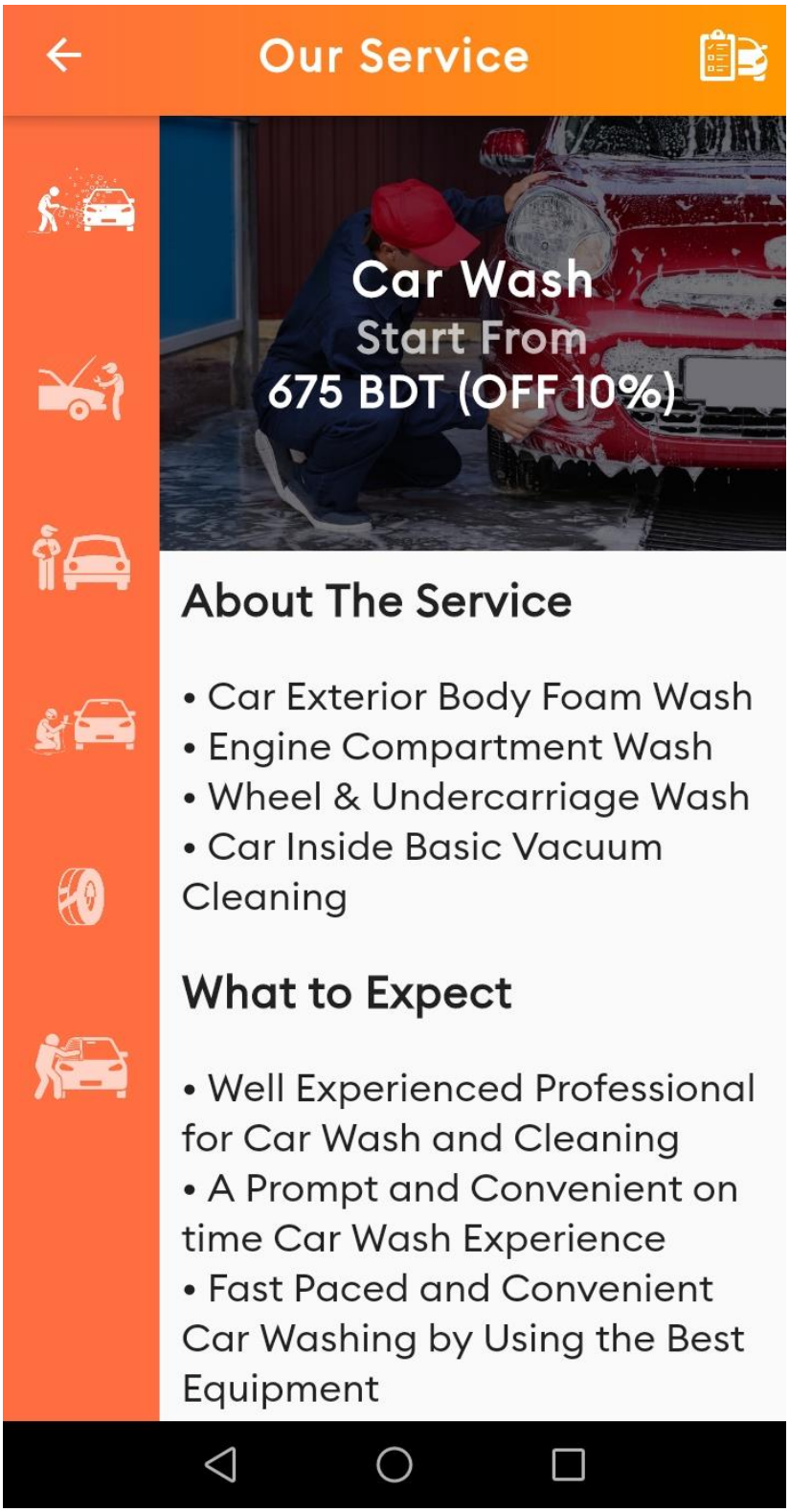


Figure- 5.4.25: Car Wash Service Screen

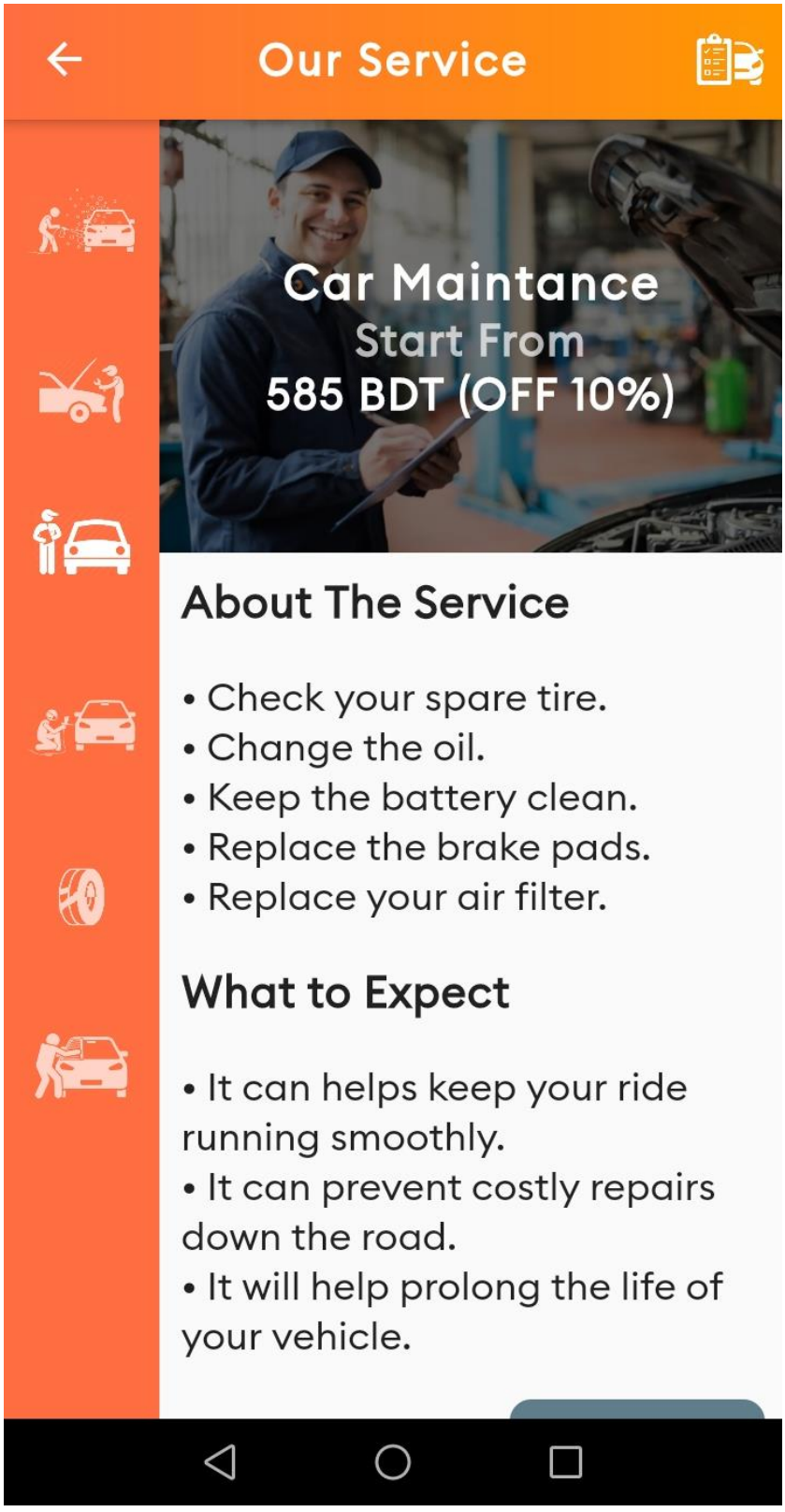


Figure- 5.4.26: Car Maintance Service Screen

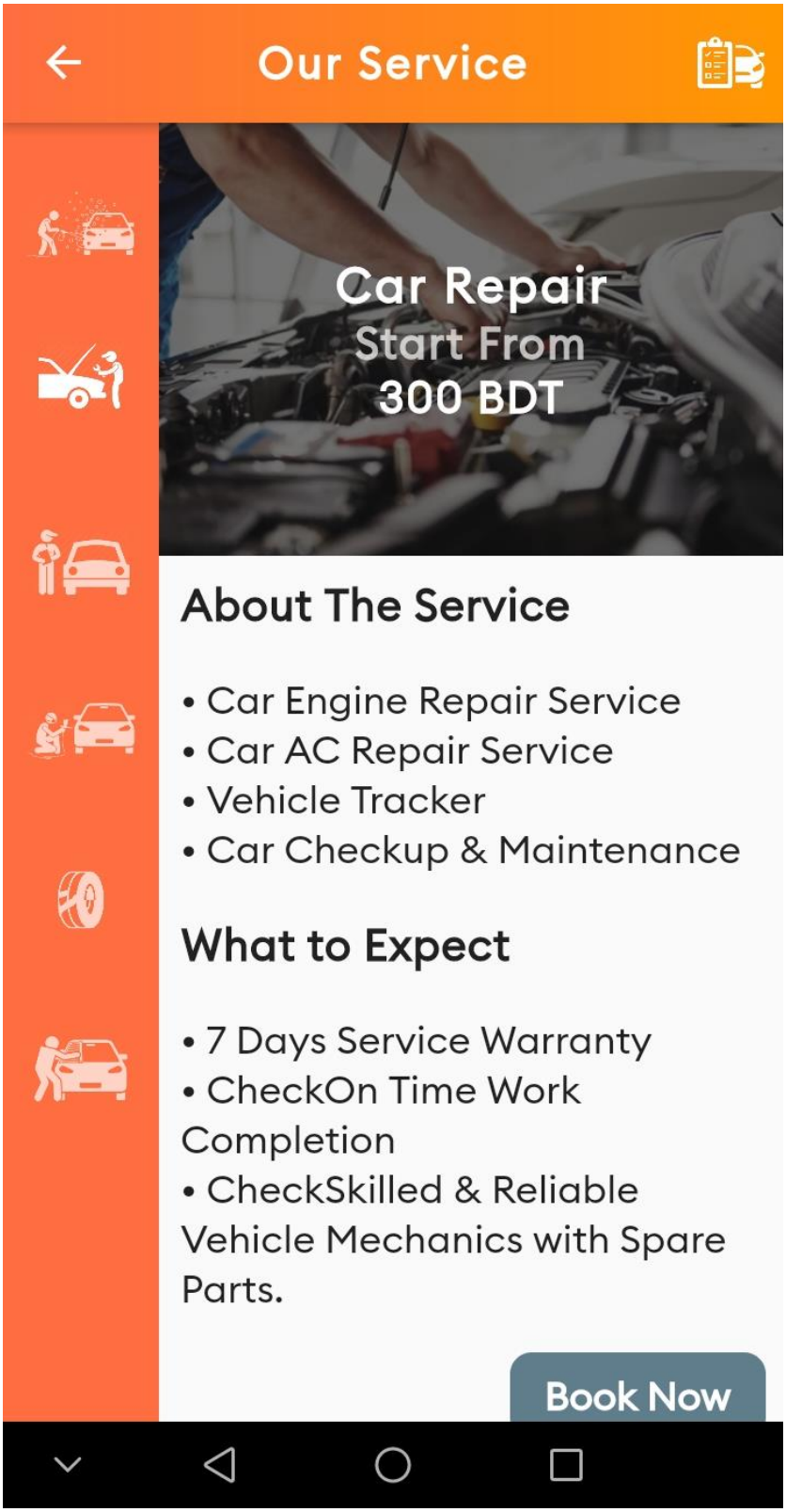


Figure- 5.4.27: Car Repair Service Screen

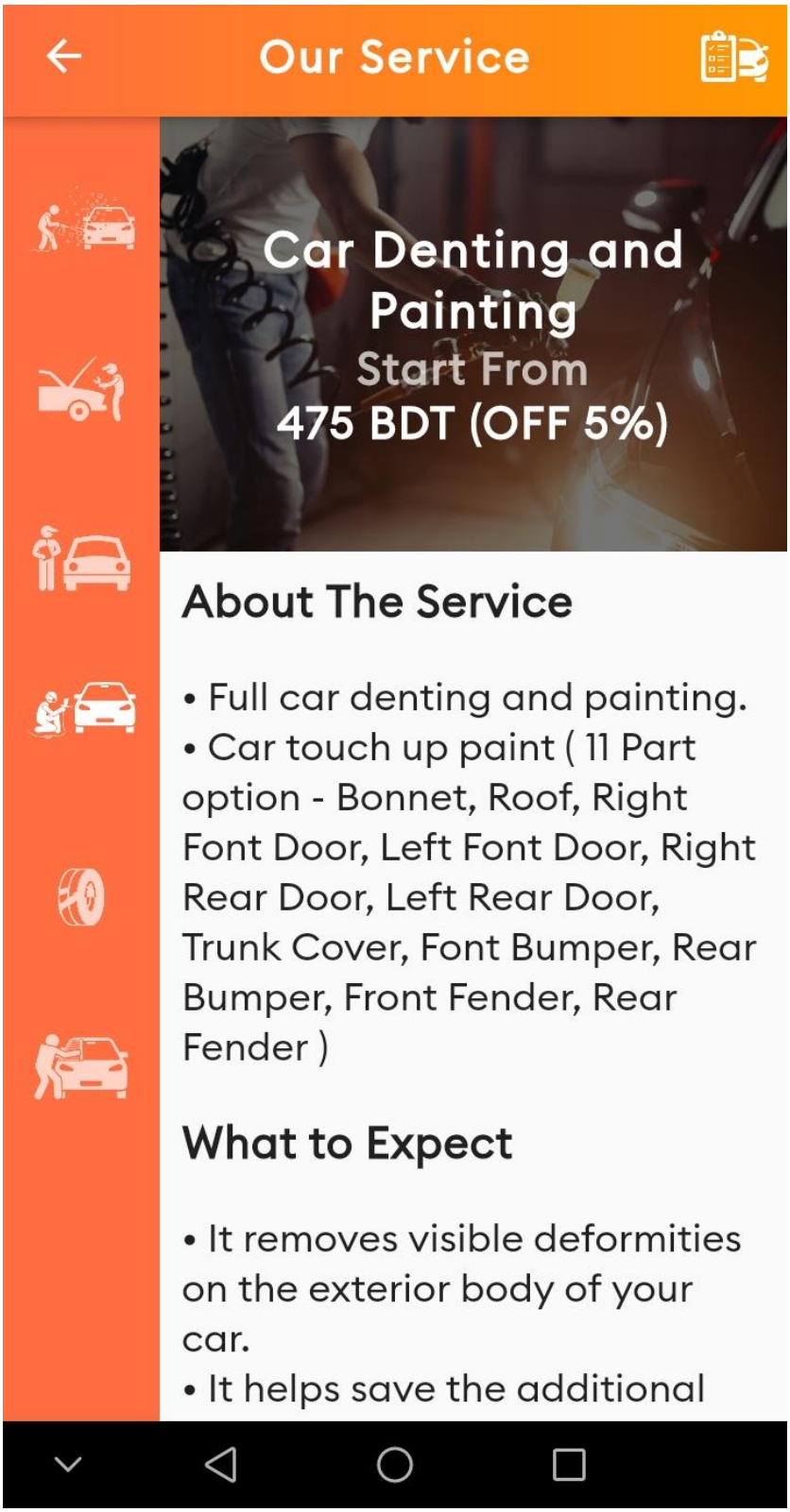


Figure- 5.4.28: Car Denting and Painting Service Screen

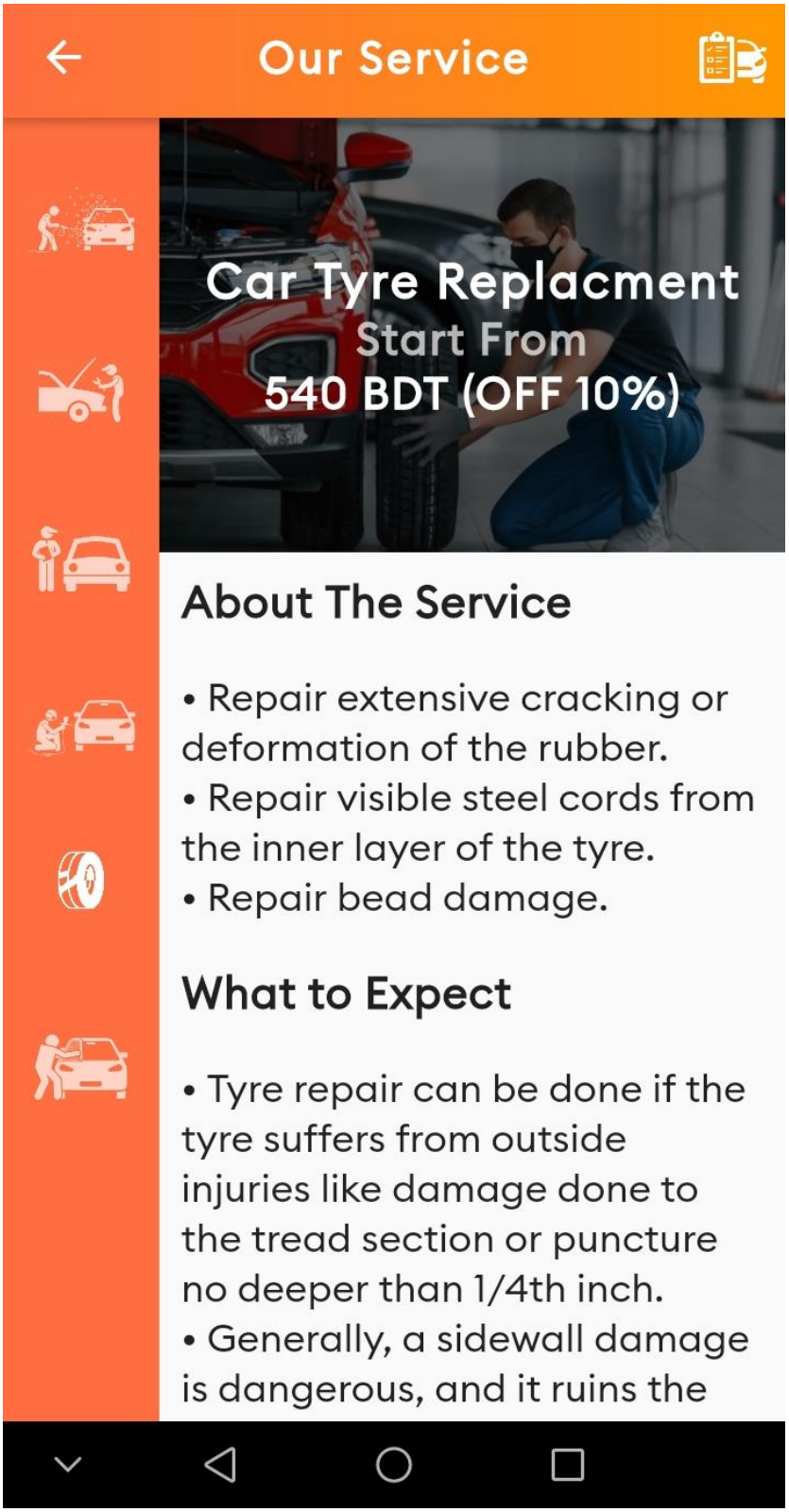


Figure- 5.4.29: Car Tire Replacement Service Screen

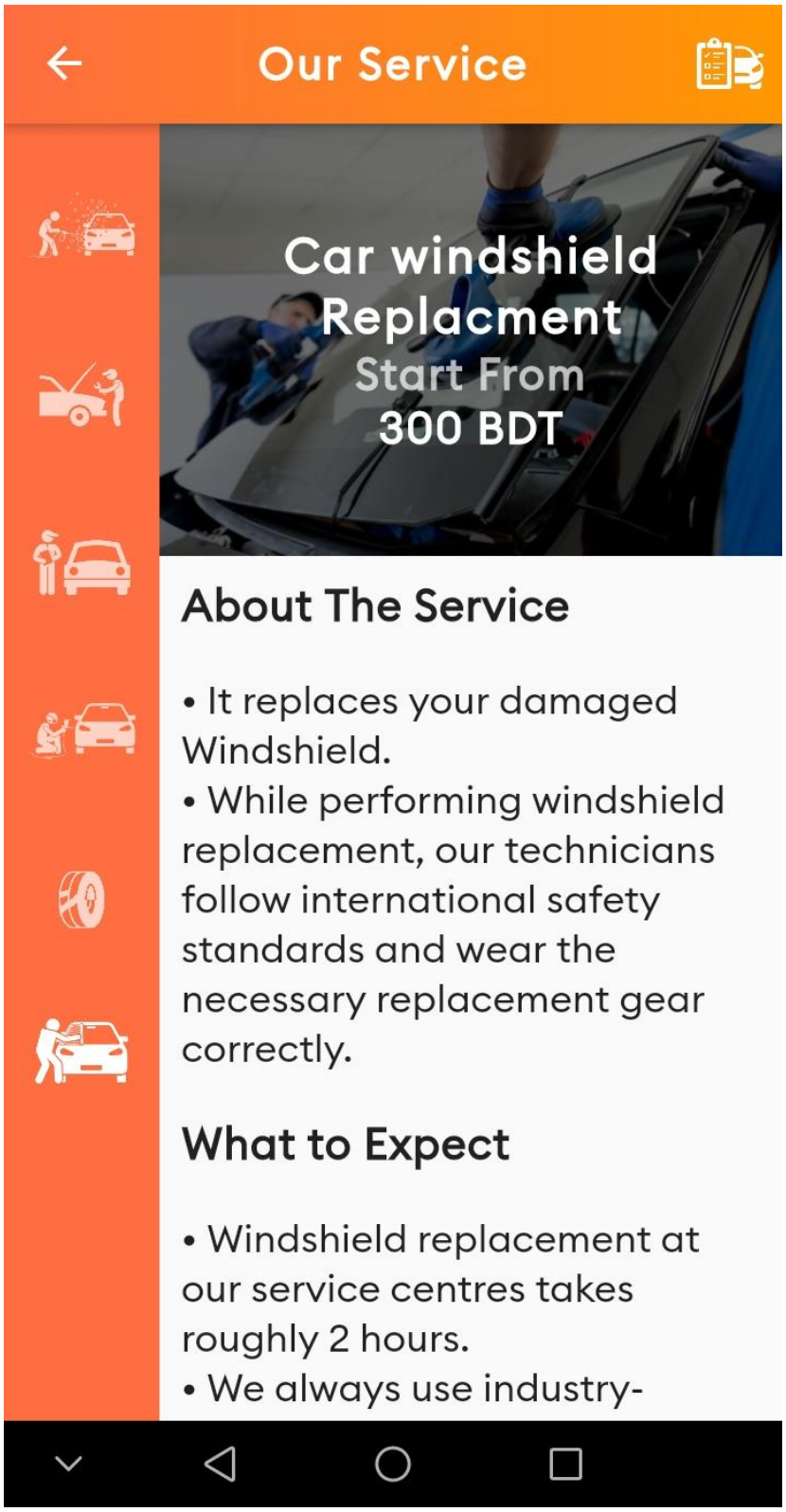


Figure- 5.4.30: Car Windshield Replacement Service Screen

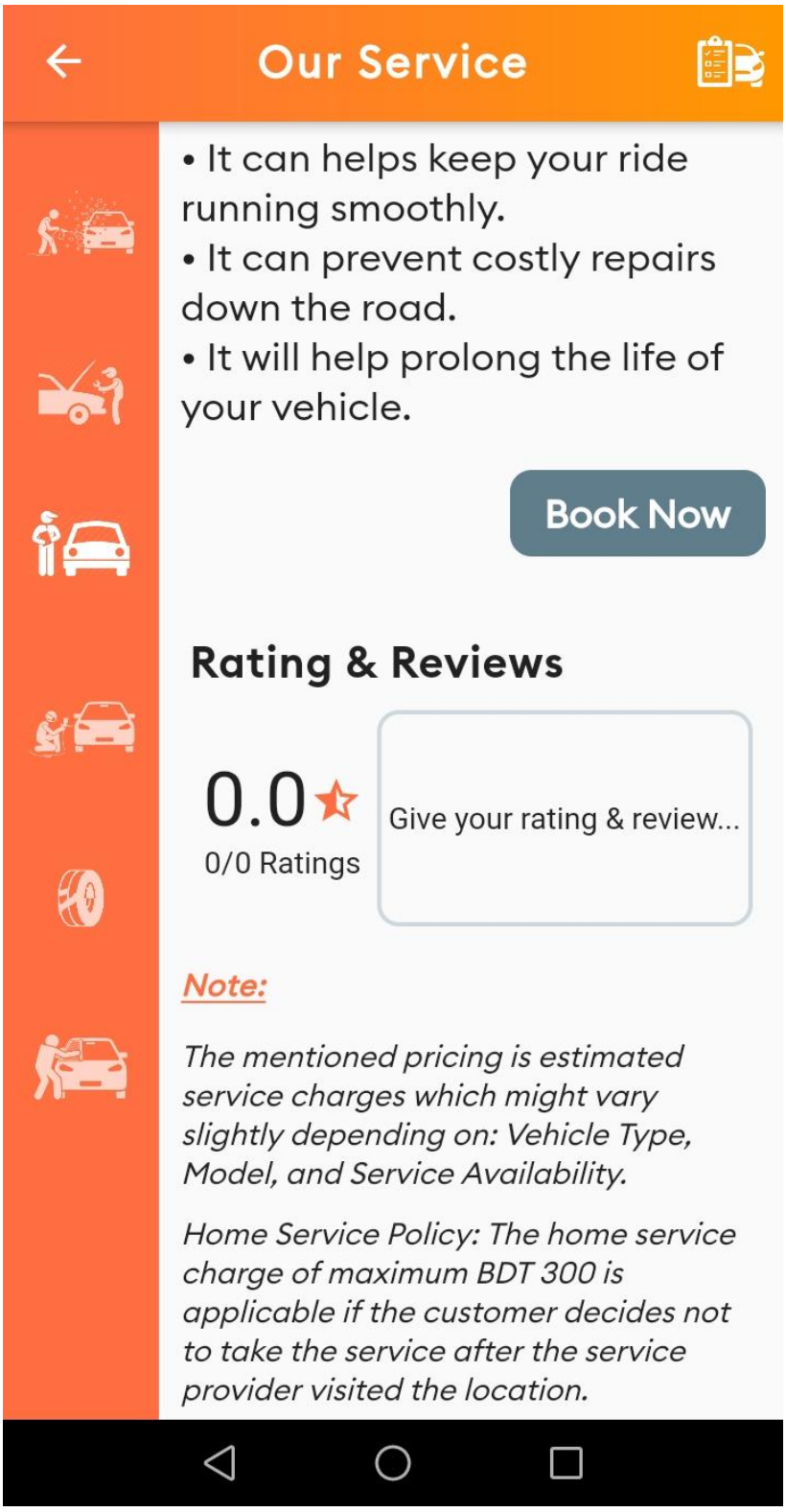


Figure- 5.4.31: Service has some condition and Service Booking Button

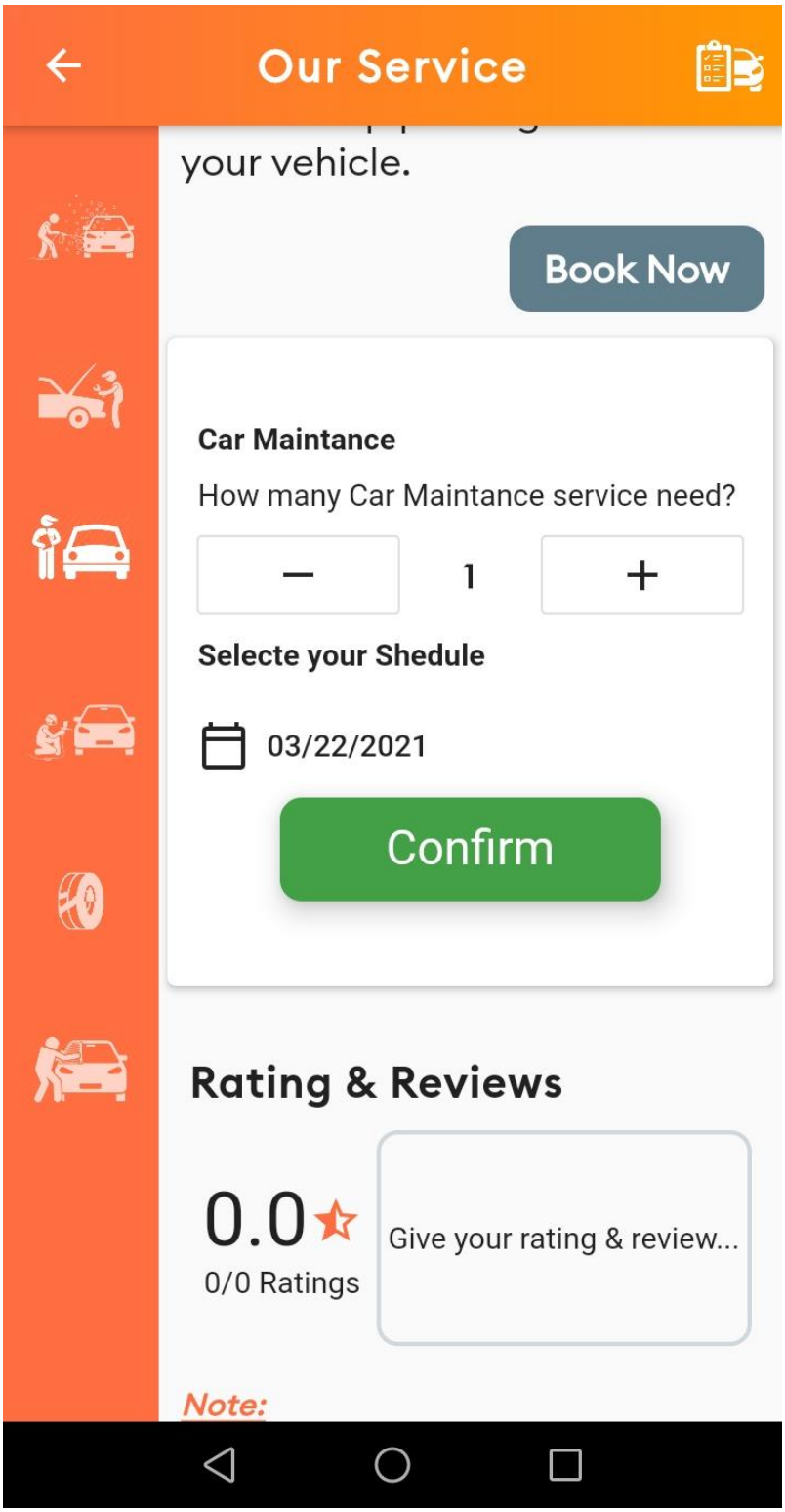


Figure- 5.4.32: After Clicking Book Now button then show some requirement field

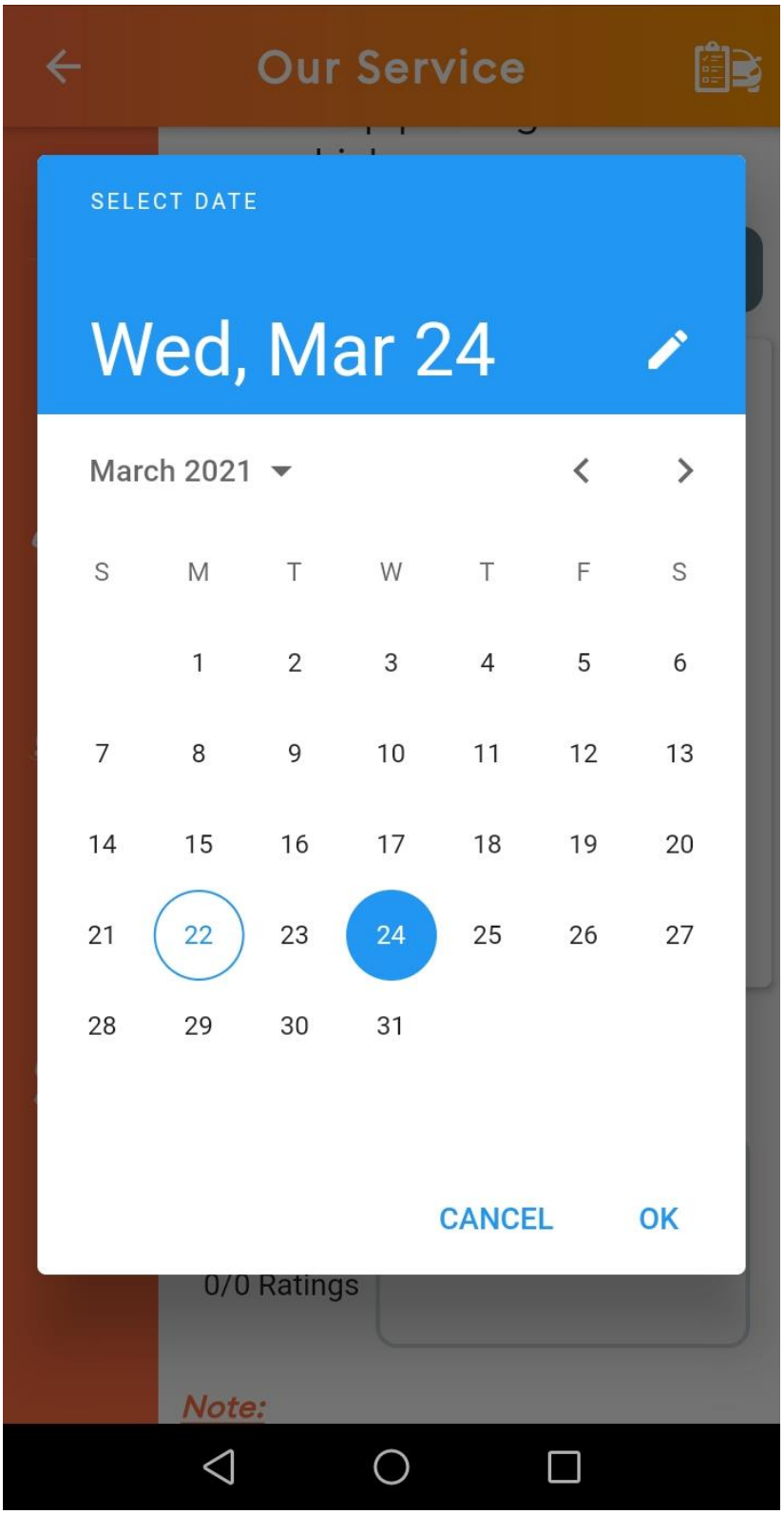


Figure- 5.4.33: Select Schedule from calendar dialog

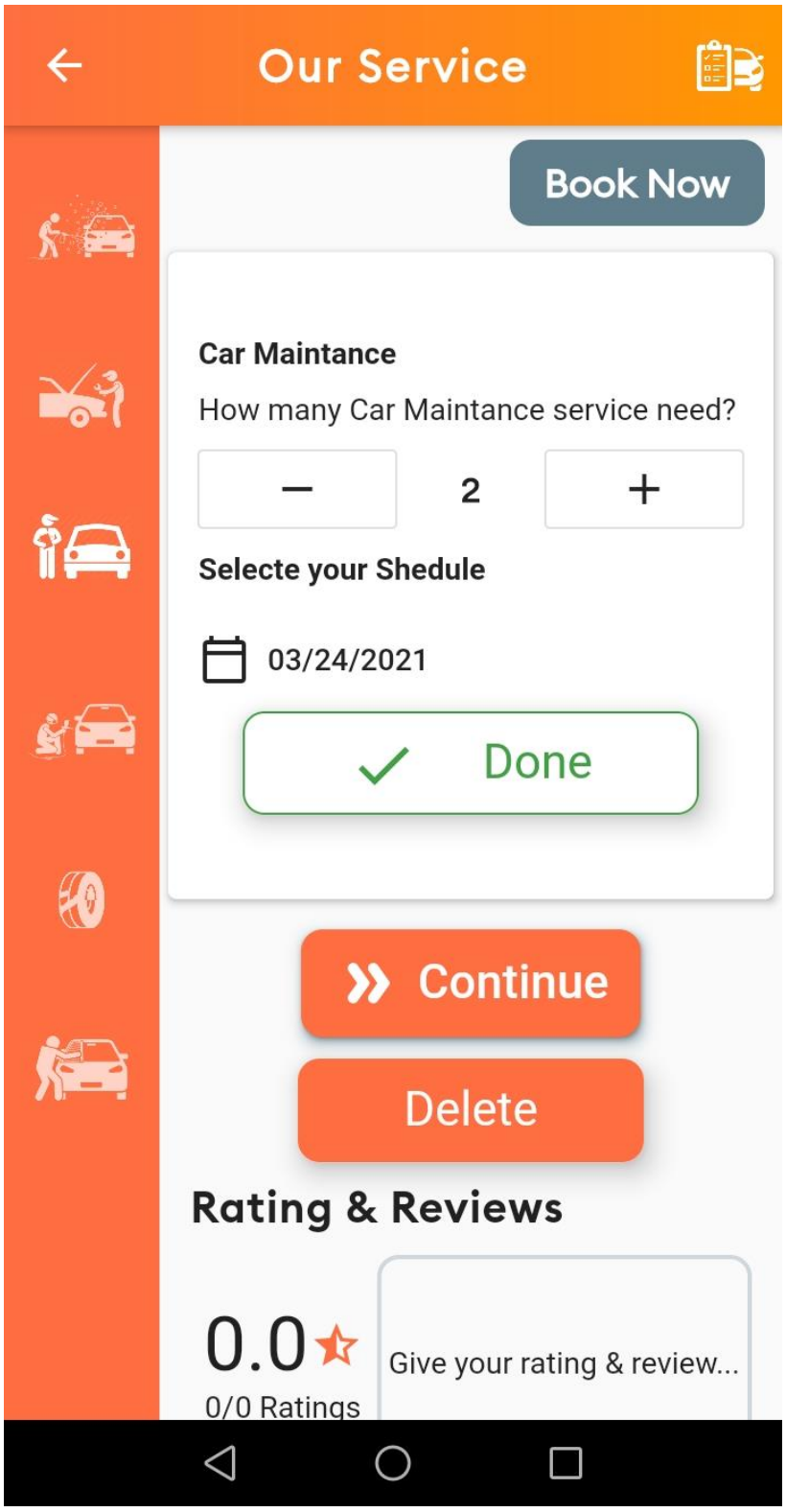


Figure- 5.4.34: When Press the Confirm Button

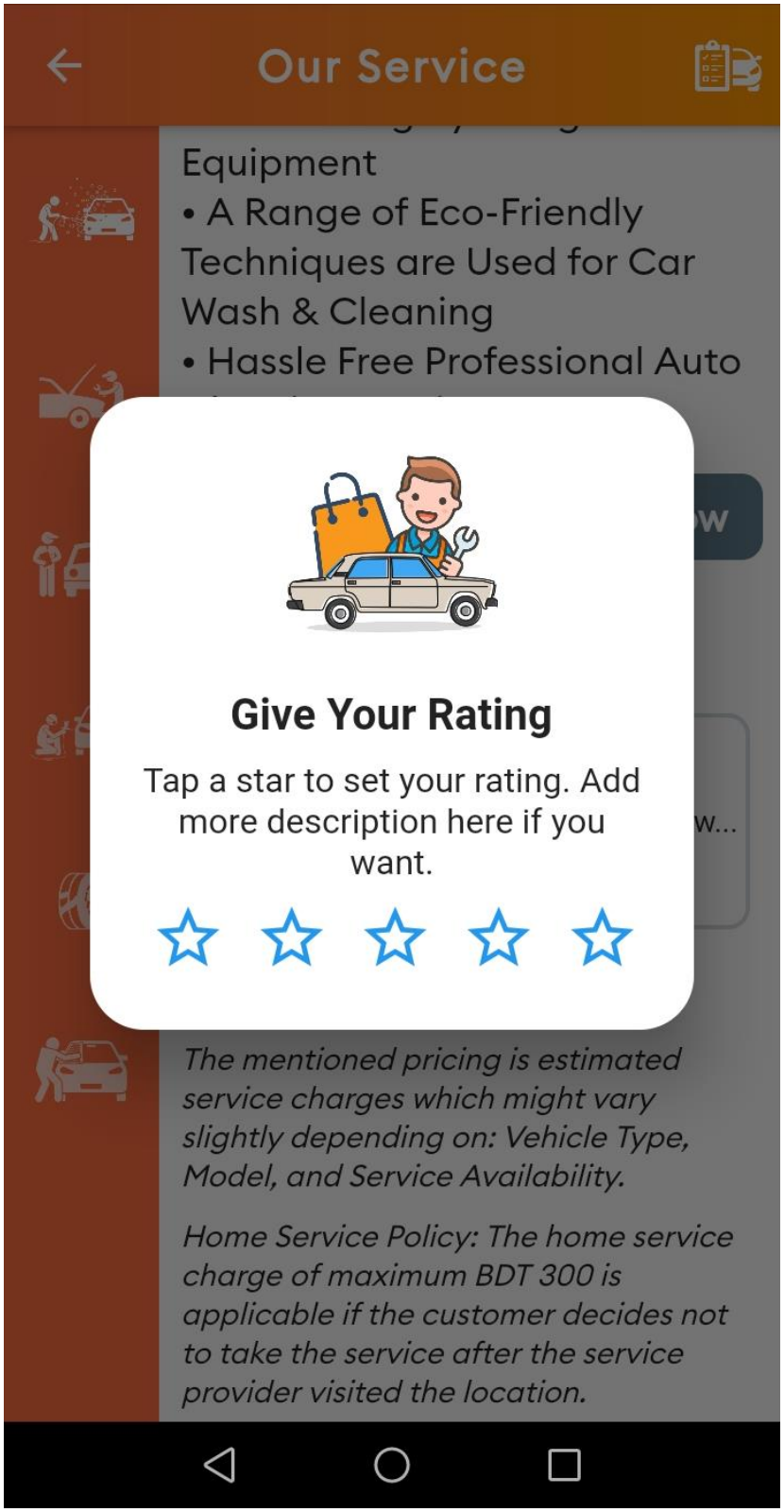


Figure- 5.4.35: Give Rating Dialog

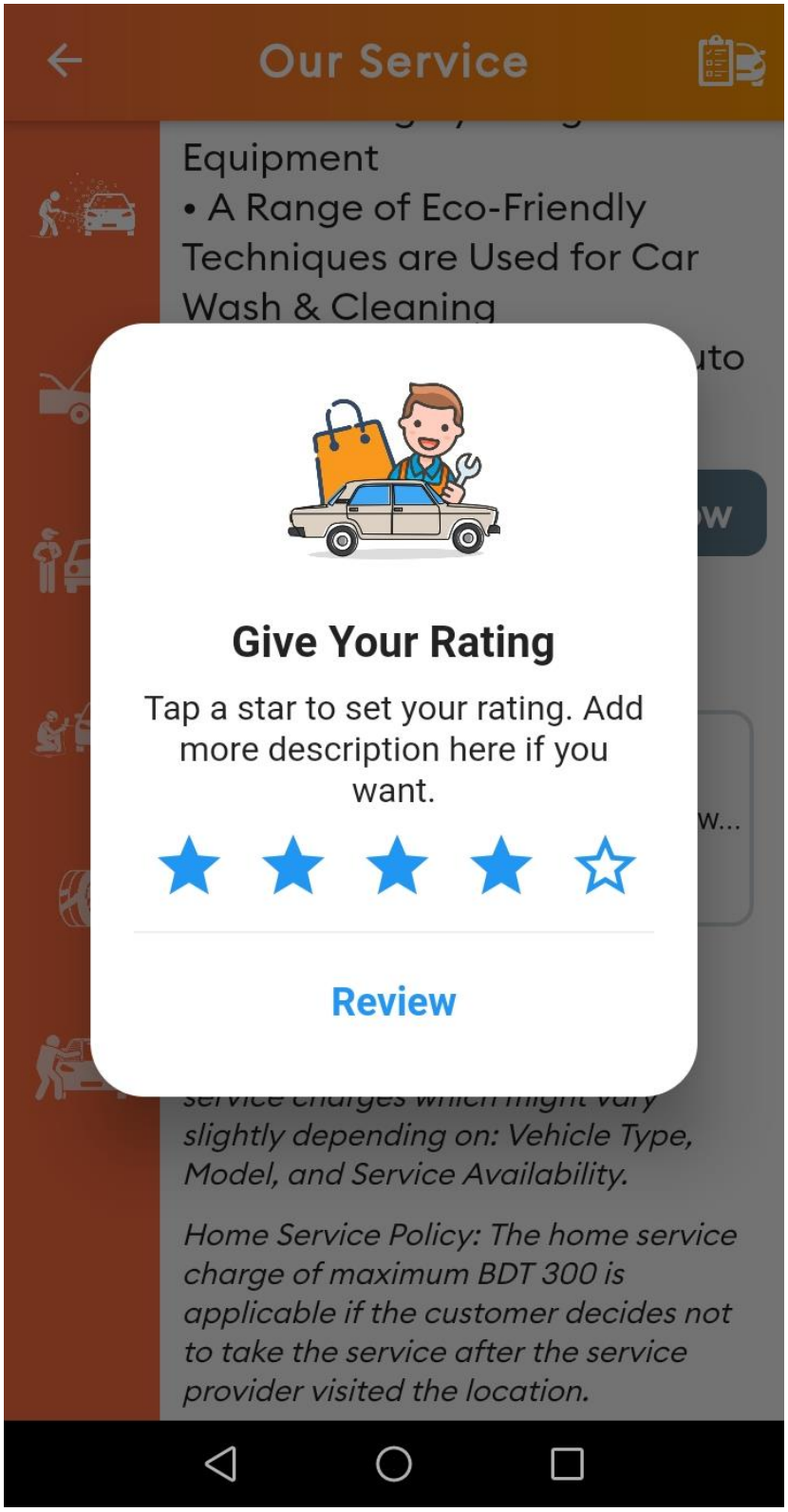


Figure- 5.4.36: After Giving Rating then show Review Button

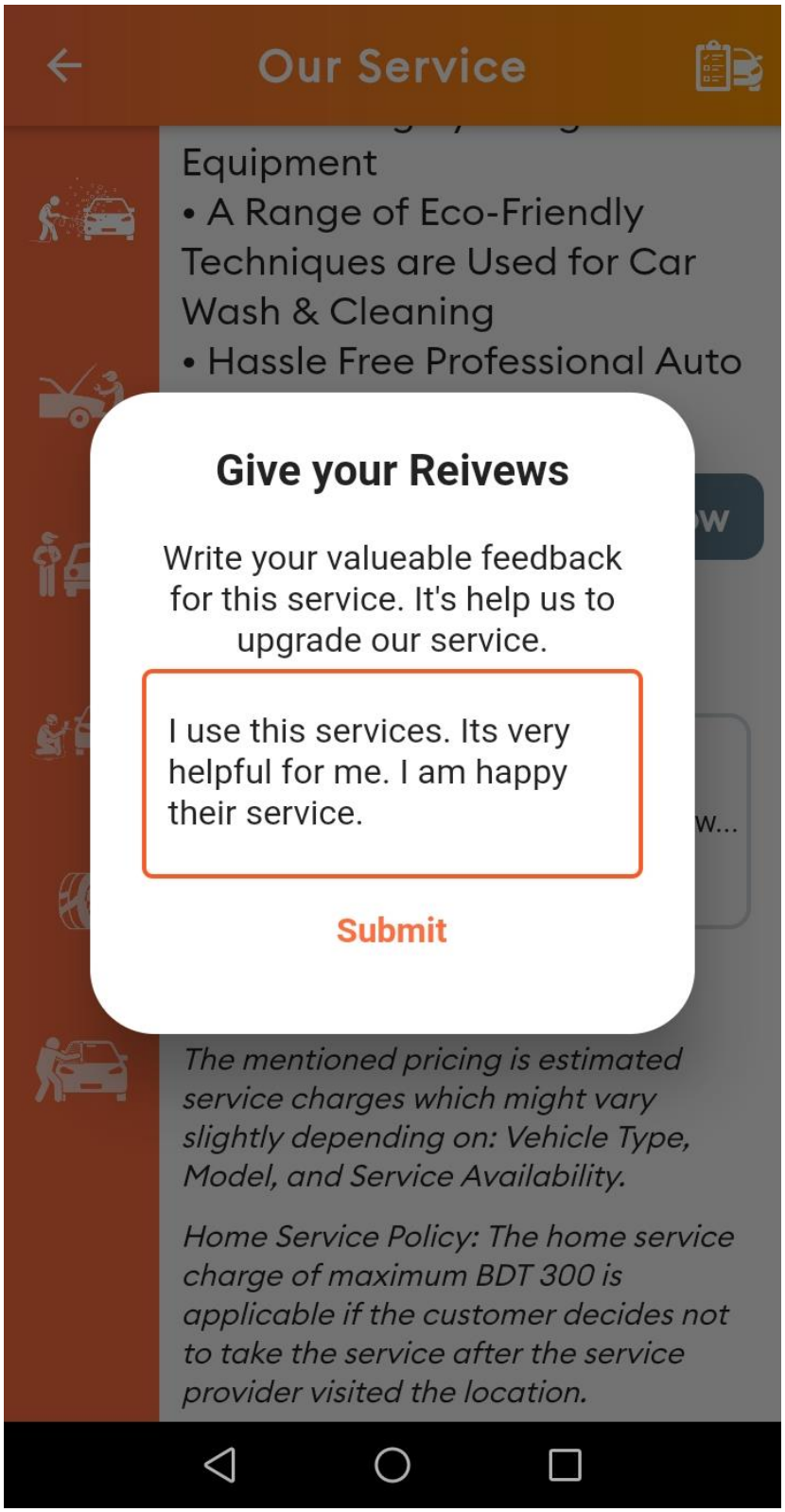


Figure- 5.4.37: Give Review and then submit.

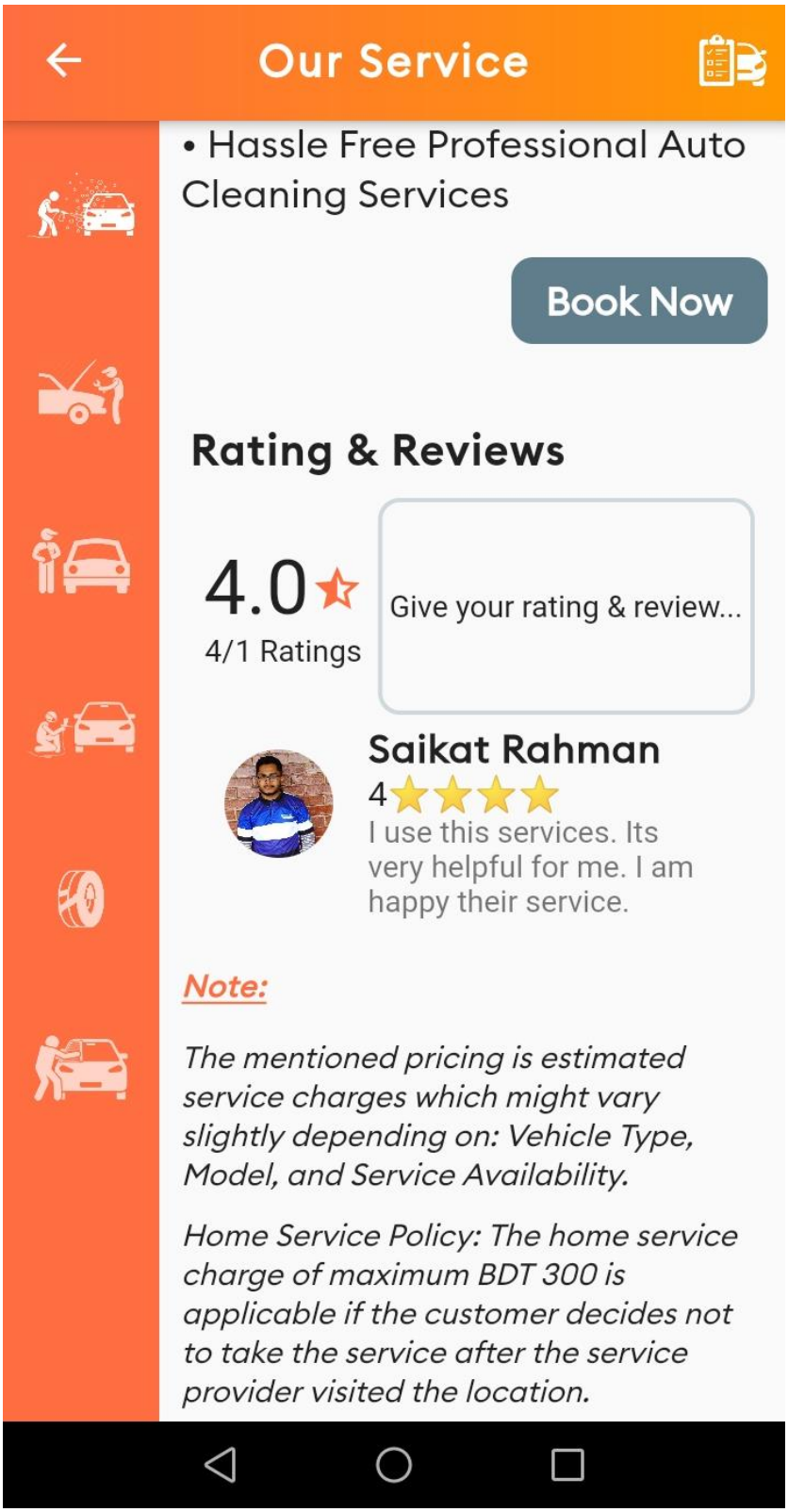


Figure- 5.4.38: After giving rating & review

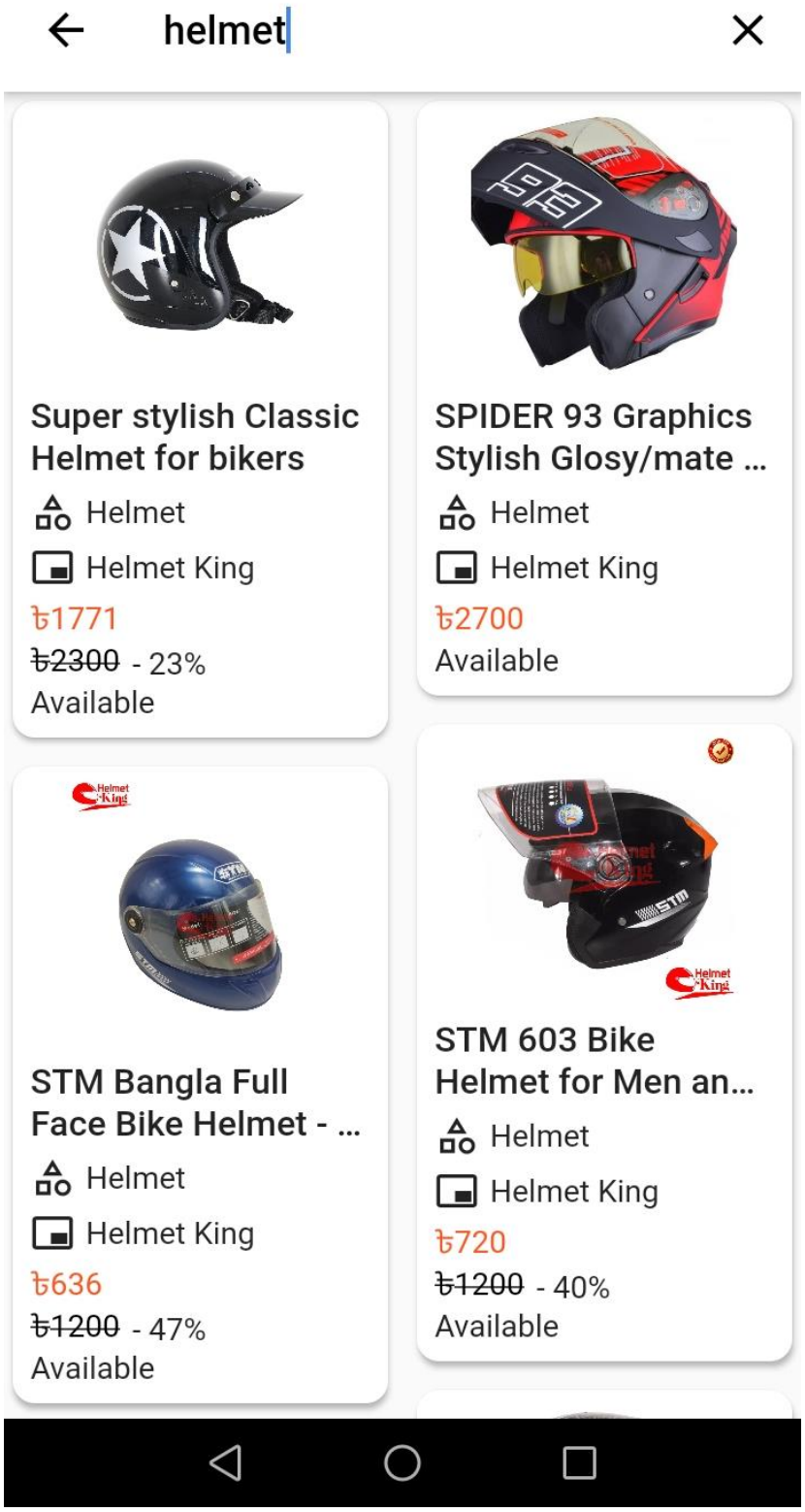


Figure- 5.4.39: User Product Search Screen

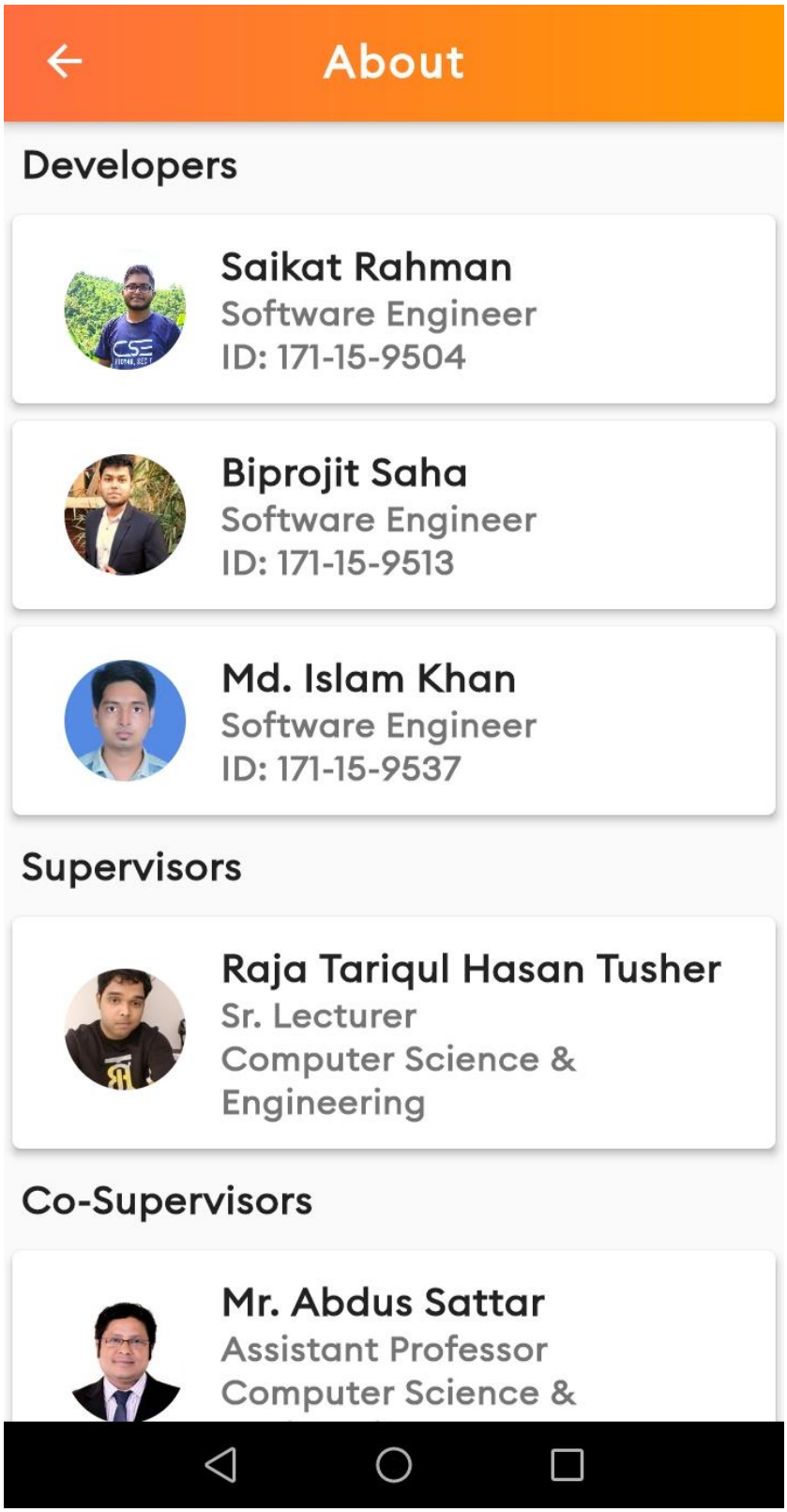


Figure- 5.4.40: User Show about the Developers, Supervisors & Co-Supervisors

5.5 Front-end-design Implementation for Admin:

For admin front-end design, we are using Material Widgets, Cupertino Widgets, Material Icons, Material Buttons etc. We are creating a user-friendly beautiful interface. Admin can easily understand our user interface.

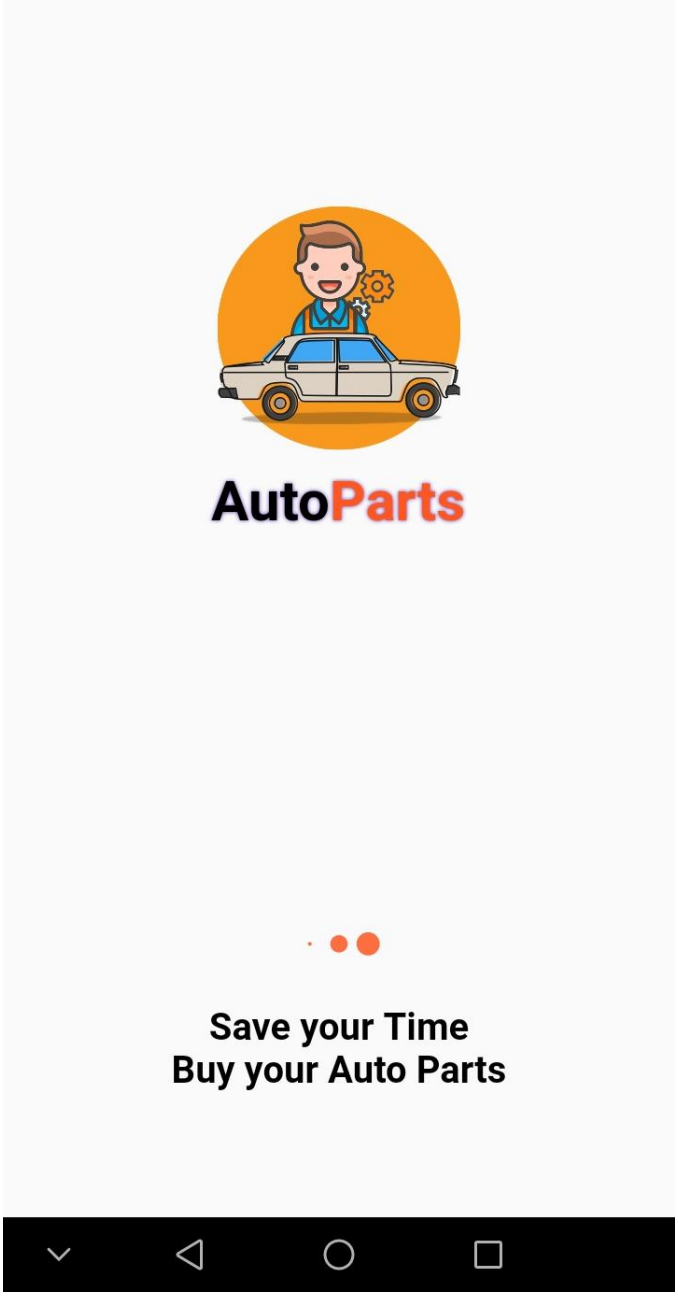


Figure- 5.5.1: Admin Splash Screen

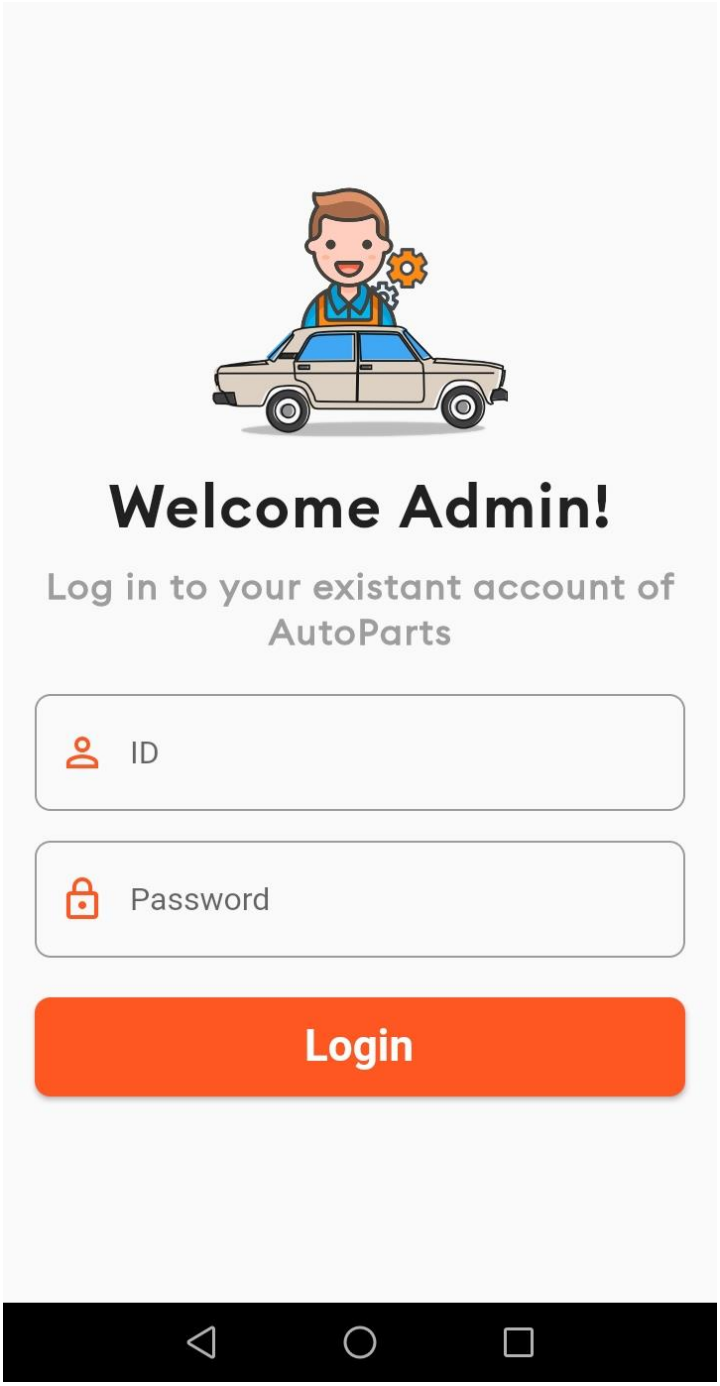


Figure- 5.5.2: Admin Login Screen

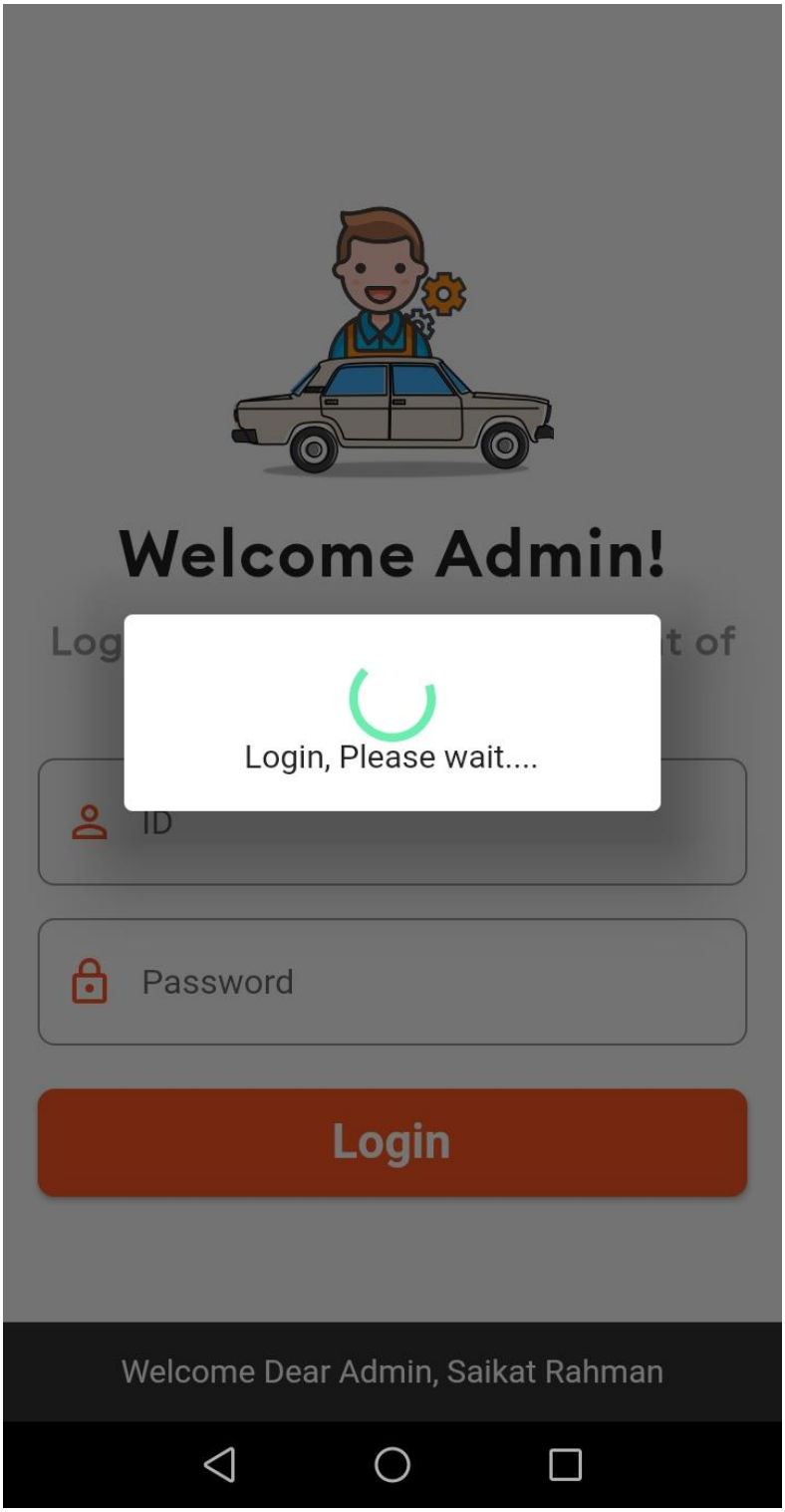


Figure- 5.5.3: When press the login button show admin name

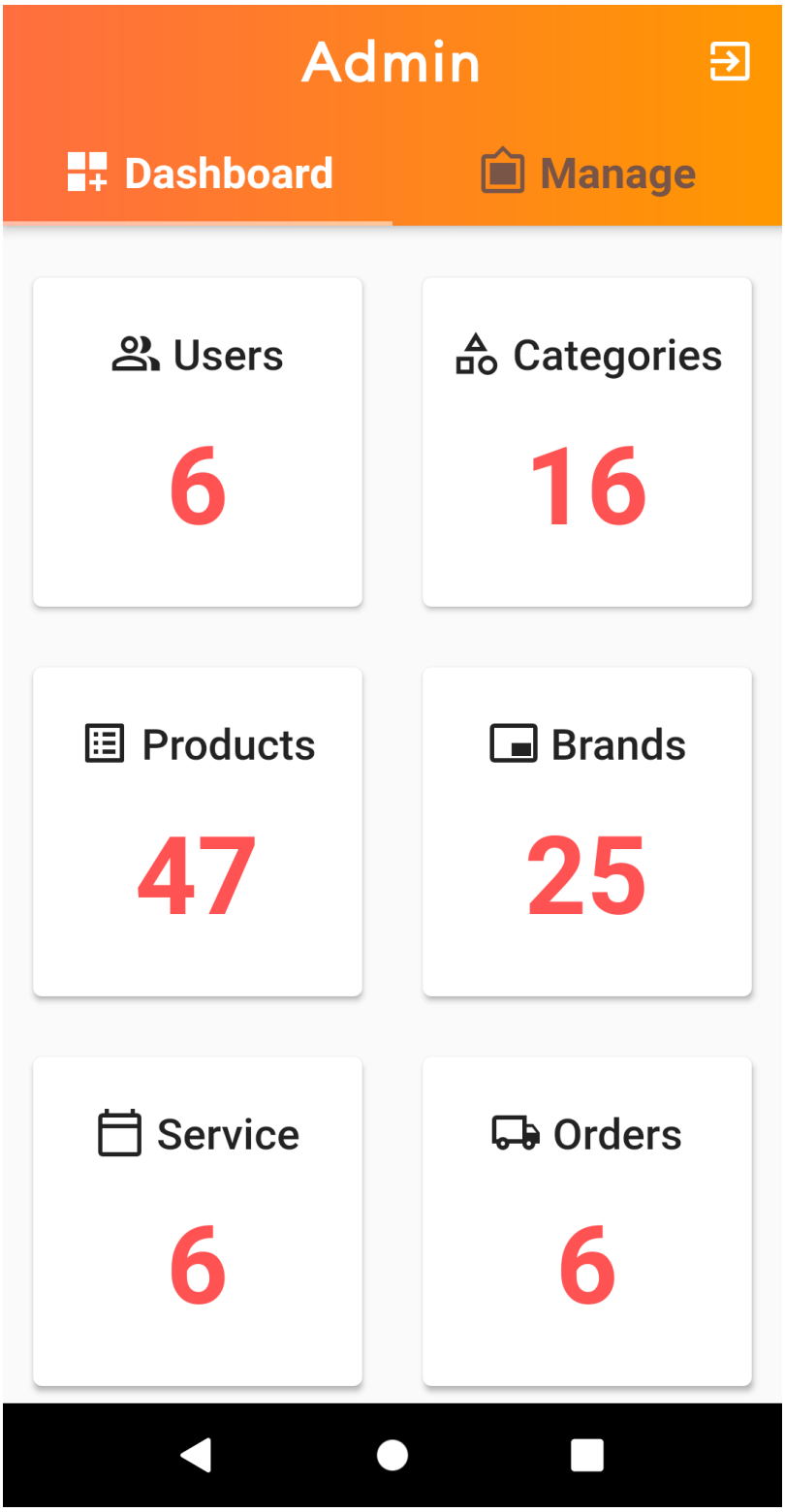


Figure- 5.5.4: Admin Dashboard Screen

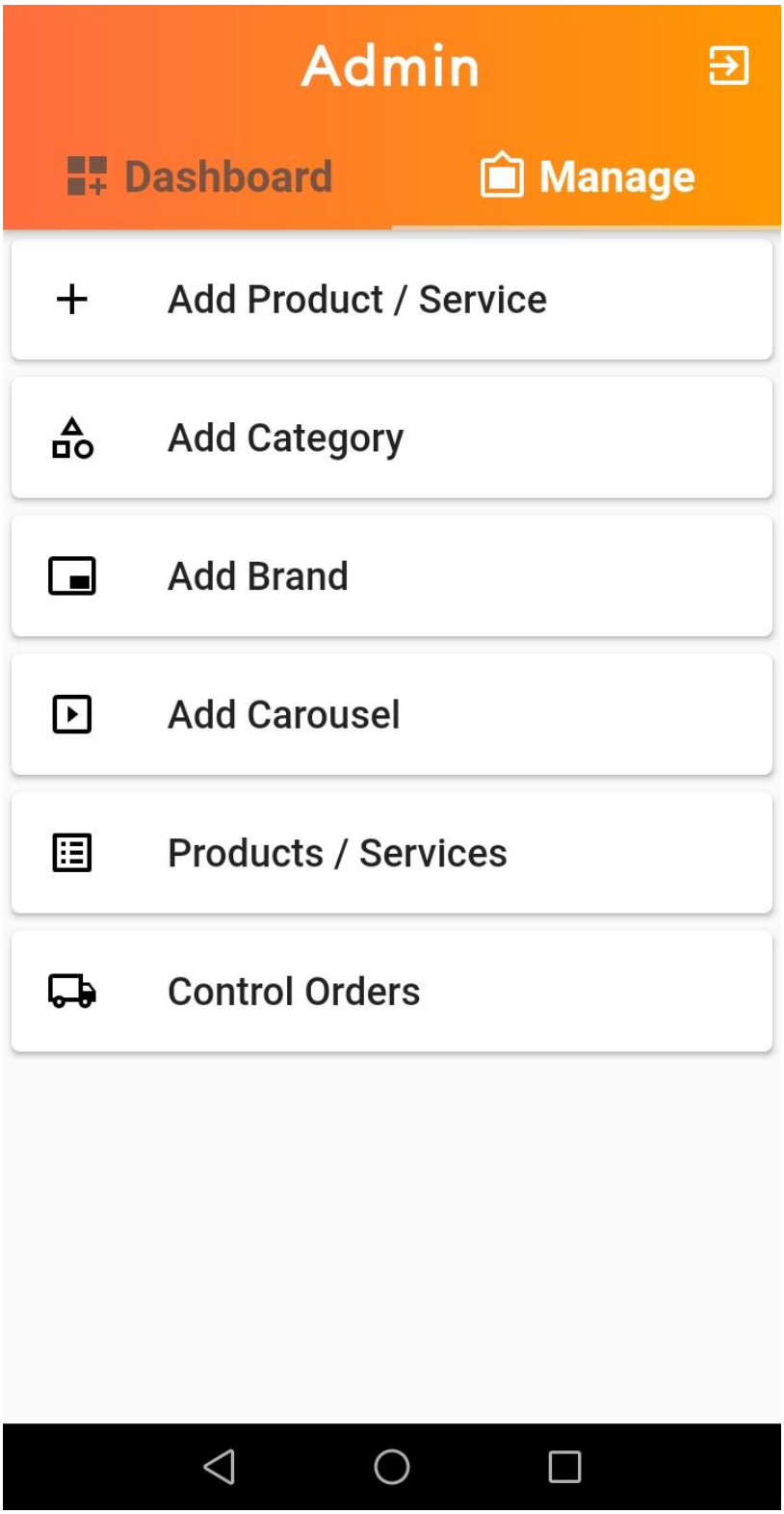


Figure- 5.5.5: Admin Manage Screen

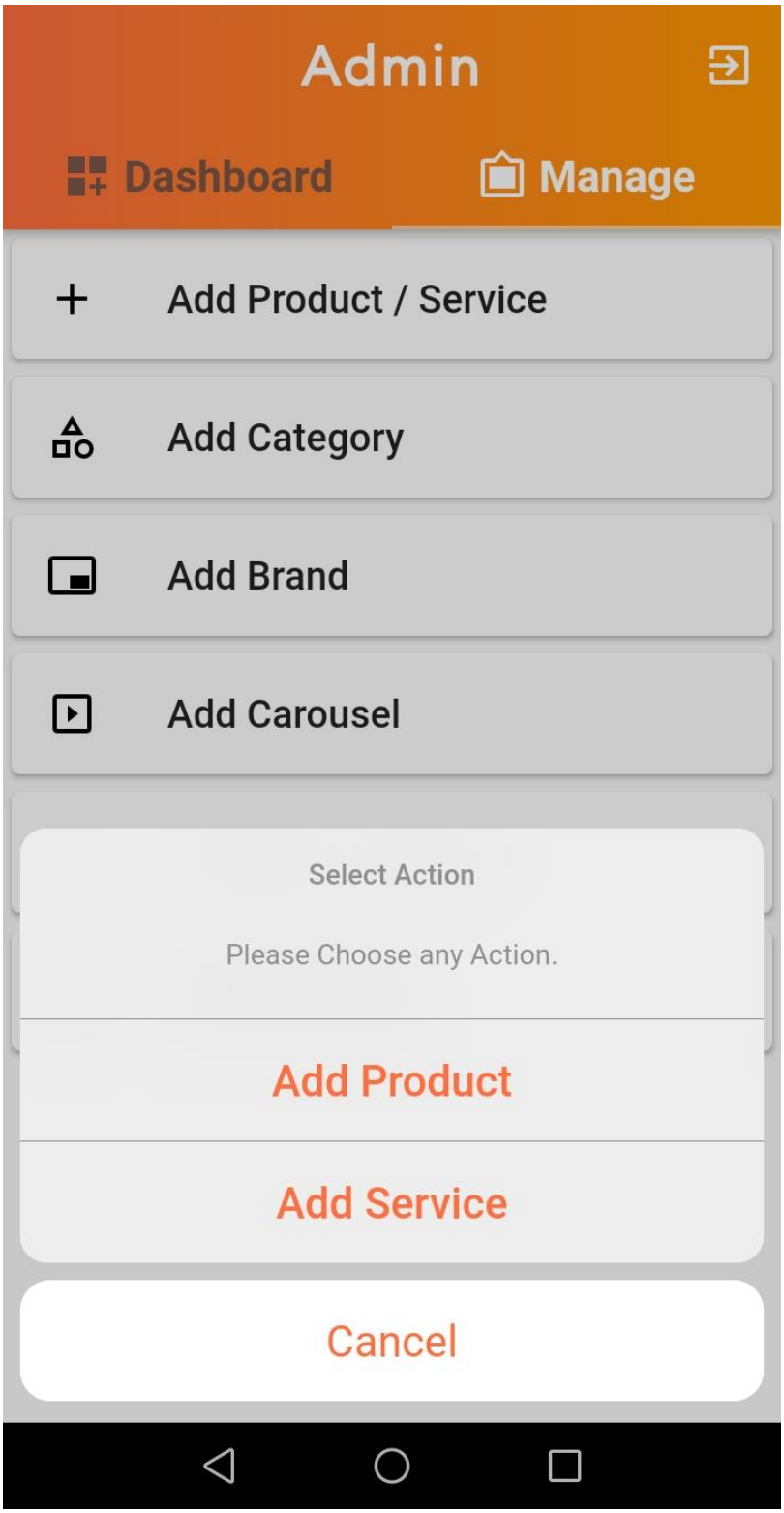


Figure- 5.5.6: When Press the add product / service button then show Cupertino bottom sheet

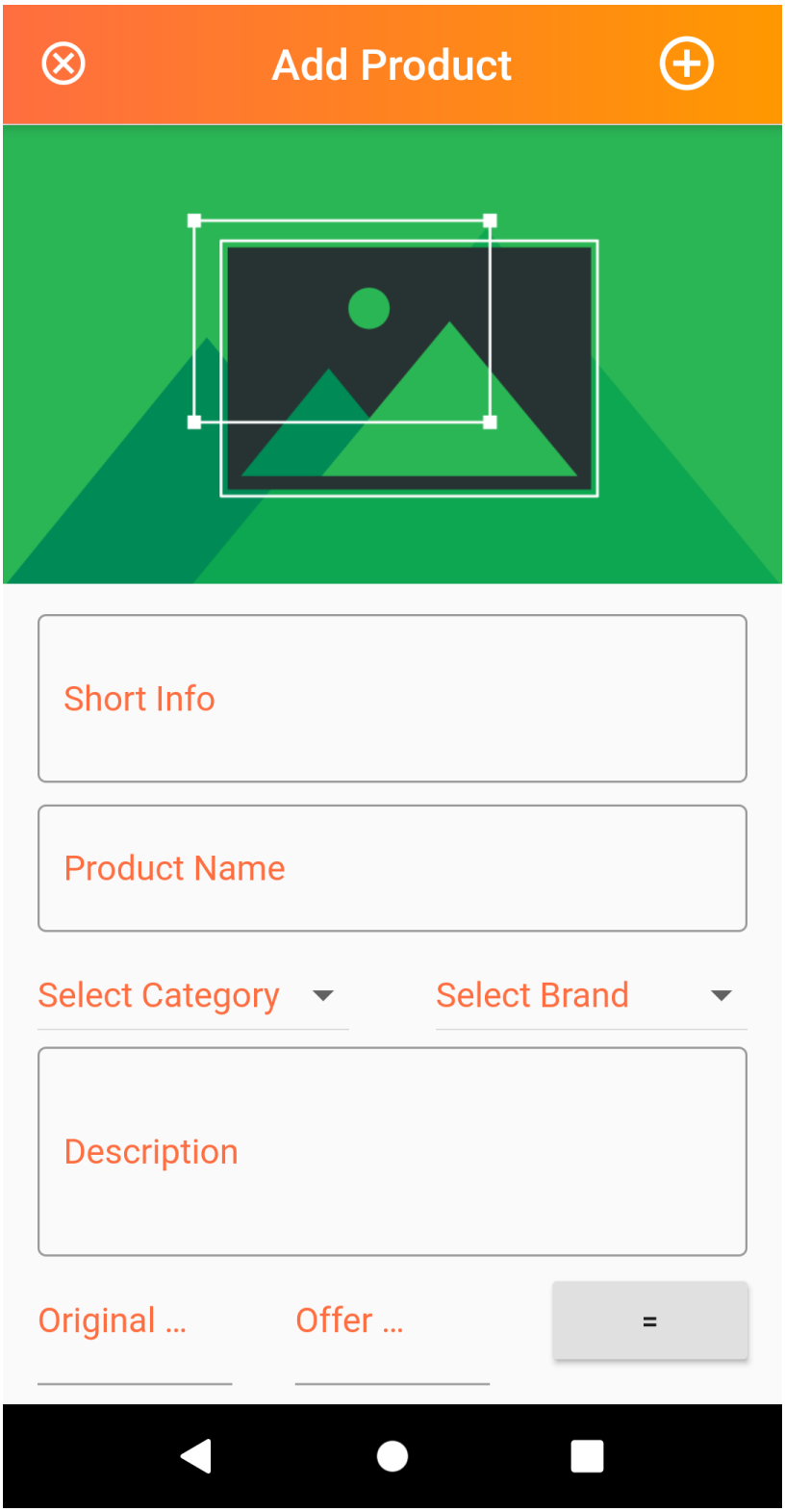


Figure- 5.5.7: Admin Add Product Screen

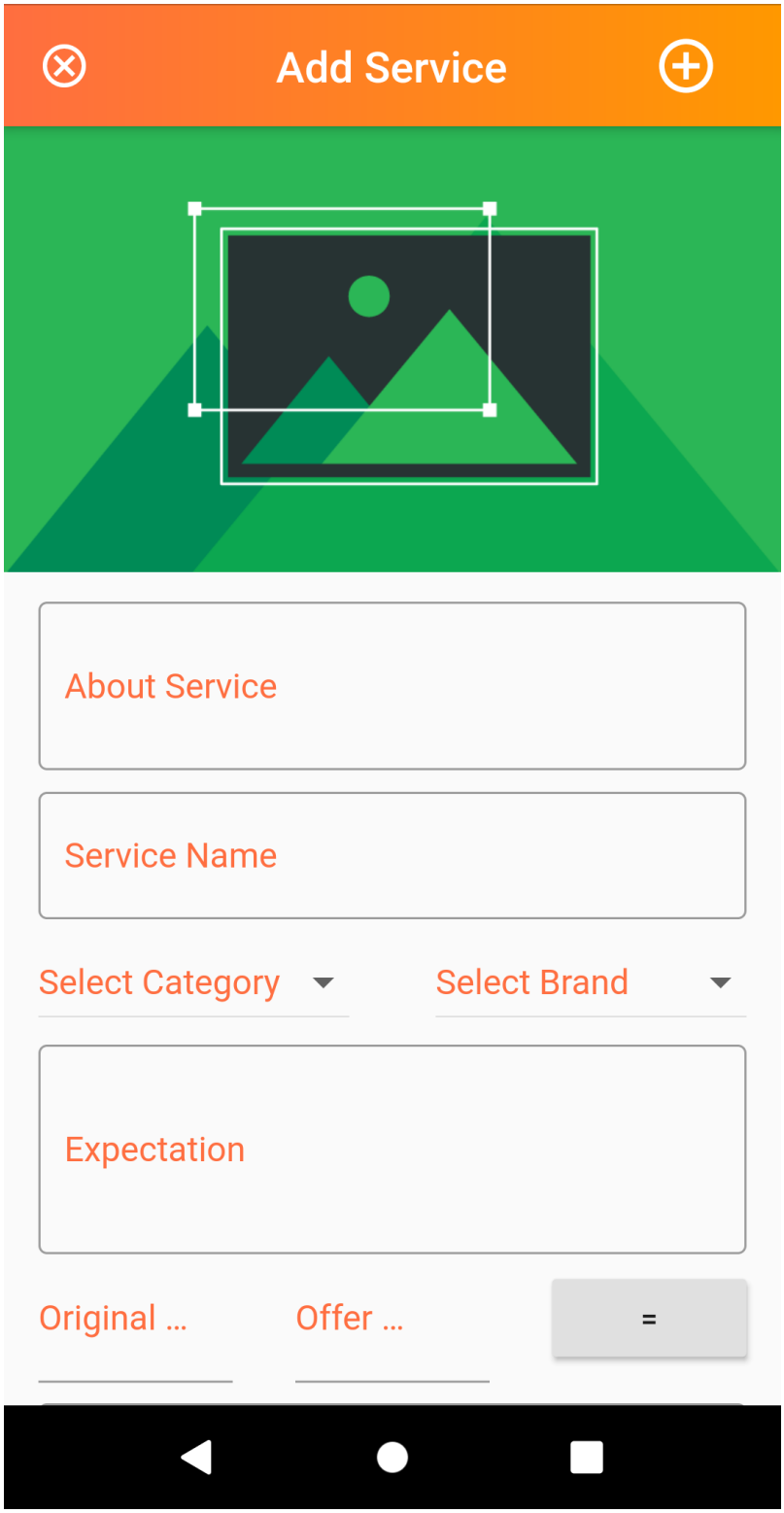


Figure- 5.5.8: Admin Add Service Screen

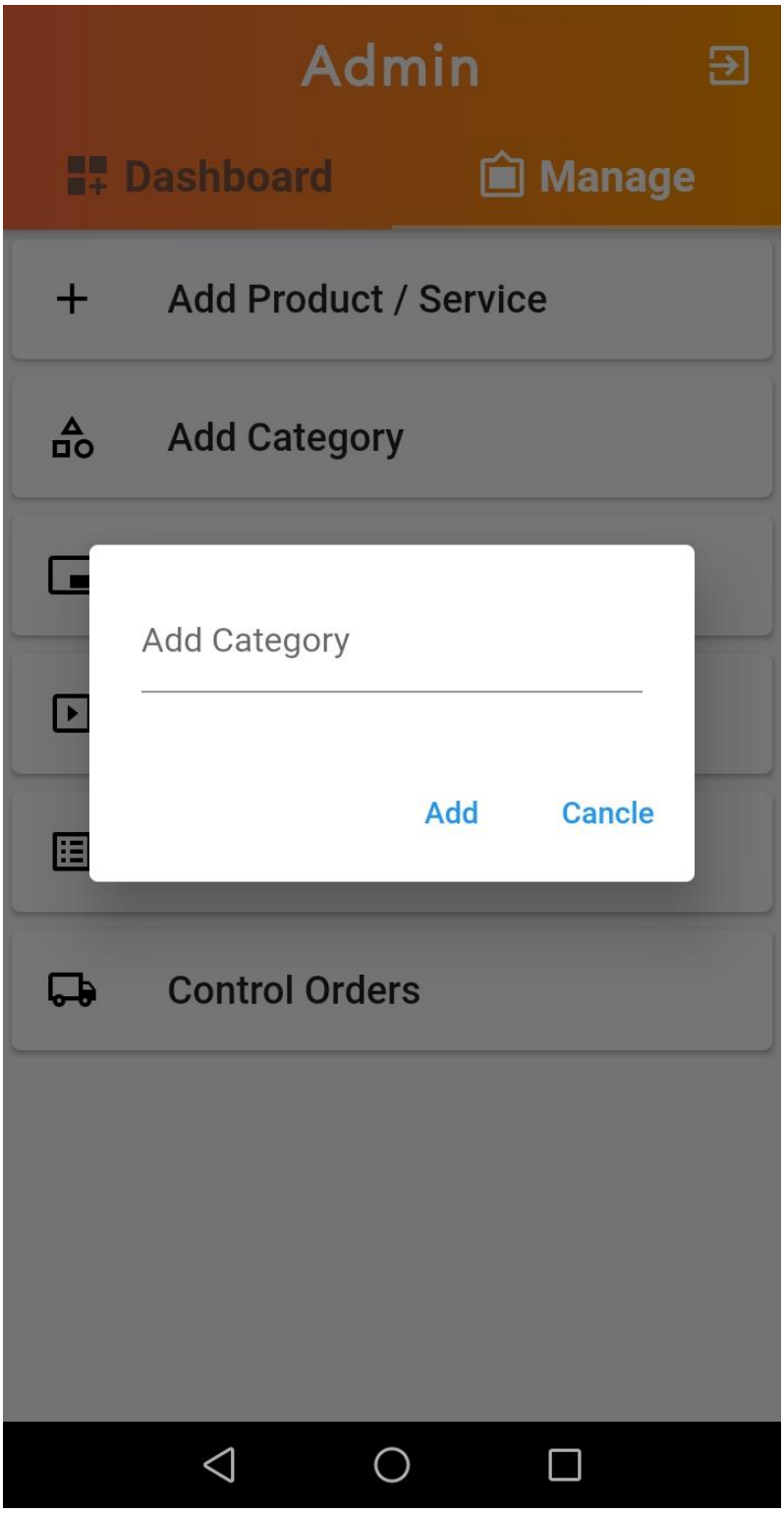


Figure- 5.5.9: Add Category

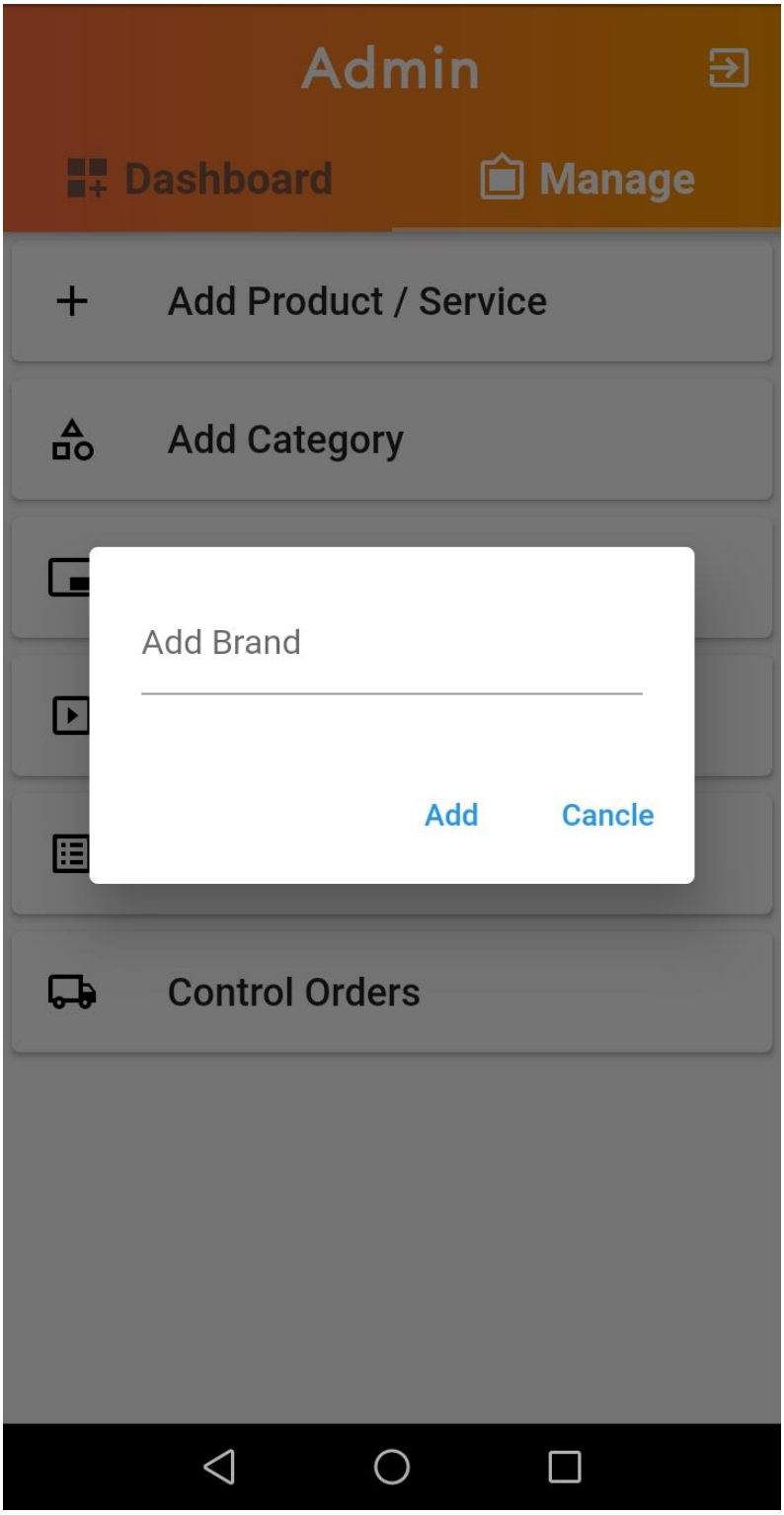


Figure- 5.5.10: Add Brand

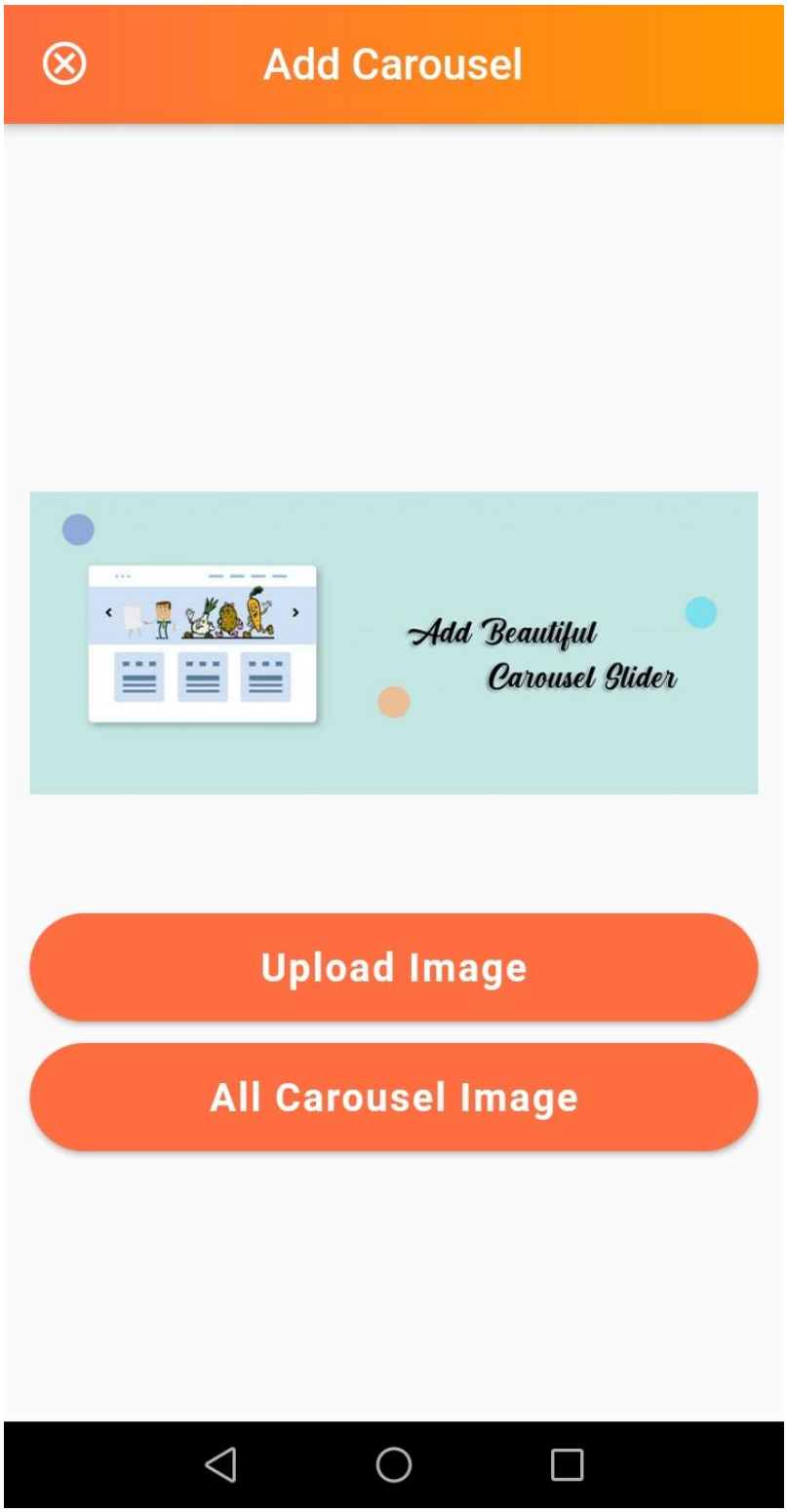


Figure- 5.5.11: Admin add beautiful carousel image

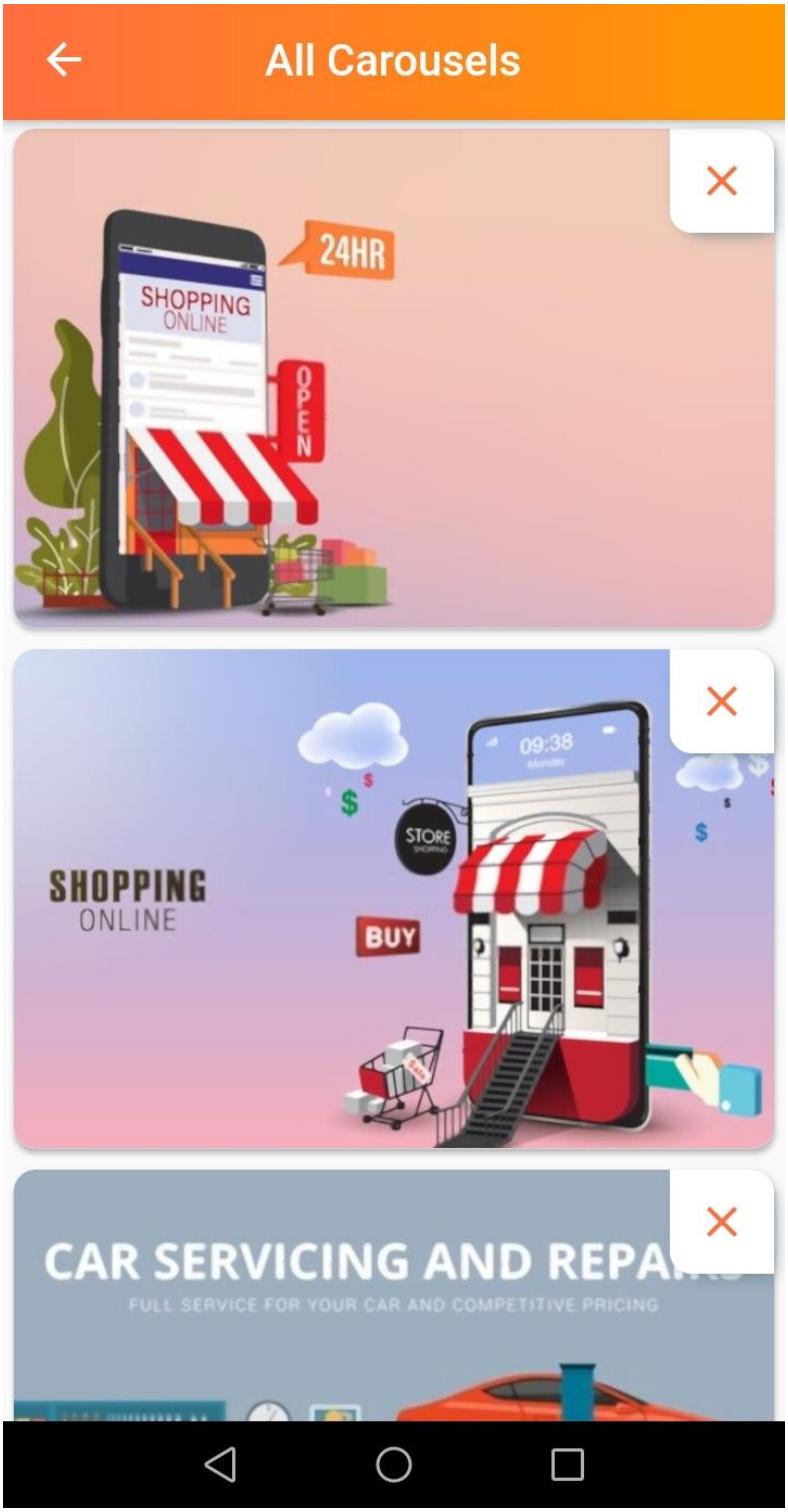


Figure- 5.5.12: Admin Show all carousel image

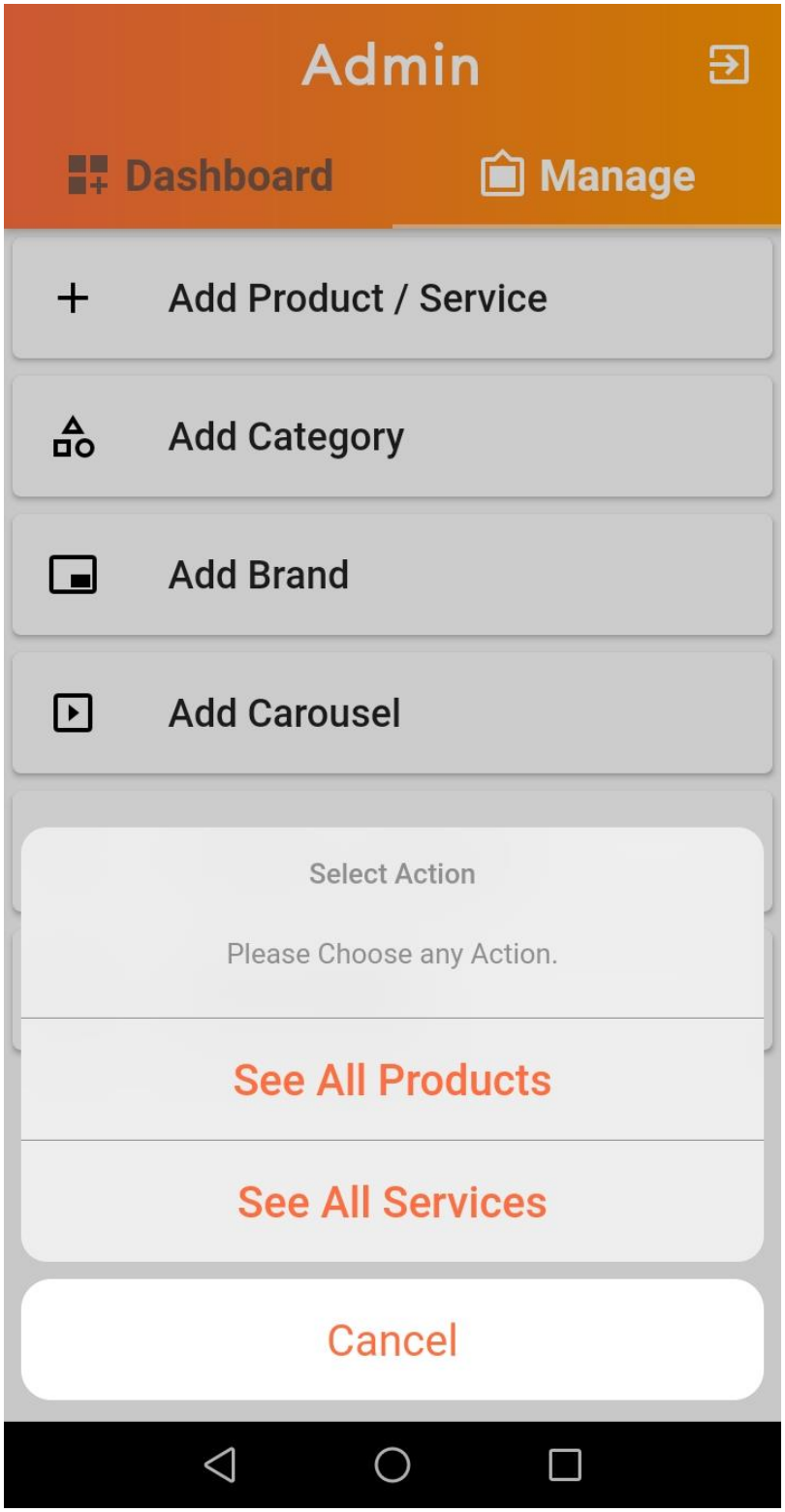


Figure- 5.5.13: When press product / service button then shows Cupertino bottom sheet

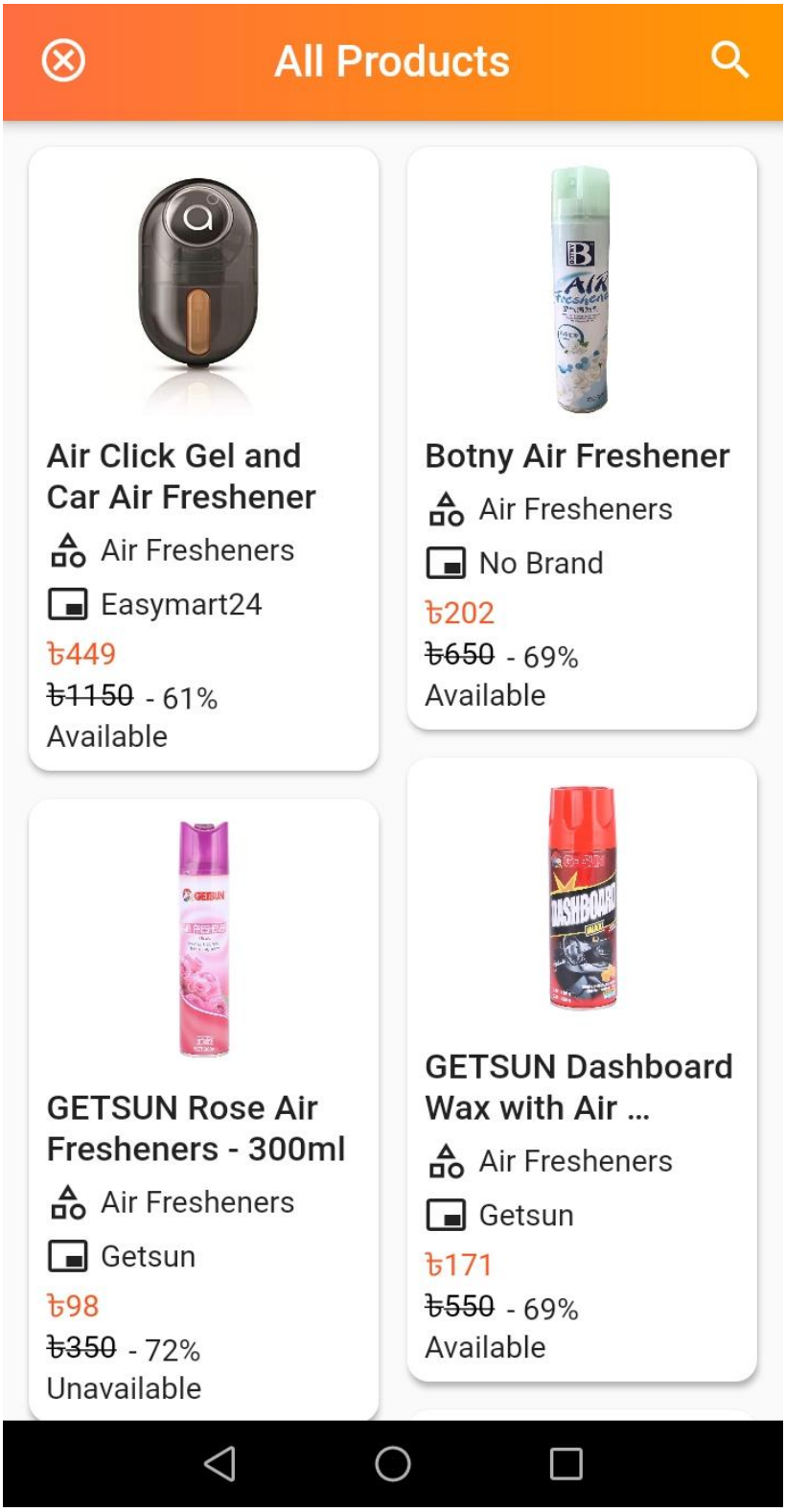


Figure- 5.5.14: Show all products

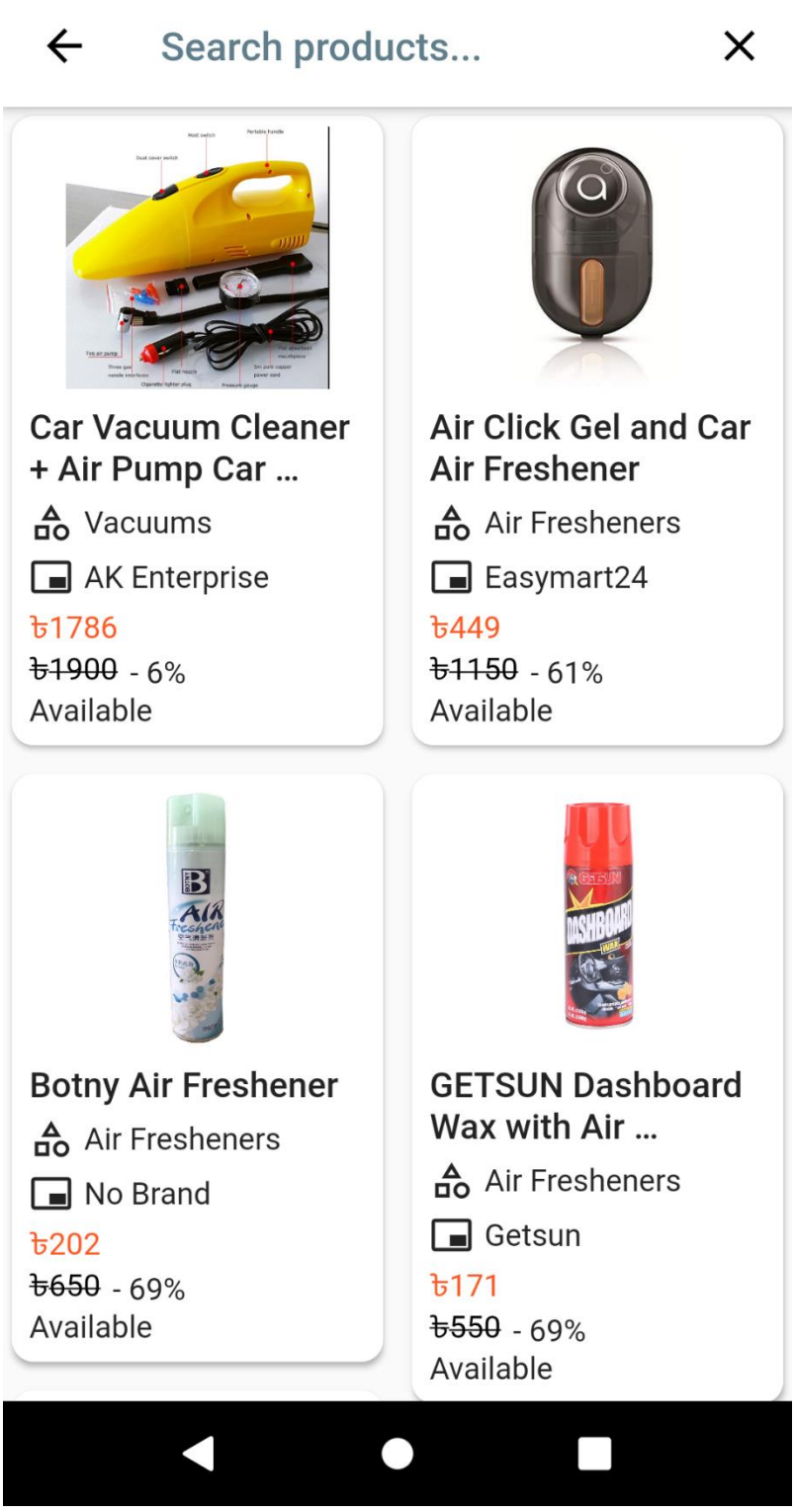


Figure- 5.5.15: Search Products

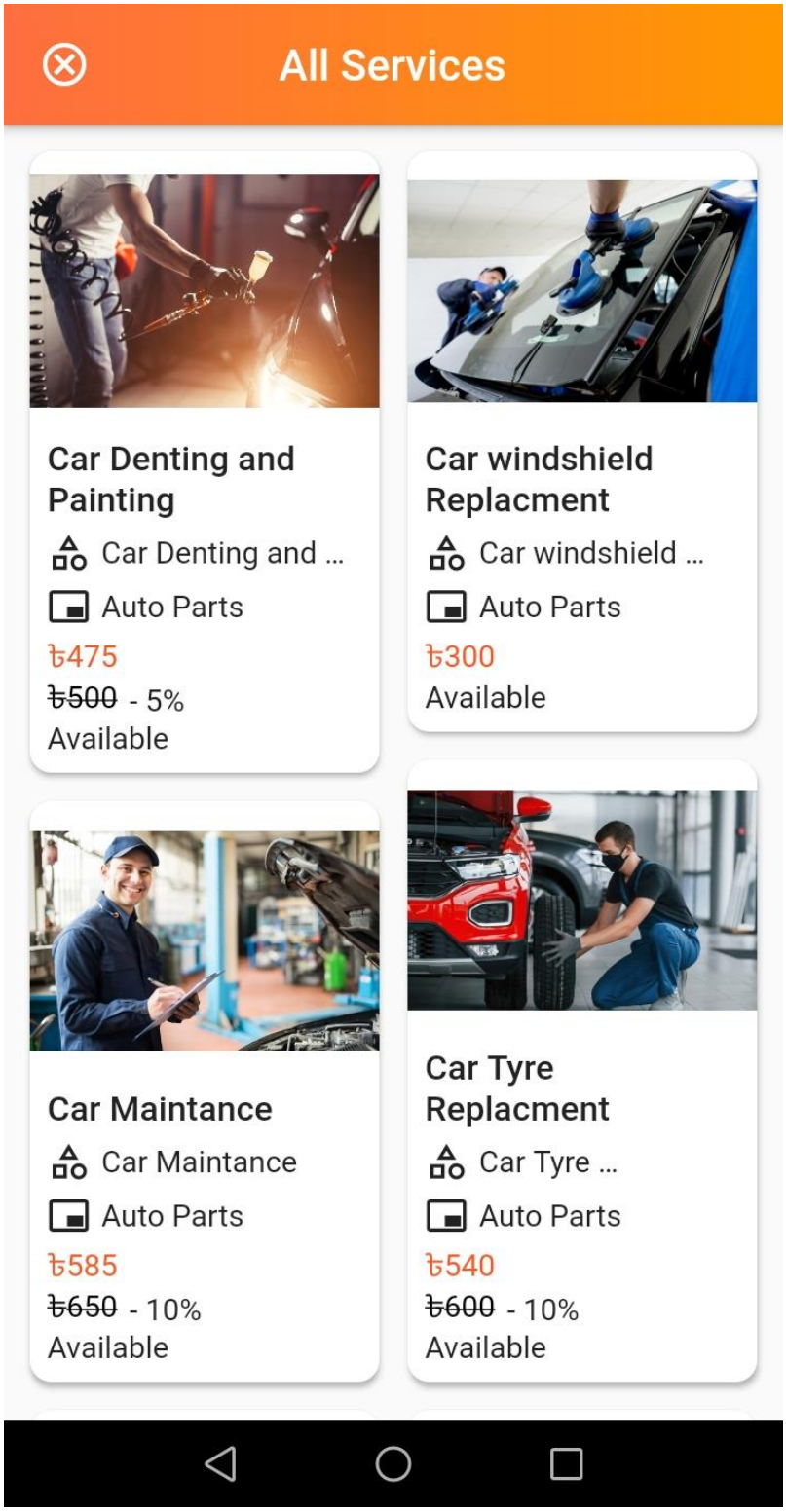


Figure- 5.5.16: Show all services

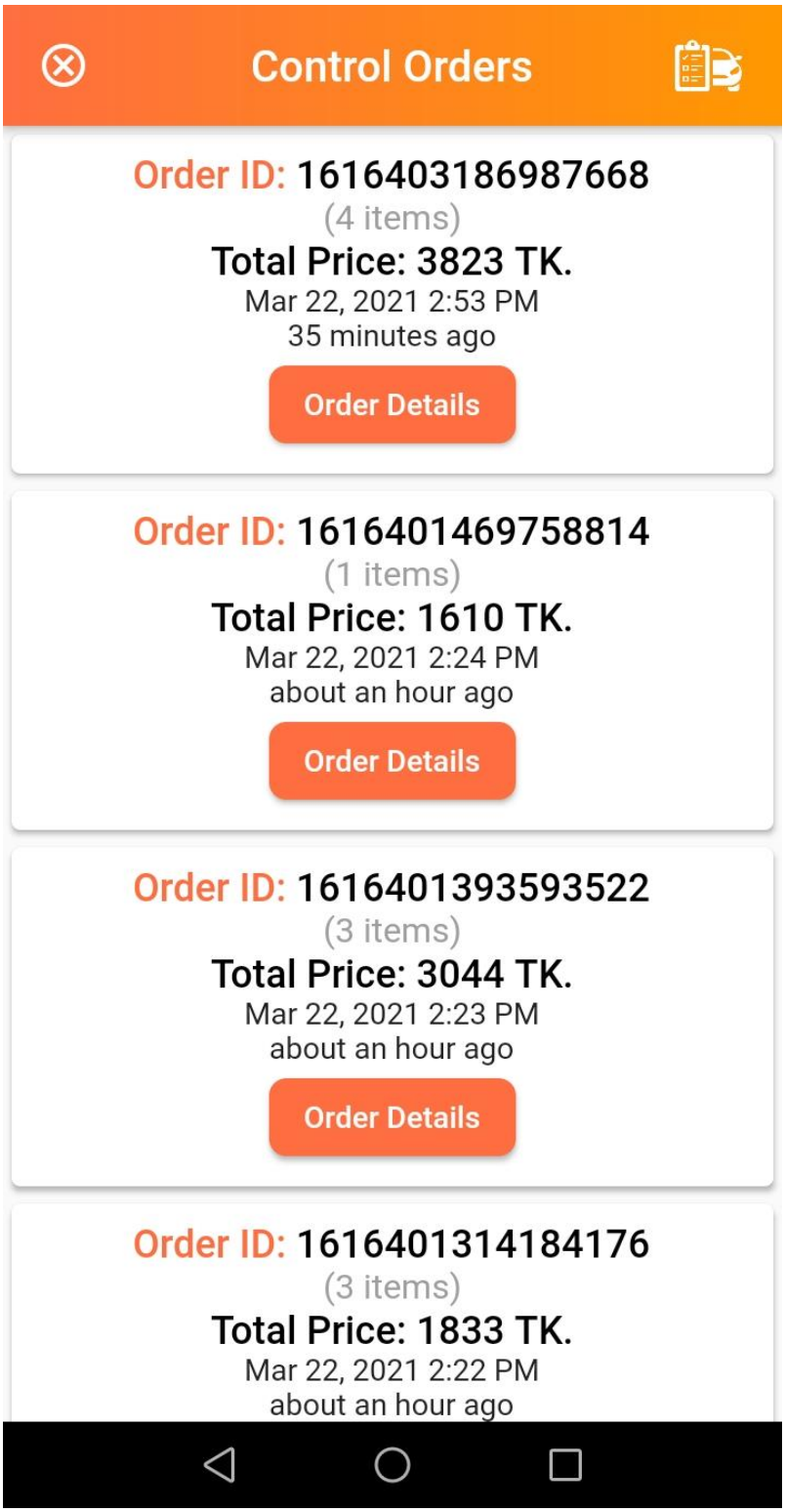


Figure- 5.5.17: Admin Control Order

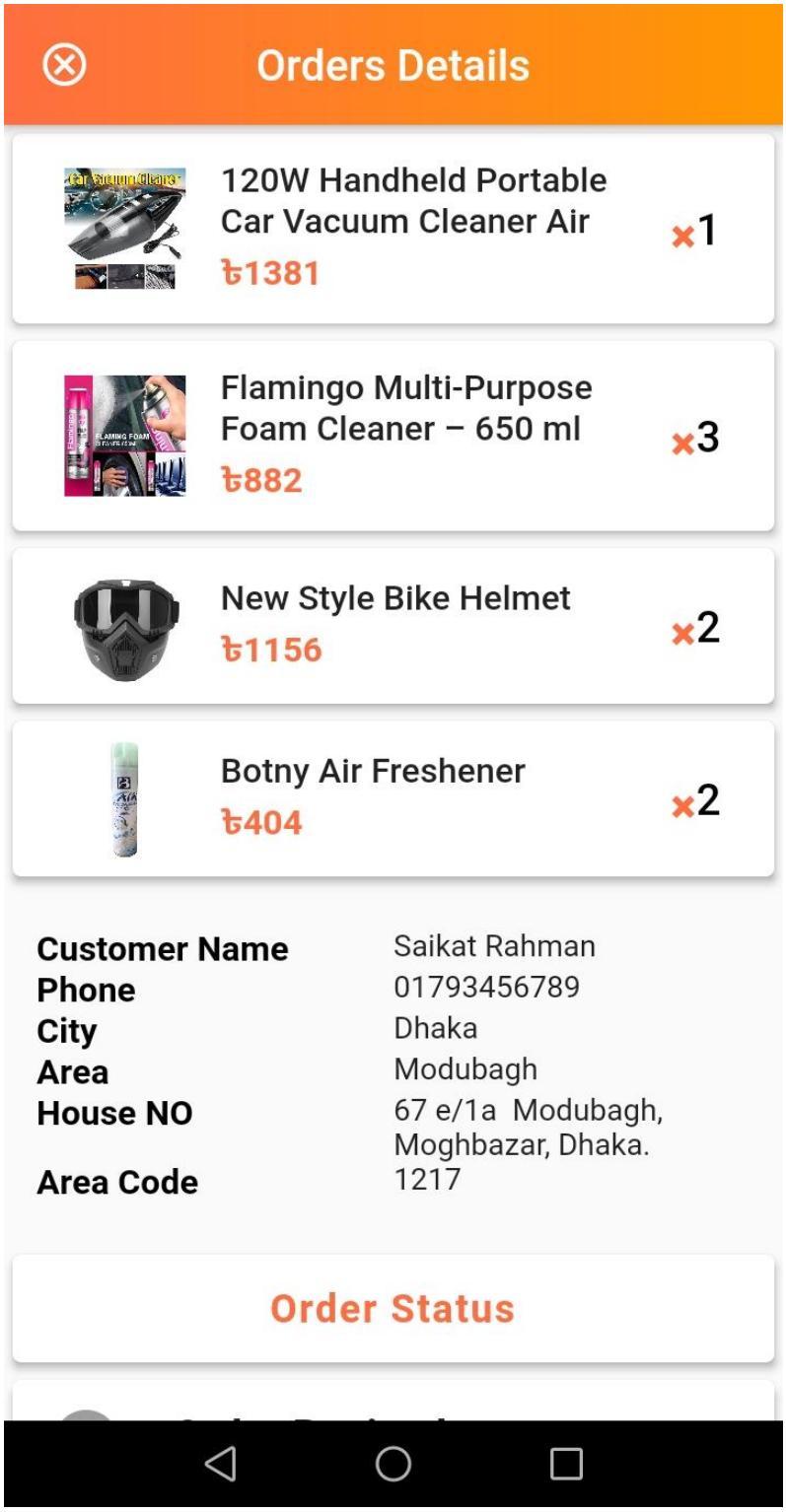


Figure- 5.5.18: Order Details Screen

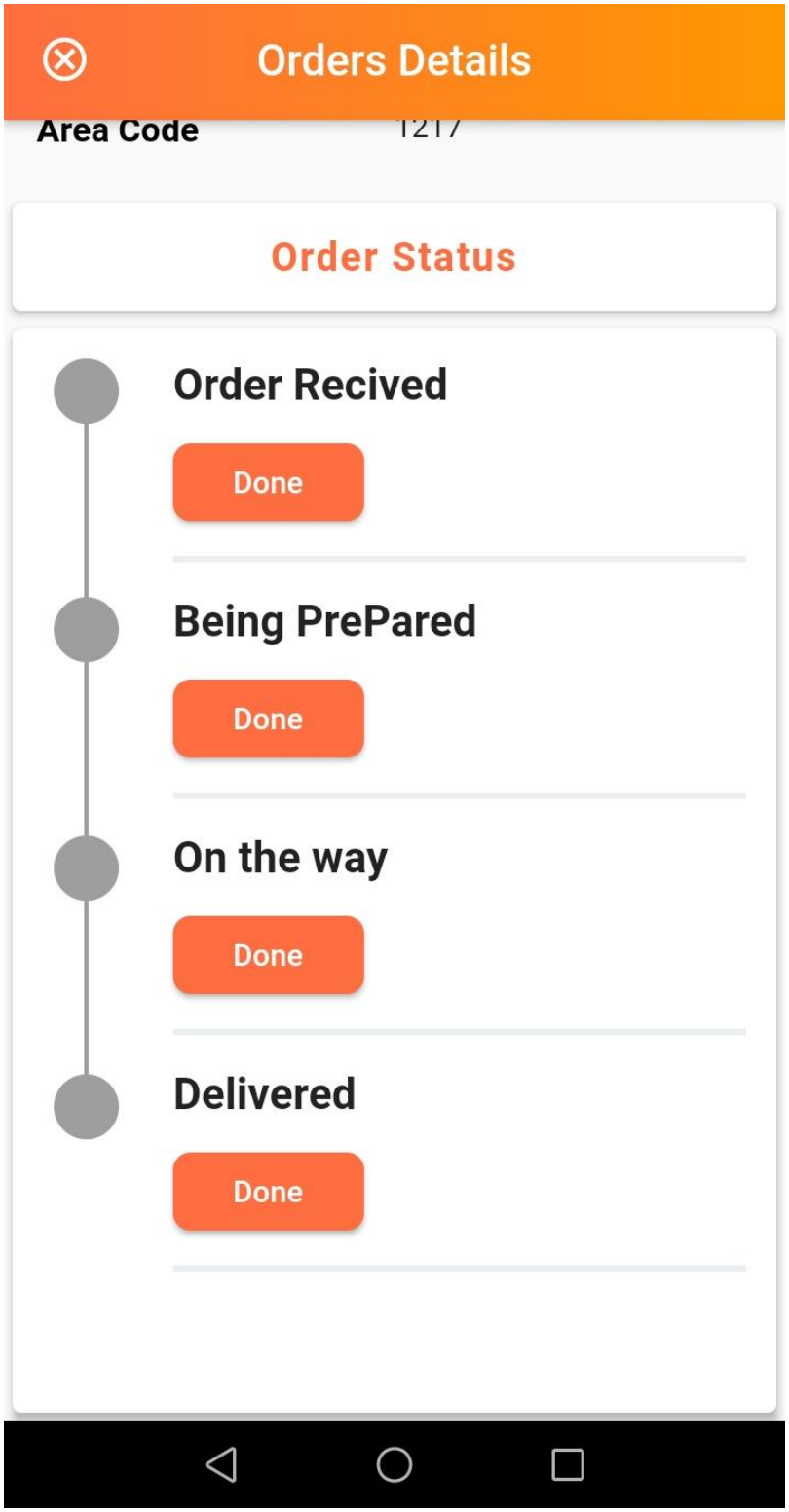


Figure- 5.5.19: Admin Control Order Status

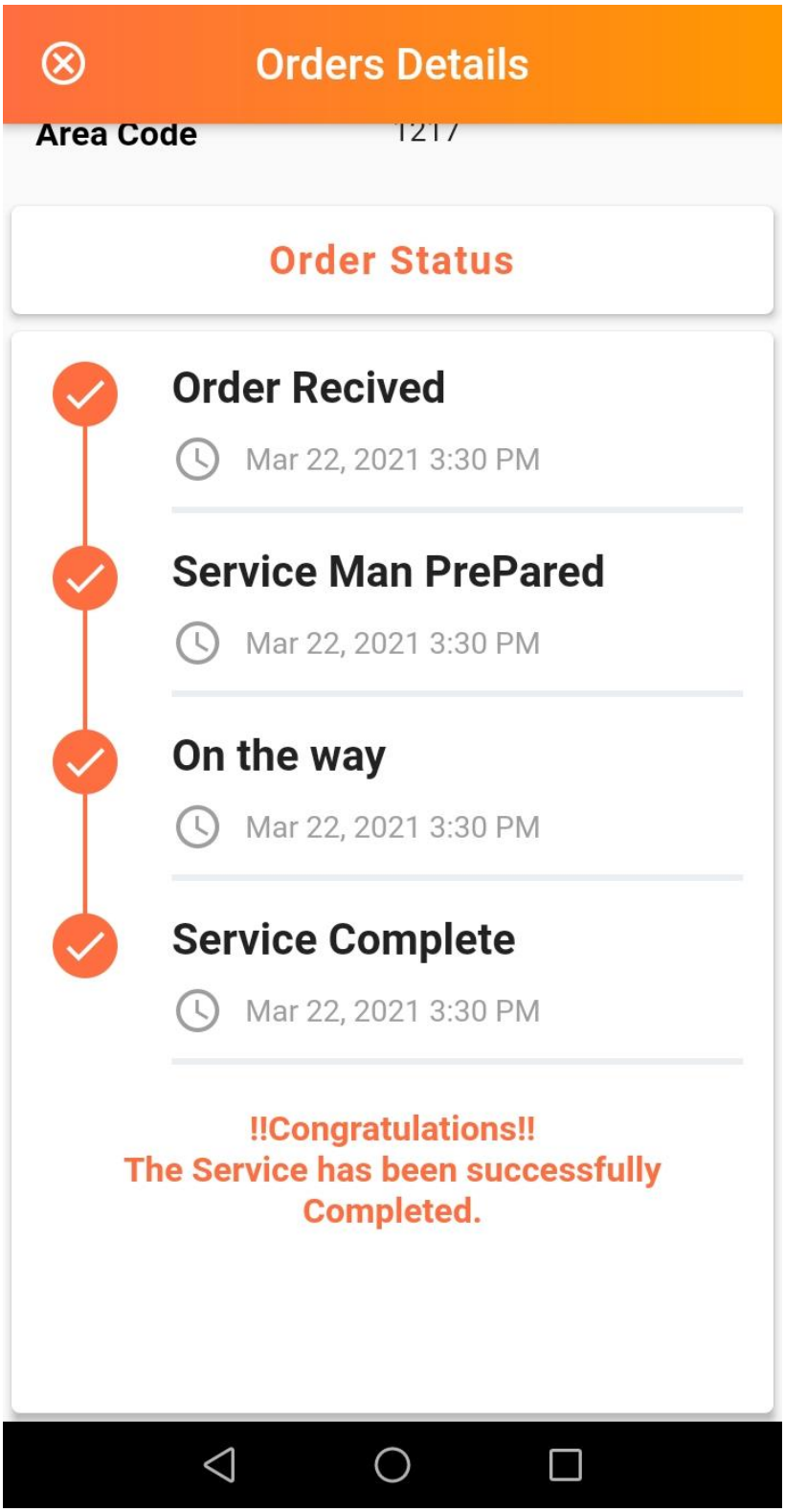


Figure- 5.5.20: When complete all step then show congratulations

5.6 Front-end-design Implementation for Dialog Box:

For dialog box design, we are using Material Widgets, Cupertino Widgets, Material Icons, Material Buttons etc. We are creating a user-friendly beautiful interface. This dialog box really helpful for understand our user interface.

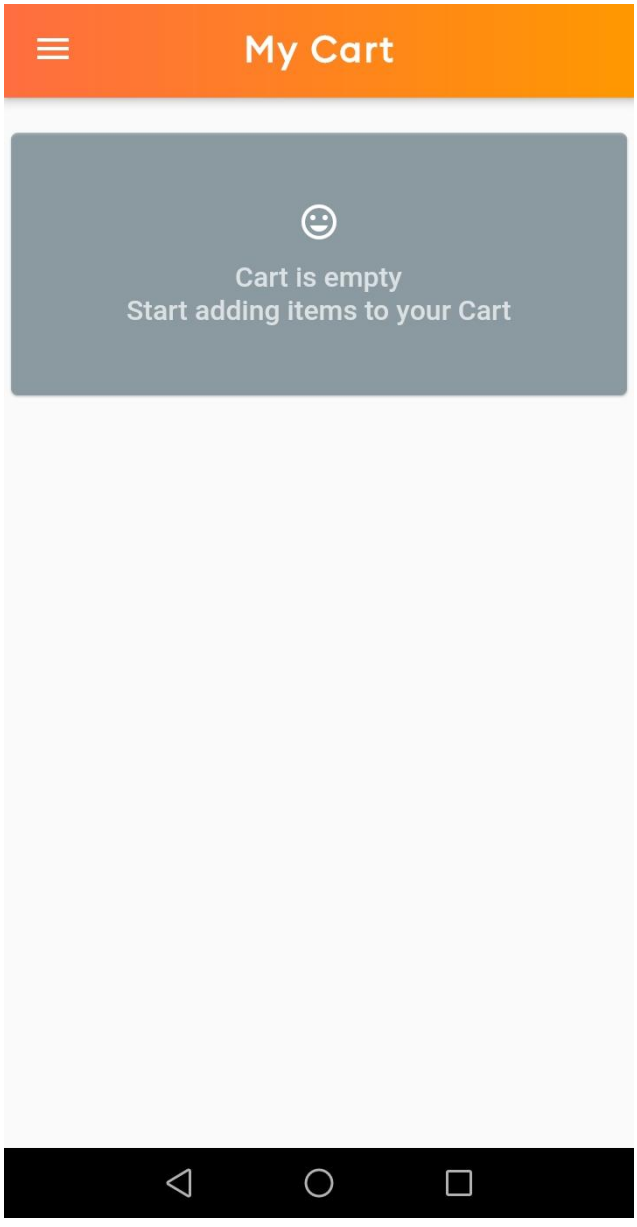


Figure- 5.6.1: Show empty cart dialog

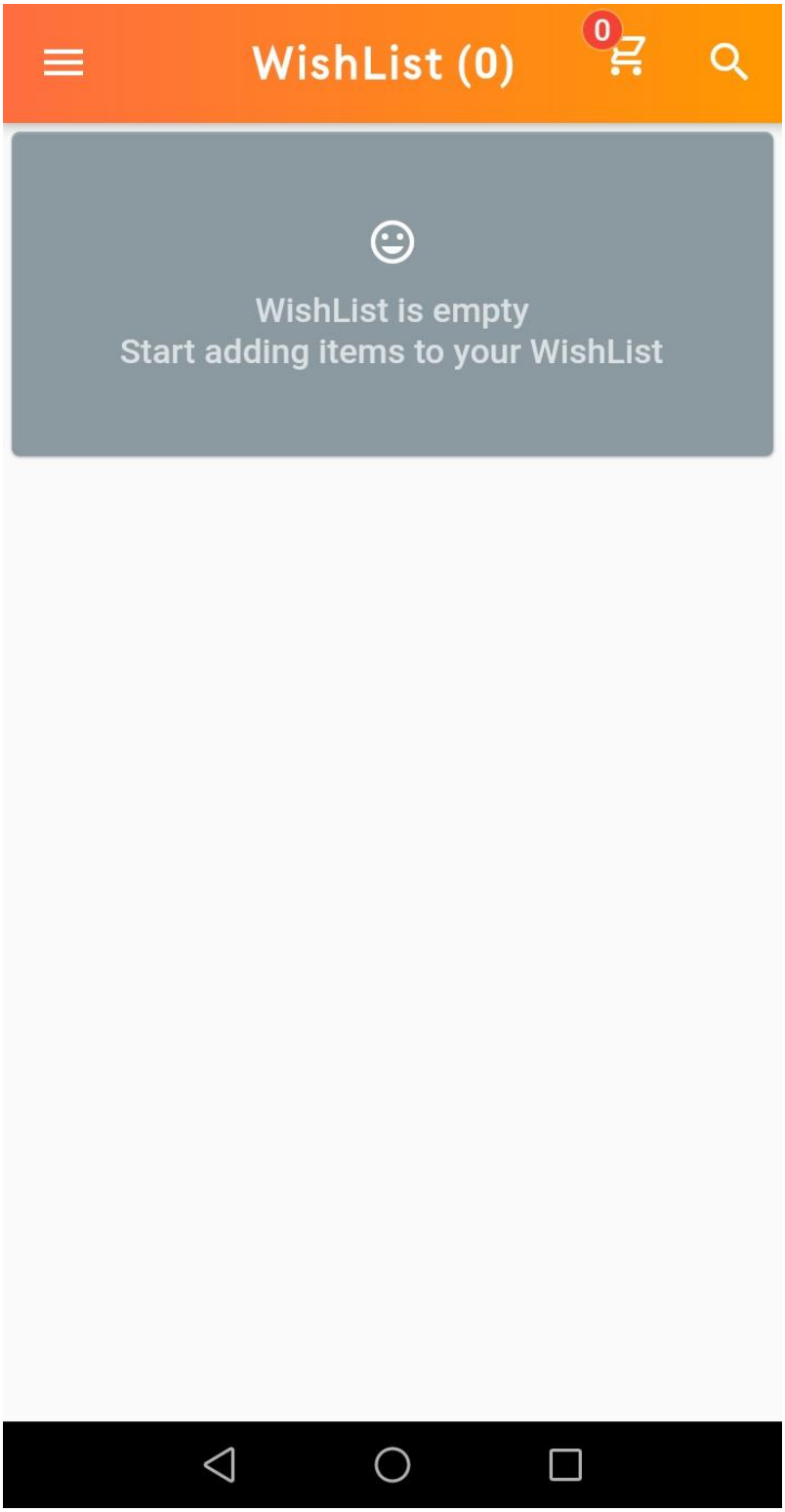


Figure- 5.6.2: Show empty wishlist dialog

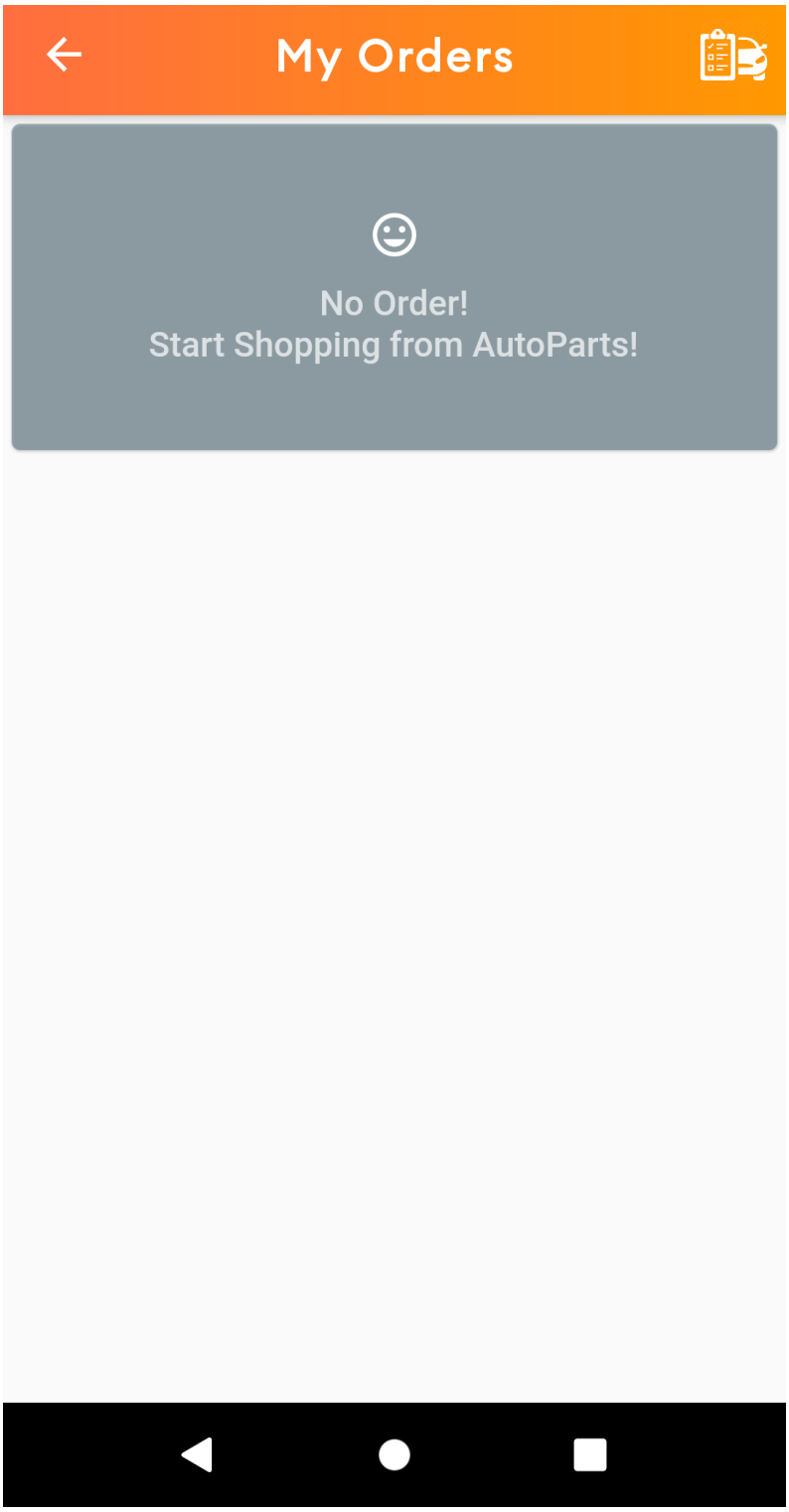


Figure- 5.6.3: Show empty order dialog

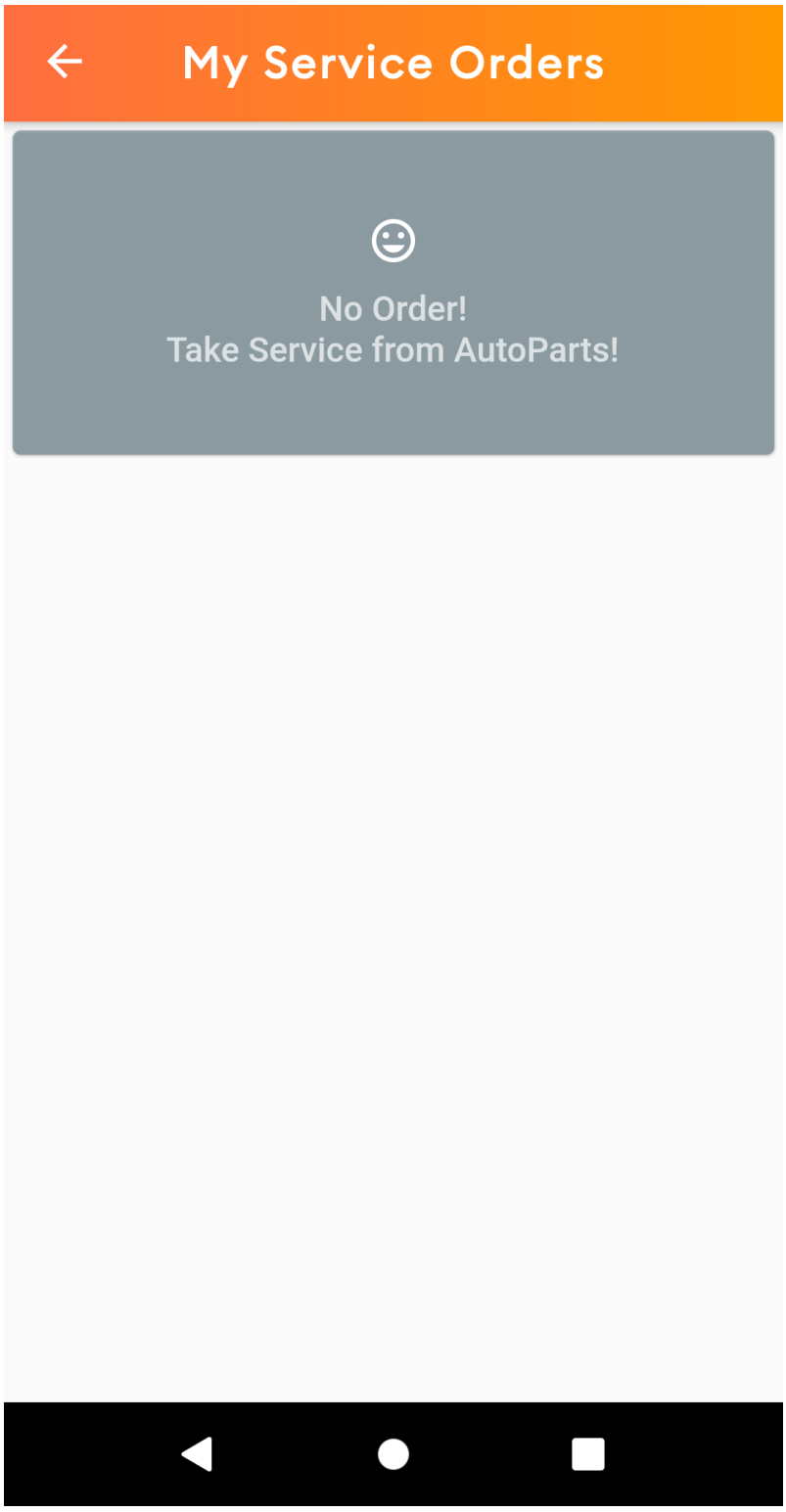


Figure- 5.6.4: Show empty service order dialog

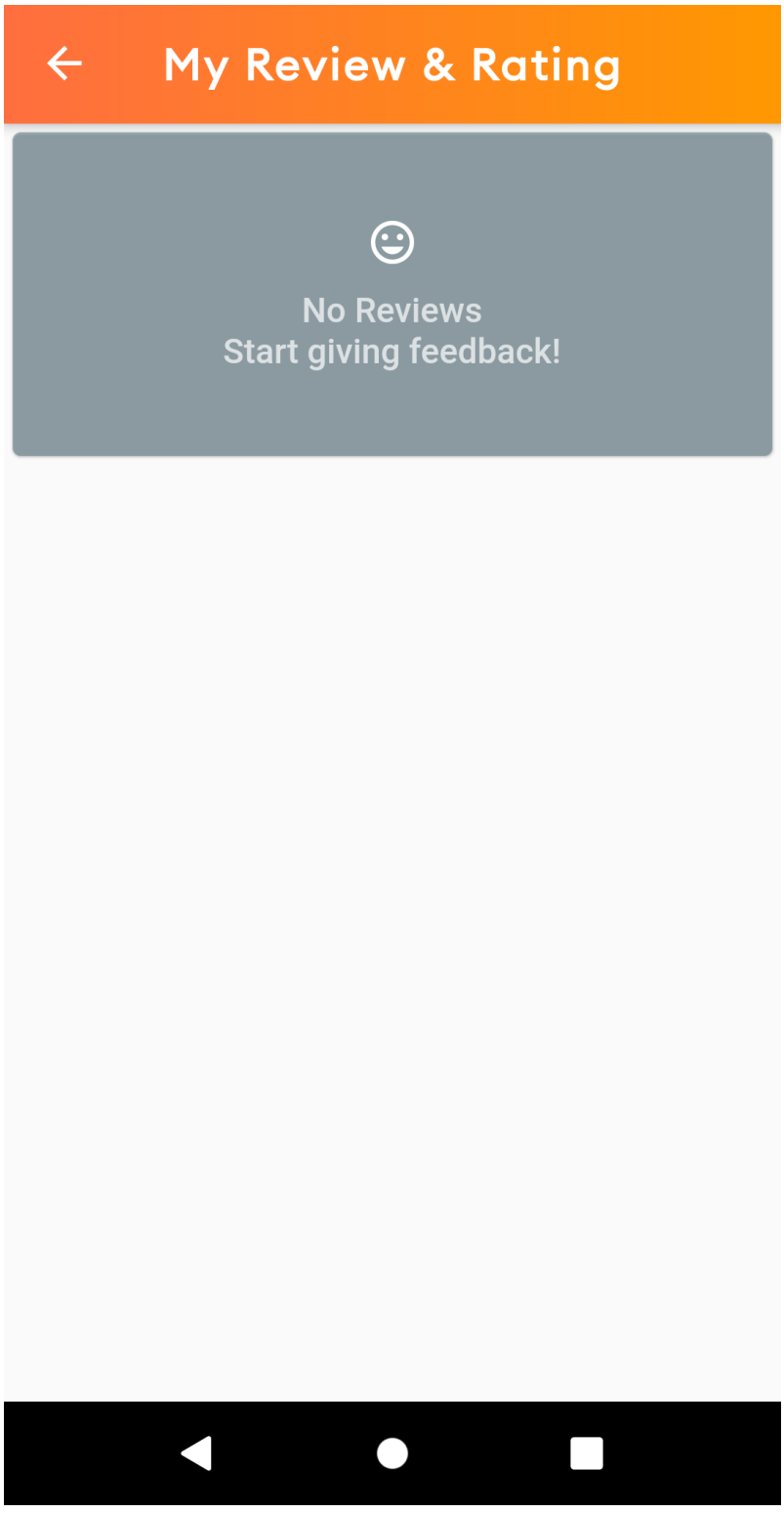


Figure- 5.6.5: Show empty review & rating dialog

5.7 Implementation of the Interactions:

Interaction design is the design that facilitates interaction between users and digital products such as websites and applications. Sometimes, the interaction only involves the design itself, but on the other hand, it includes related elements that help users achieve their goals such as aesthetics, speed, sound, space, and much more.

5.7.1 Five dimensions of interaction design:

One Dimensions: Words

The words cover the subject of direct communication with users. This is done by delivering useful information that should be clear and concise. Using words like buttons, layers. This button, layers help users to easily understand this application.

Two Dimensions: Visual presentation

The visual presentation contains UI elements such as images, typography, and icons of our projects.

Three Dimensions: Physical objects or space

Physical objects or spaces usually refer to the actual device or environment in which users interact with this application. It can be a smartphone or a laptop and the environment can vary depending on the location of the user.

Four Dimensions: Time

Time is a dimension that is used to measure how much time a user spends interacting with the interface through words and animations or any feedback they have given to our application through their interaction.

Five Dimensions: Behavior

The last dimension, behavior, refers to how users respond to our apps based on the previous four dimensions. Studying user feedback enables us to create better UIs, images, buttons, etc for them.

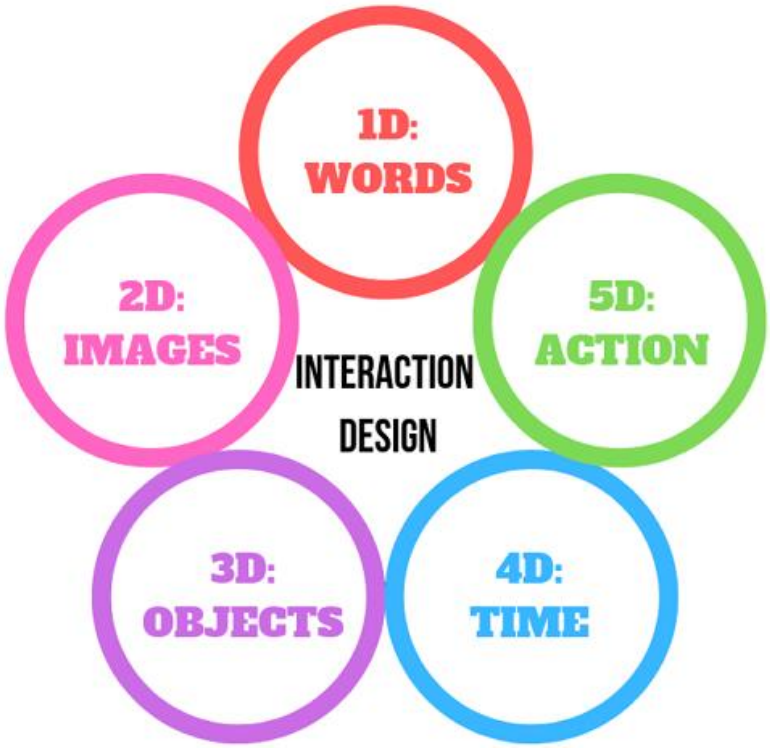


Figure- 5.7: Implementation of Interaction

5.8 Testing of the implementation:

This is an informal way of testing where errors are not recorded and are usually corrected as soon as they are found. This builds a strong foundation for the software and speeds up the development process, which saves a lot of time. This mostly happens in the case of experimental-driven development methods. It uses stubs and drivers to replace the missing software, and the components are done by simulating the interface in the software. A stub is called to test from the software component; Call a component to test a driver. This includes testing performance as well as memory leaks, performance, or visibility tests.

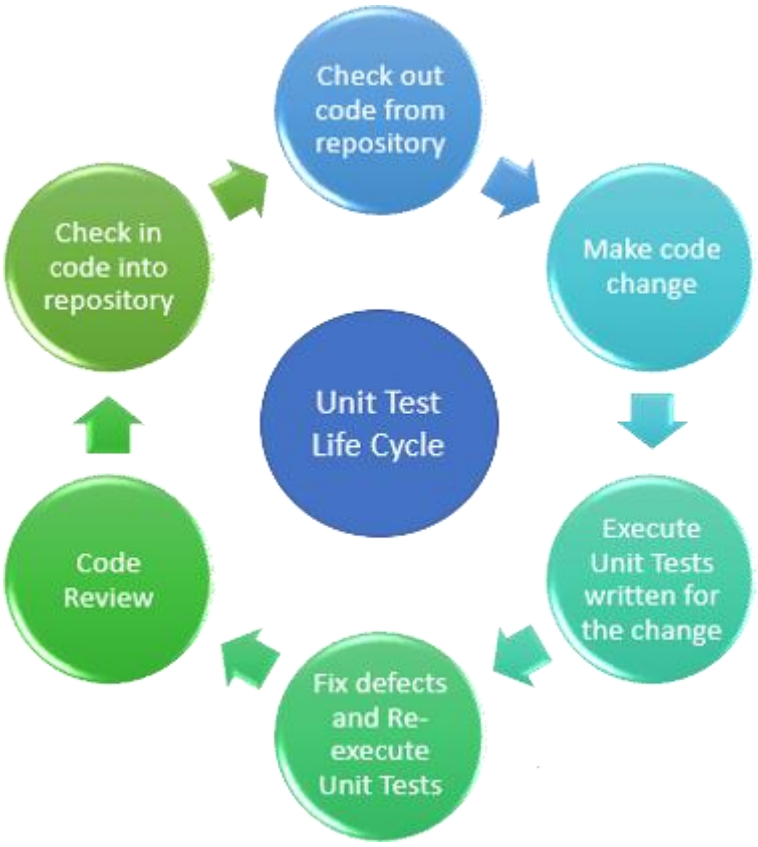


Figure – 5.8: Life Cycle of Unit Testing

CHAPTER 6
Impact on Society, Environment and Sustainability

6.1 Impact on Society:

We have created our project Auto Parts BD. This application is an online eCommerce and service provider application. We created our project for cars or bike users. Our neighboring country India has a similar application. However, there are very few such applications in our country. We are creating our project to solve this problem, which we hope will have a very good impact on society. This project will make our lives easier.

6.2 Impact on Environment:

Now, the user can deliver products and services at the user's doorstep with the click of a button while sitting in the comfortable place of the user's home. There is no need to stretch your legs in the light of that strange sun! And there’s no need to drive around the city burning all those precious fossil fuels, which of course encourages greenhouse gases from the climate. It saves our climate without reducing fuel. As a result, our trees will survive, our environment will be green. So, it can be said without any doubt that this project will have a very good impact on our environment.

6.3 Ethical Aspects:

Our project Auto Parts BD is an eCommerce and service provider application. Many eCommerce applications have many more ethical issues like web tracking, online privacy, web spoofing, email spamming, cyber-squatting. We guarantee that our project will free us from all kinds of moral problems. We have used Cloud Firebase as our project database, which is able to keep users' personal information completely secure. That is to say, it will get rid of moral issues like web tracking, online privacy, web

spoofing, email spamming, cyber-squatting. Which will hopefully have a good impact on society.

6.4 Sustainability Plan:

We can now run our project on Android devices and iOS devices. We created our project in a Flutter framework. It is used to develop applications for Android, iOS from a single codebase. Flutter is primarily optimized for 2D mobile applications that can run on both Android and iOS platforms. Now without any problem, our users and admin can run our Auto Parts BD app on their Android and iOS devices.

CHAPTER 7
Conclusions and Future Scopes

7.1 Discussions and Conclusions:

For the blessing of God, we have effectively finished our mobile application project and report after a long time of thinking, talking, and implementing. Our project is an eCommerce and service providing application. If we look at the different developed countries of the world like the UK, Japan, Philippines, we can see that they get such services very easily. They simply sit in their comfortable room and receive the services as soon as they order. There are many applications to provide such services even in our neighboring country India. However, we have very few such applications. Why would we be deprived of such services? Our country is not far behind the developed countries. We created this application to solve this problem. With this application, users will be able to easily buy essential items for cars or bikes in a very short time and at a low cost. Not only will our users be able to buy cars or bike parts, but in addition to purchasing parts, they will also get various services for their cars or bikes such as car wash through this application. We made this application with both Android and IOS users in mind. Our application is able to run well on both platforms.

Initial of all, Thanks, my all-team members and second my honorable supervisor sir Raja Tariqul Hasan Tusher, his also supporting me for my project he is my favorite remarkable teacher I'm really grateful about my teacher because he's very close to discussing any problem and making way to the solution.

7.2 Scope for Further Developments:

We have future plans for this Auto Parts BD application. Some of the plans are:

1. Improved user interface.
2. We will create a website for our application.
3. Improve user data security.
4. We will add an online payment system.
5. We will add more exciting services.

6. We will add an offer system for different occasions.
7. We will add a discount coupon system.
8. We will add a real-time notification system.
9. We will add a chatbot system.
10. We will add Google Maps so that users can see the real-time distribution system.

APPENDIX: PROJECT REFLECTION:

We created this app for car or bike users. This application will make their life easier. With this application, they will be able to connect with a hassle-free online shopping application. This will allow users to easily purchase parts of their car. They will also get different types of services like a car wash, car maintenance, car repairing, car tire replacement, and more through this application.

There are very few such applications in our country, as a result of which the people of our country were deprived of all these benefits. And to solve this problem, we have created this application. Using our application, users will be able to shop to their liking very quickly. In this way, they do not have to go to the shop in the sun and spend the fuel on the car. This will save their time as well as reduce environmental pollution. Which will have a very good effect on our environment.

We have been able to further enhance our programming knowledge by creating this application. Now we are a full stack mobile application developer. For creating this application, we use dart programing language and flutter framework.

Hopefully, people use this application. It's really amazing application that provides online shopping and service both in one application. We believe that It changes the user's lifestyle. It provides a hassle-free online shopping service.

References:

[1] Use Case diagram available at http://www.utm.mx/~caff/doc/OpenUPWeb/openup/guidances/concepts/use_case_model_CD178AF9.html , last accessed on 27-05-2021 at 9:31am

[2] Data Flow Diagram (DFD) available at https://www.visual-paradigm.com/tutorials/data-flow-diagram-dfd.jsp , last accessed on 27-05-2021 at 9:34am

[3] Data Flow Diagram (DFD) available at https://www.lucidchart.com/blog/data-flow-diagram-tutorial , last accessed on 27-05-2021 at 9:35am

[4] Entity Relationship model available at https://en.wikipedia.org/wiki/Entity%E2%80%93relationship_model , last accessed on 27-05-2021 at 9:41am

[5] Interaction Design available at https://www.mockplus.com/blog/post/what-is-interaction-design-and-how-it-works , last accessed on 27-05-2021 at 9:42am

[6] Unit testing available at https://en.wikipedia.org/wiki/Unit_testing#:~:text=In%20computer%20programming%2C%20unit%20testing,they%20are%20fit%20for%20use. , last accessed on 27-05-2021 at 9:43am