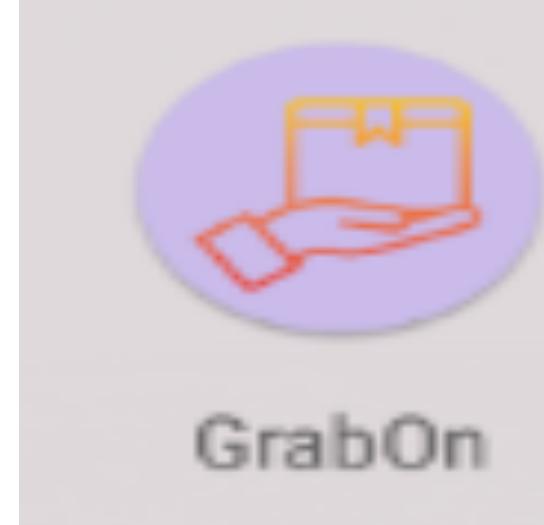




Introduction

People frequently prefer to disperse their personal products and furniture rather than to transport them to new locations. Most of the goods used are provided free of charge or at a low cost on Craigslist, eBay or other portals. To get the best out of the situation, it is important to be in the right place at the right time. However, there is no unified platform that sort out the list of all free or perfect deals available nearby or at some specified location. GrabOn is developed keeping this in mind and to make the life of a customer tension free and relaxed as they don't have to track the products they need on multiple portals.

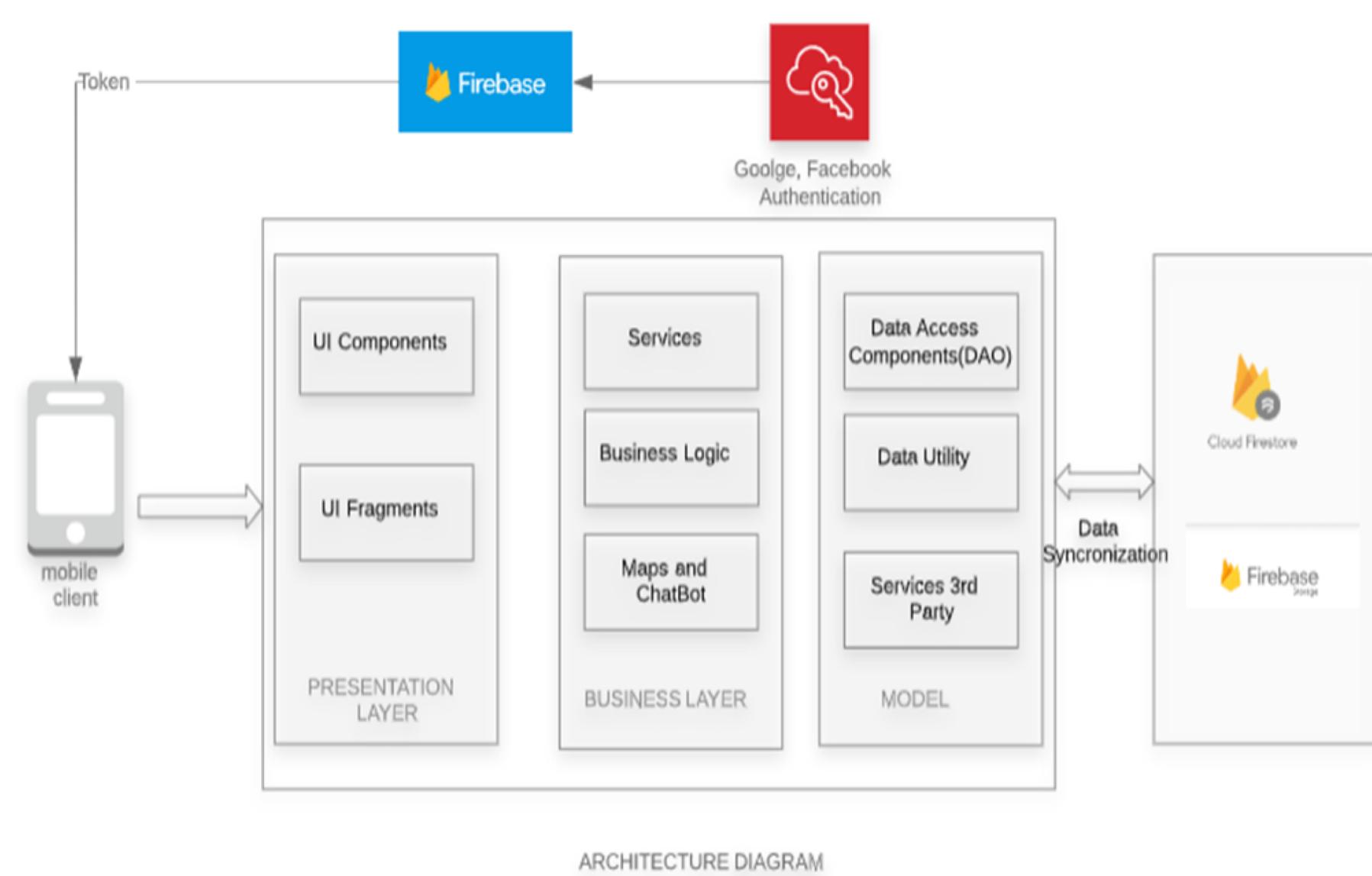


- Unified platform for buying and selling integrated with third-party e-commerce companies – eBay, Craigslist
- Simplified, easy to use, highly personalized and secure android app
- Integrated map view and location-based search with an interactive and easy to use chatbot

Design and Technologies

Design

GrabOn is designed and implemented based on the Model-View-Controller (MVC) architecture, backed by the Cloud services from the Google Firebase. It has a three-tier architecture with the Application Server, Web Server and the Database Server.



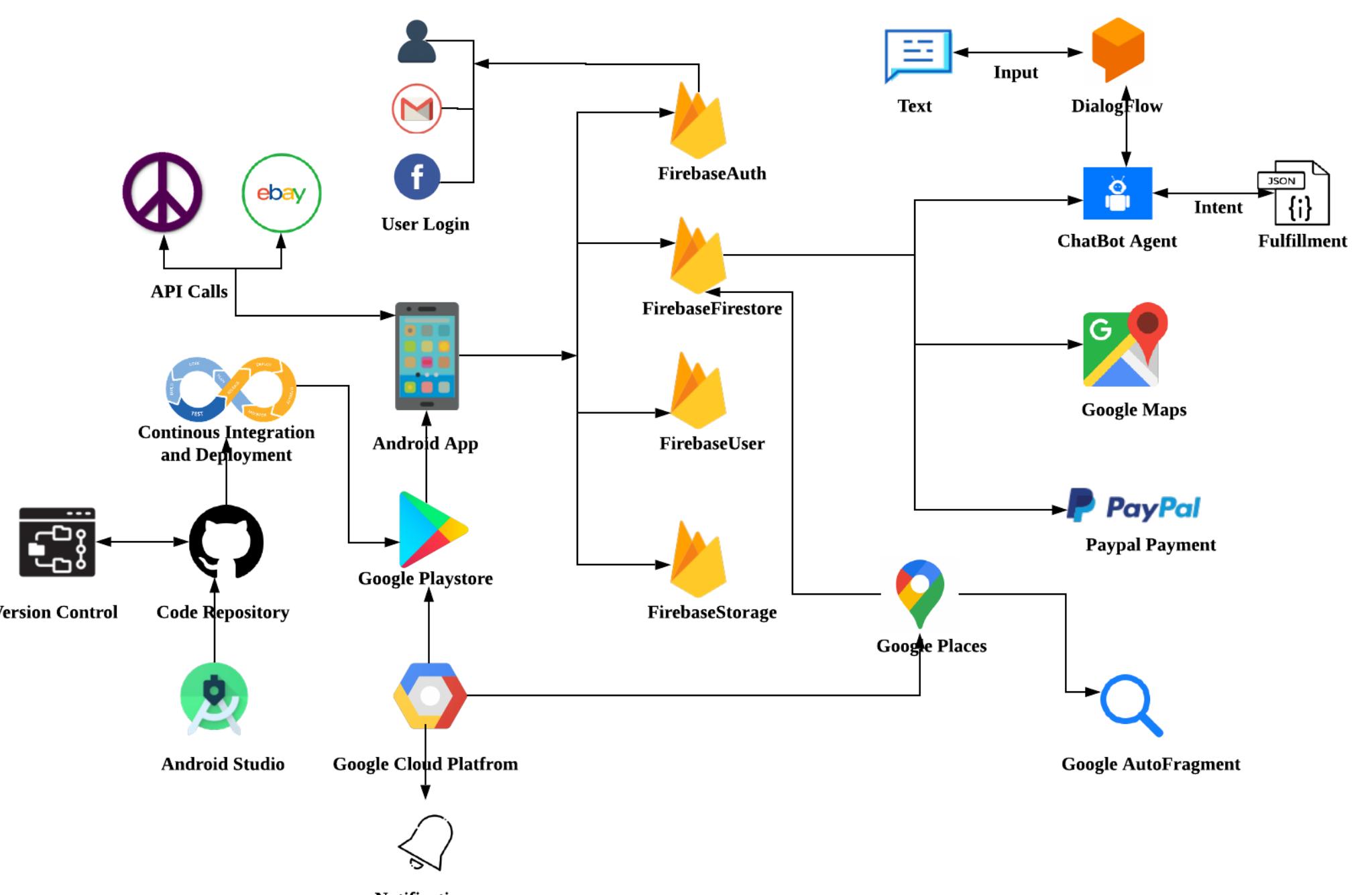
Tools and technologies used:

Android Studio, Java, Node JS, Firebase, Firestore Database, GCP Cloud Functions, REST APIs, Google Maps and Location Services, DialogFlow, Kommunicate, eBay and Craigslist APIs, PayPal Payment Services, Facebook and Google Authentication Services.

Architecture and Android App

Architecture

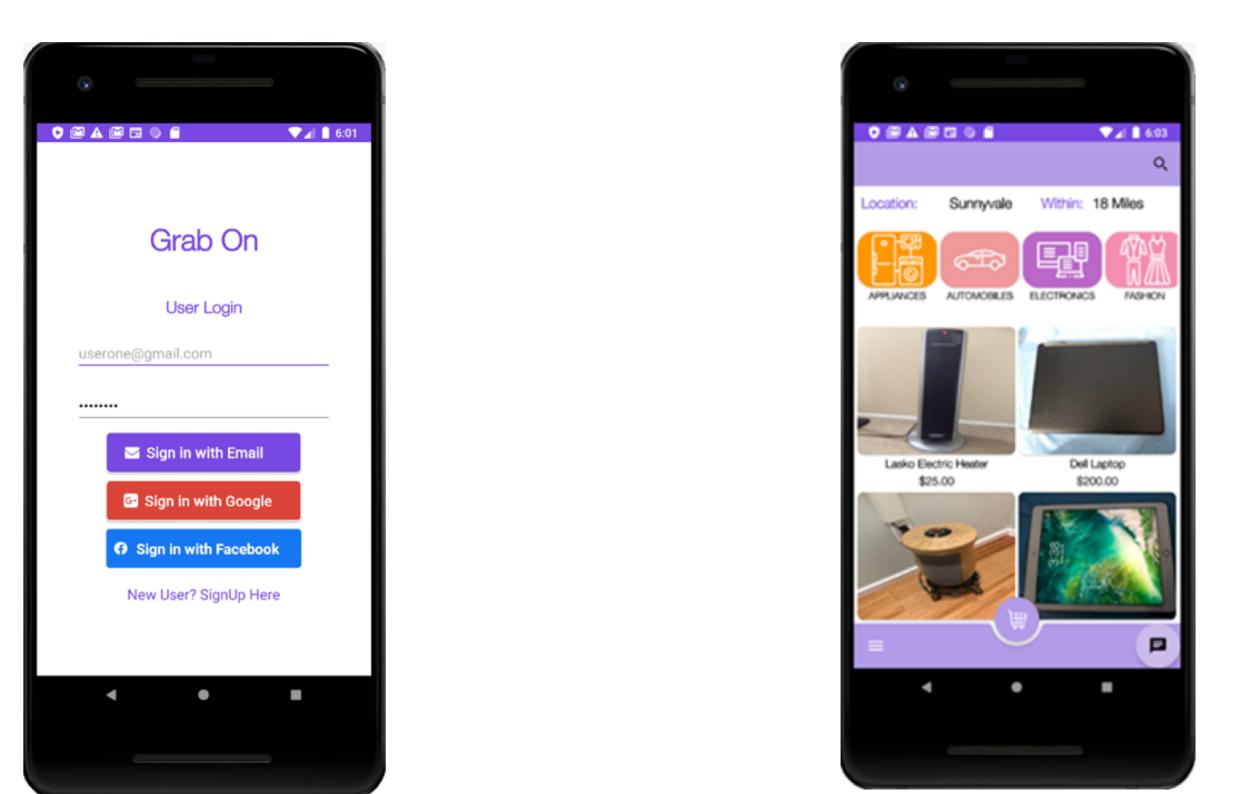
The GrabOn android application is implemented using Java and is deployed on the Google Play Store. This app uses Firebase Firestore authentication, databases and storage services. Google Firebase APIs are used to communicate with the services provided by the Firebase. Google Places and Maps APIs are utilized to dynamically show the items on the Google Maps and can be used for further navigation using the built in Maps to pick up the item. eBay and Craigslist APIs are used to fetch the items from the respective portals and display them along with the GrabOn Items on search or category filtering. With the Chatbot integration using Kommunicate APIs, a user can view/change profile, posted items, search items with the text messages. PayPal Payment Gateway is integrated to handle the item payments between the users for buying the Grab On items.



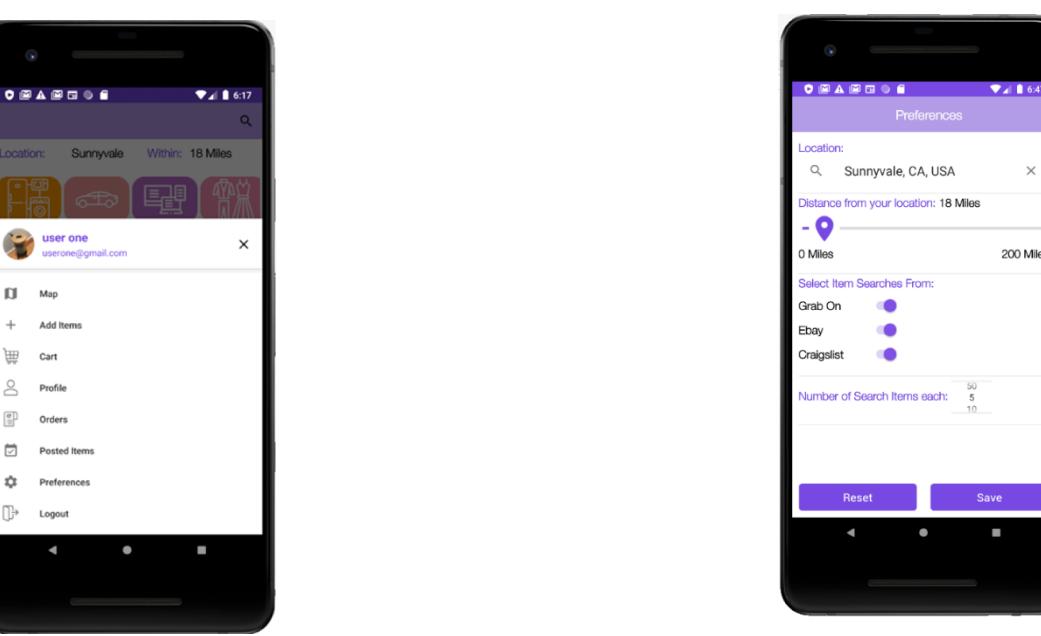
GrabOn Android App

The GrabOn android app is simple, easy to use and intuitive. The reason for making it simplified is to make user comfortable while using the app and also get what they want quickly and without any hassles.

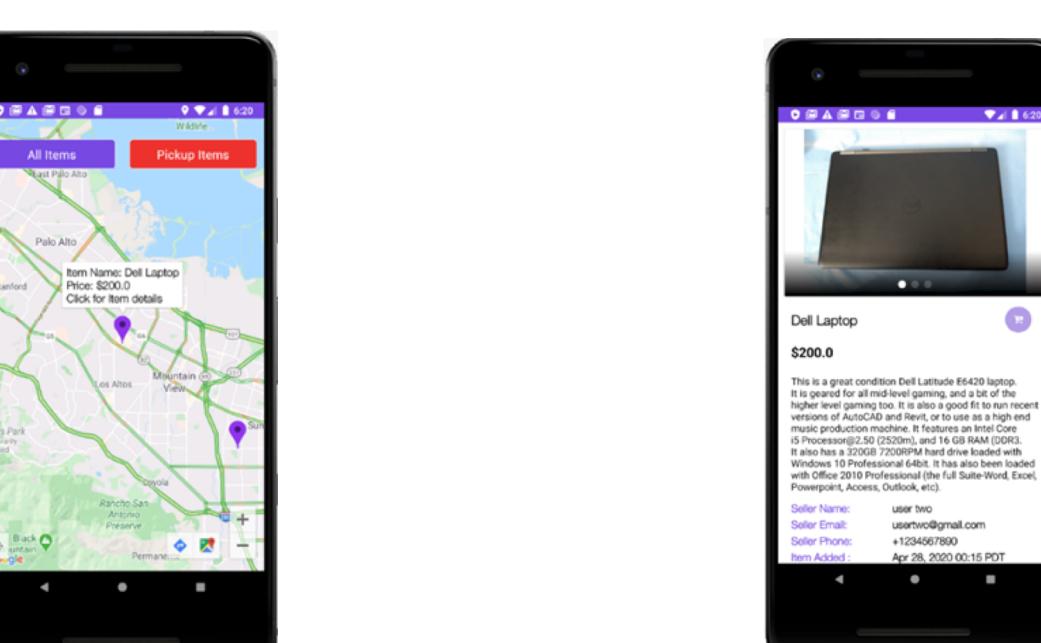
GrabOn can be installed from the Google Play Store on any android phone. Once installed, user can register using their email id or can use the Google/Facebook login. Firebase authentication service is utilized for the user authentication and maintaining the user record. After a registered user login to GrabOn, the home page with the list items on sale is displayed. Home page provides the functionalities like search, setting the location, category filtering, chatbot, cart view and menu to view other options.



User can open the menu items and view the list of the functionalities supported – Go to Map, Add Item, Cart, Profile, Orders, Posted Items, Preferences and Logout. User can set their preferences like preferred location, Distance for items to search, preferred third-party portal to fetch result from, number of items to search and price range.

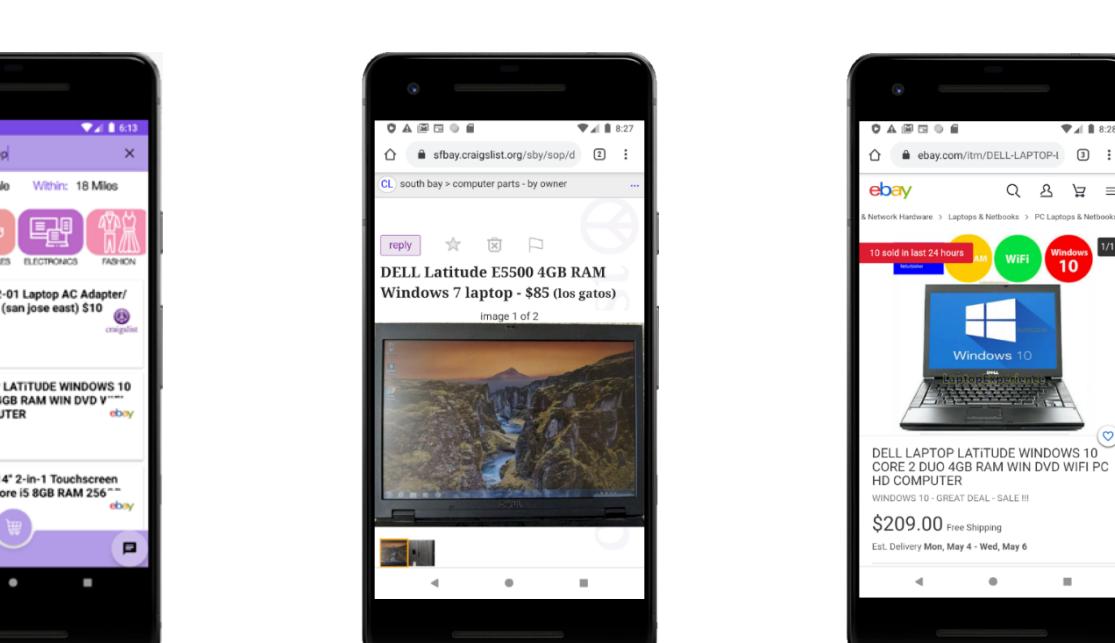


The Map view displays the items posted on GrabOn for sale. The items can be filtered on the map view as well – Items already ordered and pending pickup or display all the items. On peeking an item on the map, it displays the item name, price and on click it opens the item description page.

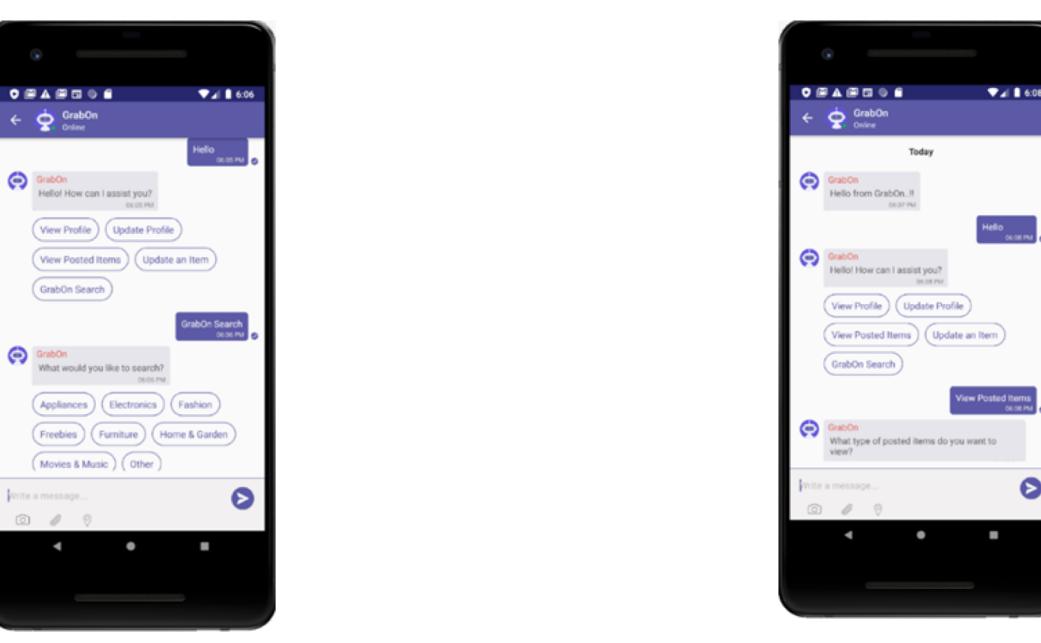


User can use the search functionality to find any item they want. The search will be based on the preference set by the user and will list the items from GrabOn, eBay and Craigslist.

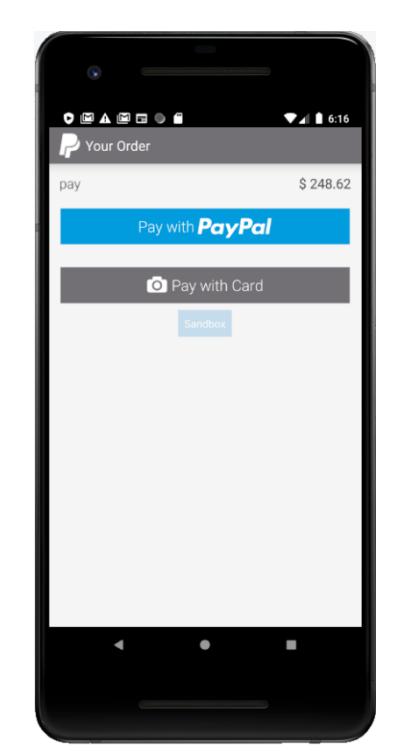
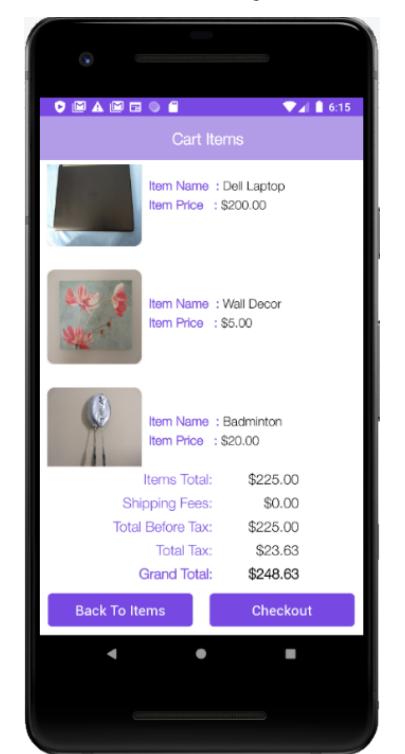
If the user clicks on the item from GrabOn, it will open the item description page. Otherwise, it opens the browser for the link to the item from eBay/Craigslist.



Chatbot is provided to make the things easier and simple for the user. The various functionalities available in chatbot are – View Profile, Update Profile, View Posted Items, Update an Item and GrabOn Search. The user can communicate by typing texts as well as selecting the options provided by the chatbot.



The user can see the lists of the items selected for purchase in the Cart view. It also displays the tax and total amount to be paid. User can see the details on any item by clicking it and can also remove it from the cart. The payment is handled by the PayPal payment services.



Summary/Conclusions

GrabOn is a highly available and fault tolerant application hosted on the cloud. It provides an integrated platform to the users to buy and sell products from various third-party e-commerce companies like eBay and Craigslist. This reduces the effort and time customers spend on finding the product they need.

We did an extensive work in analyzing the cutting-edge technology available in the market to develop this android-based application. Google Firebase is an excellent platform that made the entire project convenient and streamlined.

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