PROJECT ID : 20PJ-IT-12

SYNOPSIS
On

ML Powered
E-Commerce Mobile Application

Submitted In Partial Fulfillment of the Requirements For the Degree of

Bachelor of Technology
In
Information Technology

By

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(SESSION: 2019 - 2020)

DECLARATION

We **Shubhasish ,Vikash chaurasia ,Tarun pal**, and **virupaksh**.hereby declare that this submission is our own work and that, to the best of our knowledge and belief, it contains no material previously published or written by another person nor material which to a substantial extent has been accepted for the award of any other degree of the university or other institute of higher learning, except where due acknowledgment has been made in the text**.**

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CERTIFICATE

This is to certify that Project Report entitle ML powered E commerce mobile application which is submitted by **Shubhasish ,Vikas chaurasia ,Tarun pal**, and **virupaksh** partial fulfillment of the requirement for the award of degree B. Tech. in Department of INFORMATION TECHNOLOGY of Dr. A.P.J. Abdul Kalam Technical University, Lucknow, is a record of the candidate own work carried out by him under my supervision. The matter embodied in this thesis is original and has not been submitted for the award of any other degree**.**

Date: **Supervisor**

ACKNOWLEDGEMENT

It gives us a great sense of pleasure to present the report of the B. Tech Project undertaken during B. Tech. (VIII- Semester) Final Year. We owe special debt of gratitude to **Ms Bindu Rani** for his/her constant support and guidance throughout the course of our work. His sincerity, thoroughness and perseverance have been a constant source of inspiration for us. It is only his cognizant efforts that our endeavors have seen light of the day.We also take the opportunity to acknowledge the contribution of **Dr. Pooja Tripathi** for his/her full support and assistance during the development of the project.We also do not like to miss the opportunity to acknowledge the contribution of all faculty members of the department for their kind assistance and cooperation during the development of our project. Last but not the least, we acknowledge our friends for their contribution in the completion of the project**.**

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ABSTRACT

The purpose of the app is to help a large number of sellers like be it handicraft makers and buyers ,who wants to buy hand made goods. Sellers on this app includes the individual craftsmen ,artists, handicraft makers, fair sellers ,local food item businesses , Vintage and collectibles sellers..etc.

These kind of Sellers faces a common problems like, if they want to sell their products online,they doesn't have a dedicated platform for them .All other e-commerce platforms ,like amazon , flipkart essentially focuses on the merchants selling branded items and buyers who want branded items.Thus their visibility is compromised.

Also if they are able to somehow have a good sale , a major part of their earning never reaches them due to the sales policies made for benefiting the merchants selling branded items at large scale.

Buyers in India , who are fond of buying handmade materials have only the offline means of finding and purchasing them .They have to rely on local shops of handmade items which doesn't offers a lot of variety and Fairs which happens once in a long time and is mostly costs time and money just to reach them.

The aim is to provide a centralized marketplace designed only for this community . This marketplace targets and solves all the problems mentioned above . It provides all the technical functionalist that the major e commerce platforms like amazon ,flipkart provides like user sign up /login , browse and upload items for sale ,purchase and pay online ..etc . All this with high end security , bug free experience ,easy to use and beautiful front end .

The app also solves the two highly needed issue by introducing two relatively new features.

The first problem, which the app focuses on solving is 'how to search for an item which u not know the name of, but do have a pic or the object itself'.This scenario can occur, Like when someone wants a thing he saw in a movie/youtube video. Or someone can have a , real life instance where he uses a thing daily ,Say chapati roller. And now wants to buy a new Chapati roller online ,but is unable to since he only knows the hindi word for it, But not the official english one. Here the app comes to rescue and provides a feature called 'search using ml object detection', which identifies the object in the image provided to app through camera or

gallery of phone. Then the app identifies the object and look for it in the e commerce app,If the same or similar object is available for sale or not.

The second real life problem, Which the app provides a solution is for, The times when one have a list of items written on a paper, be it your weekly grocery shopping items or parts of a sewing machine, one would need to search for the items each time individually per item in the list. For this Instance our app provides the solution using feature called ‘search using text recognition’ , which will just identify all the text in a image , when provided through camera or phone’s gallery. After identifying, it will search for each of the text in the image of the list written on a paper.

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CHAPTER -1
Introduction

The project is an mobile app which is an E-commerce portal .This E-commerce app constitutes all the features of an general e-commerce platform ,plus its customized and focuses on specific kind of buyers and seller ,who are more fond of purchasing or selling hand made goods like statues ,home decor, paintings by artists ...etc.

This app constitutes three kind of users :-

1. Sellers
2. Buyers
3. Administrators /moderators

The app have following features

User end features:-

1. Sign up/login
2. Profile customization and updation
3. Browse Categories and Items for sale
4. Bookmark items Or put Items in cart for checkout/purchase
5. Users can give ratings/comments on items.
6. Buyers can contact directly with sellers
7. Push notifications in app ,triggered when events/updates happen.
8. Users can become sellers.
9. Sellers can putt items for sale or edit them after updation
10. Sellers can monitor their sales and earnings in their dashboard.
11. Support of popular payment gateways like Razorpay.
12. Sellers can mark the status of the delivery of a order they get.
13. Users can see the status of the delivery of the order they do.

Admin end Features:-

1. User authentication
2. Adding and updating Categories and subcategories for items for sale .
3. Removal /banning users.
4. Create dynamic events.
5. Monitor sales.
6. Storing and verifying Sellers documents
7. Verify and complete purchases.
8. Seller money redeem

Machine Learning Powered Features:-

1. **Object Detection :-**With ML object detection , buyers can localize in real time the most prominent objects in an image or live camera feed.
This may help them to search for Items that they do not know name of.

2. **Text Recognition :-** With Ml Text recognition, Buyers can just provide the image of the list of the items they have on a paper. And the app will identify all the text. And then search on the platform for the same.

CHAPTER -2
Literature Survey

According to (Rhodes, 2003), E-commerce is defined as any form of business transaction where the buyers and suppliers connect electronically to enhance business efficiency through lowering transaction and communication costs. E-commerce is growing rapidly around the world. Performing the E-commerce in rural area will make some impact to the community in term of infrastructure, economy, social, cultural, and political.

Physical infrastructure refers to the availability of telecommunication,connectivity and computers, and the presence of supporting infrastructure like electricity,road and transport that enhances the ability of the people to take action based on the accessed information. (Mukerji, 2010). This also gives impact on economy sectors in the rural area. E-Commerce become the important players in the development of regional economies and communities as well as in the elimination of poverty by providing job opportunities, particularly for women and people in lower income brackets. (Kartiwi &Gunawan, 2013). In social impact, it may touch on the level of education; computer literacy and IT skills in the rural area. If E-Commerce is conducted in the rural area,automatically the standard of living will change because of the use of technology. They will be exposed to the outside world that is full of challenges with advanced technology.The impact of e-Commerce in Production and Operations Management is manufacturing.When rural community perform the E-Commerce, at the same time as improving sales and increasing demand will lead to the production of a product or service increases.Another impact is Impact of e-Commerce in Computer Sciences. The development of different network and computing technologies and languages to support e-commerce and e-business. The internet bandwidth is significantly influence the impact of e-commerce to increase sales.

Enabling the computers to see properly unlocks numerous applications in many different fields. From medical image processing with AI, to snapchat filters on your phone, our lives have been greatly improved by it. One of the fields that takes a lot from this technology is eCommerce, our online shopping is now easier than ever thanks to those computer scientists and software engineer researching on enabling the computers to see.

Able to compare images with a group of other images inside the database, eCommerce business nowadays allows their customers to find their favorite items by taking a picture of the item.In the back where business runs, being able to detect what is inside the images also enables businesses to label the items inside these images right away, rather than having labors to do them manually.[5]

CHAPTER -3
Methodology and Technology

3.1 Design

We first review the app analysis document and create structure/sketches/Mockups for the complete system starting from the home page, the storyboard pays special attention to product presentation, checkout process and access to support.

3.2 Design Integration

The final Sketch/Mockup is now converted to responsive cross device and platform compliant XML skin. Now the code for the same is to written using xml and java .Only Frontend aspect is written without developing the backend

3.3 Programming and Database Creation

In this stage of the project, coding of all the processes is done and the backend database management tools are created. Here is where all the mock-ups are changed into real dynamic database-driven functions and responses in app.

3.4 Payment Gateway Integration

We support all major payment gateways, including PayTM ,Paypal ,Rajorpay and UPI payment support. This payment system is integrated to be secure and safe freom the starting.

3.5 Quality Check

Before the app is made live, we put quality assurance test on the system through a meticulous set of rules that includes usability and performance criterion. Final adjustments are made .

3.6 Backend Hosted on a live web server

Firebase cloud services will act as the web server from the starting and special attention will be given on making the server code scalable and non redundent

3.7 Resources

3.7.1 Hardware

- Smart phones
- Processor -average

- RAM -average
- Memory-50 mb

3.7.2 Software

resources	softwares
Operating System	Android OS (all versions)
Language	Java 4+ ,flutter , XML, Node.js
Database	Firebase -Firestore and Firebase realtime Database
Software Development kit	Android SDK and JDk

Table 3.1 Software resources

3.7.3 Technology

- Web technology
- Mobile application technology

CHAPTER -4
Conclusions and Future Work

The app is built with the purpose to achieve the objective and solve the problem as was mentioned. The app have user login login and Sign up . After the login ,the homepage appears which contains the various categories of the Items .Like Men and Women related products, home related ,..etc. Every User which logins to the app is considered as a buyer first . For the user to become seller the option/button is provided in the app.Once its clicked ,The documents/credentials like Id verification ,Bank Account ,..etc is asked from user .Once these are verified by admin ,the user becomes the seller.now users can upload their items for sale in the seller window made specially for them. All these uploaded items are then appears in the catalogue of the app ,for buyers to buy. Buyers has the option to wishlist the items ,Put the items into the cart and then pay for the items in the cart using online payment gateways like paytm,Bank,UPI etc . Now the order is made and receipt will be generated and the notification to the respected seller about the order and delivery to be made.

The app is able to take Image inputs either via phone camera or internal storage.Then the machine learning model is able to identify the item in the image with a probability score. Another Machine Learning Model is able to identify text from images.
These two features are working statistically good. And solves the targeted problem most of the times.

For future we are looking for making The website for the same app with same features. Also we are actively looking to implement the suggestions we get from the users of the app whatsoever. The app needs a little bit marketing to fetch users to use the app. The strong incentive policy, which benefits the seller more than any other e commerce platform., would be enough to attract sellers, and use the app. The buyers for the app, would needed to be informed about the app through digital marketing, And locality based marketing. Since the app focuses on helping local sellers more.

- **App link**- https://play.google.com/store/apps/details?id=io.shubh.e_comm_ver1

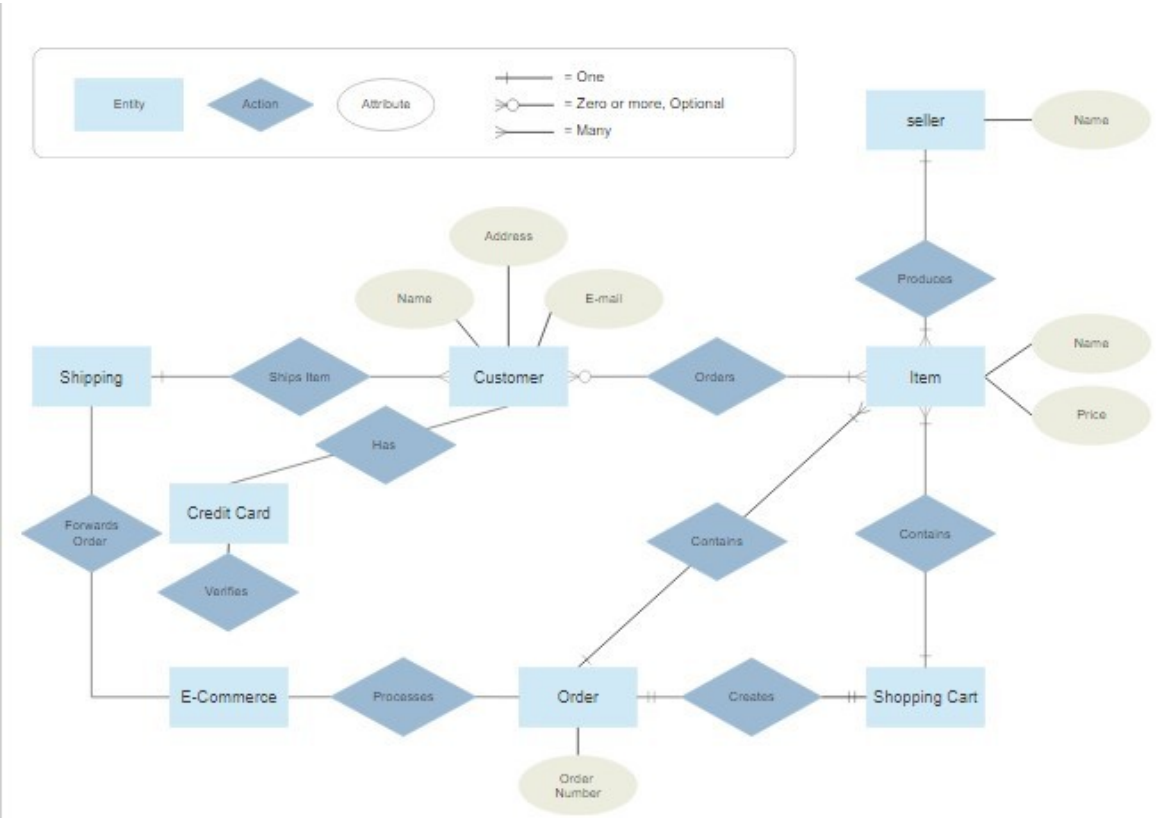

Figure 4.1 Entity relationship diagram of sale model

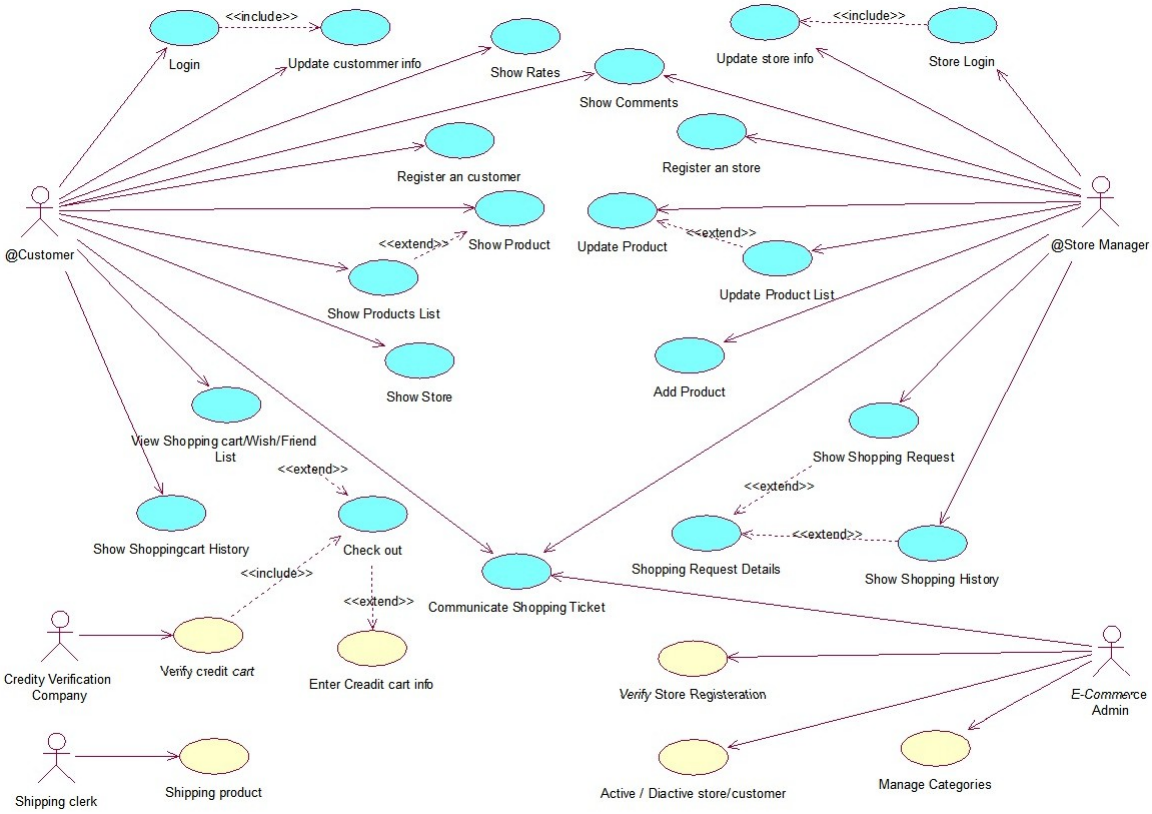

Figure 4.2 Use case diagram of app

4.1 Implemented activities and Features

- Multiple Login/signups are implemented - Google login/signup and email login/signup.
- Database and Server- Online Database is made and connected with the app.The schema and structure design is done and the app functioning and processing occurs accordingly.
- Seller window is Implemented- Any user can register to become a seller and In the seller dashboard seller can upload any item for sale (with pictures and details).
- In the homepage ,all the categories are visible.
- All the uploaded items by seller are visible under their respected categories.
- Multiple level categories system is implemented in the app. Multilevel categories are the Broad categories like Fashion Items , Home Decor Items ..etc ,with each category having its own sub level categories like fashion category can have further categories like Shoes ,Watches ..etc
- UI is polished in all of the sections of the app.
- Machine learning model for identifying objects is made and integrated in the app.
- Machine Learning model for identifying text from images or camera is also implemented.
- Many Features for sellers are made like Seller dashboard , where it can track the order it gets, the orders he has delivered , the money he has earned ,his listed products ,..etc
- Seller can also set the status for the order he gets, like seller can mark the order packaged , delivered ,shipped,etc.
- The Liked items functionality for the buyers is also made, Using which the buyer can mark/like any item his favorite, which will save the item in the list of liked items, Which later the buyer can access/view through side navigation drawer.
- The Buyers can see for the same status in the placed order screen
- Push Notification System is integrated in the app, Which notifies the users about the event related to them.
- From Ui perspective , the app is modeled using materiel design guidelines(like using bottom sheets, Card views etc) so that the it soothes the eyes of the user and makes the user experience memorable.
- Also Day Mode/Night Mode UI switch is implemented in the app.
- The whole App is made using One activity, many fragments design , recommend by google , so that the app speed in every screen will be phenomenal.

- The Design architecture which the app uses is, MVP – Model View presenter. Which is the Source Code/Project design guideline. Which basically divided the code into three layers. The Business logic layer ,The UI code layer and the database call layer.
- In MVP, the Presenter contains the UI business logic for the View. All invocations from the View delegate directly to the Presenter. The Presenter is also decoupled directly from the View and talks to it through an interface. This is to allow mocking of the View in a unit test.
- **App link**- https://play.google.com/store/apps/details?id=io.shubh.e_comm_ver1

CHAPTER - 5

App Screenshot

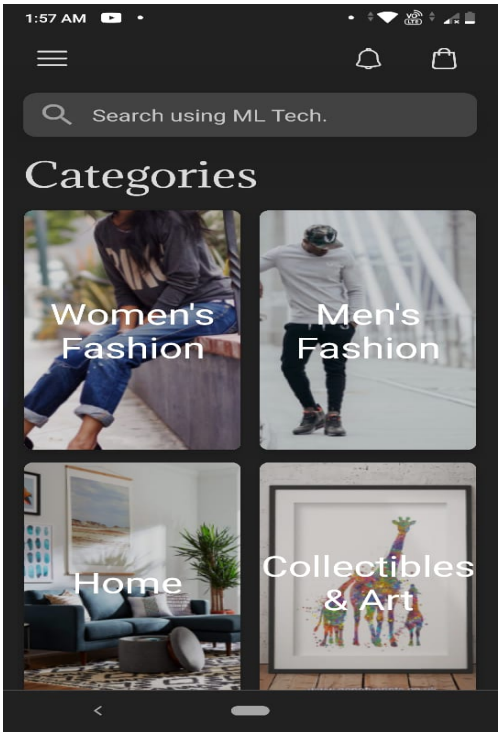

Fig - Categories Page

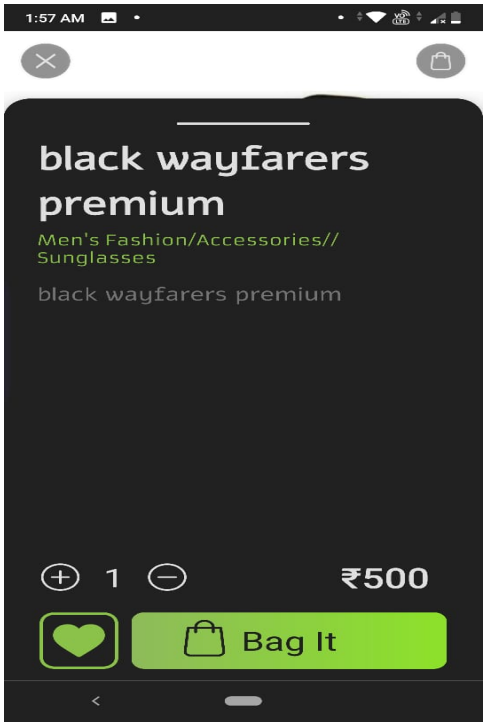

Fig- Product Page

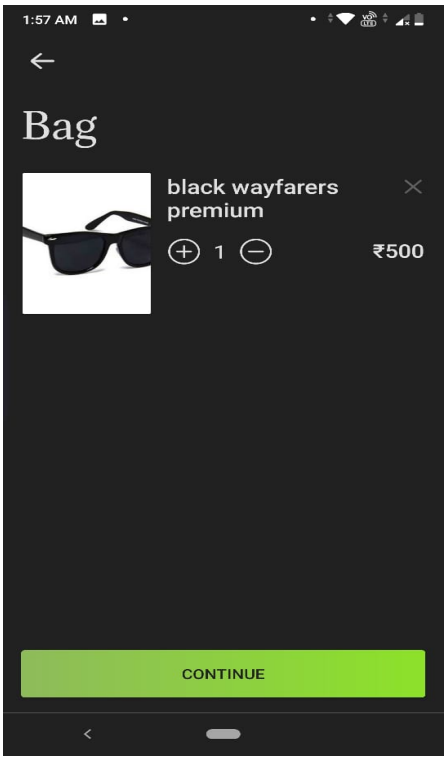

Fig - Bag / Cart page

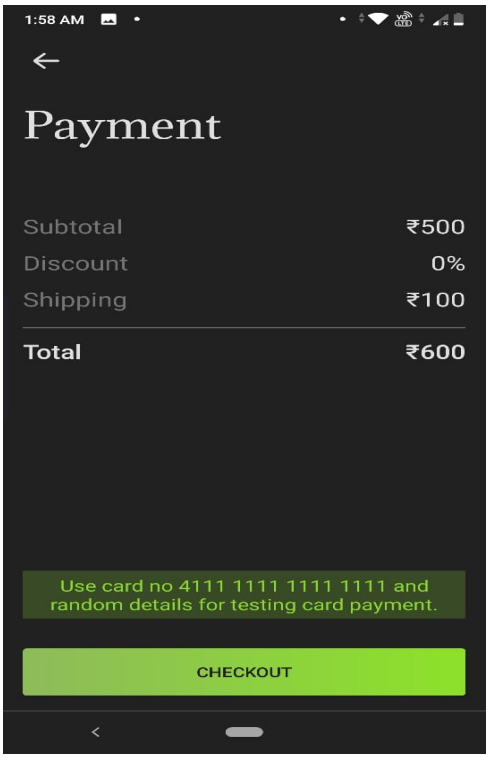

Fig - Payment Page

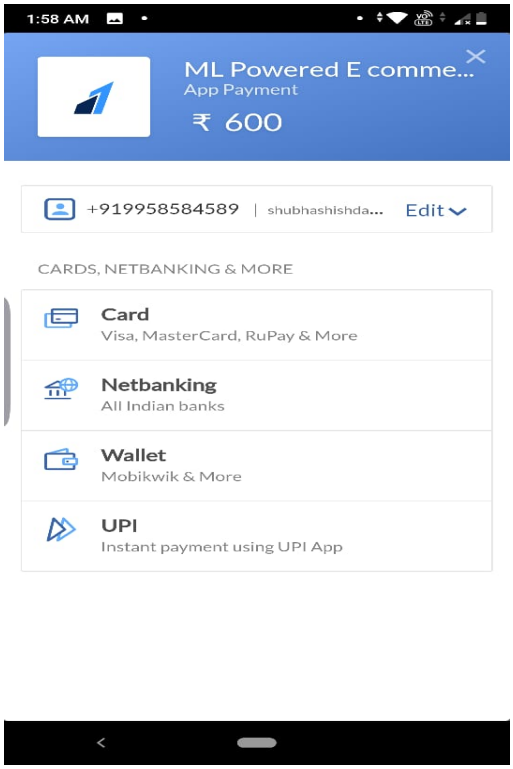

Fig - Payment Window

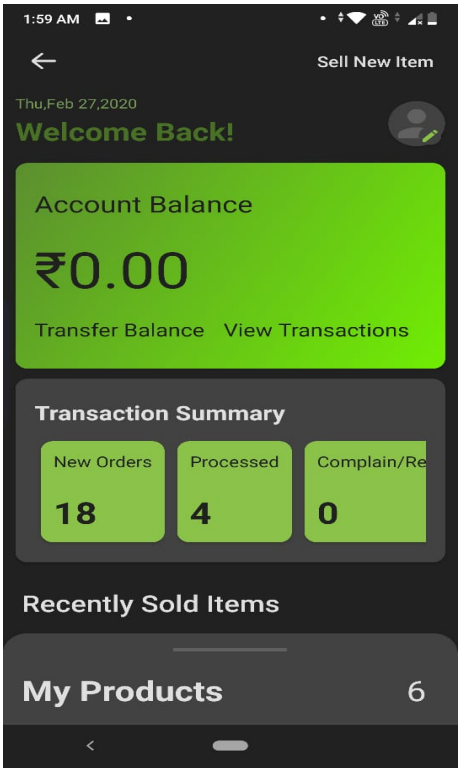

Fig - Seller Dashboard

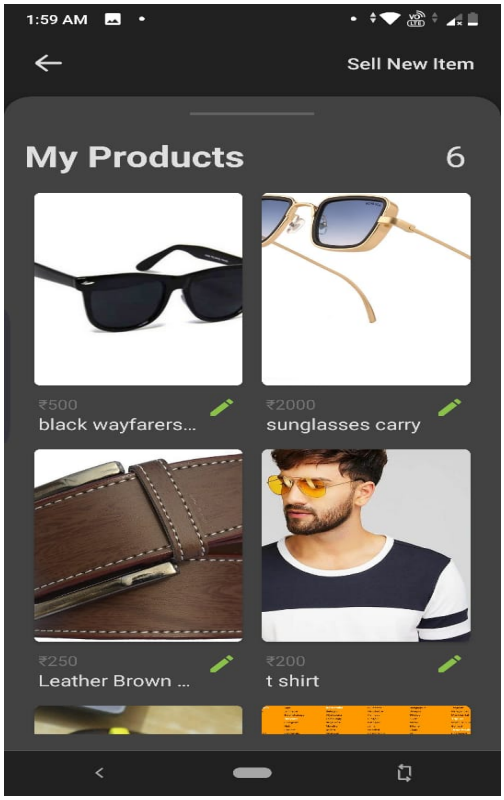

Fig - Seller Dashboard sub screen

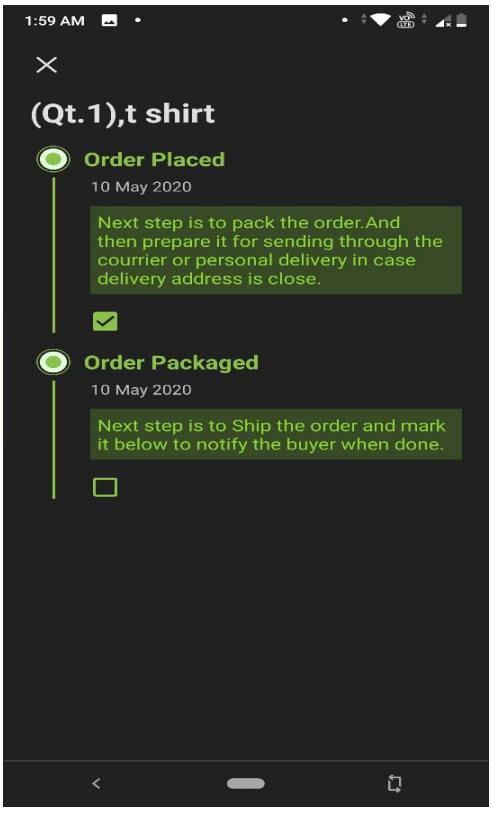

Fig- Status setting order features

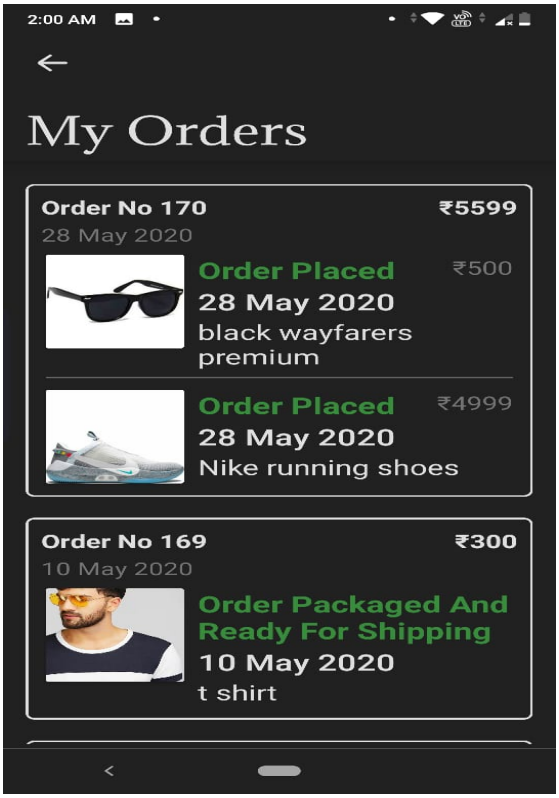

Fig - Order list of Buyer

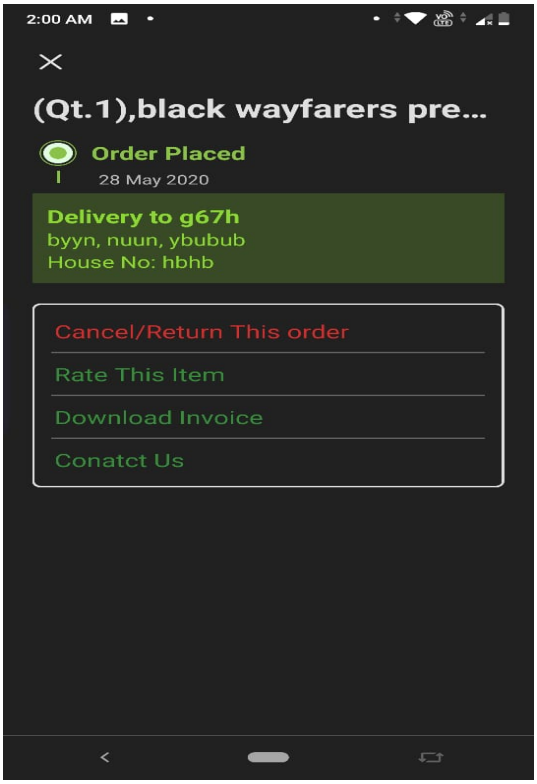

Fig - Order Details screen

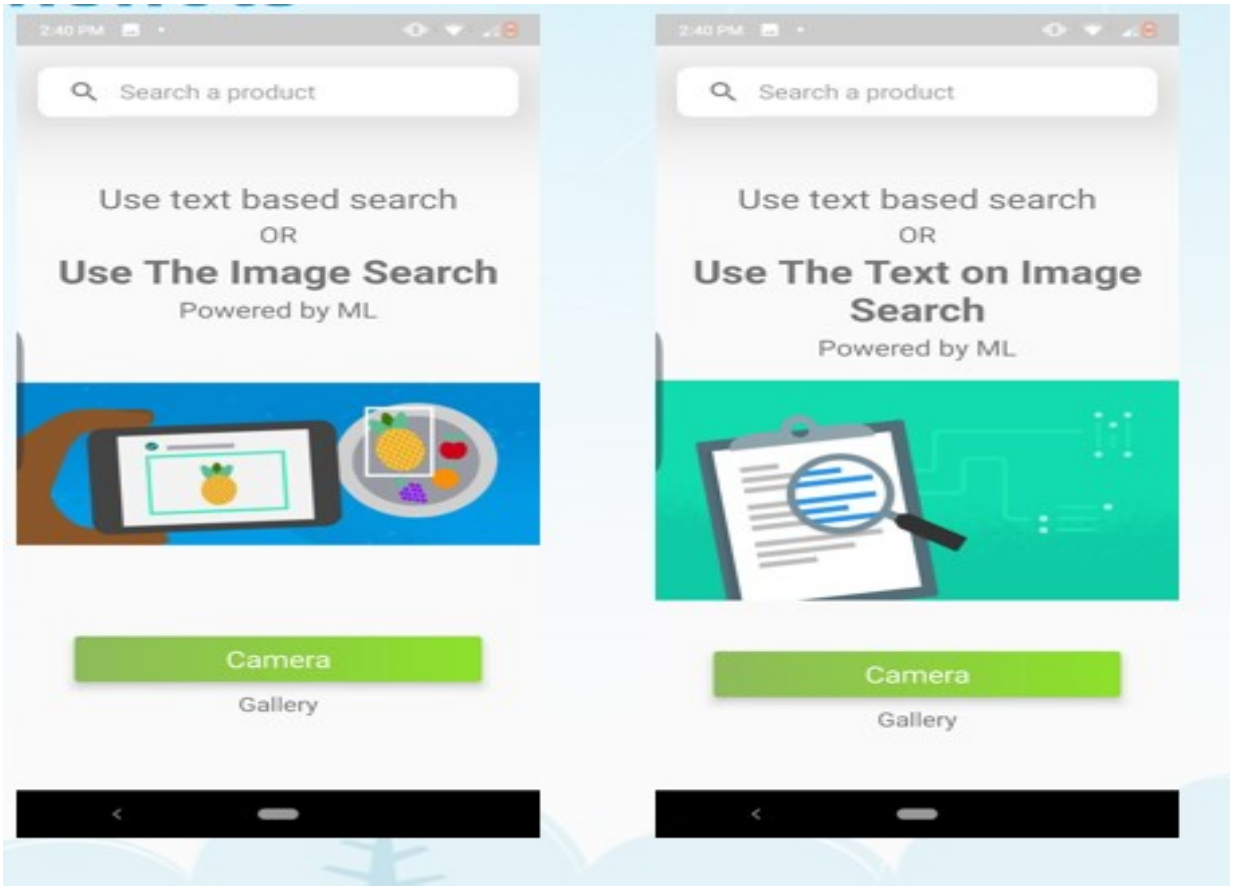

Fig - ML Image Recognition Page

Fig - ML Text Recognition page

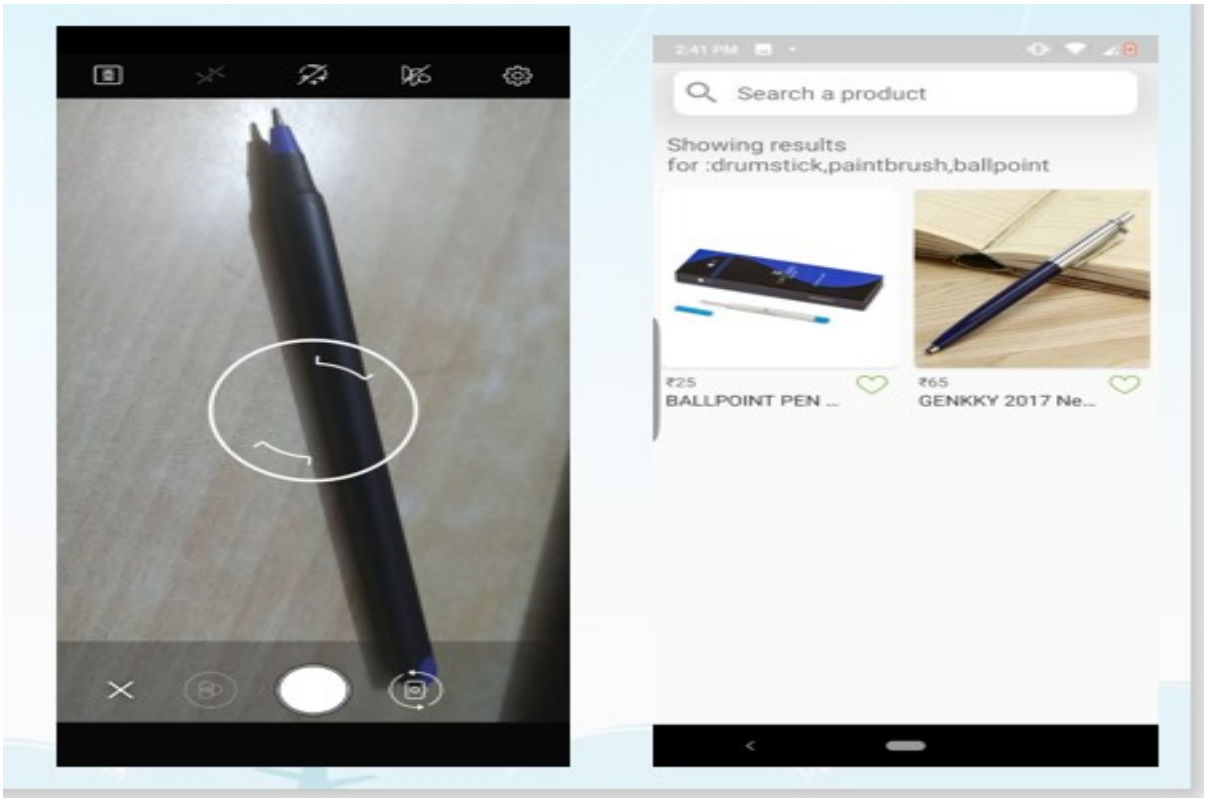

Fig - Search by Image

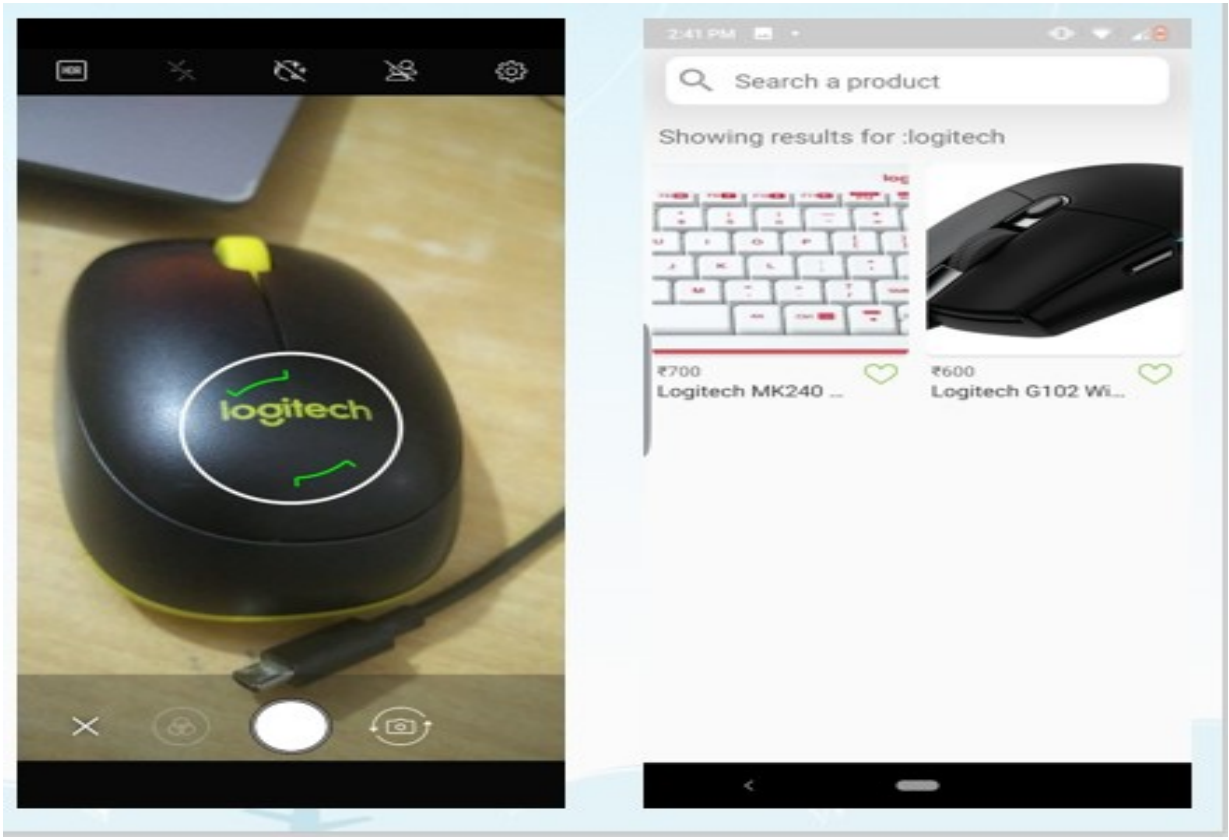

Fig- Search by Text

PROGRESS REPORT VII SEMESTER

	Brief Description of Work
First Review	**Search by keyword/text functionality is implemented -** User can search the database for a product using any keyword
Second Review	**The Ml model is integrated -** The firebase Mlkit for object detection is made and integrated.The object detection and recognition is working very well.
Third Review	**The ML model is integrated with the Search by image functionality. And The search by image functionality is working well and expected**
Final Review	**The UI is polished to look good. And Unit testing and integration testing is done**

PROGRESS REPORT VIII SEMESTER

	Brief Description of Work
First Review	**Multiple Login/signups are implemented -** Google login/signup and email login/signup. And **Database and Server-** Online Database is made and connected with app.The schema and structure design is done
Second Review	**Seller window is made -** Any user can register to become a seller and In the seller dashboard seller can upload any item for sale (with pictures and details) and In the hompage ,all the categories are visible.
Third Review	All the uploaded items by seller are visible under their respected categories. And Multiple level categories system is implemented in the app
Final Review	UI is polished in most of the sections of the app.andUnit testing is done and Corrections are implemented.

References

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