

FARM GUIDE

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Abstract

The scope of the paper is to help the farmers who are in need of machines for farming to get at a cheaper rate and also help the sellers to sell the products by just posting in the application. It is a user friendly android application which has chatbot to assist the users. This application helps the farmers to compare various products price. This application also lets farmers buy storage space to store their products similarly like buying machineries. This app helps in productivity of crops as farmers get the required equipments through this platform.

Key words: Android, chatbot

Introduction

Ecommerce is a reasonable term to use to describe the method of shopping on the internet. It is the method of purchasing and selling goods and services, or the transfer of funds or data through an electronic medium. The internet, in particular, is a network. Ecommerce and e-business are words that are often used. The main goal of this project is to assist farmers in increasing their profitability by facilitating direct contact between farmers and end users. Our project is focused on the farmers' value of having their goods sold at the best possible price online. The key users of this website are the farmer, the client, and the administrator.

Smartphones have made the usage of mobile applications popular. In today's world the farmers are facing many difficulties due to lack of modern machines. Also they find difficult to sell their products for good price. In India there is wastage of cultivated crops due to lack of storage places. In our exploration, we developed a proof-of-concept system that addressed the issues of farmers.

Agricultural E-commerce promotes successful trade by promoting a range of business models, including multi-suppliers, e-sales, and various forms of auctions. E-commerce actually lacks completely automated business processes, necessitating a large amount of manual effort on the part of consumers. As a consequence, our project aims to resolve all gaps in the E-commerce business process. Our system addresses the needs of farmers to sell their products, buy necessary items for farming, rent modern machines and make storage places available for storage. Also our system reduces unnecessary cost for both farmers and suppliers.

The rest of the paper is structured as follows. We review the relevant technology in Section V. In Section VI, we discuss a proof-of-concept system to address the farmers issue and its implementation. Section VIII is the conclusion including a discussion of our future direction.

Literature Survey

This application contains separate login for customers and farmers. There is a guest login for viewing the products for purchasing. The application contains chat option between customers and farmers. Multiple language option for ease of understanding is an advantage. Guest login members cannot buy or view items. [1]

This application can be used to book tractors. Each time user has to login using one time password. It is a secured application. Tractor can be booked instantly without even going out of the home. Each time user has to login using otp. Users may find it difficult to use this application as there is no support available. [2]

This website will guide the farmers to access new farming techniques, compare current market rate of different products, the total sale and the earned profit for the sold products. Also this website builds a platform for farmers to ensure greater profitability through end user communication. It will act as a unique and secure way to perform agro-marketing. The farmers can fix the rate for their product is an advantage. The users may find it difficult to access the website. [3]

AGROMART is stock trading in which farmers can ask for the highest bid price for their stock to be sold and can earn profit. Also, farmers can register themselves and have various other facilities such as feedback, contact to the wholesalers, price notifications etc. Farmers can earn more profit from this idea. The implementation of this idea is difficult. [4]

This web application provides the farmers to sell their products across the country. Also this application provides the current market rate of various products and the total sale happened. This application also provides profit earned by using this platform. They also provide SMS facility to get the detailed information about the market. Since it is a web application, many farmers may find difficult to use this application. [5]

The web application can be used to sell the products of farmers through online. It provides direct farmer to customer sales of products. They can get touch with market rate through SMS or E-Mail. Many farmers may find difficult to use this application because of lack of knowledge. [6]

It is a user friendly application for farmers to sell their products online. It reduces the chance of corruption. They can get knowledge of the schemes provided by the government. There is no chatbot to assist the farmers. [7]

This android application can be used to hire tractors and other mechanizations at a normal rate. It can be used to adopt traditional farming method using these machines. Many users may find difficult to use this application as it not available in regional languages. [8]

This application can be used to rent farming equipments. They can also check the availability of the equipment. They can also book the equipments in advance. Many users may require more time to adapt to use this application. [9]

This article states the importance of using modern technologies in farming to increase the revenue of the farmers. It makes use of two stage auction method. [10]

The article explains the need of e-NAM application. It is virtual bidding application. The farmer can directly sell the goods without visiting the place. The farmers can only choose the best bid among the available list, which is a dis-advantage. [11]

The article provides details of the seed and its price. This web application is developed to remove the third party sellers of seeds and make it directly available to farmers. [12]

This article provides the necessity of storage places. Due to lack of storage places, most of the cultivated products are wasted. In our application farmers can rent the cold storage places to store the food. [13]

The article states that due lack of infrastructure there is loss of food wastage. Our application can overcome these defects by renting storage places. [14]

This article states how latest technologies have been used in agriculture sector. This survey provides details about various technologies. [15]

This paper presents an overview of mobile application focused on agricultural sector currently available in the Google Play Store. The paper provides scope of the application discussed. [16]

The article explores how mobile applications have impacted farmers in their farming activities and how innovative mobile applications have influenced them. [17]

This paper provides the usage of chatbot in the country and its need in the application. Multi lingual chatbot is important in the present age. [18]

This article provides detailed information on mobile phone and android application usage in India. It is one of the important factor for developing this application. [19]

This paper provides detailed information on usage of mobile phones by farmers. It is one of the most important study for this application. Based on this details the reach of this application can be guessed. [20]

This article plays a vital role in showing the impact of mobile phones on farmers. These articles play a vital role in developing this application. [21]

System Analysis

1) Existing System

- a) For farmers to sell their products, there is no computerized system. The farmers need to go to market with their goods to sell them. This involves more work. Also it involves transportation cost.
- b) There is no transparency. The farmers are not able to get the correct price for their product.
- c) Due to lack of storage places, farmers are not able to store their goods.
- d) There is no inclusion of modern technology in farming. Because of this there is no involvement of youngsters in agriculture.
- e) Most of the farmers are facing language problems while using mobile phones. Because of this most of the government online application are not so success.
- f) Due to involvement of third parties, the price of seeds, pesticides, fertilizers increases.
- g) Because of bidding system, farmers are not able to get profit. Even if the demand for the product is high, farmers are not getting profits.

2) Proposed System

- a) This system provides a mobile application in which the farmers can sell their products directly to merchants and consumers.
- b) By using this system, farmers can mark the selling price of their goods. So farmers can get profits.
- c) This system reduces the transportation costs and broker fees also.
- d) By using this system farmers can store their goods in cold storage places available in the application.
- e) As a path to modern agriculture, this system provides way for farmers to rent modern machineries, tools etc and use them in their fields especially during harvesting. Due to this labour work is reduced.
- f) The farmers can purchase seeds, pesticides, fertilizers using this application without involving any commission fees.
- g) Inorder to make the system used by all farmers, a Chabot application is made in regional languages to clear their doubts and make them use this application.

Modules

a) Administrator

- 1) Take care on the performance of the android application
- 2) Remove products from buyer list
- 3) Provide periodical updates
- 4) Maintain integrity of the application.
- 5) Prevent the application from crashing.
- 6) Take care of the security of the application.

b) *Farmers*

- 1) Login to the application and purchase seeds, fertilizers, pesticides.
- 2) Rent modern machines for ploughing and cultivating.
- 3) Rent cold storage places to store their goods and prevent them from spoiling.
- 4) Add the cultivated products to the list, so that other users can see and purchase it.
- 5) Farmers can set the price for their cultivated products.

c) *Merchants*

- 1) Add their respective products to the selling list. They may be seeds, pesticides, fertilizers etc.
- 2) Buy cultivated products posted by farmers like onions, potato, rice, wheat etc.
- 3) Add their machines for renting, which can be used by others by paying some rent.
- 4) Post storage places which can be used by farmers to store their products.

Background

a. *Firebase Database*

Firestore is a platform developed by google for creating mobile and web applications. In 2014, Google acquired the platform and it is now their flagship offering for app development. The Firestore platform has 18 products split into three groups: Develop, Quality, and Grow. The Firestore realtime Database is a cloud-hosted database. Data is stored as JSON and synchronized in realtime to every connected client. When you build cross-platform apps with our iOS, Android, and JavaScript SDKs, all of your clients share one realtime Database instance and automatically receive updates with the newest data. The firestore is used as backend database for this project.

b. *Android Studio*

Android Studio is the official integrated development environment (IDE) for Google's Android operating system and designed specifically for Android development. Kotlin replaced Java as Google's preferred language for Android app development. As an open source platform, one of the goals of Android to enable developers to create applications that utilize the features the mobile device has to offer and to tailor its features to the needs of the consumer. Using Android studio our mobile application is developed. Kotlin language is also used.

Proof-Of-Concept System

Most of the farmers at present do not own modern machines for farming. They find it difficult during cultivation. After cultivation most of the farmers take their products to market for selling which involves transportation costs. Also there is wastage of products due to lack of storage places. Using the phone's Internet capability an android application is developed to address these issues.

The various modules are

- Login page
- Manage Account
- Add items to selling list
- Buy items

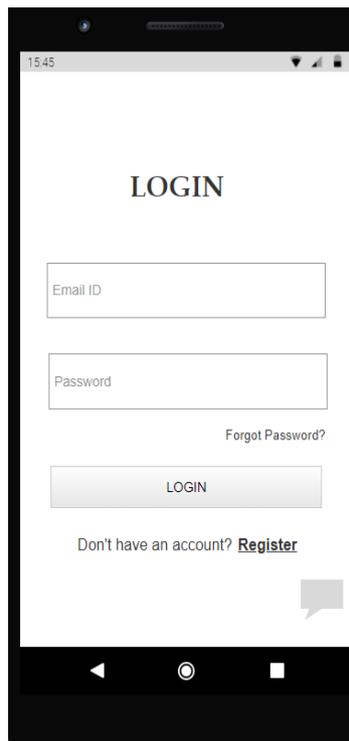


Figure 1. Login Page

The application opens with login page. The user can login if they have created account already or sign up option is available to create an account. The account can be created using email. If the user forgets the password he/she can retrieve it using “forget password” and change it. For creating an account the user needs to have email id, mobile number as mandatory detail. The chatbot will be present in the application to assist the users if they have any queries. The chatbot will be trained in the regional language so that the users can use it efficiently. The user can interact with the chatbot to get their queries solved.

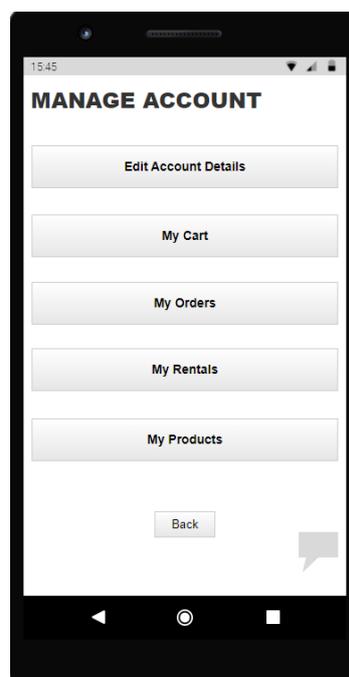


Figure 2. Manage Account

Manage account helps the users to take care of their account. In manage account the user can see the products added to their cart. The user can also view their order history. If the user is also a seller then he/she can see the products posted by them and edit the details. If the user wants to change the registered number or email id the user must come to this section and then edit the details. A link will be sent to the old email id and by the help of that link the user can change details.

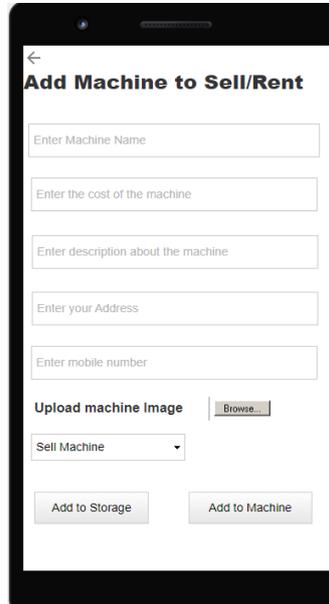


Figure 3. Add items to selling list

For selling their machines/products the user must enter the necessary details and then the user can post the item and then it gets displayed in the buy page section.



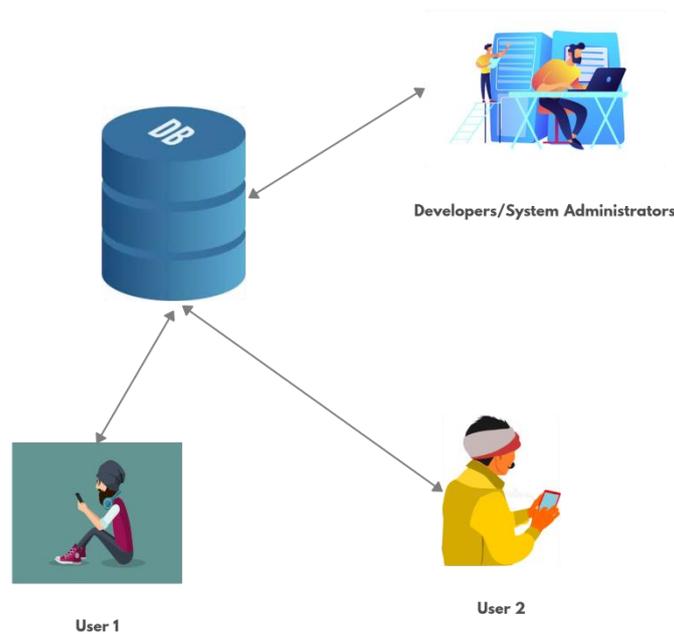
Figure 4. Buy items

In this modules the machines posted for selling or renting is displayed here. Users can we various products and filter the posted items according to their liking. The posted machine will contain pictures, description about the product, cost, location and contact details about the seller.

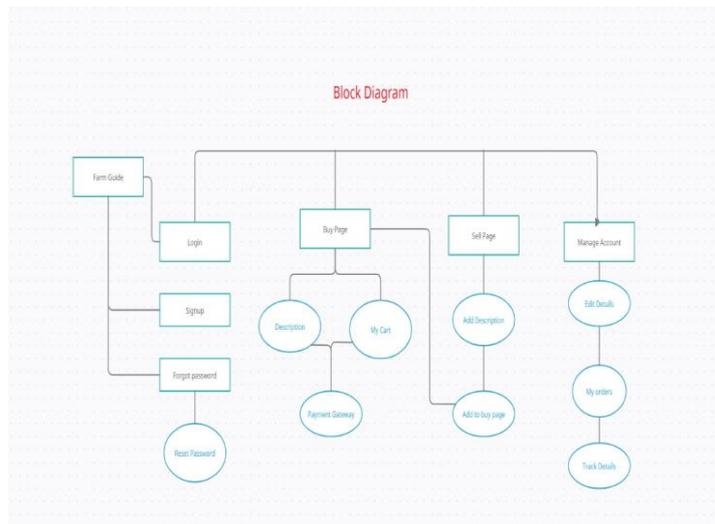
Testing the application through the emulator as well as on an actual Android device worked as expected.

System Design

a) Architectural Diagram

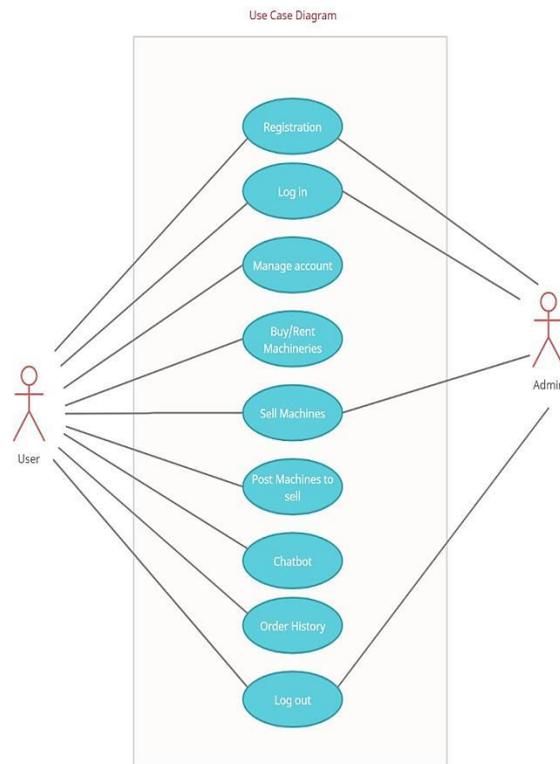


b) Block Diagram



c) Use case Diagram

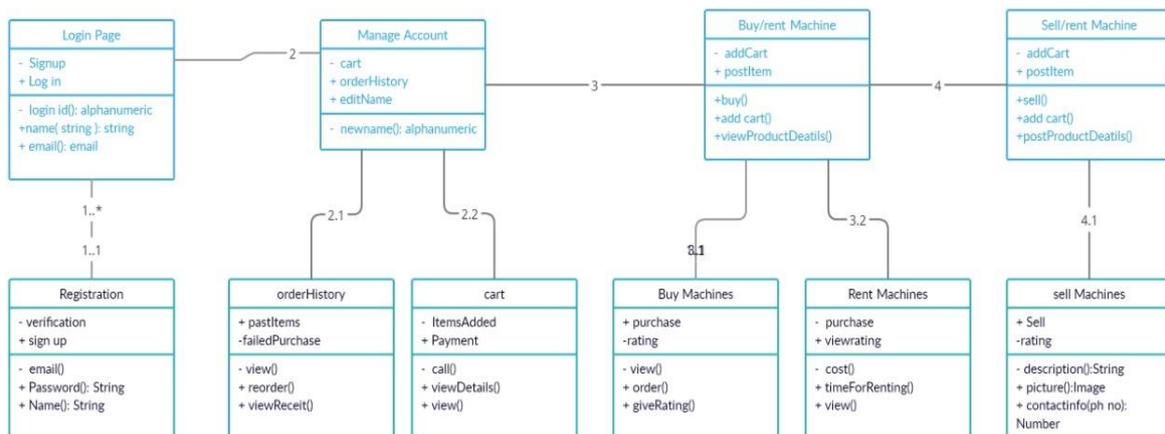
It is a behavioral diagram used for use case analysis. Use case diagram is used to provide practicability provided by system in terms of actors, their goals and dependencies between those use cases. It is used to gather requirements of internal and external influences.



d) Class Diagram

Class diagram is a structure diagram. It shows system’s categories, their attributes and relationships. It can be used for data modeling also. It is used to visualize object oriented systems.

Class Diagram



Conclusion and future work

Farming poverty is triggered by a lack of knowledge of advanced facilities or their unavailability. Regardless of the labour and therefore the output done by the farmers, the farmers are robbed by the Agents in today's economy, resulting in poverty. The Android platform proved to be capable of solving farmer’s issue. The smartphones has made everyone to use the internet. Our application will be useful for farmers to sell their goods. They can also reduce manpower involved during cultivation.

Farm guide helps farmers to purchase machines and lets them choose among the variety of products available on this platform. Farmers can also sell their products in this platform both at retail and wholesale. GPS location are being planned to be added in the near future. Chatbot is inbuilt inside the application to help the users have a user friendly experience.

Hire service equipment may also have different functions, providing the farm family with even more benefits. Using Farming produces higher yields and saves time. Costs can be reduced as the company becomes more effective. This is a possibility to higher the level of income for the agricultural family. Importantly, productivity improves even more because tools, equipment, and machinery are not left idle for long periods of time, but instead are rented out to other farmers in the region.

Future development is planned to integrate additional communication capabilities to give the smartphone the ability to allow it to communicate with the buyers and seller within the application with the help of internet.

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