Mobile App for Direct Market Access for Farmers

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***Abstract*—The Pick Fresh app functions as a mobile-centric interface for connecting local sellers with local consumers, thereby facilitating hyperlocal commerce through increased accessibility and communication. The system enables users to find local sellers and send direct product inquiries through an intuitive interface. Upon sending a product inquiry, the seller can either approve or decline it. If the inquiry is approved and the seller is within a 1-kilometer radius of the user, the app automatically sends a location-based notification to inform the user. The application of GPS proximity alerts in this system enables timely and context-sensitive interactions, greatly improving the speed and reliability of local product exchange.**

One of the basic innovations of the Pick Fresh app is the support of multilingualism, allowing users to access the app in their preferred language—Tamil, Telugu, Kannada, Hindi, or English. This is particularly important in a geographically dispersed region where languages differ, as it bridges the communication divide and allows the platform to become inclusive to more people. Through the support of multiple languages, the app enhances user engagement, especially among non-English speakers, thereby providing equal access to local online shopping platforms. By offering regional language support, not only is the user experience enhanced, but so are the local vendors and consumers who otherwise remain excluded from the online marketplaces.

***Index Terms*—Android Application, Agricultural Marketplace, Local Commerce, Seller-Buyer Interaction, Location-Based Services, Government Schemes, Multi Language Interface, Direct Market Access**

I. INTRODUCTION

Motivation: The motivation behind the Pick Fresh application is to revolutionize localized commerce. By bridging the gap between users and nearby sellers, breaking language barriers, and facilitating efficient communication, we aim to enhance the shopping experience. Location-based notifications and multilingual support create a user-friendly platform that fosters seamless interaction between buyers and sellers.

Problem Statement: Existing commerce lacks easy discovery of nearby sellers and efficient user-seller communication. Language barriers and absence of location-based alerts limit engagement. This application aims to bridge these gaps by enabling multilingual support, location-triggered notifications, and seamless request processing, enhancing localized commerce for improved user interaction.

Objective of the Project: The objective of the Pick Fresh application is to enhance localized commerce by connecting users with nearby sellers, offering multilingual support, and enabling efficient communication. It aims to break language barriers, provide seamless product request handling, and utilize location-based notifications within a 1-kilometer radius for improved user experiences and streamlined interactions between buyers and sellers.

Scope: The scope of the Pick Fresh application encompasses facilitating user discovery of nearby sellers, offering language options (Tamil, Telugu, Kannada, Hindi, English), enabling product request submission, seller acceptance, and location-based notifications. Its focus is on enhancing localized commerce, fostering multilingual support, and optimizing communication for streamlined buyer-seller interactions.

Project Introduction: In the realm of modern technology and commerce, the proposed Android application marks a significant stride towards redefining the way users engage with sellers. With the ever-expanding global village, the ability to connect with nearby sellers seamlessly becomes paramount, and that's where this application comes into play. This introduction sheds light on an innovative solution that empowers users to not only discover sellers in their vicinity but also initiate product requests tailored to

their preferences. One of the standout features of this application is its inclusivity, allowing users to navigate and communicate in languages that resonate with them the most. By offering language options like Tamil, Telugu, Kannada, Hindi, and English, the application transcends linguistic barriers, making it accessible to a diverse user base.

In this dynamic ecosystem, the application fosters a symbiotic relationship between buyers and sellers. Sellers have the autonomy to accept product requests, establishing a sense of collaboration and control. When a request is accepted, the application harnesses location-based technology to ensure timely and contextually relevant notifications when the seller's proximity is within a 1-kilometer radius of the user. By amalgamating location-based notifications, linguistic flexibility, and seamless transaction management, the application not only revolutionizes localized commerce but also cultivates an immersive user experience. As a student, I am intrigued by the potential this application holds to reshape the dynamics of buying and selling while addressing the intricacies of modern communication and community engagement.

II. LITERATURE REVIEW

Online shopping has changed the way people buy things, making it easier and more adaptable. In 2017, researchers P. Yogananth and colleagues created a system for online product bidding. This lets buyers choose the items they want, and sellers can offer competitive prices. Their study looked at how mobile internet and digital payments impact shopping habits, especially in India, where buying electronics online is popular. They also explored having online auctions, which make shopping more engaging and allow prices to be decided by how much people want the products.

In 2021, Hafizur Rahman and his team built “Bid & Buy,” a platform where buyers and sellers can interact easily. This system is organized to help individuals, businesses, and institutions make smooth transactions. It boosts e-commerce by making the bidding process quick and open. Buyers and sellers can communicate live on this platform, which can change the market by ensuring fair access and better pricing, particularly in places like Bangladesh.

In 2018, Vincentius Riandaru Prasetyo worked on finding the cheapest products across different online stores. He used a method known as the K-Means clustering algorithm to compare prices on platforms like Bukalapak, Lazada, and Blibli. This technology helps find the best deals quickly, but the results can vary based on how products are grouped. This highlights the need for smart tools when shopping across various stores to find and categorize products effectively.

In another study in 2022, researchers including Sonali Patil explored the use of IoT and blockchain in renting vehicles. They focused on the delivery process, dividing products into basic, shopping, and special goods to assess customer satisfaction. Their findings showed that customers are happier with the delivery of basic and shopping goods. This suggests that delivery strategies should consider the type of goods to enhance customer experience in online shopping.

In 2008, Lee and his team examined how bad online reviews affect consumer opinions. Their study found that buyers respond to negative reviews differently depending on their interest in a product. Those highly interested are influenced by both the number and quality of negative reviews, while less interested buyers are affected mainly by the quantity of bad reviews. This underscores the influence of reviews on buying decisions in online marketplaces.

III. PROPOSED METHODOLOGY

The goal of the new system is to create a simple way for users to input information for the Pick Fresh app. This part is crucial because it links users directly to the app. The method focuses on making sure that entering information is straightforward, safe, and easy. When users start using the app, they need to enter data like product requests, language preferences, and delivery information. This stage is important because it helps improve the user experience and ensures the system is reliable.

Our design for entering information is to keep it simple and organized. We consider what information is required, such as product details, the user’s location, and their language choice. We also plan how to organize this information and guide users through the process. We emphasize making these input steps helpful so users can navigate the app easily without needing much training. By keeping the process clear, we avoid extra steps and save time, which makes using the app more convenient.

To strengthen the app, we include checks during the information entry stage. These checks help prevent mistakes and ensure that all data is complete. They also provide instant feedback if there are any errors. These steps help reduce incorrect entries and make the app more dependable. Additionally, we protect user privacy and security during data entry, especially when it involves location and personal information. By combining simplicity, thorough checks, and security measures, our input design promotes effective communication between users and the app, leading to smooth and efficient operations.

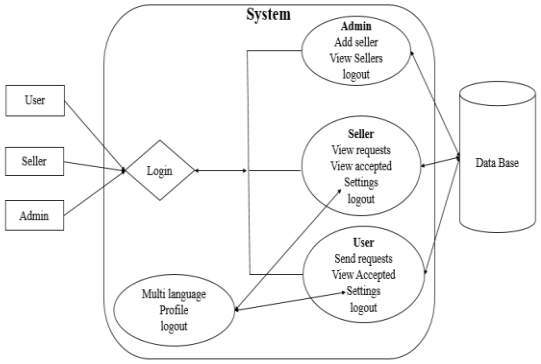

FIG 1: ARCHITECTURE

The diagram explains the workings of the Pick Fresh app, which has three main roles: Admin, Seller, and User. Everyone logs in through the same screen; then they are taken to their specific area depending on their role.

Admins can add new sellers, check which sellers are registered, and log out. Sellers get to see product requests, check accepted ones, change their settings, and log out. Users can send product requests, view responses, update their settings, and log out.

The app supports different languages and allows for profile management. A central database handles storing and retrieving information, allowing for smooth communication among all users within the app.

OBJECTIVES: The main goal of input design in the Pick Fresh app is to make data entry user-friendly and ensure it can be processed by a computer smoothly. This helps prevent errors when entering data and makes sure reliable information reaches those who need it.

To achieve this, the app uses simple and intuitive screens for entering and viewing data. These screens are designed to handle large amounts of data efficiently. Real-time checks ensure that only complete and correct data is entered, and helpful messages guide users to fix mistakes instantly. These features make the input process straightforward and user-friendly.

On the other hand, output design is about providing clear and useful information to users after the data is processed. Outputs help users make informed decisions by being clear, timely, and relevant. The design process involves identifying what key outputs are required, choosing how best to present them, and creating reports or documents that clearly convey the processed data. These outputs update users, alert them to important conditions, confirm actions, and can prompt further steps. Effective output design enhances the system-user connection, aiding in better decision-making and efficient operations.

UML DIAGRAM: UML, or Unified Modelling Language, is a standard used to create models in object-oriented software engineering. It was created by the Object Management Group, which also oversees it.

UML aims to be the universal language for modeling programs that use objects. Currently, it includes two main parts: a Meta-model and a notation. In the future, it may include a specific method or process.

Unified Modelling Language helps in specifying, visualizing, building, and documenting software systems. It's also used for modeling in business and other non-software fields.

UML incorporates proven engineering practices that work well for large and complex systems. It's essential for developing object-oriented software and plays a vital role in software development. UML mostly uses visual symbols to display software project designs.

USE CASE DIAGRAM

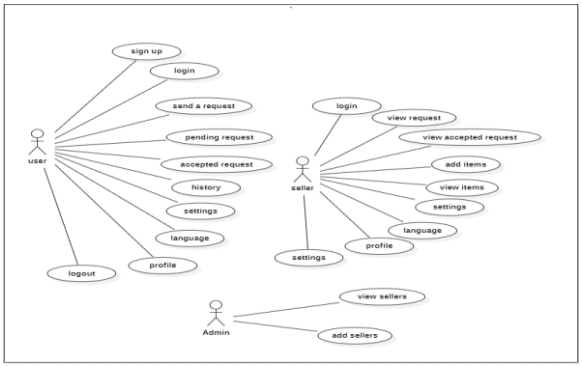

FIG 2: USE CASE DIAGRAM

A Use Case Diagram in UML (Unified Modeling Language) is a simple image that shows how a system works from the user's view. It describes how the system connects with people or things called actors. These actors might be people, other systems, or devices. The diagram explains what the system does but doesn't show the steps of how it does it.

In this diagram, actors are linked to use cases. Use cases are the specific tasks or services that the system performs. Each use case shows a goal an actor wants to meet, like signing in, sending a message, or looking at a product. The diagram can also show how use cases relate to each other with include, extend, or generalization. This helps everyone understand what the system can do and how different users interact with it. It helps gather requirements, design the system, and improves communication between team members during development.

CLASS DIAGRAM: A Class Diagram in the Unified Modeling Language (UML) is a kind of drawing used in software engineering to show the structure of a system. It displays the system's classes, which are like templates for objects within the system. Each class has attributes, which are pieces of data, and operations, which are actions or functions it can perform. The diagram also illustrates how these classes relate to one another. Class diagrams play a crucial role in planning an object-oriented system before the actual coding starts.

In this diagram, we have:

The User class, which holds information such as name, mobile number, email, password, and location. It also includes actions like login, signup, send request, pending request, and logout. These describe what users can do in the system.

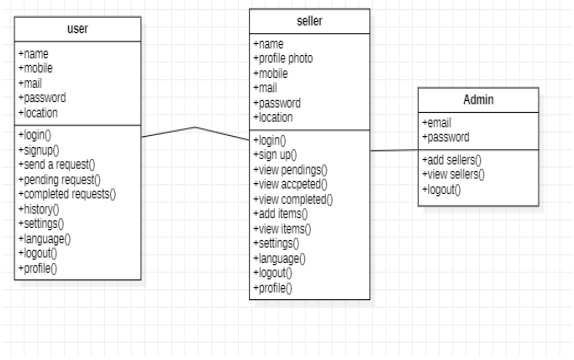

FIG 3: CLASS DIAGRAM

The Seller class shares similar information, but it also includes a profile photo. This class has actions for handling requests, managing items, and adjusting settings.

The Admin class has functions like adding sellers and viewing sellers, along with details related to logging in.

This diagram clearly shows how different roles—User, Seller, and Admin—function within the system. It helps us see what data they deal with and what actions they can take. Understanding this is useful for developers and stakeholders in setting up the system architecture properly.

ACTIVITY DIAGRAM

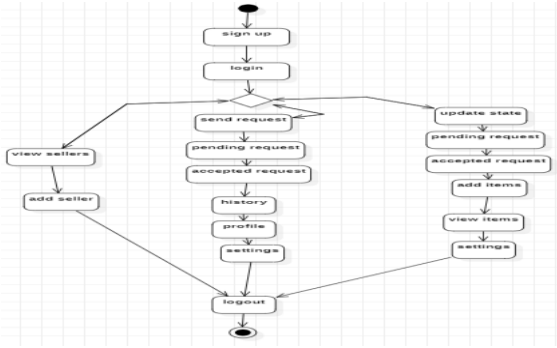

FIG 4: ACTIVITY DIAGRAM

Activity diagrams are pictures that illustrate the steps and actions in a process. They include choices, repeating steps, and simultaneous actions. In the Unified Modelling Language, activity diagrams describe the details of business tasks and workflows of parts within a system. They clearly show how control flows throughout the entire process, making it easier to understand how each step connects.

ER DIAGRAM

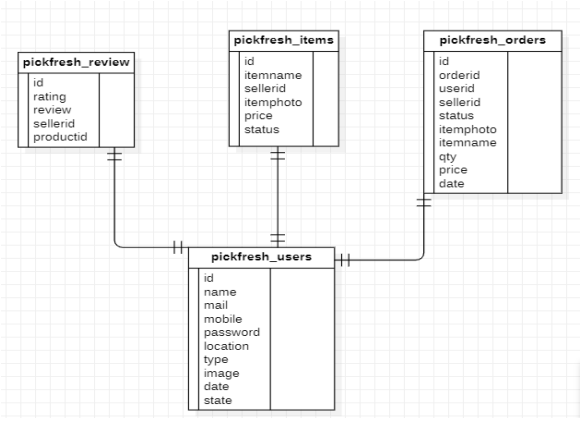

FIG 5: ER DIAGRAM

IV. IMPLEMENTATION AND RESULTS MODULES

Admin: Admin can add sellers and view sellers.
Seller: seller can receive the order requests from the users and the seller can reject are accept the requests and the seller can view the accepted and
User: Users can seamlessly log in, sign up, and explore available products through an interactive map interface. They can proceed to order their chosen products and conveniently access their product history within the bookings section.

IMPLEMENTATION AND RESULTS

Implementation of the Pick Fresh application involved integrating various features to enhance localized commerce. Utilizing Android Studio and Java, the app was developed to allow users to discover nearby sellers and send product requests effortlessly. Multilingual support was implemented, enabling users to choose from languages including Tamil, Telugu, Kannada, Hindi, and English. Upon submitting a product request, sellers were provided with the option to accept it. Once accepted, the app utilized location-based services to notify users when a nearby seller, within a 1-kilometer radius, was available.

This feature was implemented using Google Maps API and Geofencing technology. Results demonstrated significant improvements in localized commerce interactions. Users reported enhanced convenience in finding nearby sellers, with language diversity overcoming communication barriers. Sellers experienced increased visibility and responsiveness to user requests, leading to improved sales opportunities. The implementation of location-based notifications contributed to timely and relevant interactions between buyers and sellers, resulting in a streamlined user experience.

Overall, the Pick Fresh application successfully facilitated efficient and seamless commerce interactions, fostering a thriving ecosystem for local buyers and sellers.

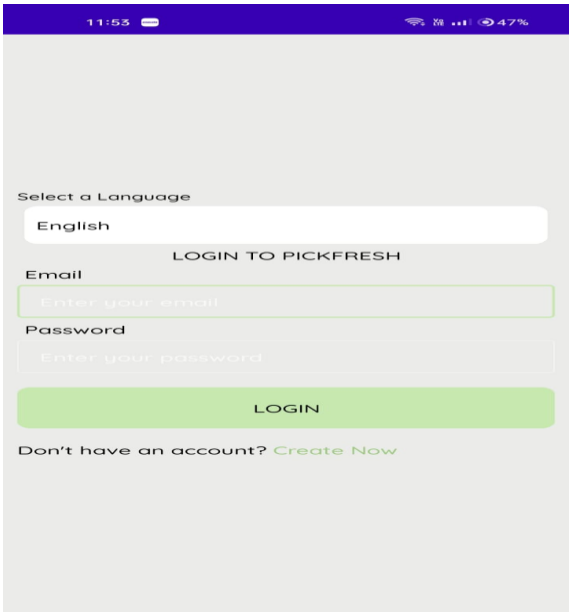

FIG 6: LOGIN PAGE

The login page plays a key role in how people use the PickFresh app and how safe the app is. A big plus is that it allows users to pick their own language. This is great for people who aren't very good at English because they can use the app more easily. The login page acts like an entry point to the app's services that depend on your location, as well as its shopping features. This makes the login page vital for helping users move smoothly through the app and have a personalized experience.

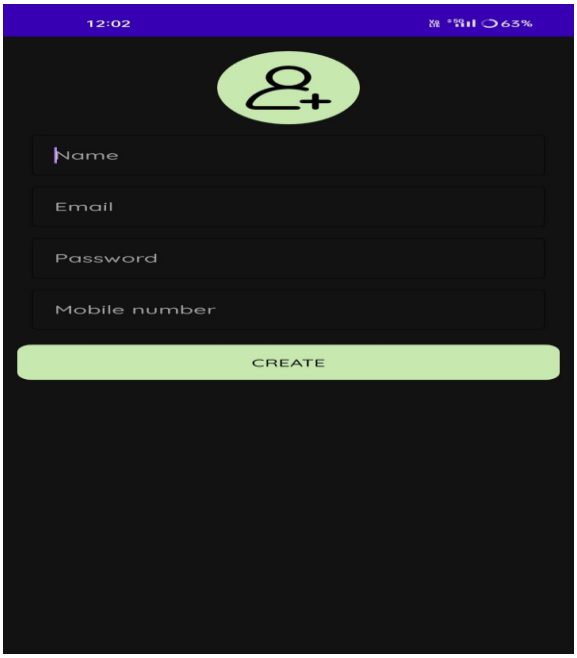

FIG 7: ADMIN CREATE ACCOUNT FOR SELLER

Figure 7 shows the account creation screen that the admin uses in the PickFresh app to register new sellers. This screen is a crucial part of the admin section. It helps sellers easily join the local market system, making it simple for them to start selling their products to the community. The interface streamlines the process, ensuring that sellers can quickly and efficiently become part of the PickFresh marketplace.

FIG 8: SELLER ACCOUNTS

Figure 8 displays the Seller Accounts List Interface, which is an important part of the PickFresh mobile app. This feature allows the admin to manage all the accounts of sellers. By doing this, the admin can make sure that quality is maintained, everything is transparent, and user management is efficient. This ensures that all seller activities are properly overseen and controlled within the app.

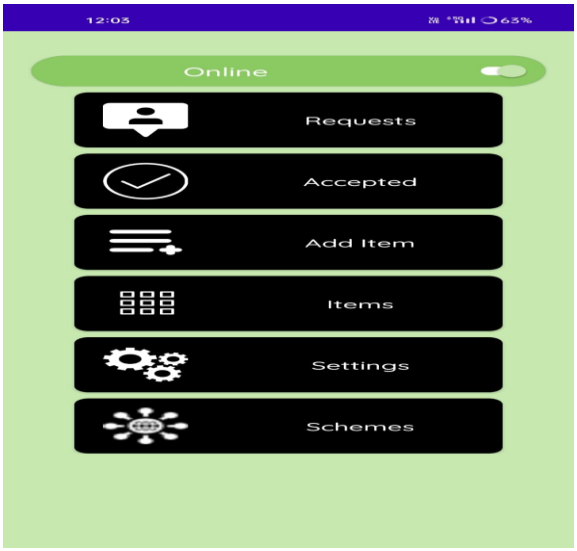

FIG 9: SELLER SIDE FEATURES

The Seller Dashboard in the PickFresh mobile app is a helpful tool for sellers to manage their stores and orders. At the top, there's a button where they can switch their status between online or offline, depending on when they are available. The "Requests" section shows new orders from customers, while the "Accepted" tab lists all the confirmed orders that need to be fulfilled. Sellers can easily add new products using the "Add Item" feature, and they can also look after their current inventory in the "Items" section. In the "Settings" menu, sellers can change their account preferences and store details. Additionally, the "Schemes" section offers information about any promotional campaigns or discounts available through the platform. This dashboard is designed to allow sellers to perform all their essential tasks conveniently from one centralized location.

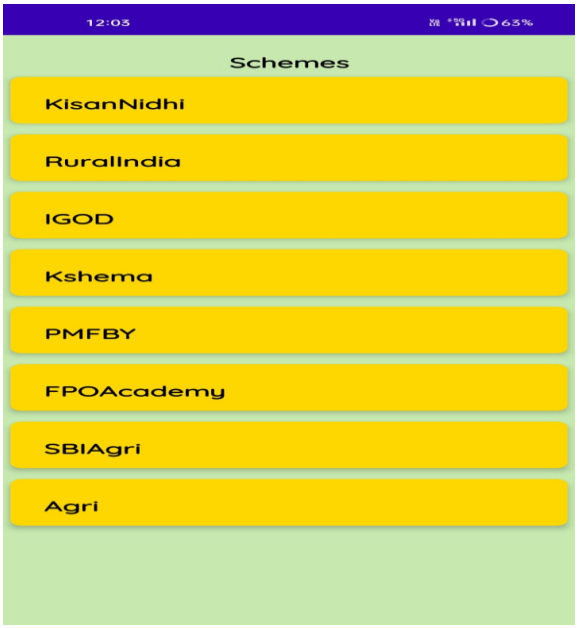

FIG 10: SCHEMES

The Schemes page in the PickFresh mobile app shows a list of programs to help farmers and rural sellers. Each yellow button stands for a different program. For instance, KisanNidhi probably means financial aid from PM-KISAN, while RuralIndia focuses on general rural development. IGOD might involve tech or agriculture data, and Kshema could be a state welfare program. PMFBY is the Pradhan Mantri Fasal Bima Yojana, offering crop insurance. FPOAcademy provides training for Farmer Producer Organizations, and SBIAgri offers agriculture services by SBI. Agri relates to general agricultural help. Sellers can click on

these to learn about each program, check if they qualify, and get the benefits. This helps them easily stay informed and make use of government support through the app.

FIG 11: LOCATONS OF SELLERS

The PickFresh mobile app has a screen with a map showing where sellers are located across India. This map uses purple pins or icons to indicate sellers' locations in different cities like Bengaluru, Hyderabad, and regions in Uttar Pradesh and Odisha. By looking at the map, users can easily find sellers nearby. This is useful because choosing local sellers can make deliveries quicker and help support businesses in the user's area. You can interact with the map, meaning you can click and explore it. It also connects with Google Maps, allowing you to see live directions and explore the surroundings in real-time.

V. CONCLUSION

In summary, this new Android app is changing the way we buy and sell locally by using the latest technology to make it easier for everyone. It connects buyers and sellers in a simple way. The app includes features like maps that show sellers nearby in real-time, notifications that alert you based on where you are, and support for many languages. This means people from various locations can use it without trouble.

The app is straightforward and helps manage sellers efficiently, making it easy to list items directly, which makes buying and selling quicker and more straightforward. Plus, it includes government agricultural programs, which is a big benefit for rural sellers. This helps them know about different opportunities and benefits available to them.

It also shows which sellers are available and gives real-time updates, helping to create a marketplace that's open and responsive. The app focuses on mobile use, helping people, even in far-off places, to take part in economic activities, closing the gap between different areas. This supports India's goal of digital growth and boosting development in rural regions.

Overall, the app helps create a strong, expandable digital environment that supports both small-scale producers and regular customers, encouraging a self-sustaining economy.

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