IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

Android Application For Direct Market Access For Farmers

[1]Yogesh N ,[2] Charan M , [3]Ayush R, [4]Hruthvik P, [5]Shravya G

[1]ASSISTANT PROFESSOR, [2]STUDENT,
[3]STUDENT,[4]STUDENT,[5]STUDENT

[1]Department of Computer Science and Design Engineering,

[1] ATME COLLEGE OF ENGINEERING, MYSURU, INDIA

Abstract: The agricultural sector is the backbone of many economies, providing livelihoods for millions and ensuring food security globally. However, it faces persistent challenges that undermine its growth and sustainability. One of the most pressing issues is the detrimental role of intermediaries or middlemen in the supply chain. In traditional agricultural systems, intermediaries dominate the value chain, exercising control over pricing, distribution, and market access. This often results in significant inefficiencies, including unfair pricing, wastage, and limited market reach for farmers. Consequently, farmers, who bear the labour-intensive burden of production, receive only a minimal share of the profits.

These inefficiencies perpetuate income disparity and exploitation, leaving farmers vulnerable to economic instability. This emerges as a pioneering solution to address these systemic issues, fostering a transparent, equitable, and sustainable agricultural ecosystem. By leveraging technology and innovation, this empowers farmers to regain control over their livelihoods, ensuring fair pricing, improved market access, and sustainable practices

I. INTRODUCTION

In the ever-evolving landscape of agriculture, the need for accessible and comprehensive information, coupled with efficient market connections, is paramount. The proposed application is conceived with a singular mission — to empower and support farmers by providing vital insights into agricultural and horticultural practices while establishing a direct channel between farmers and buyers. A unique feature of the application is its interactive marketplace, facilitating seamless communication between farmers and buyers. This connection empowers farmers to showcase their produce and allows buyers to engage directly with producers for the procurement of agricultural and horticultural goods.

II. METHODOLOGY

The development of the application involves a structured and systematic approach, ensuring that the application effectively addresses the challenges faced by farmers and buyers. The methodology is divided into several key phases:

1. Requirement Analysis

Identified the functional and non-functional requirements of the application, ensuring it aligns with the objectives of empowering farmers and facilitating direct market access.

2. Application Design

- **User Interface Design:**
  - Designed a user-friendly interface using XML in Android Studio.
  - Ensured easy navigation with distinct sections for farmers and buyers.
- **Database Structure:**
  - Firebase Realtime Database was chosen for storing user information, product details, and market data.
  - Data nodes were structured to separate farmer and buyer records, facilitating efficient data retrieval and management.

3. Development

Front-End Development:
- Developed the app interface using Java and XML in Android Studio.
- Implemented modules such as registration, login, and product management with dynamic interaction.

Back-End Development:
- Integrated Firebase Realtime Database for seamless data storage and retrieval.
- Authentication features were implemented to ensure secure login and data handling for both farmers and buyers.

Functional Modules:
- **Farmer Module:** Enabled options for selling products, updating product details, accessing product-related information, and viewing market values.
- **Buyer Module:** Allowed buyers to search for products, compare prices, view market rates, and interact with farmers directly.

Data Upload and Retrieval:
- Enabled farmers to upload product images and details, which were dynamically fetched and displayed for buyers.

4. Testing

- **Unit Testing:** Each module (registration, login, farmer, buyer) was tested individually to ensure functionality.
- **Integration Testing:** Verified the seamless interaction between modules (e.g., farmer product uploads appearing in buyer searches).
- **System Testing:** Conducted end-to-end testing of the entire application to ensure reliability and usability.

5. Deployment

Deployed the application on Android devices running Windows 7 or higher operating systems.

Data Flow

WA data flow diagram (DFD) maps out the flow of information for any process or system. It uses defined symbols like rectangles, circles and arrows, plus short text labels, to show data inputs, outputs, storage points and the routes between each destination. Data flowcharts can range from simple, even hand-drawn process overviews, to in-depth, multi-level DFDs that dig progressively deeper into how the data is handled. They can be used to analyze an existing system or model a new one. Like all the best diagrams and charts, a DFD can often visually “say” things that would be hard to explain in words, and they work for both technical and nontechnical audiences, from developer to CEO.as shown in fig 1 to 3.

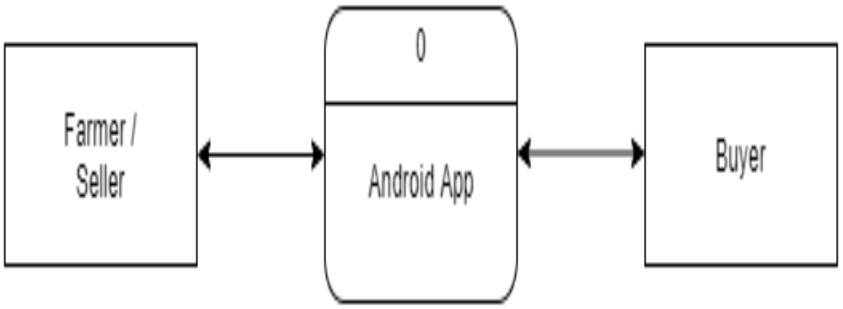

Fig 1: Data flow diagram

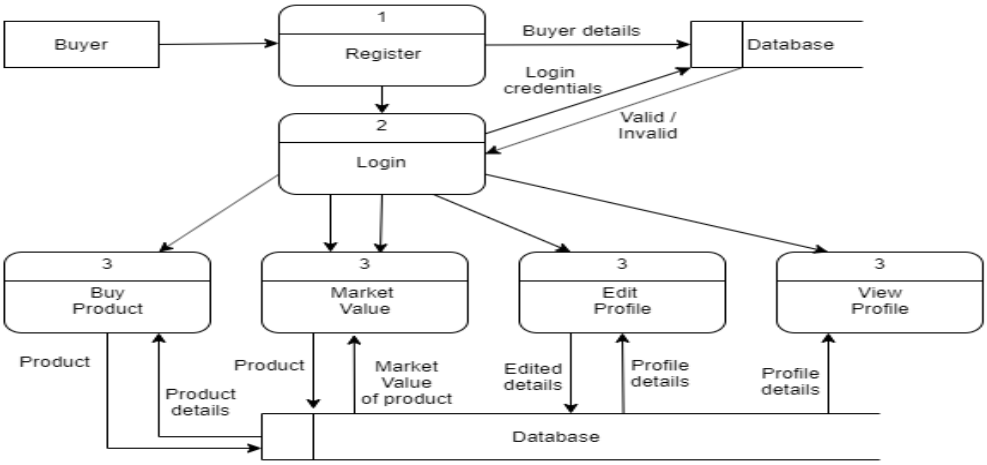

Fig 2: Buyer System Information Flow Diagram

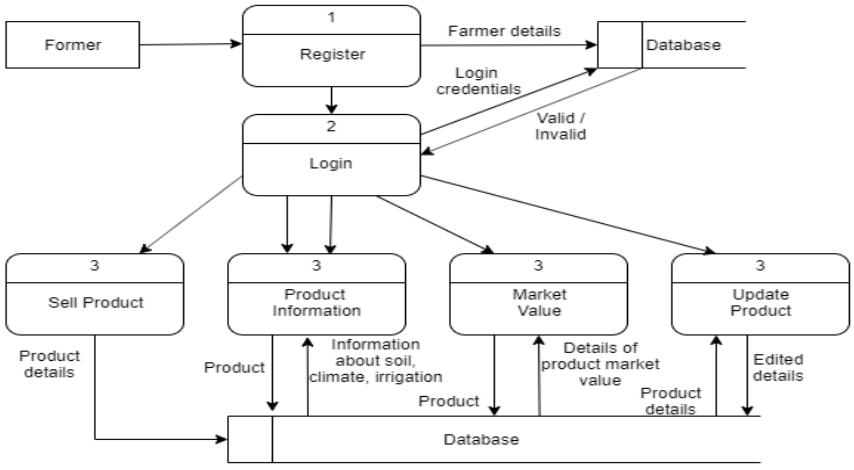

Fig 3: Farmer Module Data Interaction Flow

SEQUENCE DIAGRAM:

In Unified Modeling Language (UML), a sequence diagram is a type of interaction diagram that depicts how processes interact with one another and the sequence in which these interactions occur. It is derived from the concept of a Message Sequence Chart. Sequence diagrams are also referred to as event diagrams, event scenarios, or timing diagrams, as illustrated in Figures 4 and 5.

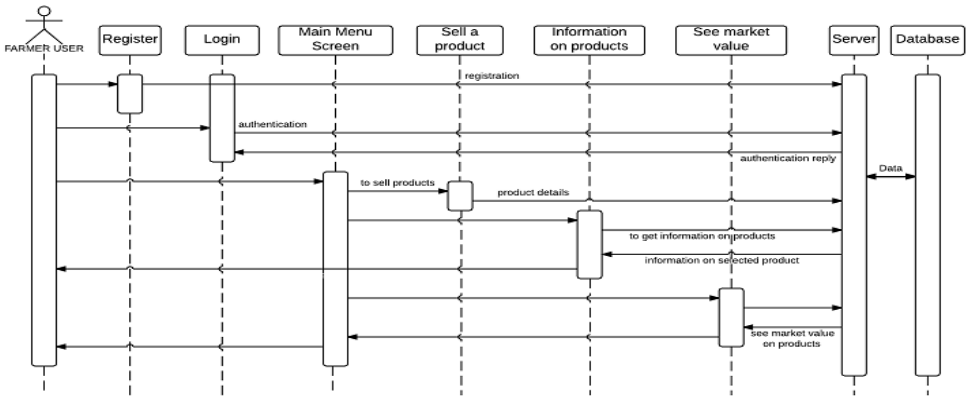

Fig 4: Sequence of Interactions in the Farmer Module

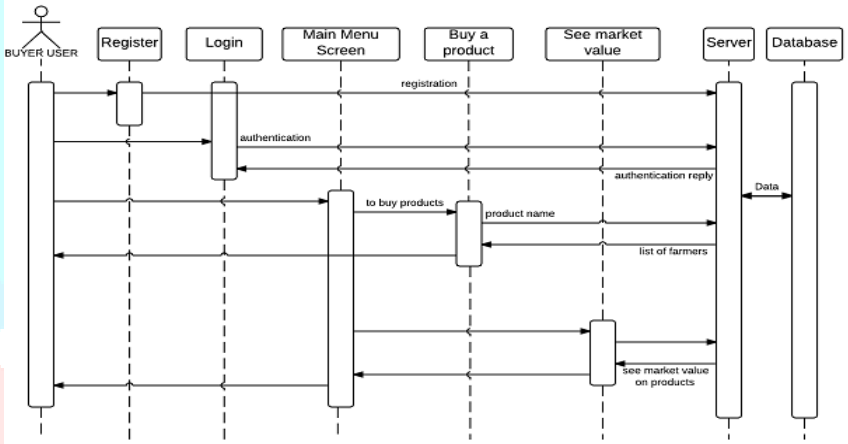

Fig 5: Sequence of Interactions in the Buyer Module

III. ADVANTAGE & DISADVANTAGES

ADVANTAGES

- **Increased Profit Margins**

Traditionally, farmers rely on intermediaries, or middlemen, to sell their produce. These intermediaries often take a significant portion of the profit, leaving farmers with a smaller share. By eliminating intermediaries, the proposed application allows farmers to directly negotiate prices with buyers such as consumers, retailers, and wholesalers. This direct connection ensures that farmers retain a larger portion of the profits, significantly improving their financial outcomes.

- **Improved Market Access**

The application connects farmers to a broader market that includes urban consumers, retailers, wholesalers, and food processors. This eliminates the limitations of local markets and enables farmers to reach buyers across regions. By expanding their market access, farmers can increase their sales opportunities and find better deals for their produce, ensuring a more consistent and reliable income stream.

- **Transparency and Trust**

One of the significant issues in traditional agricultural trading is the lack of transparency in pricing and product quality. The application promotes direct communication between farmers and buyers, ensuring clear and fair pricing. Buyers can directly interact with farmers to verify the quality, quantity, and price of the produce. This transparency builds trust between both parties and fosters long-term relationships**.**

- **Real-Time Information**

Farmers often struggle with outdated or insufficient information about market prices, weather conditions, and crop advisories, which can lead to poor decision-making. The app provides real-time updates on market prices, enabling farmers to price their products competitively. It also offers weather updates and crop-specific advice, helping farmers plan their planting, harvesting, and selling activities more effectively.

- **Community Empowerment**

The application creates a platform where farmers can share their innovative agricultural techniques and success stories with others. For example, a farmer who discovers a water-saving irrigation method can share it on the platform, helping others adopt the practice. This collaborative environment fosters mutual learning, skill enhancement, and the spread of best practices, ultimately empowering the farming community as a whole.

- **Sustainability**

Sustainability is a key focus of the application. By providing resources and guidance on modern agricultural techniques, the app encourages farmers to adopt eco-friendly practices such as organic farming, reduced chemical use, and efficient water management

DISADVANTAGES

- **Digital Divide**

Many farmers in rural areas may lack access to smartphones, stable internet connectivity, or the technical skills required to navigate the app effectively. This digital divide can create barriers to adoption, leaving a significant portion of the target audience unable to benefit from the platform. The lack of infrastructure, such as reliable electricity and network coverage in remote regions, further compounds this issue, limiting the app's reach and effectiveness.

- **Language Barrier**

While the app supports English, many farmers in India are more comfortable using regional languages. The absence of multi-language support can alienate non-English-speaking farmers, reducing the app's accessibility and usability. For a country as linguistically diverse as India, failing to address this barrier can significantly limit the platform's adoption and impact, especially in rural and less-educated communities.

- **Initial Resistance**

Farmers accustomed to traditional market systems and working with intermediaries might be hesitant to switch to a digital platform. This resistance could stem from mistrust of technology, fear of change, or a lack of confidence in their ability to use the app effectively. Overcoming this challenge will require extensive training, awareness campaigns, and incentives to demonstrate the benefits of the platform.

- **Dependence on Technology**

The app's functionality is entirely dependent on digital tools, which makes it vulnerable to technical issues. Outages, software bugs, or cyberattacks could disrupt services, leading to loss of trust among users. Additionally, data breaches could compromise sensitive information, such as payment details or user identities, making security a critical concern.

- **Market Volatility**

Direct exposure to market price fluctuations might overwhelm farmers who are not accustomed to handling dynamic pricing. Unlike traditional systems where intermediaries absorb some of the risk, farmers on the platform will have to navigate price drops or spikes independently. This could lead to financial instability, especially for small-scale farmers who often lack the means to cope with these variations.

- **Competition Among Farmers**

As more farmers join the platform, increased competition might lead to price wars, where farmers compete aggressively to win over buyers. Although this may may provide short-term advantages to consumers, it could negatively impact small-scale farmers who might struggle to compete with larger, better-resourced producers. This competition could exacerbate inequalities within the farming community.

- **Limited Physical Interaction**

The app replaces traditional face-to-face negotiations with digital communication, which might lead to misunderstandings or mistrust in certain transactions. For example, buyers may doubt the quality of produce based solely on images or descriptions, while farmers might face disputes over payment or delivery terms. The absence of physical interaction could hinder the establishment of long-term relationships and trust between farmers and buyers

IV.RESULT & CONCLUSION

A.

RESULT

Farmer Client project empowers farmers by providing them with a direct platform to sell their produce, eliminating intermediaries and ensuring fairer prices. It also offers access to valuable agricultural and horticultural information, enabling farmers to make informed decisions about cultivation practices. For buyers, the platform enhances their experience by facilitating direct interaction with farmers, allowing them to purchase high-quality products at competitive prices. The inclusion of market value transparency helps buyers make cost-effective purchasing decisions. Additionally, the app improves agricultural efficiency by equipping farmers with insights into soil requirements, irrigation methods, and harvesting techniques, ultimately enhancing crop yield and quality. Its dynamic marketplace further streamlines the supply chain by directly connecting producers and consumers. Built on Firebase Realtime Database, the application ensures scalability, supporting simultaneous interactions from multiple users without performance issues. Moreover, its modular architecture allows for easy incorporation of additional features in future updates, making it a sustainable and adaptable solution for modern agriculture.
As shown in fig 6 to 12.

Fig 6: User Selection Page

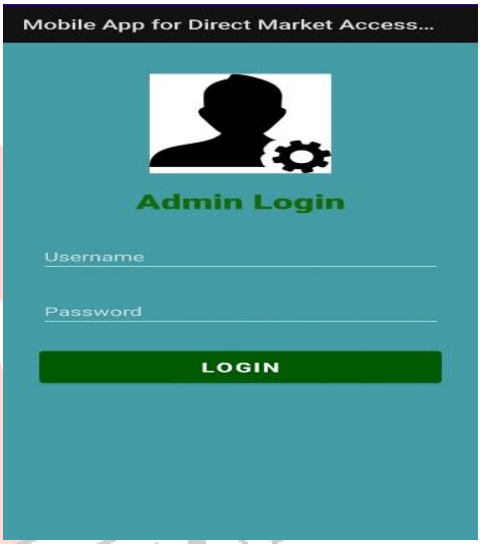

Fig 7: Admin Login page

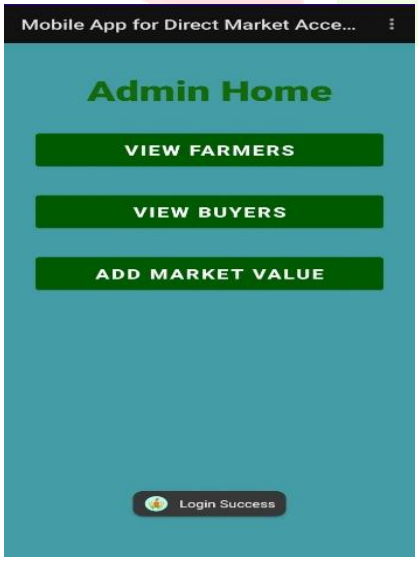

Fig 8: Admin home Page

Fig 9: Farmer home Page

Fig 10: Product list page

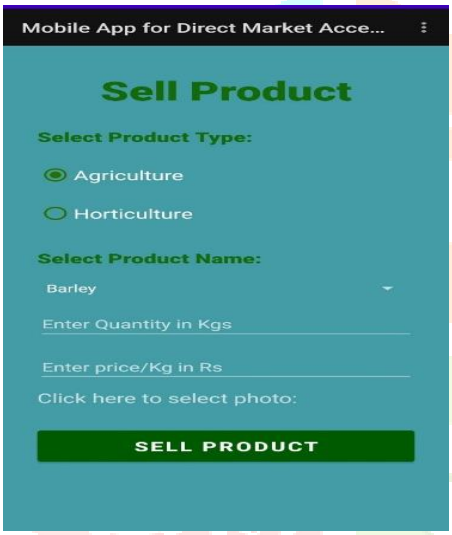

Fig 11: Product Sell Page

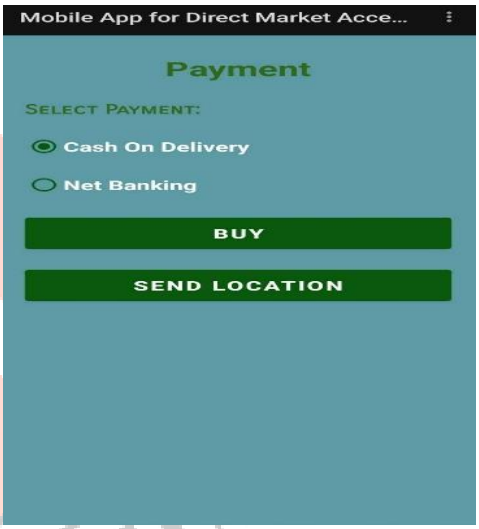

Fig 12: Payment page

B. Conclusion:

The proposed application provides farmers with valuable information about cultivating food grains and horticultural crops, including vegetables and fruits. It facilitates direct interaction between farmers and buyers for the purchase and sale of agricultural products. The application offers guidance on soil requirements, climatic conditions, seeds, fertilizers, pesticides, and more. Additionally, it enables farmers to share innovative agricultural techniques with their peers. All information will be presented in English. The primary goal of this application is to equip farmers with modern agricultural techniques to enhance their productivity and sustainability.

V.REFERENCS

[1] Ramachandra Rao Kurada, and Sunil Pattem ,“ An Android based Mobile Application for Agro-Marketing”,Institute of Electrical and Electronics Engineers, 10 July 2023.

[2] Sanmati Rajesh Hegde, Prof. Dr. Vishal C“E-Agriculture Solution for Farmers ” International Journal for Research Trends and Innovation, Volume 7, Issue 7 , 2022.

[3] Hegde, S. R., & Vishal, D. (2022). E-Agriculture Solution for Farmers. *International Journal for Research Trends and Innovation*, 7(7).

[4] Venkata Vara and Prasad Gumma "An Effective Agriculture by Using Android Application" ResearchGate,Vol 9, May 2020

[5] Arshad P Muhammed,Shon C J, Shemeera P S "AGRIO APP: An Advanced Android Application For Farmers " International Journal of Creative Research Thoughts (IJCRT), Volume 8, Issue 6 June 2020.

[6] Nyagango and Isaac Kazungu, "Technological Acceptance Model (TAM) Perspective," Emerald Publishing Limited, 2 May 2023.

[7] Egwuche, O. S., & George, C. J. (2023). Development of a Mobile Application for Marketing Agricultural Farm Products. *International Journal of Women in Technical Education and Employment*, 4(1), July.

[8] Abdullahi Khidir and Idowu Oladele, "The Estimation Model of Determinant of Mobile Phone Apps," International Journal Of Agricultural Science, Research And Technology, Issue 2, Vol. 12, Spring 2022.

[9] Martin C. Parlasca and Constantin Johnen, "Use of Mobile Financial Services among Farmers," Global Food Security, Volume 32, March 2022.

[10] Kumar, B., & Kumar, S. (2021). An Extended Arm for Farmers. *International Journal of Current Microbiology and Applied Sciences*, February 18.