iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 13 **Issue:** IV **Month of publication:** April 2025

DOI: https://doi.org/10.22214/ijraset.2025.68841

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International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 13 Issue IV Apr 2025- Available at www.ijraset.com

Mobile Application for Farmer to get Direct Access to Market Transport Line & Fertilizer Shops

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Abstract: ***The agriculture industry in many countries faces numerous challenges, including low farm productivity, limited market access, and poor price realization. In India, for instance, small and marginal farmers, who form a significant proportion of the agricultural community, often struggle to get adequate returns on their investments due to the presence of intermediaries in the supply chain. The existing agricultural marketing system in the country is fragmented and unorganized, with middlemen often taking advantage of the situation by offering low prices to farmers and charging high commissions from buyers. In this context, there is a need for a platform that directly connects farmers with buyers and helps them realize better prices for their produce. The project aims to bridge the gap between farmers and consumers by providing a user-friendly e-commerce portal where farmers can directly sell their produce to buyers. The platform allows farmers to create profiles and list their products, including detailed descriptions, quantities, prices, and images. Buyers can easily browse through the available products, make purchases, and securely complete transactions using integrated payment gateways. The project also includes a dedicated Transporter Forum, providing a space for registered users to engage in transport person to transport their crop yields. Along with this the proposed mobile application finds the daily wage labors for agricultural tasks by advertising the task to reach number of labors with the details of task and labor cost and other info.***

Keywords: Codename One, Google map Handling, Sql Lite database, Linear search, Farmer market, Digital Agriculture, Smart Farming Solution

I. INTRODUCTION

Agricultural marketing is a method that includes gathering, storage, preparation, shipping, and delivery of different farming materials across the country. In agriculture marketing, the selling of an agriculture product depends on various components like the demand for the product at that time, availability of storage, etc.

Before Independence, farmers while selling their products to traders experienced massive incorrect weighing and manipulation of accounts. The farmers did not have required information about the prices and were forced to sell at low prices with no proper storage facility. Sometimes, the product could be sold at a weekly village market in the farmer's village or in a neighbouring village. If these shops are not available, then the product is sold at irregular markets in a nearby village or town, or in the mandi. So, the government took various measures to control the activities of the traders.

Agriculture is the main occupation in India as it has major contribution in Indian economy as well as it is a primary source of livelihood of common masses. Farming contributes around18% of the India's GDP and half of the population depends on it. Farmers are the backbone of the Indian economy; still they suffer from poverty, poor agricultural marketing, and many other problems. Our aim is to introduce the concept of digital marketing in the field of agriculture. We are trying to eliminate the role of middlemen from agricultural marketing in order to insure fair price to farmers.

The succession in the crop growing production directly increases the Indian economy and vice-versa is also correct. To modernize farmer's life there is necessary to give finest technological solutions to the farmers. A lot of techniques and methods are being developed in order to assist the agricultural routine activities. Mobile apps in the field of farming can be the most excellent option to boost farming production in country. The new inventions in technology in agriculture area are not easily getting to the farmers due to lack of knowledge. They don't know the source from where they can get valuable information. Hence, no of farmers are being unsuccessful to gain probable production rate. Therefore it is necessary to develop a user friendly system from where the essential information is accessible by farmers. Many new opportunities are produced by smart phone technology for farmers.

In the days of economic crisis, agriculture is becoming very important. Numerous mobile applications have been developed for gaining of information in the field of agriculture like livestock management, Agro Mobile, Krishiville etc. This paper deals with the study of existing android based applications which are helpful for farmers and design and development of best app for agriculture which include various diverse services for farmers

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II. PROBLEM STATEMENT

To enhance the process of providing direct access to the market for the farmer for their grown crops along with the access of agricultural equipment and transport systems and also to provide daily labors easily in an interactive mobile application designed using Android

III. LITERATURE REVIEW

A. *Introduction to Digital Agriculture Platforms*

Next-generation agricultural platforms aim to eliminate market inefficiencies and improve farmer profitability by directly connecting them with buyers, transport services, and input suppliers. These platforms address longstanding issues such as limited market access, exploitation by middlemen, and lack of real-time market intelligence (Shilpa Aggarwal et al., 2018). By leveraging mobile technology and local languages, they empower small and marginal farmers to participate in digital marketplaces, promoting transparency, inclusivity, and fair pricing (Onkar R. Kulkarni et al., 2024). The integration of geolocation services and real-time updates makes these platforms more accessible and effective in rural areas (N. Abdullah et al., 2021).

B. *Role of Mobile Applications in Agricultural Market Access*

Mobile apps have become crucial tools for digital transformation in agriculture. Applications like AgriApp and Krishify enable farmers to list their produce, find buyers, and access farming inputs without intermediaries (HarvestHub, 2024). These platforms enhance farmer-buyer interactions and allow for the efficient exchange of crop-related information, boosting market reach and competitiveness. Additionally, mobile interfaces simplify transactions and ensure that farmers, even with limited digital literacy, can access essential services conveniently (Zainuddin et al., 2021).

C. *GPS and Fertilizer Shop Locator Integration*

GPS-based services improve accessibility to nearby agricultural input shops and service providers. Integrating geolocation allows farmers to identify the closest fertilizer vendors, compare prices, and save travel costs (N. Abdullah et al., 2021). These features enhance operational efficiency, especially in regions with scattered or poorly mapped agricultural service points. Real-time mapping tools such as Google Maps APIs are widely used for shop location tracking and distance estimation, making the process accurate and user-friendly (Makinde et al., 2024).

D. *Digital Transport Coordination in Agriculture*

Transport logistics play a key role in moving produce from farm to market. Traditional systems suffer from delays and inefficiencies. Research by Panjaitan et al. (2022) emphasizes the importance of integrating transport modules into digital platforms to coordinate crop delivery. In this context, mobile applications act as real-time transport brokers—connecting farmers with transporters, reducing costs, and ensuring timely delivery of goods (S. D. Panjaitan et al., 2022). The use of mobile notifications and booking features further simplifies the process.

E. *Direct Market Linkage and Elimination of Middlemen*

Studies show that digital platforms which eliminate intermediaries can significantly increase income for small-scale farmers (Marta Marson et al., 2022). By allowing farmers to interact directly with buyers, the system ensures better price realization and transparency in transactions. This peer-to-peer trading model supported by mobile applications helps build trust, reduce exploitation, and foster inclusive economic development (George & Wooden, 2023).

F. *Real-Time Notifications and User Interaction*

Real-time notifications improve the responsiveness and effectiveness of agriculture apps. Whether it's a new transport offer, buyer request, or fertilizer shop update, timely alerts ensure quick decision-making and increased user engagement. Integrating push notification systems into mobile apps ensures that farmers stay updated on important activities, enhancing their control over farm management processes (Esomonu et al., 2020).

G. *Comparative Analysis of Existing Agriculture Apps*

Existing platforms like AgriApp, Krishify, and HarvestHub provide valuable services but often focus on specific functions like product listing or community engagement. In contrast, integrated applications that combine market access, transport facilitation, and

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input procurement provide more holistic support to farmers (E.-Y. Daraghmi et al., 2024). Your proposed application fills this gap by combining crop trading, logistics coordination, and fertilizer shop discovery into one user-friendly interface, ensuring broader usability and impact (Paposa & Paposa, 2023).

IV. SYSTEM DESIGN AND OVERVIEW

There are many different stakeholders in the agriculture sector, and the application provides a platform for them to engage with one another and do business. It is necessary for users to create an account and choose a role from the available possibilities, which include farmer, transporter, trader, buyer, or laborer choices. After creating an account, users are able to log in and utilize the capabilities that are relevant to their roles.

1) Farmer Login: Once they have logged in, farmers are able to input information about the crops that they are interested in selling. What is included in this is the name of the crop (for example, Golden Delicious apples, Roma tomatoes, or Jasmine rice), the quantity of the crop that is available in kilograms (for example, 500 kilograms, 1000 kilograms, or 250 kilograms), the targeted selling price per unit, and a comment that describes the type of crop (for example, organic, heirloom, or conventionally farmed). This comment box may additionally include extra information, such as the date of harvest, the particular variety, and any certifications associated with the product (for example, USDA Organic or Fair Trade). Following the submission of this information by the farmer, it will be made available to prospective purchasers on the site. This streamlined procedure enables farmers to offer their produce to a wider market in a shorter amount of time and with greater efficiency.

2) Login for the Transporter: Transporters are an essential component in the process of linking buyers and farmers. Transporters are able to have access to a comprehensive list of crops that require transportation once they have successfully logged in. This list contains information such as the quantity of the produce that is to be delivered, the location of the buyer (including their address and contact information), and the location of the farmer (containing their address and contact information). Those that provide transportation services have the ability to choose a transport request and then submit their suggested transportation charge, taking into account the distance, weight, and any other pertinent logistical issues. Following this, the farmer will examine the suggested rate, and once it has been confirmed, the transporter's contact information will be supplied with both the buyer and the farmer. This will make it easier for the farmer to communicate directly with the buyer and to arrange transportation logistics. The process of transportation is made more transparent and efficient by the implementation of this technology.

3) Login to the Trader Account: Traders serve as intermediates, making it easier for buyers and farmers to conduct business with one another. Traders are able to explore the various crops that have been listed by farmers with the ability to make contact with farmers in order to negotiate prices. Additionally, they are able to establish connections with purchasers in order to offer crops that they have previously acquired, thereby functioning as wholesalers. This function is especially helpful for farmers who do not have the means or the network necessary to directly communicate with a larger buyer base. By cultivating relationships with both buyers and farmers, traders can contribute to the development of a marketplace that is more dynamic and linked. Additionally, they are able to offer vital insights into the market, as well as assistance with quality control and logistics.

4) Buyer Login: Buyers who are interested in purchasing agricultural products can use the platform to gain access to a full list of types of crops that are currently accessible. On this list, you will find information such as the quantity of the crop, the price that the farmer is asking for it, and the contact information for the farmer. In order to negotiate purchases, buyers can get in touch with farmers directly, or they can connect with dealers to place large orders. There is also a search tool built into the site, which enables buyers to rapidly locate particular crops that meet their requirements. Buyers can filter the results based on the type of crop, the amount, the price range, and any other relevant factors. The procurement process is simplified as a result of this, and purchasers are given easy access to a wide variety of agricultural products.

5) Login for Laborers: Laborers who are looking for work in the agricultural industry have the chance to develop profiles that highlight their experience, talents, and availability. Specific skill (such as harvesting, planting, irrigation management, and pesticide application, for example), years of experience, preferred job locations, and desired compensation are some of the details that can be included in these profiles. The farmers are then able to seek for and make contact with laborers whose abilities are a match for their demand. By facilitating a direct connection between farmers and the workforce, this feature simplifies the process of hiring new employees and ensures that farmers have access to the necessary labor for a variety of farming jobs. Within the agriculture industry, this results in a labor market that is both more efficient and completely transparent.

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Fig. 1 Architecture Diagram of Proposed System

V. PURPOSE OF STUDY

Android has an incredible ability to solve real life problems. Problems are mainly based on two factors, time and money. The problem encountered was to create a provide a platform to the farmers where the produce from the farms can be easily sold at better rates, pooling or sharing of the transport to take the produce to the markets and to help farmers in to take precautions based on the forecast of weather. Since it is an android application, it is supported by all android devices or smart phones which are easily accessible to the users. The availability of various functionalities like buy/sell, transport and weather forecast helps farmer to get what they want saving their effort and money. This android application will help the farmer to sell their produce quickly under the right price. The transportation feature will help the farmer to transport the produce from one place to another because the transportation cost will be shared. The freshly cultivated product can be bought directly from the farmer at the right price. It is indeed a very long process to grow crop. They expect to get some profits. For this the market system where the farmer can upload his produce details and can directly contact the customer is developed. Sharing of transport can help in reducing the overall transportation cost for farmers. Precautions based on weather forecast of rainfall can prevent loss of stored produce. Also, crop guidance based on seasons will be provided in this application.

VI. CONCLUSIONS

Many nations agricultural sectors struggle with issues like low farm production, restricted access to markets, and low price realization. For example, in India, where small and marginal farmers make up a large section of the agricultural community, middlemen in the supply chain make it difficult for them to receive sufficient returns on their investments. Middlemen frequently take advantage of the disorganized and disjointed agricultural marketing system by giving cheap prices to farmers and hefty commissions to purchasers. Given this situation, a platform that facilitates direct connections between buyers and farmers is necessary in order to enable the latter to achieve higher prices for their goods. The project's overarching goal is to facilitate direct sales of agricultural products from farmers to consumers through an intuitive online marketplace. Producers can set up accounts and sell their wares on the site with photos, prices, quantities, and descriptions. Using the connected payment gateways, customers may safely peruse the inventory, make purchases, and finish their purchases. The suggested smartphone app also advertises agricultural activities to a large pool of potential workers, providing them with detailed information about the work, the cost of labor, and other relevant factors in order to find daily wage laborers.

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VII. ACKNOLEDGEMENT

The authors would like to express their sincere gratitude to Jaihind Polytechnic, Kuran for providing the necessary resources and support for this research. We also extend our appreciation to our mentors and colleagues for their valuable insights and constructive feedback, which greatly contributed to the development of this work.

Special thanks to the dataset providers and open-source communities whose contributions enabled the successful implementation of our mobile application for farmer to get direct access to market transport line fertilizer shops. Lastly, we acknowledge the unwavering support and encouragement from our families and friends throughout this research journey.

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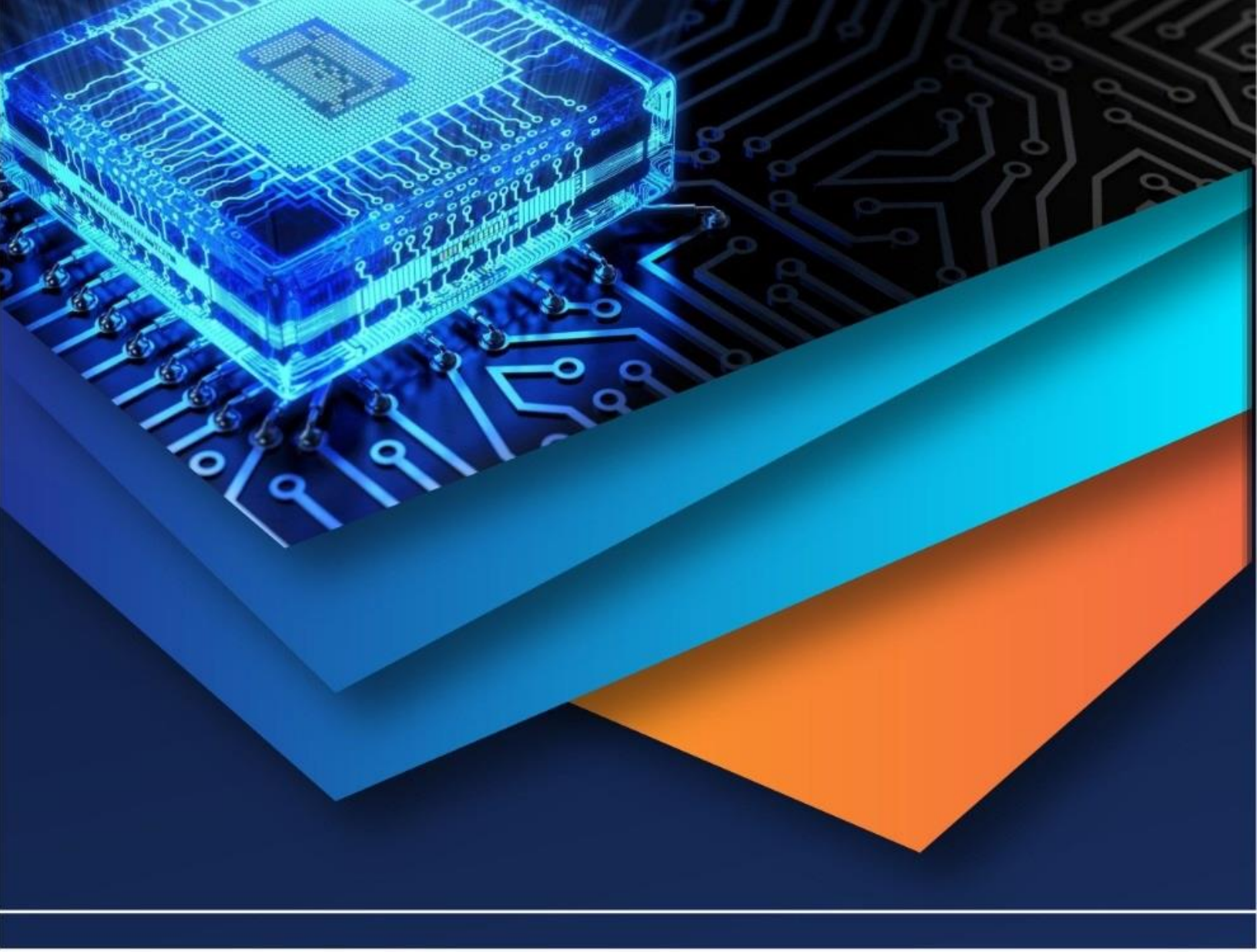
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