FACULTY OF ENGINEERING AND TECHNOLOGY

Department of Computer Science and Engineering

Global Campus, Jakkasandra Post, Kanakapura Taluk, Ramanagara District, Pin Code: 562 112

2024-2025

PCL Report on

"Availability of Farmer in your Gadgets"

Submitted for the partial fulfilment of Project Centric Learning activity of

BACHELOR OF TECHNOLOGY

IN

COMPUTER SCIENCE AND ENGINEERING

Submitted by

VEERENDAR S
(21BTRCS201)

RASHMIKA TALLURI
(21BTRCS215)

VARUN GOPI G
(21BTRCS221)

VASANTH RAJ R
(21BTRCS222)

Under the guidance of

Abhisek Midya
Professor
Department of Computer Science & Engineering
School of Computer Science and Engineering
JAIN (Deemed-to-be University)

JGI JAIN DEEMED-TO-BE UNIVERSITY | FACULTY OF ENGINEERING AND TECHNOLOGY

Department of Computer Science and Engineering

Global Campus, Jakkasandra Post, Kanakapura Taluk, Ramanagara District, Pin Code: 562 112

CERTIFICATE

This is to certify that the project centric learning work titled **"Availability of Farmers in your Gadgets"**is carried out by **VEERENDAR S (21BTRCS201), RASHMIKA TALLURI (21BTRCS215), VARUN GOPI GUNDABATHULA (21BTRCS221), VASANTH RAJ R (21BTRCS222)** Bonafide students of Bachelor of Technology at the Faculty of Engineering & Technology, Jain Deemed-to-be University, Bangalore in partial fulfillment for the project centric learning activity of degree in Bachelor of Technology in Computer Science & Engineering, during the year **2024-2025.**

Dr. Abhisek Midya	***Dr. Mahesh T R***	***Dr. Geetha.G***
Professor	*Program Head,*	Director,
Dept. of CSE,	Dept. of CSE,	School of Computer Science and Engineering
School of Computer Science and Engineering	School of Computer Science and Engineering	JAIN (Deemed-to-be University)
JAIN (Deemed-to-be University)	JAIN(Deemed-to-be University)	
Date:	Date:	Date:

Name of the Examiner Signature of Examiner

1.

2.

DECLARATION

We, **VEERENDAR S (21BTRCS201), RASHMIKA TALLURI (21BTRCS215), VARUN GOPI GUNDABATHULA (21BTRCS221), VASANTH RAJ R (21BTRCS222) are students of 8th semester B.Tech in Computer Science & Engineering, at Faculty of Engineering & Technology, Jain (Deemed - to-be) University, hereby declare that the project Centric Learning (PCL) titled " Availability Of Farmers In Your Gadgets " has been carried out by us and submitted in partial fulfillment for the award of degree in Bachelor of Technology in Computer Science & Engineering during the academic year 2024-2025.**

Further, the matter presented in the project (PCL) has not been submitted previously by anybody for the award of any degree or any diploma to any other University, to the best of our knowledge and faith.

Name1: Veerendar S USN: 21BTRCS201	
Name 2: Rashmika Talluri USN:21BTRCS215	
Name 3: Varun Gopi Gundabathula USN: 21BTRCS221	
Name 4: Vasanth Raj R USN: 21BTRCS222	

Place : Bengaluru
Date :

ACKNOWLEDGEMENT

It is a great pleasure for us to acknowledge the assistance and support of a large number of individuals who have been responsible for the successful completion of this project work.

First, we take this opportunity to express our sincere gratitude to Faculty of Engineering & Technology, Jain (Deemed - to - be) University for providing us with a great opportunity to pursue our Bachelor's Degree in this institution.

*In particular we would like to thank **Dr. S A Hariprasad**, Director, Faculty of Engineering & Technology, Jain (Deemed - to - be) University for their constant encouragement.*

*we would like to thank **Dr. Geetha**, Dean Academic, Faculty of Engineering & Technology, Jain (Deemed - to - be) University for their constant encouragement and support.*

*we would like to thank **Dr. Mahesh T R**, Program Head, Faculty of Engineering & Technology, Jain (Deemed - to - be) University for their constant encouragement and expert advice.*

*We would like to thank our guide **Prof. Abhisek Midya**, **Dept. of Computer Science & Engineering**, Jain (Deemed - to - be) University, for sparing his/her valuable time to extend help in every step of our project work, which paved the way for smooth progress and fruitful culmination of the project.*

*We would like to thank our PCL Coordinators **Moin Hasan** and all the staff members of Computer Science & Engineering for their support.*

We are also grateful to our family and friends who provided us with every requirement throughout the course.

We would like to thank one and all who directly or indirectly helped us in completing the Project phase1 work successfully.

Signature of Students

ABSTRACT

Agriculture remains the backbone of the Indian economy, directly or indirectly supporting the livelihoods of a majority of its population. Despite advancements in other sectors, the agricultural domain continues to be the most vital, as it supports food security and fuels various industries. However, a significant challenge persists: the disconnect between farmers and end consumers, resulting in loss of revenue, product wastage, and reliance on multiple intermediaries. With the rapid digital transformation in rural India—marked by the growing penetration of smartphones and affordable internet services—there is a rising opportunity to revolutionize agricultural practices using mobile technology. This project proposes a smart solution in the form of a mobile application that directly connects farmers and consumers on a single digital platform. The app empowers farmers to list their produce, track demand, and interact with consumers, all from their own mobile devices. On the other end, consumers can browse available products, place orders, and have fresh farm produce delivered to their doorsteps. The key innovation of this project lies in making *farmers digitally available in your gadgets*—ensuring real-time access to local produce, direct communication with producers, and transparency in pricing. The app acts not just as a marketplace but as a bridge between rural productivity and urban consumption. Furthermore, the solution leverages the increasing rural mobile subscriber base and introduces a user-friendly Android application tailored for low-tech users, ensuring inclusivity and scalability.

By reducing the role of middlemen and making agricultural products easily accessible through mobile devices, this application aims to enhance farmer incomes, reduce consumer costs, and foster a sustainable digital agricultural ecosystem in India.

TABLE OF CONTENTS

1. INTRODUCTION:

Agriculture is the art and science of cultivating the soil, growing crops and raising livestock. It includes the preparation of plant and animal products for people to use and their distribution to markets. Agriculture is the primary occupation of the larger part of Indian population. 65 – 70% of Indian population is being depends on agriculture for their living. Online marketing is referred to those strategies and techniques which use online ways to reach target customers. Online Marketing is also known as Internet Marketing, Web Marketing, Digital Marketing, or EMarketing. Online marketing is the process of marketing a product or service using the internet. Online marketing not only includes marketing on the Internet, but also includes marketing through e-mail and wireless media. Online marketing of agricultural products means marketing of agricultural products through online ways from agricultural producers to any business houses or ultimate consumers.

Agricultural producers are also trying to develop this marketing channel even though there are many barriers of selling agricultural products via the Internet. Farmers may use the Internet to sell agricultural products for consumers and also for organizations. E-marketing is most useful to the farmers since the benefits are high and electronic systems are ready to serve customers all over the world and open for 24 hours in a day. The cost incurring is also low. New opportunities are shaped by smart phone technology for farmers are capable with a low cost smart phone and the particular software to gain facilities which couldn't available on their hands before. So, agricultural development is the utmost priority now as role of digital marketing is concerned, it tries to expand the reach of the people associated with agriculture, it helps in promoting right Agriculture products to its rightful buyers by reaching out to new people across diverse locations.

Agriculture, the foundation of civilization, is more than just the cultivation of land—it's a complex system that fuels the economy, provides food security, and sustains millions of livelihoods. In India, where around 65–70% of the population depends on agriculture for their survival, the need to modernize agricultural practices is critical. Despite its massive role in the economy, the agricultural sector continues to face major challenges, including lack of direct access to markets, exploitation by middlemen, delayed payments, and limited reach to potential buyers.

With the advent of digital technologies and the rapid spread of affordable smartphones, a new window of opportunity has opened for Indian farmers. Mobile technology is no longer just a tool for communication—it is becoming a powerful medium for economic transformation. The increasing internet penetration in rural areas has made it possible to bring farmers closer to consumers, organizations, and marketplaces in real time—essentially making **farmers available in your gadgets**.

This concept refers to the creation of mobile platforms or applications that digitally connect farmers to buyers, enabling them to list their produce, communicate directly with customers, and fulfill orders seamlessly. These digital tools make farmers accessible anytime, anywhere—bridging the gap between agricultural supply and consumer demand. This system empowers farmers to take charge of their own sales and distribution, improves price transparency, and reduces dependency on traditional marketing channels that often limit their profits.

2. LITERATURE REVIEW:

[1] Abdul Kareem and Ibrahim Babatunde 2000-Role of Infomautomation and communication technology in sustainable agriculture in Nigeria by states that agricultural production dominate occupation of most Nigerians and small holders farmers remain the bulk suppliers of food and fibre for her growing populace. Information and communication technology (IT) in sustainable agriculture in Nigeria has a high potentials like any other part of the World

[2] Bowonder B, Vinay Gupta and Amit Singh 2007- Developing a Rural Market e- hub-The case study of e-Choupal experience of ITC by presented a paper on the above subject and discuss - IT has potential to make significant inroads in a traditional agrarian economy like India. Indian agro-sector has been exploiting the benefits to IT. Innovative IT application platforms are being created by private sector players in conjunction with local farmers. The main reasons for the success of the platform have been the involvement of local farmers and maintenance of the rural IT network by the corporate entity.

[3] Bolarinwa K. K. & Irene S Egyir, Apantaku S.O, 2014- Utilization of Information Communication Technology's Components for Coordination of Marketing, Commodities in Oyo State Nigeria- Despite the role of IT's in ACM the marketers have not been able to make use of facilities frequently because of those constraints identified in this study hence, a programme that will provide solutions to those constrains should be promoted

[4] Chukwunonso Franklyn and Aisha Tukur, 2012 Problems and Prospects of adopting IT in Agriculture Some Comments , the authors discusses that today, IT has become one of the most important enabling forces for development. This paper is a focused attempt to contribute to a better understanding of adoption success factors and adoption problems of IT in agriculture. They also highlights e-Agriculture as an emerging field focusing on the enhancement of agricultural and rural development through improved information and communication processes. The paper concludes that "End Users" are the key factor in defining the needs and critical success factors for IT development and implementation.

[5] Chikaire JU and others 2016 -Perceived role of information and communications technology in improving agricultural livelihoods of rural farmers In Imo State, Nigeria by presents that raising farmers' productivity and incomes are a necessity. This study investigated the roles ITs play in improving farmer's agricultural livelihoods. IT's play important roles in farmer's welfare and should be encouraged for use by farmers in both rural and urban areas.

[6] Devan J Patel and Kapil K Shukla, 2014 - Challenges and opportunities for IT initiatives in agricultural marketing in India in their paper the authors concluded that; agriculture is different from industry and plays a significant role in the economic development of a nation. India's prosperity depends upon the agricultural prosperity. Agricultural marketing involves many operations and processes through which the food and raw materials move from the cultivated farm to the final consumers. The paper at length discusses about the challenges and the opportunities for IT mediated services for agricultural marketing.

[7] Dagar G presented paper, 2015on Study of Agriculture Marketing information systems and their implication, explain the main purpose of marketing information system (MIS) is to support in marketing decision making and marketing efforts of entrepreneurs and farmers. This paper looks into the various types of agricultural marketing information systems prevalent and attempts to provide a broad perspective on marketing information system agriculture sector.

[8] Elijha OA and others in their paper on Analysis of the uses of information and communication technology for gender empowerment and sustainable poverty alleviation in Nigeria states that this study presents information and communication technology (IT) as a phenomenon that fits into the globalization project of empowering gender and sustainable poverty alleviation in Nigeria. Using ITs to support poverty reduction is found to be possible, practical and affordable if Nigerian government acknowledges its role as a major employer and user of IT beginning with a development commitment that targets poverty alleviation.

[9] Janet Khyaa (1999) Role of Agriculture technology in Agriculture, in his paper focuses on the agriculture in developing countries. They summarises the importance of information technology in generating and disseminating agriculture technology identities the categories of technology users in the form of technology dissemination

3. OBJECTIVE AND METHODOLOGY:

3.1 Objectives

The main objective of the proposed system is to **create a seamless digital bridge between farmers and consumers**, eliminating middlemen and ensuring mutual benefit. The detailed objectives include:

- **Direct Farmer-to-Consumer Connectivity**: Establish a user-friendly platform that allows farmers to directly connect with consumers, businesses, and wholesalers without intermediaries, thereby increasing transparency and trust.
- **Profit Maximization for Farmers**: Enable farmers to sell their produce at competitive prices by giving them access to real-time market demand and customer needs. This helps them avoid exploitation and enhances income through fair pricing.
- **Reduction of Post-Harvest Wastage**: By facilitating faster sale and delivery of produce through pre-orders and direct transactions, the app minimizes the storage time and wastage of perishable goods.
- **Enhanced Quality Assurance**: The system can incorporate customer feedback and product rating features, which will encourage farmers to maintain product quality and consistency.
- **Customer Satisfaction and Convenience**: Consumers get access to fresh, local produce at reasonable prices, and can choose from a variety of items based on availability, location, or reviews. Timely deliveries and product transparency ensure a better buying experience.
- **Empowering Rural India through Technology**: By making the app available in multiple regional languages and with a simple interface, it promotes digital literacy and economic empowerment in rural communities.

3.2 Methodology

The development and implementation of this mobile application involve a structured and user-centric approach, ensuring smooth interaction between all stakeholders—farmers, consumers, and system administrators. The steps involved are:

1. **User Registration**:
   - Farmers and customers must first register on the app using their mobile numbers or email IDs.
   - Identity verification (e.g., Aadhaar number, PAN, or basic KYC) may be added for authenticity.
   - Farmers will be required to input details like crop type, quantity, location, and banking information.
2. **Language and Accessibility**:
   - To make the app accessible for rural farmers, it will be available in various regional languages with a voice-guided interface or tutorials for ease of use.
3. **User Login**:
   - After successful registration, users can log in using secure credentials (username and password or OTP-based login).
4. **Product Uploading by Farmers**:
   - Farmers can list products with descriptions, quantity, price, photos, and expected delivery time.
   - An intuitive interface will help farmers easily update stock availability or product details.

5. **Product Browsing by Customers**:
    - Consumers can browse listed products using filters such as category, location, price range, or freshness rating.
    - Product information, farmer details, and past ratings/reviews will be visible.
6. **Order Placement and Payment**:
    - After selecting the desired product, customers proceed to a secure checkout.
    - Payments are made through integrated payment gateways supporting UPI, net banking, wallets, or credit/debit cards.
    - On successful transaction, the payment is directly credited to the farmer's registered bank account.
7. **Logistics and Delivery**:
    - Delivery services are coordinated either through in-house logistics or third-party delivery partners.
    - Both farmers and customers will be able to track the order status in real time.
8. **Feedback and Support**:
    - Customers can leave feedback for products, helping others make informed decisions.
    - A support section is included to address issues like payment failures, delivery delays, or registration problems.
9. **Admin Panel**:
    - An admin dashboard will monitor app activity, manage user accounts, address disputes, and ensure content moderation for smooth operations.

4. SYSTEM DESIGN

The system is designed as a lightweight web application aimed at bridging customers with local farmers. It ensures modularity, maintainability, and performance using a clear separation of frontend and backend responsibilities.

- **Client-Server Architecture**:
  - **Client-side**: Separate interfaces for **Customer**, **Farmer**, and **Admin**.
  - **Server-side**: Handles routing, product management, user roles, order processing (built with Flask or similar backend).

4.1 Functional Modules

4.1.1 Login & Role Management Module

- **Inputs**: Username, password
- **Frontend**: Login pages for Customer, Farmer, and Admin
- **Backend Route**: /login, /register, /auth_check
- **Function**: Authenticates user and redirects based on role

---

4.1.2 Product Management Module (Farmer/Admin)

- **Inputs**: Product name, quantity, price, image, category
- **Frontend**: Product entry form
- **Backend Routes**: /add_product, /update_product, /delete_product
- **Function**: Farmers/Admins can add and manage product listings

---

4.1.3 Order Module (Customer)

- **Inputs**: Selected product, quantity
- **Frontend**: Product listing with "Order Now" button
- **Backend Routes**: /place_order, /view_orders
- **Function**: Allows customers to place orders and view past orders

---

4.1.4 Order Management Module (Farmer)

- **Endpoints**: /manage_orders, /accept_order, /reject_order
- **Function**: Displays incoming orders to the farmer with accept/reject actions and order status updates

---

4.1.5 Admin Dashboard Module

- **Features**:
  - View all users (customers/farmers)
  - Add/Remove farmers
  - Monitor products and orders
- **Routes**: /admin_dashboard, /remove_user, /view_all_orders

4.2 Database Schema Design (SQLite)

Users Table

Column	Type
id	Integer
name	Text
email	Text
password	Text
role	Text (customer/farmer/admin)

Products Table

Column	Type
id	Integer
farmer_id	Integer
name	Text
quantity	Integer
price	Real
category	Text
image_url	Text

Orders Table

Column	Type
id	Integer
customer_id	Integer
farmer_id	Integer
product_id	Integer
quantity	Integer
status	Text
timestamp	Datetime

4.3 Security Considerations

- Passwords stored using hashing (e.g., bcrypt)
- Input sanitization to prevent SQL injection
- Role-based access control
- Sensitive data hidden from unauthorized roles

4.4 Scalability and Extensibility

- Migrate to PostgreSQL for better performance with growing data
- Add real-time chat between customer and farmer using WebSocket
- Mobile app extension via RESTful APIs
- SMS or email notification system using Twilio or SendGrid
- Analytics dashboard for Admin using chart libraries

5. HARDWARE AND SOFTWARE REQUIREMENTS:

The following are basic hardware and software required to train and test the program.

5.1 Hardware Requirements

1. Processor : Intel Dual-Core processor.
2. RAM : 2-4 GB.
3. HDD : 10 GB.

5.2 Software Requirements

1. Operating System - Windows 10,8,7,Windows 2007/XP.
2. Documentation -MS Word, MS PowerPoint, MS Excel.
3. Language – HTML, CSS, JAVASCRIPT, REACT.JS, NODE.JS AND MONGODB

6. RESULT AND DISCUSSION:

6.1 Implementation

The proposed application focuses on digitally transforming the agricultural supply chain by connecting farmers directly with end consumers, removing the need for intermediaries and minimizing post-harvest losses. The following are key elements of the implementation strategy:

- Direct Connection Between Farmers and Consumers: The app will act as a digital marketplace where farmers can list their produce, and customers can place orders directly. This helps build trust and transparency in the buying process.
- Multi-Language Support: To make the app inclusive and farmer-friendly, it will support multiple regional languages. This ensures ease of use for farmers across different parts of India, irrespective of literacy levels in English.
- Decentralized Distribution Without Warehouses: Instead of storing goods in warehouses, the model promotes an "on-demand harvesting" system. Farmers will receive orders through the app and then harvest and pack the produce accordingly, ensuring freshness and reducing waste.
- Farmer-Driven Pricing and Feedback: Farmers can set prices for their products based on market trends, quality, and seasonality. Direct feedback from customers will help farmers understand preferences, improve product quality, and build long-term customer relationships.
- Delivery Logistics: A dedicated delivery system will be set up with delivery personnel responsible for picking up produce from farms and delivering it to consumers. Real-time tracking will be available for both farmers and consumers.
- Farmer Education and Awareness: The app will also serve as a knowledge-sharing platform. It can include tutorials, videos, and alerts regarding best agricultural practices, weather forecasts, pest control, and market trends to keep farmers informed and empowered.
- Secure Transactions: All payments will be processed via safe and trusted digital payment gateways, ensuring farmers receive instant payments without delays.

6.2 Results and Discussion

The implementation of the app demonstrates several positive outcomes and potential impacts on both farmers and consumers, as outlined below:

- Improved Market Access for Farmers: Farmers, particularly small and marginal ones, gain direct access to markets and customers without needing to rely on middlemen or market agents. This broadens their reach and increases visibility.
- Increased Profit Margins: As there are no intermediaries involved, the profits that would otherwise go to wholesalers or retailers go directly to the farmers. This boosts their income and improves their livelihood.
- Fresh and Quality Produce for Consumers: Consumers benefit from receiving freshly harvested produce straight from the farms. This not only ensures better quality but also enhances nutritional value and taste.
- Customer Convenience and Trust: The app enables customers to browse, select, and purchase products at their convenience, with full transparency of product origin, pricing, and farmer profiles. This builds a trustworthy buying environment.

- Real-Time Order Tracking: Delivery tracking adds an extra layer of convenience and reliability, allowing consumers and farmers to monitor the status of each order and plan accordingly.
- Reduced Post-Harvest Losses: Since produce is harvested after the order is placed, the chances of spoilage and wastage are significantly reduced. This aligns with sustainable farming practices.
- Boost to Rural Digitization: Encouraging rural farmers to adopt smartphone technology for business purposes promotes digital literacy and encourages the use of e-commerce platforms in agriculture.
- Potential for Expansion: The model can be scaled to include additional services like weather-based alerts, crop insurance, machinery rentals, bulk orders for institutions, and connections to transport and packaging service providers.

7. CONCLUSION:

The integration of modern technology with agriculture has emerged as a transformative force, especially in developing countries like India, where a significant portion of the population relies on farming for their livelihood. This project demonstrates how mobile applications, particularly on the Android platform, can revolutionize agricultural marketing by enabling **direct farmer-to-consumer communication and commerce**, bypassing traditional bottlenecks.

Our application addresses long-standing limitations in the agricultural supply chain—chief among them being middlemen exploitation, delayed payments, lack of market access, and wastage due to storage or delayed distribution. By providing a platform where farmers can list their produce, set their own prices, and engage with consumers in real-time, we empower them with **greater control over their sales, income, and relationships with buyers**.

From the consumer's perspective, the application offers access to **fresh, locally grown produce at fair prices**, coupled with the convenience of digital ordering and home delivery. The app ensures transparency, encourages trust, and supports local economies while promoting sustainable consumption patterns.

The incorporation of **multi-language support**, **secure payments**, and **real-time logistics tracking** makes the platform inclusive, safe, and practical, especially for rural users with limited digital literacy. Additionally, by offering educational content and alerts related to farming practices, weather updates, and market trends, the app doubles as a **knowledge hub**, contributing to digital empowerment in rural areas.

As India continues its digital transformation journey, such solutions can play a critical role in bridging the gap between technology and grassroots agriculture. The positive impact of this system is not just economic but also **social and environmental**, as it promotes fair trade, reduces waste, and builds a more connected, transparent agricultural ecosystem.

Moving forward, this project holds great potential for scalability. Features such as AI-based crop suggestions, predictive analytics for pricing, integration with government schemes, and partnerships with logistics providers can be explored to further enhance functionality and outreach.

In conclusion, **"Availability of Farmers in Your Gadgets"** is not just a concept—it is a practical step towards democratizing agriculture, giving power back to the hands that feed us, and fostering a future where technology and tradition go hand in hand.

8. FUTURE RESEARCH SCOPE:

While the current model of "Availability of Farmers in Your Gadgets" provides a functional platform for connecting farmers with customers, there are several enhancements planned for the future to improve reliability, security, and user experience. One key area of improvement is the **validation of user-provided addresses**. Currently, the address input is stored as plain text without any checks. In future iterations, we aim to integrate location-based services such as Google Maps API or PIN code verification to ensure accurate and deliverable addresses, which will significantly reduce delivery failures and improve logistics planning.

Another essential feature under consideration is **price validation**. At present, the system allows farmers to enter any value for their products. To maintain fair trade and consistency across the platform, rules and constraints will be introduced to check for unusually high or low prices. This includes setting minimum and maximum thresholds, possibly based on current market rates or admin-defined boundaries.

Additionally, the **admin management system** will be expanded to handle the entire delivery process. This includes assigning delivery agents, tracking orders, updating delivery statuses, and managing logistics more efficiently. A dashboard for admins will be introduced to provide an overview of ongoing deliveries, delays, and completed orders.

One of the most crucial features planned for implementation is the integration of **secure payment methods**. The current model lacks an in-app payment facility, which limits user convenience. Future updates will include payment gateway integrations like Razorpay, UPI, or PayPal to enable secure and seamless transactions. This will also facilitate payment tracking for both farmers and customers.

These upgrades will make the platform more robust, user-friendly, and scalable, allowing it to better serve both local farmers and the growing customer base.