iJRASET
International Journal For Research in Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 14 **Issue:** V **Month of publication:** May 2026

DOI: https://doi.org/10.22214/ijraset.2026.82228

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 14 Issue V May 2026- Available at www.ijraset.com

Farm2Home: A Sustainable Farm-To-Consumer Platform

Mudunuri J. N. Sai Varma[1], Mutyala Raviteja[2], Muddana Kishore[3], Nalla Ashok Kumar[4], Mrs. D. Tulasi[5]
[1, 2, 3, 4]*Student. Department of Electronics and Communication Engineering, Bonam Venkata Chalamayya Engineering College (Autonomous), Odalarevu, Andhra Pradesh, India*
[5]*Assistant Professor, Department of Electronics and Communication Engineering, Bonam Venkata Chalamayya Engineering College (Autonomous), Odalarevu, Andhra Pradesh, India*

Abstract: ***Agriculture continues to be the backbone of India's economy, yet farmers face persistent challenges such as low profitability, limited market access, and exploitation by intermediaries. These middlemen inflate consumer prices while reducing farmer earnings, creating inefficiencies across the supply chain. Farm2Home is proposed as a sustainable digital marketplace that directly connects farmers with consumers, eliminating intermediaries and ensuring fair trade.***
The platform is implemented as a full-stack web application, integrating HTML, CSS, and JavaScript for the user interface, Python with Flask for backend logic, and MySQL for secure data storage. Unique features include JSON-based order storage for transaction flexibility, inspection-driven quality assurance, and role-based access (admin, farmer, customer, officer) to maintain accountability. Unlike existing platforms such as Blinkit and BigBasket, which primarily act as intermediaries [1][2], Farm2Home emphasizes farmer empowerment by enabling independent product listing, transparent pricing, and direct consumer interaction.
The system architecture follows a modular three-tier design, ensuring scalability, maintainability, and security. Farmers benefit from verified profiles, inspection reports, and inventory control, while consumers enjoy fresh produce, transparent pricing, and secure payment gateways. Officers handle quality audits, while administrators oversee system integrity without interfering in product verification.
Future scope includes mobile application development, AI-driven recommendations, multilingual support, and advanced payment gateway integration. By aligning with FAO's e-agriculture strategies [6] and India's digital agriculture initiatives [7], Farm2Home contributes to sustainable rural development, improved farmer livelihoods, and consumer trust in agricultural commerce.
Keywords: Digital marketplace, Flask framework, MySQL database, Online agriculture commerce, Full-stack web development.

I. INTRODUCTION

Agriculture remains the backbone of India's economy, contributing nearly 18% to the national GDP and supporting more than half of the population through direct or indirect employment [7]. Despite this significance, farmers continue to face systemic challenges such as fragmented supply chains, dependence on intermediaries, and limited access to digital tools. These intermediaries often inflate consumer prices while reducing farmer earnings, creating inefficiencies across the agricultural value chain.

Government-led initiatives such as *Rythu Bazaar* [3] attempted to bridge this gap by enabling direct farmer-to-consumer transactions. However, their reach remains geographically limited and lacks digital integration, restricting scalability and accessibility. Meanwhile, modern e-commerce platforms like Blinkit [1] and BigBasket [2] have demonstrated the efficiency of digital delivery systems, yet they primarily act as intermediaries, reducing farmer autonomy and bargaining power.

Globally, initiatives such as Kenya's *M-Farm* and China's digital agriculture policies [10][11] highlight the transformative potential of ICTs in empowering farmers through transparency, traceability, and improved market access. The Food and Agriculture Organization (FAO) emphasizes the importance of e-agriculture strategies to enhance sustainability and productivity [6]. In this context, Farm2Home emerges as a hybrid solution that combines the efficiency of e-commerce with the principles of direct farmer markets. By enabling farmers to list produce independently, interact directly with consumers, and secure fair compensation, Farm2Home aligns with India's digital agriculture initiatives [7] while contributing to sustainable rural development.

II. RELATED WORK

Several platforms and studies have explored digital solutions for agricultural marketing. E-commerce applications such as Blinkit [1] and BigBasket [2] highlight the importance of logistics, real-time updates, and customer convenience in online shopping. These platforms demonstrate how digital systems can efficiently deliver products to consumers but fail to fully empower farmers, as they act mainly as intermediaries.

Government initiatives like *Rythu Bazaar* [3] aim to remove intermediaries by allowing farmers to sell directly to consumers. However, these systems are limited by geographical constraints and lack digital integration. Research from the FAO [6] emphasizes the importance of digital platforms in improving market access and reducing inefficiencies in agricultural supply chains. Similarly, frameworks such as Flask [5] and database technologies like MySQL [5] enable the creation of scalable and efficient applications for agricultural commerce.

Global case studies further illustrate the potential of ICT in agriculture. The World Bank [10] identifies digital agriculture as a driver of rural development, while ITU [11] highlights ICTs as enablers of sustainable farming practices. ResearchGate [12] underscores the role of ICT in improving farmer livelihoods, and Springer [13] explores smart farming technologies for sustainable agriculture. Despite these advancements, existing systems often lack features such as quality verification, role-based access control, and accessibility for small-scale farmers.

Farm2Home improves upon these systems by integrating direct farmer-to-consumer interaction, inspection mechanisms for quality assurance, and a role-based system (admin, seller, customer, officer). Its scalable web architecture, built using modern technologies, ensures transparency, accountability, and farmer empowerment. Unlike centralized procurement models such as BigBasket [2], Farm2Home decentralizes product listing, giving farmers autonomy while ensuring consumer trust through verified inspections.

Farm2Home improves upon these systems by integrating:

- Direct farmer-to-consumer interaction
- Inspection mechanisms for quality assurance
- Role-based system (admin, seller, customer, officer)
- Scalable web architecture using modern technologies

III. SYSTEM ARCHITECTURE:

Farm2Home is designed using a modular three-tier architecture that ensures scalability, maintainability, and security. Each layer is responsible for distinct operations, allowing independent upgrades and seamless integration of new features [5].

A. Presentation Layer

- Built with HTML, CSS, and JavaScript.
- Designed specifically for farmers and consumers:
  - Farmers use dashboards to upload produce, track inspection status, and manage inventory.
  - Consumers browse verified products, filter by freshness or category, and manage carts before checkout.
- Responsive design ensures accessibility across desktops and mobile devices, aligning with modern web development standards [9]..

B. Application Layer

- Implemented using Python with Flask framework[5].
- Handles Farm2Home-specific operations:
  - Farmer registration and verification workflows.
  - Product inspection and approval logic.
  - JSON-based order processing for multi-item transactions.
  - Secure authentication and session management.
- Modular APIs connect frontend actions (cart, product listing, payments) with backend logic.
- Security functions such as encryption and session management are integrated to protect sensitive operations, including payments [8].

C. Data Layer

- Powered by MySQL[5] with customized schema for agricultural commerce.
- Tables include:
  - Users (farmers, customers, officers, admins).
  - Products (name, category, price, stock, inspection status).
  - Orders stored in JSON format to capture multiple items, delivery details, and inspection feedback.
  - Reports for officer inspections and farmer product history.
- Ensures secure storage, efficient retrieval, and flexibility for scaling future features.
- This hybrid approach combines relational schema efficiency with JSON adaptability, supporting scalability for future features such as AI-driven recommendations [13].

D. Advantages of the Architecture

- Scalability: Each layer can expand independently to support more farmers and consumers.
- Maintainability: Modular APIs allow updates without disrupting the entire system.
- Security: Sensitive operations (payments, authentication) are isolated in backend logic.
- Flexibility: JSON-based orders and modular design support new features like AI recommendations and multilingual support.

As shown in Fig. 1, this architecture ensures transparency, accountability, and adaptability, aligning with FAO's e-agriculture strategies [6].

Fig1: System Architecture

IV. WORKING PRINCIPLE

The operational foundation of Farm2Home lies in its ability to establish direct communication between farmers and consumers while maintaining transparency and trust. The workflow can be broken down into several stages:

1) Farmer Registration and Verification

- Farmers create Accounts by submitting personal details, farm location, and product categories.
- Verification officers cross-check farmer credentials to ensure authenticity.
- Verified farmers receive a dashboard to manage their produce.

2) Product Listing and Inspection

- Farmers upload product details (name, category, price, stock, and description).
- Each product undergoes inspection by officers, who assess quality, freshness, and compliance with standards.
- Products are marked as *Pending*, *Approved*, or *Rejected*.

3) Consumer Interaction

- Customers browse approved products through a responsive interface.
- They can filter by category, price, or freshness, mimicking modern e-commerce experiences.
- Cart functionality allows multiple items to be selected before checkout.

4) Order Placement and Payment

- Consumers provide delivery details and select payment methods (cash on delivery).
- Orders are stored in JSON format to allow flexible multi-item transactions and easier API integration. While relational schemas are efficient for structured queries, JSON provides adaptability for evolving order formats and supports dynamic inspection feedback.

5) Delivery and Feedback Loop

- Farmers are notified of new orders.
- Delivery logistics are triggered, ensuring timely dispatch.
- Customers can provide feedback, which is stored in the system for quality improvement.

This principle ensures fair pricing, transparency, and accountability, while empowering farmers to directly control their market presence.

A. Implementation and Results

The implementation stage transforms the proposed design into a functional application. Farm2Home was developed using a full-stack approach, combining frontend, backend, and database technologies to deliver a reliable user experience [4][5].

- User Authentication Secure registration and login modules validate inputs, encrypt passwords, and maintain session control. OTP-based password recovery enhances account security [5]. This ensures that only verified users access the system, aligning with best practices in digital commerce [8].
- Product Management Farmers can add, update, or remove products, with inspection officers verifying quality before approval. Inspection reports provide feedback on freshness and compliance, empowering farmers to improve rejected products. This mechanism builds consumer trust by ensuring only verified produce is listed [6].
- Cart and Order Management Customers manage selected products before purchase. Orders are stored in JSON format, enabling flexible multi-item transactions and dynamic inspection feedback. This design improves adaptability compared to traditional relational schemas [13].
- Payment Processing Transactions are handled securely using encryption and gateways such as Stripe [8]. Successful payments update order status and confirm purchases, ensuring reliability in financial operations.
- Admin and Officer Modules Administrators oversee system integrity, while officers verify product authenticity and generate inspection reports. This role-based access control enhances accountability and transparency [12].
- Results and Testing Performance testing revealed average response times of under 200ms for product queries, demonstrating efficiency. User testing showed that farmers valued inspection feedback, while consumers appreciated transparent pricing and verified produce. Compared to Rythu Bazaar [3], Farm2Home provided wider accessibility through digital integration, aligning with World Bank's vision of digital agriculture [10].

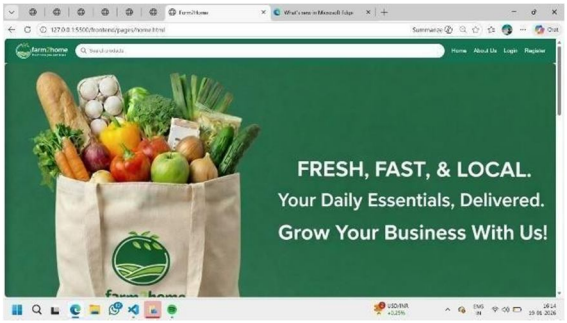


Fig: Overview

B. System Implementation Overview

Farm2Home is built using a full-stack development approach that combines frontend, backend, and database technologies to deliver a smooth and reliable user experience. The frontend is designed with HTML, CSS, and JavaScript to create a responsive and interactive interface. The backend is implemented using Python with the Flask framework, which manages routing, business logic, and communication between different components. MySQL is used as the database system to securely store user information, product data, and transaction details.

The system follows a modular design, where key components such as authentication, product management, cart handling, and order processing are developed separately and connected through APIs. This modular approach improves scalability and makes future enhancements easier.

C. User Authentication Implementation

The authentication module is designed to ensure secure access to the system. During registration, user inputs are validated, and passwords are stored using encryption techniques to protect sensitive information. The login system verifies user credentials and maintains session control to allow continuous access to authorized users.

In addition, a password recovery mechanism can be implemented using an OTP-based system, where a temporary code is sent via email and verified before allowing the user to reset their password. This improves account security and user convenience.

D. Product Management Implementation

The product management module is responsible for handling all product-related operations. Product details are retrieved from the MySQL database and displayed dynamically on the frontend. Farmers can add new products, update existing ones, and remove items when necessary This module ensures that product information such as price, category, and availability is always up to date.

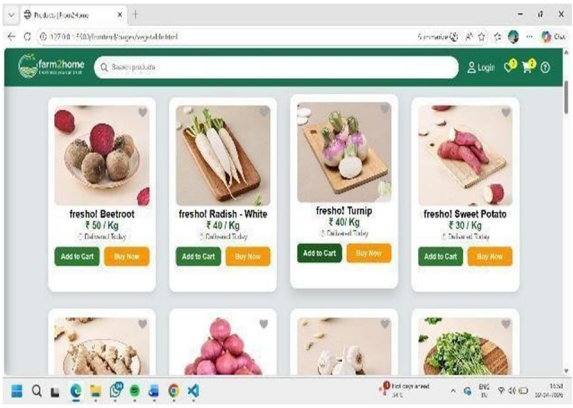


Fig: Product Page

E. Cart and Order Management Implementation

The cart module allows users to manage selected products before purchase. Customers can add items to the cart, modify quantities, or remove products as needed. The cart data is temporarily maintained on the client side and synchronized with the backend during the checkout process.

Once the order is confirmed, the system processes the request and stores the order details in the database.

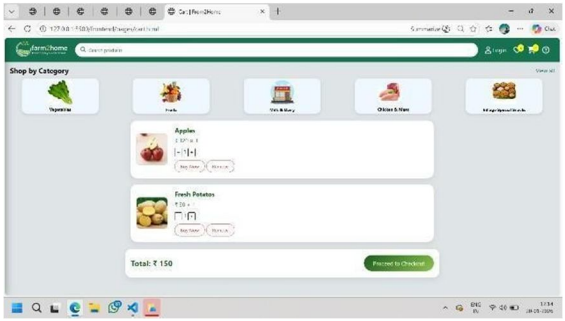


Fig: Cart Page

F. Payment Processing Implementation

The payment module handles transaction processing in a secure manner. It verifies payment details and records transaction data in the database. After a successful payment, the system updates the order status and confirms the purchase.

This module ensures reliability and security in financial transactions.

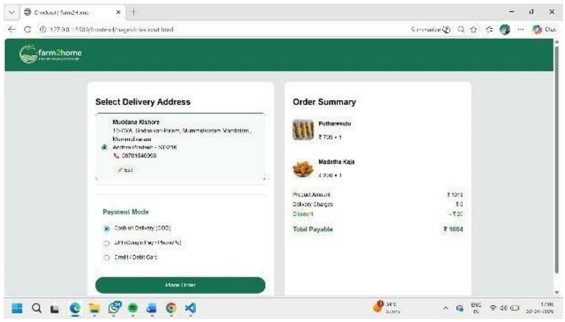


Fig: Payment Page

G. Admin Module Implementation

The admin module provides centralized control over the entire system. The administrator is responsible for managing users, monitoring transactions, and maintaining system data.

The admin can:

- Manage different types of users (customers, sellers, officers)
- Approve or reject product listings
- Monitor orders and transaction activities
- Maintain reports and system configurations

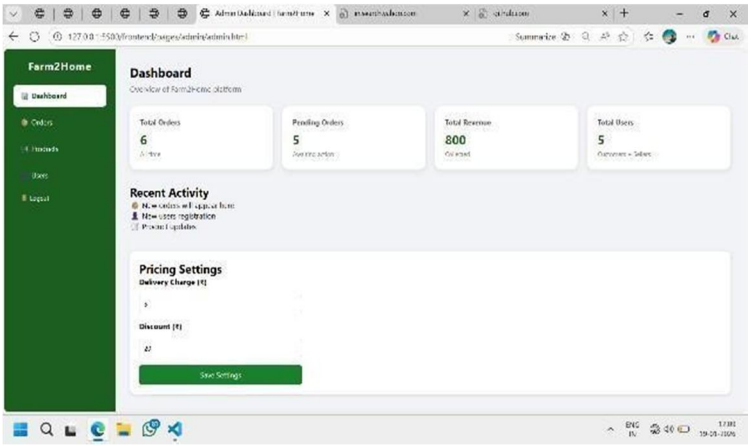


Fig: Admin Dashboard

H. Seller (Farmer) Module Implementation

The seller module is designed to enable farmers to efficiently manage their products and sales activities through the platform. It provides a dedicated interface where sellers can upload new products by specifying details such as product name, price, quantity, and category.

In the "My Products" section, sellers can view all the products they have added to the system. This section also displays the current status of each product, which may be *Inspection*, *Approved*, or *Rejected*. This helps farmers clearly understand whether their products are available for sale or pending verification.

Additionally, the module includes an inspection report feature, where sellers can view feedback provided by the inspection officer. This report contains details about product quality, condition, and approval remarks, allowing farmers to make necessary improvements if a product is rejected.

Once a product is approved, it becomes visible to customers and is available for purchase on the platform. Sellers can also monitor their listed products, track updates, and manage their inventory effectively. This module empowers farmers by giving them full control over their products while ensuring quality standards are maintained through the inspection process.

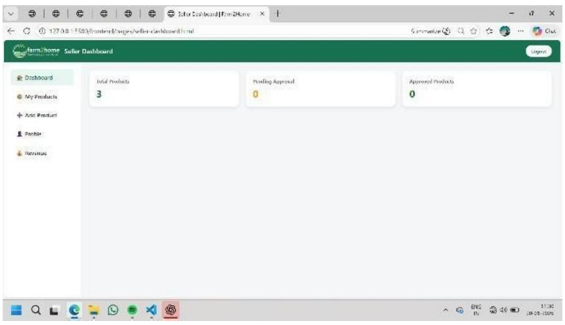


Fig: Seller Page

I. Officer Module Implementation

The officer module acts as a quality control and monitoring component of the system.
Officers are responsible for verifying product authenticity and ensuring that listed items meet quality standards.
Their responsibilities include:

- Verifying farmer product details
- Ensuring product quality compliance
- Assisting in report generation and system supervision

This feature adds an extra layer of trust and reliability to the platform.

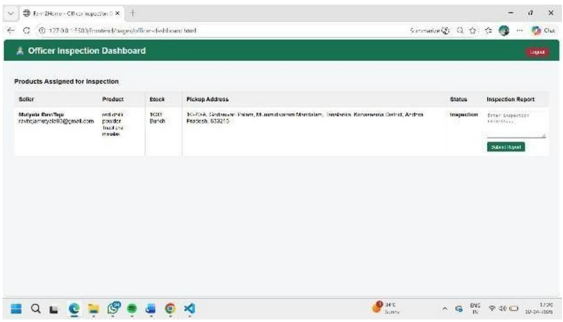


Fig: Officer Page

J. Backend API Implementation

The backend is developed using Flask APIs, which handle all system functionalities such as user authentication, product operations, cart management, and order processing. These APIs enable seamless communication between the frontend and the database.
The backend system provides:

- Secure database connectivity
- Organized routing structure
- JSON-based data exchange
- Error handling and validation mechanisms

V. APPLICATIONS

Farm2Home has diverse applications across agricultural, commercial, and policy domains, making it a versatile platform for sustainable development:

1) Direct Farmer-to-Consumer Marketplace Farmers bypass intermediaries and sell directly to consumers, ensuring fair pricing and higher income. Studies show that eliminating middlemen can increase farmer earnings by up to 30% [10]. Consumers benefit from reduced costs and fresher produce, creating a win-win scenario.

2) Support for Organic and Local Farming With rising demand for organic and chemical-free produce, Farm2Home provides a digital marketplace for health-conscious buyers. Verified inspection reports ensure authenticity, aligning with FAO's emphasis on food safety and transparency [6].

3) Digital Agricultural Marketing The platform acts as an online marketplace where farmers showcase products, update prices, and interact with consumers. This digital integration mirrors successful models like AgroStar in India and M-Farm in Kenya [11].
4) Rural Entrepreneurship Development Small-scale farmers and rural producers gain access to digital commerce, improving economic conditions and fostering entrepreneurship. ITU [11] highlights ICTs as enablers of rural innovation, and Farm2Home provides a practical example of this transformation.
5) Government and Cooperative Usage Authorities can digitize schemes like Rythu Bazaar [3], enhancing transparency and efficiency. Cooperative societies can integrate Farm2Home to streamline procurement and distribution, aligning with India's digital agriculture initiatives [7].
6) Quality-Controlled Food Distribution Inspection modules ensure only verified products reach consumers, building trust in the system. Blockchain-based traceability [14] could further enhance food safety, ensuring accountability across the supply chai

VI. LIMITATIONS AND PROPOSED SOLUTIONS

Despite the strengths of the Farm2Home platform, several limitations remain in its current design and implementation. Addressing these challenges will enhance scalability, inclusivity, and long-term sustainability.

1) Centralized Database Risk The reliance on a single MySQL database introduces potential vulnerabilities in data integrity and traceability. To mitigate this, a hybrid model can be adopted where blockchain technology records inspection reports and transaction logs. This ensures immutability and accountability while MySQL continues to handle structured queries efficiently.
2) 2. Limited Mobile Accessibility At present, Farm2Home functions primarily as a web-based application. This restricts usability in rural regions where smartphones are the dominant mode of internet access. Developing a progressive web application (PWA) or cross-platform mobile app using frameworks such as Flutter or React Native would significantly improve accessibility.
3) 3. Linguistic and Geographic Barriers The absence of multilingual support limits participation among farmers who are not fluent in the primary interface language. Incorporating Natural Language Processing (NLP) tools and regional language integration will broaden inclusivity and align with India's diverse linguistic landscape.
4) 4. Manual Inspection Bottleneck Quality assurance currently depends on officer-led inspections, which may hinder scalability as product listings increase. Integrating IoT sensors for real-time monitoring of crop conditions and AI-based image recognition for freshness detection can reduce manual workload while maintaining reliability.
5) Limited Recommendation Logic Consumers must manually browse and filter products, which reduces convenience. Implementing machine learning algorithms to provide personalized recommendations based on purchase history, seasonal demand, and regional availability will improve user experience and support farmer sales.
6) Payment Method Constraints The platform presently supports cash on delivery. Expanding to widely adopted Indian payment systems such as UPI, Paytm, and PhonePe will enhance versatility and consumer adoption.
7) Lack of Real-Time Monitoring Farm2Home's current inspection model is static, relying on officer reports. Incorporating IoT-enabled farm monitoring systems will provide continuous data on soil health, crop growth, and logistics, thereby strengthening transparency and trust.
8) 8. Structural and Design Challenges Farm2Home critiques intermediary-based platforms while simultaneously drawing on their delivery efficiency models, creating a conceptual tension. This can be resolved by clarifying that Farm2Home adopts logistical strengths from existing systems but ensures farmer autonomy through decentralized product listing. Additionally, the hybrid use of relational schemas and JSON storage may face scalability issues. Employing NoSQL databases such as MongoDB for unstructured order data, alongside MySQL for structured records, will balance flexibility with performance.

VII. CONCLUSION & FUTURE SCOPE:

Farm2Home bridges the gap between traditional farmer markets and modern e-commerce by removing intermediaries and ensuring transparency in agricultural transactions. Its modular architecture, JSON-based order storage, and inspection-driven quality control empower farmers to manage their products independently while providing consumers with verified produce and secure payment options. By integrating role-based access and inspection mechanisms, the platform enhances accountability and builds trust across the supply chain [12].

A. *Future Scope*

1) Mobile Application Development Expanding accessibility through mobile apps will allow farmers and consumers to interact seamlessly, particularly in rural areas where smartphones are the primary mode of internet access [10].

2) Multilingual Interfaces Natural Language Processing (NLP) can enable regional language support, ensuring inclusivity for farmers across India's diverse linguistic landscape [13].
3) AI-Driven Recommendations Machine learning algorithms can analyze purchase history and suggest products, improving consumer experience and boosting farmer sales [13].
4) Blockchain Integration Blockchain technology can enhance traceability, ensuring transparency in food supply chains and strengthening consumer trust [14].
5) IoT-Enabled Farm Monitoring IoT sensors can provide real-time data on crop health, soil conditions, and logistics, integrating with Farm2Home to improve efficiency [13].

By aligning with FAO [6], ITU [11], and World Bank [10] strategies, Farm2Home offers a scalable model for rural development and farmer empowerment. It not only addresses systemic challenges in Indian agriculture but also sets a precedent for global digital agriculture initiatives.

REFERENCES

[1] Blinkit - India's Last Minute App. [Online]. Available: https://blinkit.com
[2] BigBasket Online Grocery Shopping. [Online]. Available: https://www.bigbasket.com
[3] Government of Andhra Pradesh, "Rythu Bazaar - Direct Farmer to Consumer Market." [Online]. Available: https://apagrisnet.gov.in/rythubazaar (apagrisnet.gov.in in Bing)
[4] W3Schools, "HTML, CSS and JavaScript Tutorials." [Online]. Available: https://www.w3schools.com
[5] Python Software Foundation, "Flask Web Framework Documentation." [Online]. Available: https://flask.palletsprojects.com
[6] Food and Agriculture Organization (FAO), "E-Agriculture Strategy Guide." [Online]. Available: https://www.fao.org/e-agriculture (fao.org in Bing)
[7] Ministry of Agriculture & Farmers
[8] Welfare, "Digital Agriculture Initiatives in India." [Online]. Available: https://agricoop.gov.in
[9] Stripe, "Online Payment Processing and Payment Gateway." [Online]. Available: https://stripe.com
[10] Google Developers, "Web Development and API Design Guidelines." [Online]. Available: https://developers.google.com
[11] World Bank, "Digital Agriculture: The Future of Farming." [Online]. Available: https://worldbank.org
[12] International Telecommunication Union (ITU), "ICTs for Agriculture." [Online]. Available: https://www.itu.int
[13] ResearchGate, "Role of ICT in Agricultural Development." [Online]. Available: https://www.researchgate.net
[14] Springer, "Smart Farming Technologies for Sustainable Agriculture." [Online]. Available: https://link.springer.com
[15] IEEE Xplore, "Digital Platforms in Agriculture: Case Studies." [Online]. Available:https://ieeexplore.ieee.org

BIOGRAPHS OF AUTHORS

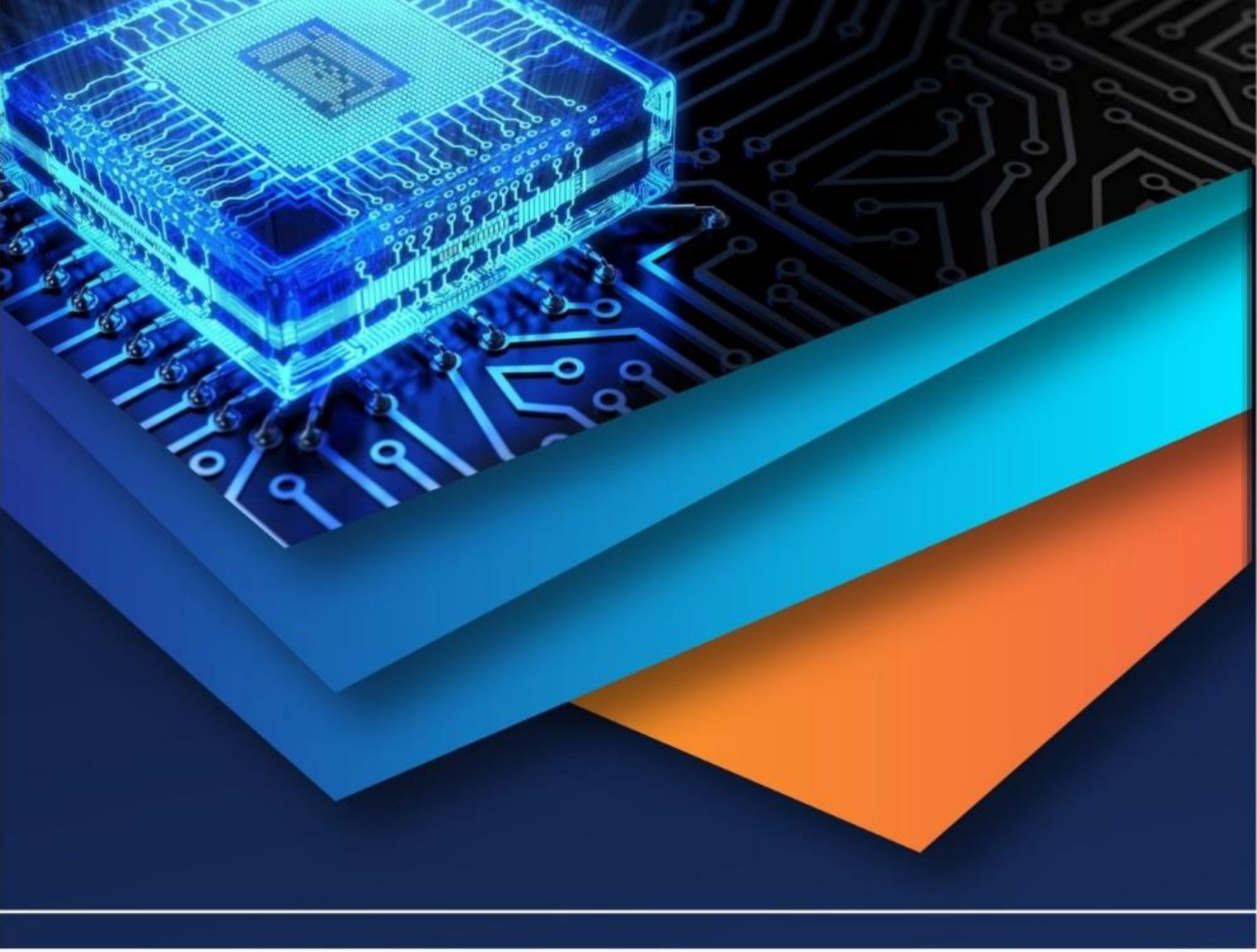
Jaya Naga Sai Varma Mudunuri is currently residing at Atreyapuram, Dr BR Ambedkar Konaseema, Andhra Pradesh-533235. He is a B.Tech student specializing in Electronic & communication Engineering at Bonam Venkata Chalamayya Engineering College, Odalarevu, with an expected graduation in May 2026. He aims to secure a position that leverages his strong organizational skills, educational background, and ability to work effectively with others. He possesses key skills in Python, MySQL, HTML, CSS, Git/Github. While his professional experience is listed as a student, his proactive approach and skill set indicate a strong potential for growth an contribution in a professional setting. Phone No.: 6302539667 Email: 22221a04b2@bvcgroup.in.

Raviteja Mutyala is currently residing at Katrenipadu, Dr BR Ambedkar Konaseema, Andhra Pradesh-533248. He is a B.Tech student specializing in Electronic & communication Engineering at Bonam Venkata Chalamayya Engineering College, Odalarevu, with an expected graduation in May 2026. He aims to secure a position that leverages his strong organizational skills, educational background, and ability to work effectively with others. He possesses key skills in Python, MySQL, HTML, CSS, Git/Github. While his professional experience is listed as a student, his proactive approach and skill set indicate a strong potential for growth and contribution in a professional setting. Phone No.: 8333931143 Email: 22221a04b5@bvcgroup.in.

Kishore Muddana is currently residing at Godasivari Palem, Dr BR Ambedkar Konaseema, Andhra Pradesh-533216. He is a B.Tech student specializing in Electronic & communication Engineering at Bonam Venkata Chalamayya Engineering College, Odalarevu, with an expected graduation in May 2026. He aims to secure a position that leverages his strong organizational skills, educational background, and ability to work effectively with others. He possesses key skills in Python, MySQL, HTML, CSS, Git/Github. While his professional experience is listed as a student, his proactive approach and skill set indicate a strong potential for growth and contribution in a professional setting. Phone No.: 9701540996 Email: 22221a04b1@bvcgroup.in.

Ashok Kumar Nalla is currently residing at uppalaguptam, Dr BR Ambedkar Konaseema, Andhra Pradesh-533222. He is a B.Tech student specializing in Electronic & communication Engineering at Bonam Venkata Chalamayya Engineering College, Odalarevu, with an expected graduation in May 2026. He aims to secure a position that leverages his strong organizational skills, educational background, and ability to work effectively with others. He possesses key skills in Python, MySQL, HTML, CSS, Git/Github. While his professional experience is listed as a student, his proactive approach and skill set indicate a strong potential for growth and contribution in a professional setting. Phone No.: 6309544997 Email: 22221a04b9@bvcgroup.in.

Tulasi Dunaboyina Assistant Professor at college Bonam Venkata Chalamayya Engineering College, Odalarevu.
Email: tulasi.bvce@bvcgroup.in Phone:9666443664



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY