SMART INDIA HACKATHON 2024

Basic Details of the Team and Problem Statement

- **Problem Statement ID -** SIH1637
- **Problem Statement Title -** Mobile App for Direct Market Access for Farmers
- **Ministry/Organization/Student Innovation -** Ministry of Agriculture and Farmers Welfare
- **Institute Name –** MVSR Engineering College
- **Theme-**Agriculture,FoodTech & Rural Development
- **PS Category-** Software
- **Team Name –** Team.Phoenix

TEAM PHOENIX

IDEA TITLE

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IDEA/SOLUTION

Mobile App for Direct Market Access
Connects farmers directly with Consumers,allowing them to list their Produce and negotiate prices without intermediaries

❖ **Core Features:**

- ❑ **Product Listing:**Farmers can easily upload details and images of their Yield
- ❑ **Real-Time Pricing:**Displays current market prices,enabling informed Decision-making
- ❑ **Secure Payment Gateway:**Ensures safe and transparent transactions
- ❑ **Logistic Interaction:**Offers options for transportation and delivery coordination

PROBLEM RESOLUTION

- ❑ **Eliminates Middlemen**:Direct interaction between Farmers and Buyers lead to better prices for Farmers
- ❑ **Increases Transparency**:Farmers can see Real-Time demand and pricing,reducing the chance of exploitation
- ❑ **Lowercosts for Consumer:** Without middlemen's markup, consumers can buy the commodities at lower prices, making healthy food more affordable
- ❑ **Reducing Delays**:Direct access speeds up delivery,keeps fresher Produce and Reduces Spoilage

Unique Value Prepositions(UVP)

- ❑ **USSD triggered offline authentication mechanism** supports offline banking
- ❑ **User-Centric Design**:Simple interface for all Farmers' Digital Skills
- ❑ **Blockchain Tracking** :Connects Farmers globally and uses Blockchain for transparency in tracking Produce
- ❑ **Quad level** custom **Encryption** Algorithm ,a specialized encryption method with four distinct layers of security

TECHNICAL APPROACH

TECHNOLOGIES TO BE USED

- **Mobile App Development :**

React Native,ensuring cross-platform compatability

- **Quad-level Encryption:**

Python:for prototyping and integration with libraries such as 'PyCryptodome'

- **USSD Code for offline authentication:**

Twilio,services that provide USSD Code handling and Python,for implementing the server-side logic that processes USSD request

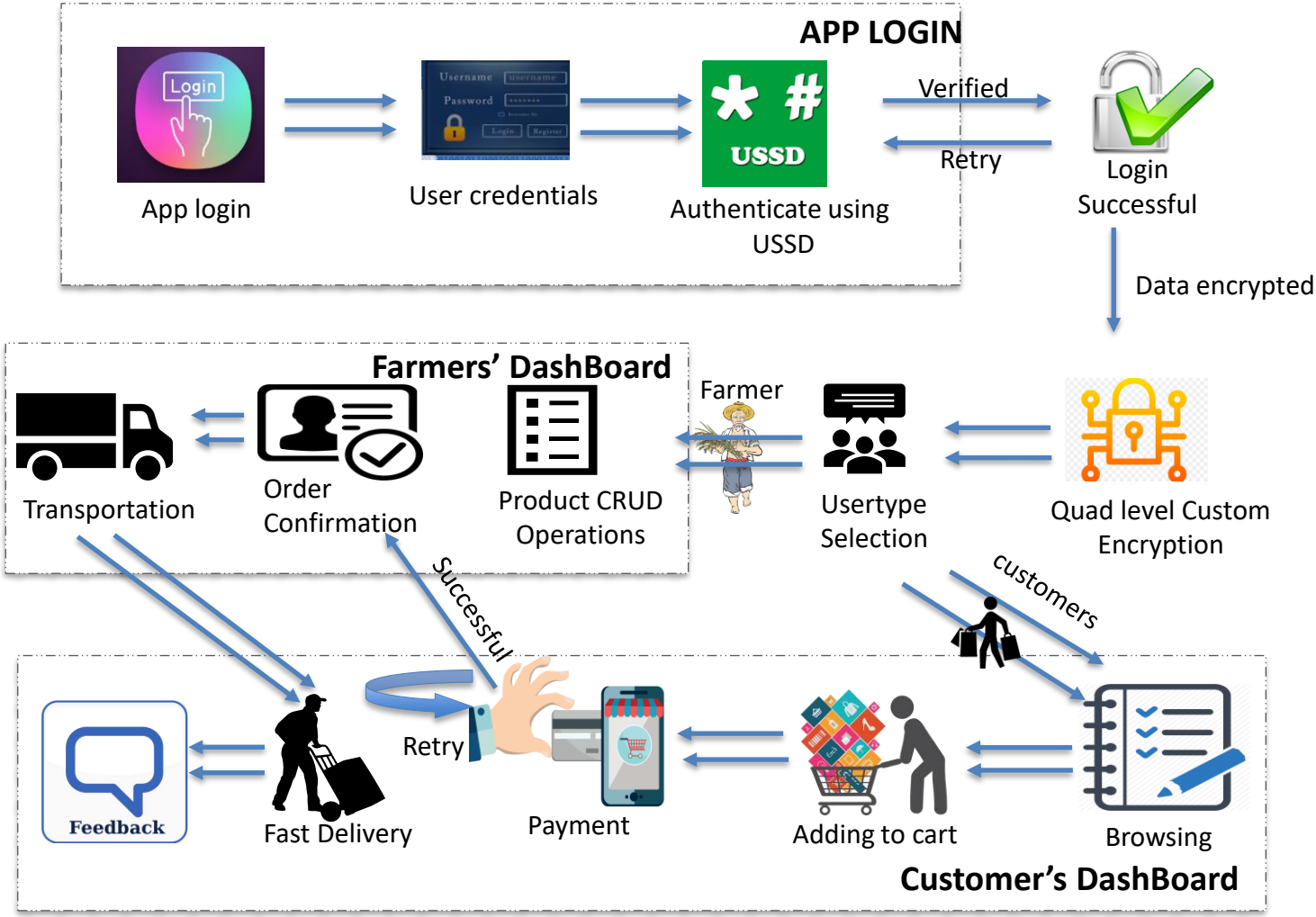
- **Blockchain and Payment Transactions:**

Solidity for smart contract development and Stripe,paypal for secure transactions

- **Cloud services:**

Google cloud platform for cloud computing,storage, And machine learning services

PROCESS FLOW ARCHITECTURE



FEASIBILITY AND VIABILITY

FEASIBILITY ANALYSIS

- **Technical:**High feasibility with existing technologies like USSD,Quad level Encryption, and Blockchain, but skilled development is required for effective integration
- **Market:**There is moderate market feasibility due to growing interest in farmer-consumer platforms, but competition is high. Success will depend on differentiation and effective market entry
- **Operational:**Operationally, the app is feasible but may require training farmers to adopt it and smooth logistics to integrate with existing practices
- **Economical:**The economic feasibility is strong, with potential for significant returns if the app can scale and capture a broad user base.

Potential Challenges and Risks

- **Technical**: Securing transactions and scaling the platform
- **Market**: Building trust and standing out in a competitive space
- **Operational**: Managing logistics and ensuring adoption
- **Economic**: Balancing costs and revenue generation

Strategies for overcoming Challenges

- **Method:** Use agile development for iterative improvements and quick adaptation to challenges
- **Principle:** Focus on user-centric design and regular security updates to maintain trust
- **Overcoming:** Provide training for farmers and use machine learning for demand prediction
- **Algorithms:** Implement blockchain to optimize supply chain management and ensure transparency

IMPACT AND BENEFITS

POTENTIAL IMPACT

- **Positives:**
- **Improvement:** Enhanced market access for farmers, streamlined transactions
- **Economical:** Increased income opportunities and cost savings
- **New Opportunities:** Access to new markets and better pricing
- **Social Benefits:** Empowerment of farmers, improved community welfare

- **Negatives**:
- **Cost:** Initial setup and maintenance expenses
- **Technology:** Potential tech barriers or system failures
- **Adoption Issues:** Resistance to change or training challenges.

BENEFITS OF THE SOLUTION

- **Social:**
- **Better Access:** Easier for farmers to reach markets
- **Empowerment:** More control over pricing and sales
- **Community Support:** Improved social equity and support

- **Economical:**
- **Increased Productivity:** More efficient operations and market reach
- **Cost Savings:** Lower transaction and operational costs
- **Market Expansion:** Improved pricing and market access

- **Environmental:**
- **Energy Efficiency:** Reduced energy use with efficient systems
- **Waste Reduction:** Less food waste through improved supply chain management.

RESEARCH AND REFERENCES

FROM IEEE

P. Gyeltshen and K. Osathanunkul, **"Linking small-scale farmers to market using ICT,"** 2018 International Conference on Digital Arts, Media and Technology (ICDAMT), Phayao, Thailand, 2018, pp. 120-125, doi: 10.1109/ICDAMT.2018.8376507. keywords:

- This paper focuses on creating a low-cost Agriculture Market Information System (AMIS) using ICT and IoT devices to help small-scale farmers, even in rural, off-grid areas, market their produce directly from the field, reducing waste and eliminating middlemen to stabilize market prices.

From ScienceDirect

https://doi.org/10.1016/j.jafr.2024.101286

Digitalisation in agriculture: A scoping review of technologies in practice, challenges, and opportunities for smallholder farmers in sub-saharan africa

It highlights that

- Digital technologies offer transformative potential for smallholder farmers in sub-Saharan Africa.
- Challenges such as limited connectivity and low digital literacy hinder widespread adoption.
- By harnessing the opportunities presented by digital technologies, the livelihoods of smallholder farmers can be uplifted.

FROM IEEE

K. Saini, I. Mishra and S. Srivastava, **"Farmer's E-mart : An E-Commerce Store For Crops,"** 2021 3rd International Conference on Advances in Computing, Communication Control and Networking (ICAC3N), Greater Noida, India, 2021, pp. 346-350, doi: 10.1109/ICAC3N53548.2021.9725783

- This e-commerce website will let farmers sell their products directly to end-users at an appropriate cost without any middlemen.
- The platform not only helps the producers getting the deserving price for their goods but the customer getting fresh vegetables and fruits at a decent amount.

IMPORTANT INSTRUCTIONS

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Please ensure below pointers are met while submitting the Idea PPT:

1. **Kindly keep the maximum slides limit up to six (6). (Including the title slide)**
2. **Try to avoid paragraphs and post your idea in points /diagrams / Infographics /pictures**
3. **Keep your explanation precise and easy to understand**
4. **Idea should be unique and novel.**
5. **You can only use provided template for making the PPT without changing the idea details pointers (mentioned in previous slides).**
6. **You need to save the file in PDF and upload the same on portal. No PPT, Word Doc or any other format will be supported.**

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