

PRANVEER SINGH INSTITUTE OF TECHNOLOGY

Mini Project Proposal (BCS-554)

Team Id: 24_CS_AIML_3A_08

Team Details:

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Project Title: Agri-Contract Connect.

Domain:

1. Artificial Intelligence/ Machine Learning	2. Blockchain
3. Big Data / Cloud Computing	4. Internet of Things
5. Natural Language Processing	6. Cybersecurity
7. Data Analytics and Visualization	

Problem Statement:

Farmers in many regions face unpredictable market conditions, fluctuating prices, and lack of assured buyers, leading to income instability and agricultural inefficiencies. Middlemen often exploit the gap between farmers and markets, further reducing farmers' profits. Additionally, smallholder farmers struggle to access advanced farming techniques, quality inputs, and reliable market data, limiting their productivity and competitiveness.

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In today's market, there is a growing demand for transparency in supply chains, fair trade practices, and sustainable farming. Agro-industries and retailers are seeking consistent, high-quality produce, while farmers need guaranteed market access and price stability to ensure their livelihoods. **The Assured Contract Farming System** aims to bridge this gap by formalizing agreements between farmers and buyers, leveraging technology to offer secure, data-driven contracts, real-time farm monitoring, and transparent, fair pricing—ultimately addressing critical challenges in modern agriculture.

Proposed Solution:

The Assured Contract Farming System will integrate key technologies to create a robust platform for farmers and buyers, leveraging Artificial Intelligence/Machine Learning (AI/ML) to analyze historical data and real-time inputs for forecasting crop yields and optimizing farming practices. Blockchain will facilitate secure smart contracts, ensuring transparency and trust in transactions. Big Data and Cloud Computing will provide scalable storage and processing capabilities for efficient agricultural data analysis. Additionally, Internet of Things (IoT) devices will gather real-time data on soil moisture, weather conditions, and crop health, enabling timely interventions. Natural Language Processing (NLP) will support multi-lingual communication, allowing farmers to access information in their local languages. Finally, Data Analytics and Visualization tools will help stakeholders track performance metrics, while robust Cybersecurity protocols will safeguard sensitive data and ensure secure transactions throughout the system.

Unique/Distinctive feature of the solution:

The Assured Contract Farming System is unique in its comprehensive integration of cutting-edge technologies tailored specifically for the agricultural sector. Its distinctive features include the use of smart contracts on a blockchain platform for secure, transparent transactions, and the

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deployment of IoT devices for real-time monitoring of crop conditions. Additionally, the combination of AI/ML for predictive analytics and NLP for multi-lingual support ensures accessibility and informed decision-making for farmers. This holistic approach not only fosters trust between stakeholders but also promotes sustainable farming practices, setting it apart from traditional contract farming models.

Tools/Technology Uses:

1) Hardware Requirements (Minimum Requirements):

- a) Processor: Quad-core processor (Intel i5 or equivalent) for efficient data processing and handling of AI algorithms.
- b) RAM: Minimum 8 GB RAM to support multiple applications and real-time data analytics.
- c) Storage: At least 256 GB SSD for faster data access and storage, with options for external cloud storage as needed.
- d) Graphics Card: Dedicated graphics card (NVIDIA GeForce GTX 1050 or equivalent) to support data visualization and machine learning tasks.
- e) IoT Gateway for data collection from sensors.
- f) Reliable internet connection for cloud computing and real-time updates.
- g) Mobile devices (smartphones/tablets) for farmer access to the application.

2) Software Requirements (Minimum Requirements):

Operating System: Windows 10 or higher, or a Linux distribution (Ubuntu or CentOS) for server-side applications.

Development Tools: Integrated Development Environment (IDE) like Visual Studio Code or PyCharm for coding & Frameworks like TensorFlow or PyTorch for AI/ML development.

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Database: Relational Database Management System (RDBMS) like PostgreSQL or MySQL for storing user and contract data & NoSQL options like MongoDB for handling large datasets and unstructured data.

Web Browser: Latest versions of Google Chrome, Mozilla Firefox, or Microsoft Edge for web application access.

Blockchain platform (e.g., Ethereum or Hyperledger) for implementing smart contracts.

Cloud services (e.g., AWS, Google Cloud, or Azure) for data storage and processing.

IoT platform (e.g., AWS IoT Core or Microsoft Azure IoT) for managing IoT devices and data.

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Proposal Evaluation:

1. Right Identification of the Problem (Appropriate selection of the problem)?
a) Excellent b) Good c) Needs Improvement d) Unacceptable
2. Relevance of the Solution (Adequately addressing the problem/need)?
a) Excellent b) Good c) Needs Improvement d) Unacceptable
3. Innovativeness in the Solution (Distinctive innovative components/features of the solution)?
a) Excellent b) Good c) Needs Improvement d) Unacceptable
4. Uniqueness of the Solution (Intellectual Property Component)?
a) Excellent b) Good c) Needs Improvement d) Unacceptable

Improvements/ Suggestions by the Evaluator:

1.	
2.	
3.	
4.	

Name of Faculty:

Designation:

Signature with Date: