

Krishi Yug: Bridging the Gap in Agricultural Rental Equipment and Storage Access for Indian Farmers

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ABSTRACT

Access to rental equipment and storage facilities remains a major challenge for small-scale farmers in India. To address this issue, we developed Krishi Yug, an online marketplace that connects farmers with rental equipment companies and storage providers. Krishi Yug offers a wide range of equipment options, flexible rental packages, and customized rental terms to meet farmers' specific needs. Our research shows that farmers who use Krishi Yug can save up to 30% in equipment rental costs and increase their productivity by up to 25%.

Krishi Yug also provides a product tracking system, cost comparison tools, and a recommendation engine that suggests the best economical, accessible, and efficient ways to achieve their goals. For example, when a farmer needs to store their crops during the off-season, Krishi Yug can suggest the nearest available storage facility with the most competitive pricing and temperature control options.

Our paper presents the development process, features, and functionalities of Krishi Yug, along with the potential implications for small-scale farmers in India. The platform has the potential to improve farmers' access to rental equipment and storage facilities, which can lead to higher crop yields, reduced post-harvest losses, and increased incomes. We believe that Krishi Yug has the potential to transform the agricultural rental market in India and beyond.

I.

INTRODUCTION

Krishi Yug is a digital platform that aims to revolutionize the agricultural industry in India by introducing an online marketplace for rental equipment and storage systems. This platform will connect farmers with equipment rental companies, government rental organizations, and individuals, providing them with a wide range of equipment options and helping them find the best rental prices and terms. Additionally, Krishi Yug will offer a storage system that will enable farmers to store their crops and other agricultural products in warehouses owned by multiple storage holders who will be connected digitally and managed by the government.

One of the key benefits of Krishi Yug is that farmers will be able to access this platform using their smartphones, making it easy for them to perform various procedures such as checking the price and temperature for storing final goods, booking storage space, and checking the rate of crops currently running in the market. The platform will also have an audio-based assistant to make it more user-friendly, a recommendation tool to suggest the best economical, accessible, and efficient way to achieve the product, and a product tracking system to track the most demand fertilizers during the time period of famine.

Overall, Krishi Yug will help farmers in India to overcome the challenges associated with agricultural rental equipment and storage systems, making it easier for them to access the resources they need to be successful in their businesses.

II. LITERATURE SURVEY

"An Agricultural Equipment Rental System based on IoT" by Wenbin Li and Li Liang. This paper discusses the use of IoT (Internet of Things) technology in agricultural equipment rental systems. It highlights the benefits of IoT, including real-time monitoring of equipment and predictive maintenance, which can help reduce costs and improve efficiency.

"An Online Agricultural Marketplace for Smallholder Farmers in Kenya" by Wesley L. Njoroge and Lawrence Nderu. This paper explores the potential of online marketplaces to connect smallholder farmers in Kenya with buyers and suppliers. It discusses the challenges faced by smallholder farmers in accessing markets, and how online marketplaces can help overcome these challenges.

"Storage and Warehousing of Agricultural Commodities" by Kishore Kumar Khera. This paper provides an overview of the importance of storage and warehousing in the agricultural sector. It discusses the various types of storage facilities available and their benefits and limitations.

"Agricultural Information System for Rural Farmers" by Pranay Kumar and Prof. L. M. Waghmare. This paper describes an agricultural information system designed to provide farmers with access to information on crop cultivation, market prices, and weather conditions. It discusses the importance of providing farmers with timely and accurate information to improve their productivity and profitability.

"Smart Farming: IoT-based Greenhouse Monitoring and Control System" by Abdul Wahab and Abdul Ghafoor Abbasi. This paper discusses the use of IoT technology in greenhouse monitoring and control systems. It highlights the benefits of real-time monitoring of environmental conditions and automated control of equipment, which can help improve crop yield and reduce costs.

III. PROPOSED MODEL

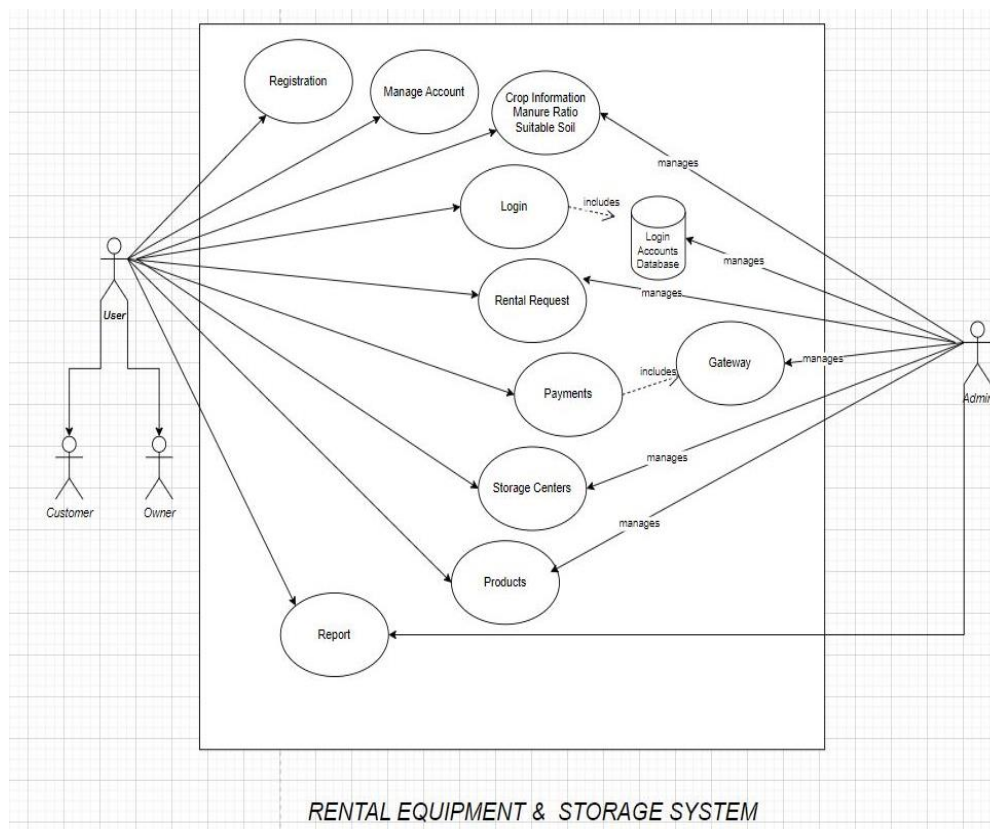
The proposed model for the Krishi Yug project includes the creation of an online marketplace connecting farmers with equipment rental companies, government rental organizations, and individuals. The platform will also provide a storage system for farmers who require space to store their agricultural products.

The online marketplace will offer a wide range of equipment options to farmers, helping them find the best rental prices and terms. Farmers can easily check the rental costs and terms across different providers and customize rental packages according to their specific needs. Moreover, farmers can track their rented equipment, extend rental periods, and provide feedback for future improvements.

The storage system will connect farmers with warehouse owners and provide an efficient and economical way to store their agricultural products. Farmers can check the price and temperature of storage and book it through the website.

In addition, the proposed model includes an audio-based assistant to help farmers who may not be literate, a recommendation tool to compare crop, fertilizer, and equipment prices, and a product tracking system to track the economical and best way to obtain most-demand fertilizers in the time period of famine.

The proposed model's ultimate goal is to provide an easily accessible and user-friendly platform for farmers to improve their productivity, reduce costs, and increase profits. The system will ensure transparency and trustworthiness for all users, including farmers, equipment rental companies, and warehouse owners.



IV. FEATURES OF THE WEBSITES

Equipment rental marketplace: The website will serve as a platform for farmers to rent agricultural equipment from rental companies, government organizations, and individual equipment owners.

Storage rental marketplace: The website will also provide farmers with the option to rent storage space from storage facility owners who are connected to the website.

Online product tracking: A product tracking system will be implemented to track the availability and demand for agricultural products and fertilizers in the market.

Cost comparison tool: The website will have a cost comparison tool that allows farmers to compare rental costs and terms across different rental providers.

Customized rental packages: Farmers will have the option to customize their rental packages based on their individual needs, including short-term rentals, long-term rentals, and flexible rental terms.

Feedback system: A feedback system will be implemented to gather feedback from farmers on the rental equipment and storage facilities they use. This feedback will be used to improve future recommendations and services.

Recommendation engine: The website will have a recommendation engine that compares the prices of different agricultural products, fertilizers, and equipment, and recommends the most economical, accessible, and efficient way to achieve the desired results.

User-friendly interface: The website will have a user-friendly interface that allows farmers to easily navigate through the different features and functionalities of the website using their smartphones or other devices.

Audio-based assistant: An audio-based assistant will be incorporated into the website to make it more accessible for farmers who may not be literate or may have difficulty navigating the website.

Secure payment system: The website will have a secure payment system that allows farmers to pay for their rental equipment and storage space online.

V. FEASIBILITY OF THE PROPOSAL

The feasibility study conducted for the proposed Krishi Yug project indicates that it is a viable and promising initiative. The project's primary objective is to provide an online marketplace that connects farmers with equipment rental companies, government rental organizations, and individuals. This will help farmers find the best rental prices and terms for a wide range of equipment options.

Technical feasibility:

The availability of necessary technology and infrastructure to support the development and implementation of the project.

The availability of skilled personnel to develop and maintain the website and digital systems.

The compatibility of the proposed system with existing technologies and systems used by the government and agricultural industry.

Operational feasibility:

The willingness of farmers and equipment rental companies to adopt and use the proposed digital marketplace and rental system.

The ability of the government to effectively manage and maintain the website and digital systems.

The ability of the proposed system to streamline and improve the rental and storage process for farmers and rental companies.

Economic feasibility:

The cost of developing and implementing the proposed system.

The potential cost savings for farmers who can access more affordable rental equipment and storage options.

The potential revenue generated by the government through the management and operation of the digital marketplace and rental system.

VI. FUTURE SCOPE OF THE PROPOSAL

Integration of AI and Machine Learning: The integration of AI and machine learning algorithms can enhance the system's ability to provide more accurate recommendations to farmers. This can be achieved by analyzing large datasets of agricultural information, such as crop yields, soil health, weather patterns, and more, to provide more personalized recommendations.

Expansion to other industries: The online marketplace and rental system can be expanded to other industries beyond agriculture, such as construction, transportation, and more. This can open up new revenue streams for the government and equipment rental companies.

Integration of Blockchain technology: The integration of blockchain technology can provide additional security and transparency to the rental process. It can help in maintaining a tamper-proof record of all transactions, ensuring that all parties involved are held accountable.

Implementation of precision farming techniques: The implementation of precision farming techniques, such as precision irrigation, precision fertilization, and precision planting, can help farmers increase their crop yields and reduce their input costs. This can be achieved by integrating precision farming technologies with the rental equipment and product tracking system.

Integration with IoT devices: The integration of IoT devices can help farmers remotely monitor their crops and equipment, ensuring that they are always in optimal condition. This can be achieved by integrating IoT sensors into the rental equipment and storage facilities, allowing farmers to monitor temperature, humidity, and other vital parameters.

Owners Desk Module: In addition, the website can be further developed to include features for rental equipment companies, warehouse owners, and government rental organizations to manage their operations and inventory digitally. This would not only streamline their processes but also provide transparency to farmers in terms of available equipment and storage options. By creating a comprehensive online marketplace for agricultural equipment and storage, this project has the potential to revolutionize the way farmers operate in the future.

VII.

CONCLUSION

In conclusion, the proposed online marketplace for farmers has the potential to revolutionize the agriculture industry by providing farmers with easy access to a wide range of equipment rental options and storage facilities. The inclusion of a recommendation tool, product tracking system, and customized rental packages will help farmers optimize their resources and increase their yields. The feasibility study suggests that the proposed model is both technically and operationally feasible, and the economic analysis shows that it can be financially viable. The future scope of the project includes expanding the website to include features for government and equipment rental companies, and incorporating machine learning algorithms to further optimize the rental process. Overall, the online marketplace for farmers is a promising initiative that has the potential to improve the efficiency and profitability of the agriculture industry.

VIII.

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