

AGRI-RENTX (SMART FARMING RENTALS)

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College : Shridevi Institute of Engineering and Technology, Tumakuru

Branch : Department of Information Science & Engineering

Guide(s) : Dr. Charan KV

Student(s) : Ms. Chandana S

Mr. Hithyash D

Ms. Prarthana

Mr. Shamanth R Patil

Keywords

Smart Farming, Agricultural Equipment Rental, Digital Platform, Farm Machinery Sharing, Online Rental System.

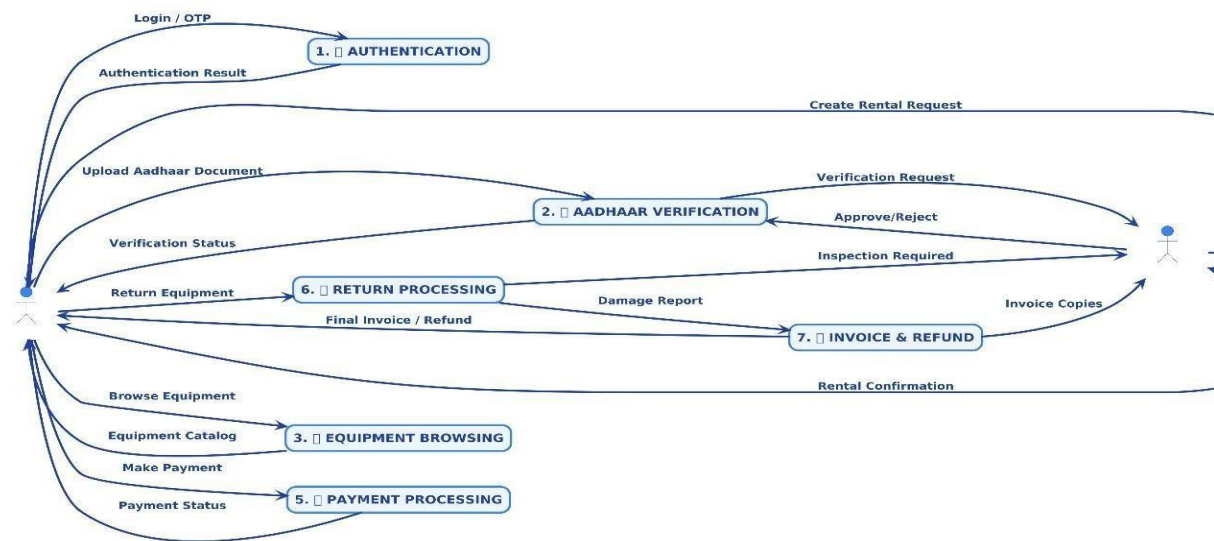
Introduction:

Agri-RentX (Smart Farming Rentals) is a web platform that makes it easy for farmers to rent agricultural equipment. Instead of relying on agents or personal contacts, users can browse machines, check availability, and book rentals online. The system includes secure OTP login and Aadhaar verification to prevent fraud, along with features like advance payments, wallet refunds, invoice generation, and real-time notifications. Built using Django, it manages users, equipment, rentals, and payments efficiently. By digitizing the rental process from booking to return, the platform improves transparency, reduces delays, and helps small farmers access machinery they cannot afford to buy.

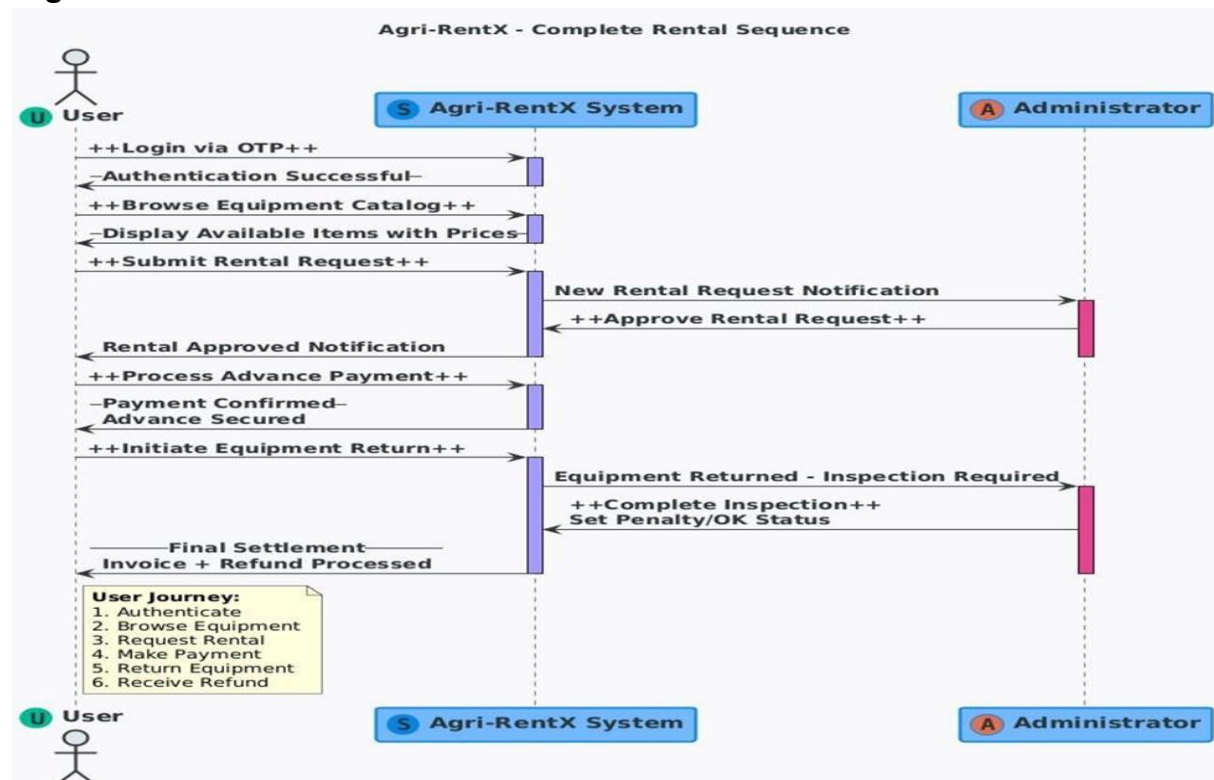
Objectives:

- To design and develop a scalable web platform for seamless discovery, booking, and management of agricultural equipment rentals.
- To provide affordable, on-demand access to modern machinery, reducing ownership costs for small and marginal farmers.
- To ensure secure user authentication using OTP and Aadhaar verification, preventing fraud and maintaining system trust.
- To automate the end-to-end rental process, including listing, availability tracking, booking, payments, returns, penalties, and refunds, with real-time monitoring and notifications.

Methodology



High-Level Architecture:



Result and Conclusion

1. Agri-RentX is a web-based platform that streamlines agricultural equipment rentals by enabling farmers to browse, book, and manage machinery online. It replaces unreliable manual methods with a secure system using OTP and Aadhaar verification, along with features like digital payments, invoice generation, and complete rental tracking.

2. The platform centralizes all data, reduces manual effort, and improves transparency across the rental process. With automated workflows, real-time notifications, and wallet-based refunds, it delivers an efficient and reliable solution that enhances resource utilization and is practical for real-world agricultural use.

Project Outcome & Industry Relevance

1. Agri-RentX is a scalable web platform that enables farmers to access agricultural equipment on demand, reducing ownership costs while ensuring a secure and efficient rental process through digital payments, automated records, and real-time notifications.
2. The system improves resource utilization by minimizing idle machinery and helps rental businesses manage operations effectively, making it a practical solution for real-world deployment and future integration with agri-tech and government initiatives.

Project Outcomes and Learnings

1. Agri-RentX is a functional web platform that streamlines agricultural equipment rentals with features like secure authentication, Aadhaar verification, equipment management, booking, payments, and invoice generation, improving accessibility and transparency.
2. The project strengthened practical skills in full-stack development using Django, including backend logic, database design, and frontend integration, along with problem-solving, debugging, and building scalable applications.

Future Scope

Agri-RentX can be enhanced by integrating automated Aadhaar verification, GPS-based equipment tracking, and secure payment gateways like UPI to improve reliability and user convenience. Adding a mobile application and intelligent damage assessment can further increase accessibility and reduce manual effort. These improvements would make the platform more scalable, efficient, and ready for real-world agricultural deployment.