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# Agriculture Wastage Management System

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***Abstract:***
*While most of the Agritech start-ups are focused either on supply chain, focus is now expanding to farm and yield management. The area that still remains UN explored is the "stubble left after grain segregation". Stubble burning is an alarming issue today in North India. We need to design a solution which can streamline and automate the process of stubble collection, transportation to desired location, notifications around stubble pickup and delivery, tracking of stubble disposal in a more environment friendly way. Agricultural waste includes organic and inorganic materials discarded after farming, such as crop residues, animal manure, waste feed, chemicals, and packaging. With large quantities produced annually it poses both challenges and opportunities. When managed well, this biodegradable, nutrient-rich waste can be composted or converted into biofuels or biogas, becoming a valuable resource. Agricultural waste can harm ecosystems and life quality through water pollution, reduced soil fertility, and health impacts. With a growing population and rising food demand, farmers must adopt cost-effective waste management practices to avoid landfills and promote eco-friendly strategies, ensuring a more resource efficient world.*

## Introduction

As the demand for animal products such a milk, meat, etc. has increased, producers have found ways to increase productivity and decrease the unit cost of production. Fossil fuels, inorganic fertilizer, pesticides, improved genetics of production species, better management techniques, and mechanization allowed productivity to increase to meet these demands. This has also meant concentration of more animals at each location. Confining some types of animals to houses or barns through all or most of their life cycle protects them from the weather and from predators and facilitates feeding, animal movement, and materials handling. Producers have benefited from economies of scale and product uniformity to provide the consumer with low-cost, high-quality meat and animal products.

These housing and confinement facilities employ specialized systems for materials handling, feed distribution, and, in the case of dairy, product collection and processing. Because of the large scale of these facilities, specialized waste collection and management systems are required. The manure, litter and process wastewater contains nitrogen, phosphorus, and potassium that are useful to plants if managed properly but, along with other pollutants such as pathogens, metals, and pharmaceuticals, could pollute the environment or harm human health if not handled properly. When properly applied to crop land as fertilizer, nutrients are used by crops, and other materials are generally rendered harmless in the soil. The purpose of waste management is to protect the environment and the public by keeping manure and contaminated waters out of surface and

ground water and controlling application of manure nutrients to crop land such that nutrients are available in the right quantity, at the right time and at the right place. Potential environmental benefits from reusing agricultural wastes include:

1) The reduced use of fertilizers and other artificial chemicals, which improves the overall quality of soil and water, and protects fauna and flora

2) The reduction of the demand for fertilizers, which is linked to lower environmental impacts from fertilizer production

3) The reuse of specific agricultural waste means that less waste is transported and disposed (e.g. in landfills with increased benefits for local ecosystems.

**Proposed System**

In this project we are proposing a solution to avoiding the agricultural wastage with android application implemented in java, the proposed application is flexible to use any one. the proposed application contain the formers, transportation , and small scale industries. this application will make interaction between the all the type of users and it will solve the problem . Allows customers to buy sustainable products made from agricultural waste. Allows customers to buy sustainable products made from agricultural waste. Utilizes agricultural waste efficiently and ensures fair profit distribution between farmers and industries.

**Literature survey**

Singh, Suhani, Ismail, and Srivastava (2023) *"Solid Waste Management: Challenges and Recent Solutions."* This book provides a holistic overview of waste management techniques, highlighting recent advancements and future projections. It focuses on maximizing the production of value-added products for environmental sustainability in a cost-effective manner.

Roy, Uttam K. *"Web Technologies," Oxford University Press.* This book covers fundamental concepts of web technologies that can support the development of digital platforms for waste management, enhancing the monitoring, data collection, and reporting processes.

The Journal of Solid Waste Technology and Management This journal publishes research papers providing significant contributions to the field of solid and liquid waste technology, management practices, policies, energy recovery, recycling innovations, and sustainable waste treatment methods.

Adejumo, I. O. and Adebiyi, O. A. (2022) *"Agricultural Solid Wastes: Causes, Effects, and Effective Management."* This work discusses the causes and environmental impacts of agricultural solid waste and proposes effective management strategies to mitigate negative effects and promote sustainability in agricultural practices.

Goodship, V. (2010) *"Management, Recycling and Reuse of Waste Composites," CRC Press, UK.* This book addresses the management, recycling, and reuse of waste composite materials, focusing on extending the lifecycle of materials and promoting environmentally sustainable industrial practices.

**Methodology**

The rainfall prediction system is developed using a data-driven, modular approach that enables accurate forecasting through efficient data handling and machine learning techniques. The methodology is divided into the following components:

Functional Requirements

Farmer Module:

• Register • Login • Add Wastage (id, name, quantity) • View Wastage • Delete Wastage • View

Industry Request • Update Request Status • View Transactions • Logout

**Industrialist Module:**

• Login • Add Product (id, name, price, industry share, farmer share, wastage id, farmer status, issaled, customerid) • View Products • Delete Products • View Transactions. • Send Message • View Message • Reply Messages • Logout

**Customer Module:** • Register • Login • Search Product • View product • Buy Product • View Transactions • Logout

**Computational Resources**

**Software Resources**

The software requirements document is the specification of the system. It should include both the definition and a specification of the requirements. It is a set of what the system should do rather than how it should do it. The software requirements provide a basis for creating the software requirements specification. It is useful in estimating cost, planning team activities, performing tasks and tracking the team's progress throughout the development activity.

• Database: MYSQL

• Web Server: Apache Tomcat

• Programming Language: Java 17

• Technology: Servlets, JSP, JDBC

• Client Side Technologies: HTML, CSS, Java Script

• IDESpring : Tool Suite 4

**Hardware Resources**

Hardware Requirements are the most common set of requirements defined by any operating system or software application is the physical computer resources, also known as hardware.

• Processor : intel i3 processor

• RAM : 4 GB

• Hard disk : 500GB

**Design**

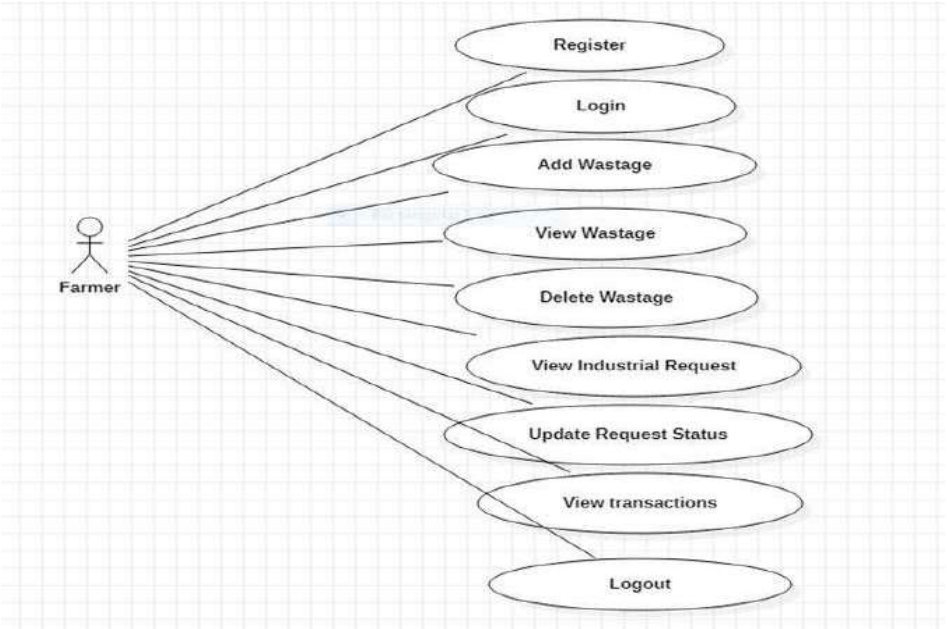


Fig 1 Farmer Use case diagram

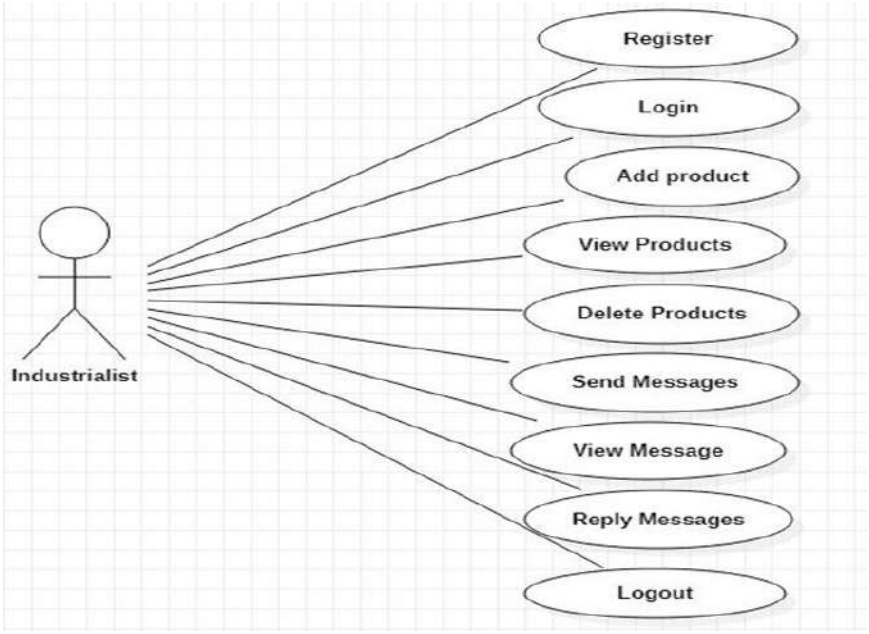


Figure 2 Industrialist Use case diagram

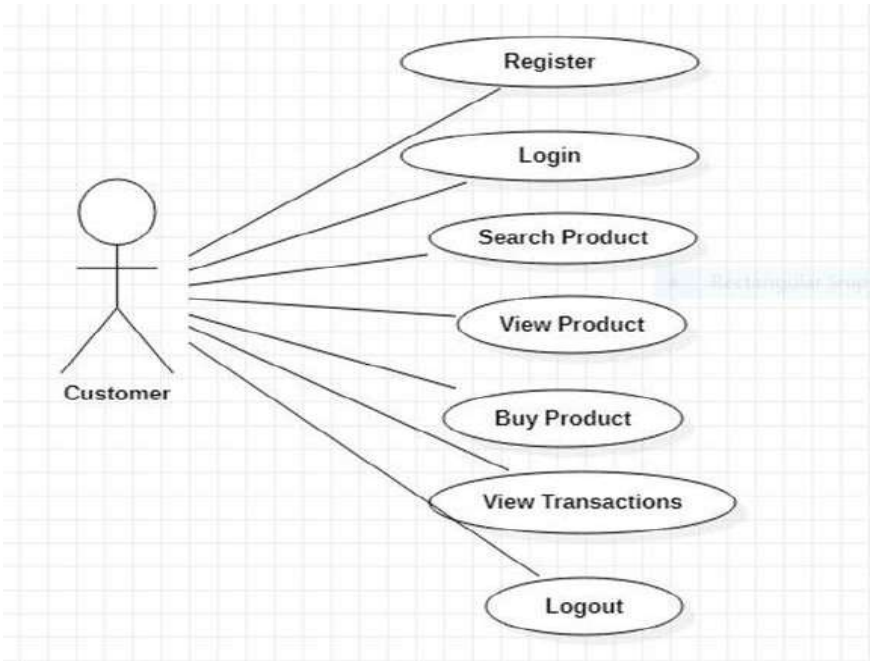


Figure 3 Customer Use case diagram

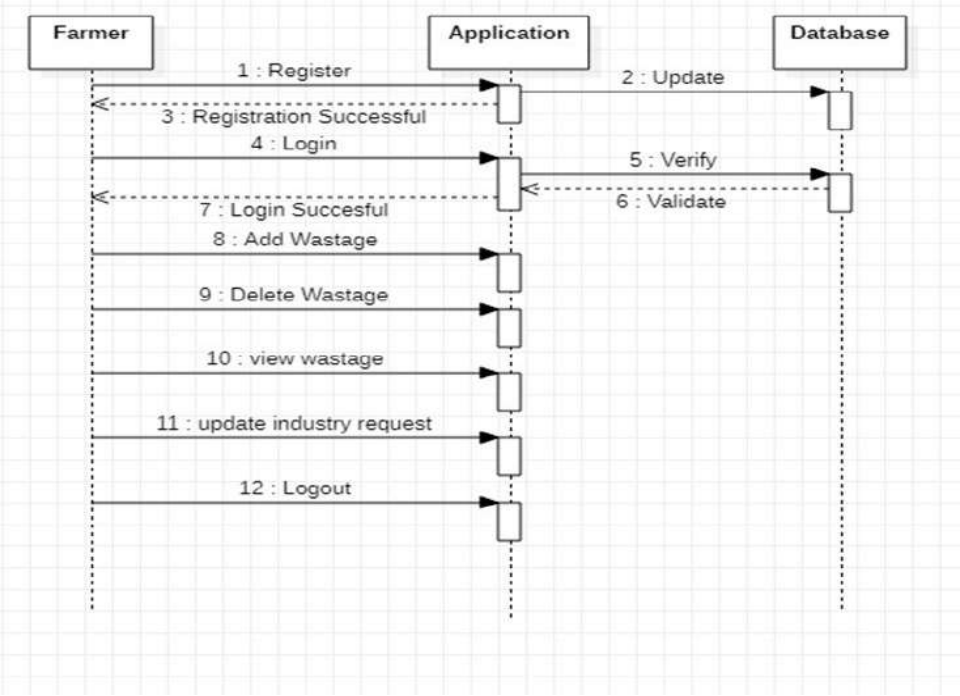


Figure 4 Farmer Sequence diagram

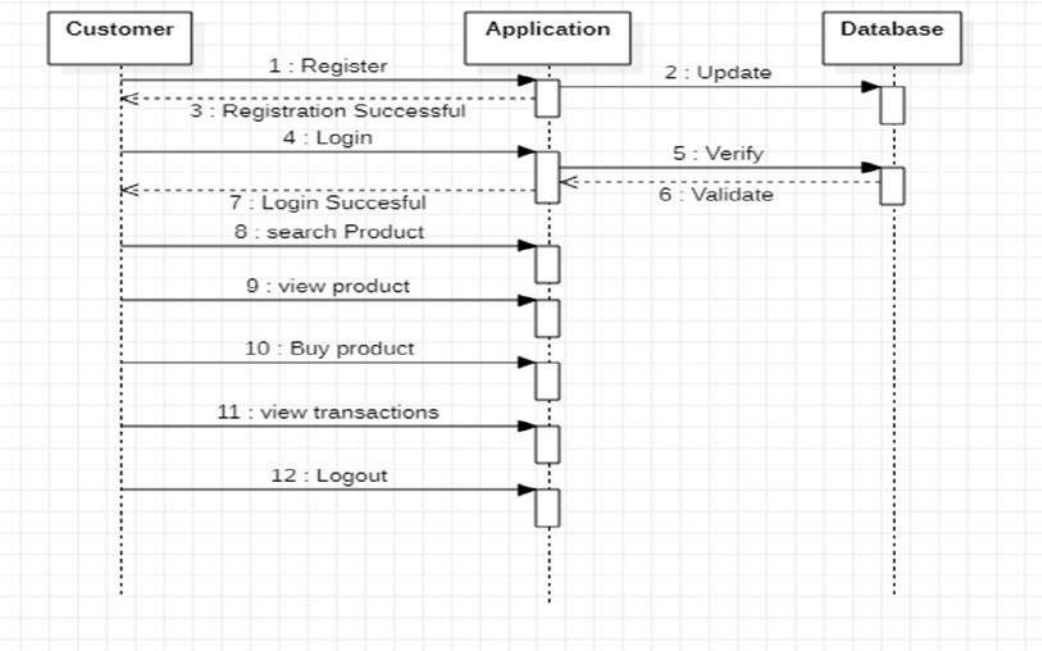


Figure 5 Customer Sequence diagram

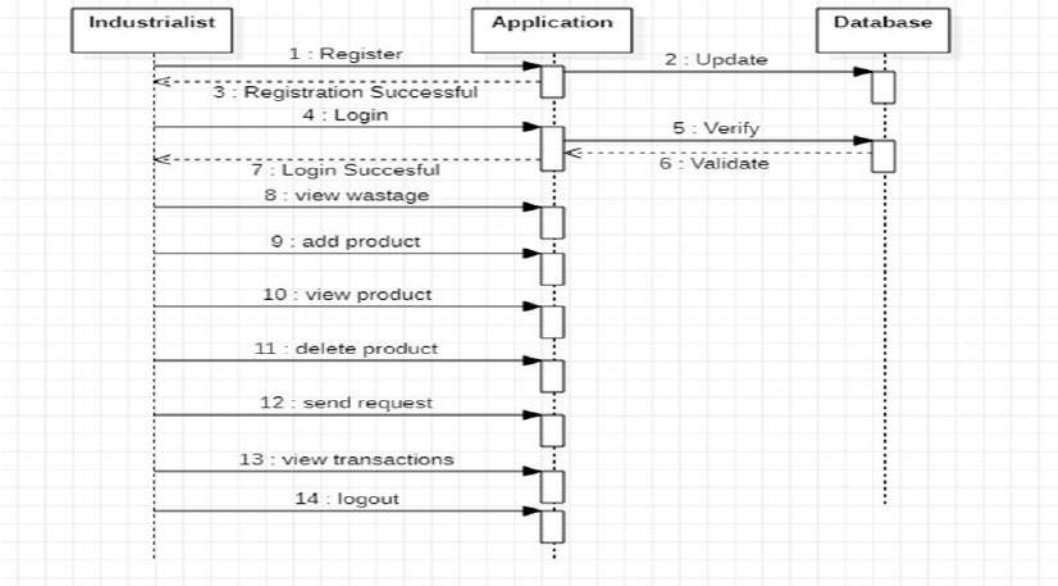


Figure 6 Industrialist Sequence diagram

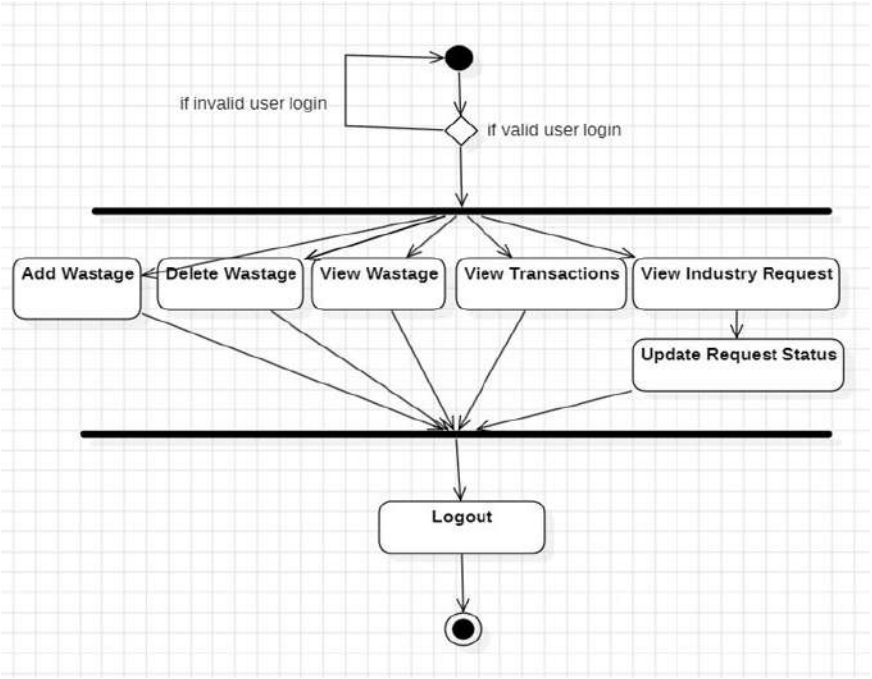


Figure 7 Activity diagram for Farmer

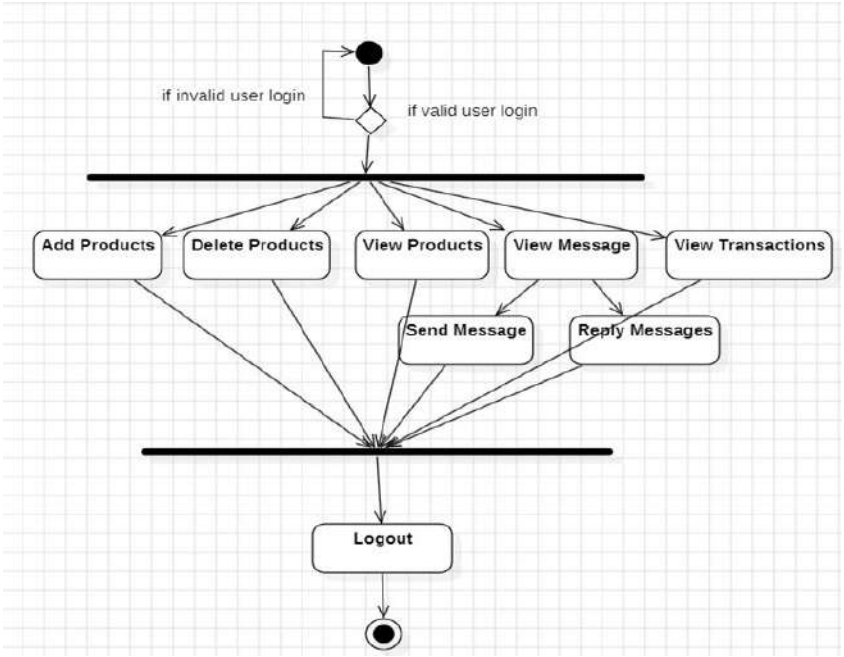


Figure 8 Activity diagram for Industrialist

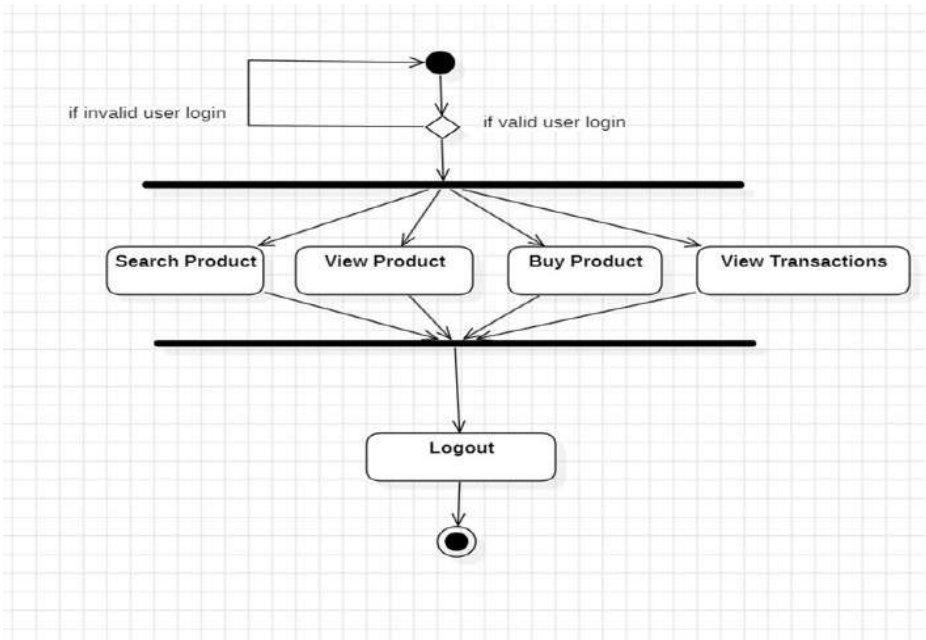


Figure 9 Activity diagram for Customer

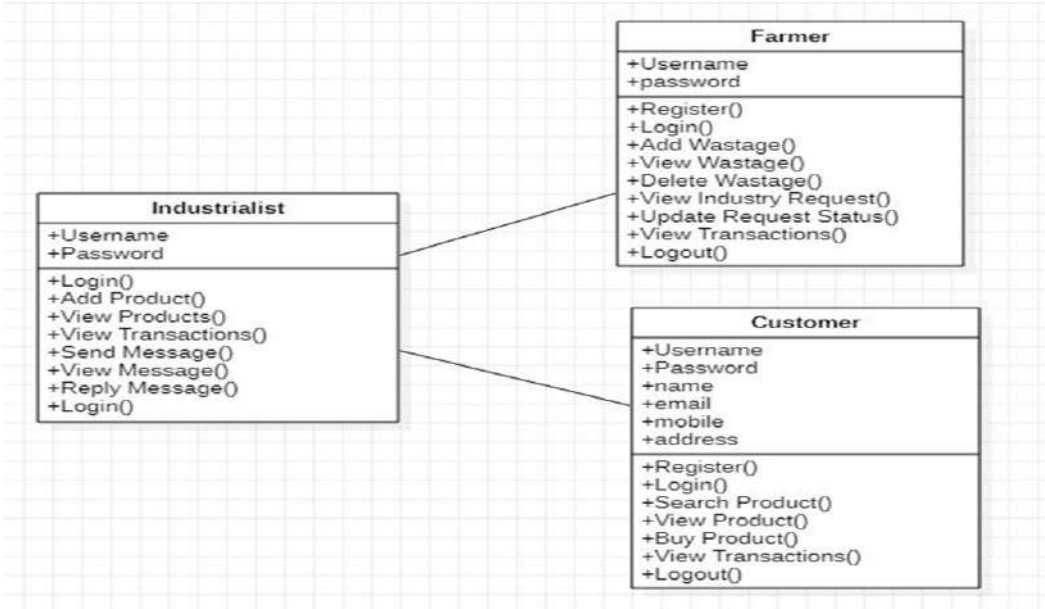


Figure 10 Class diagram

**5.Result**

Screenshots


Fig 11 Home Page

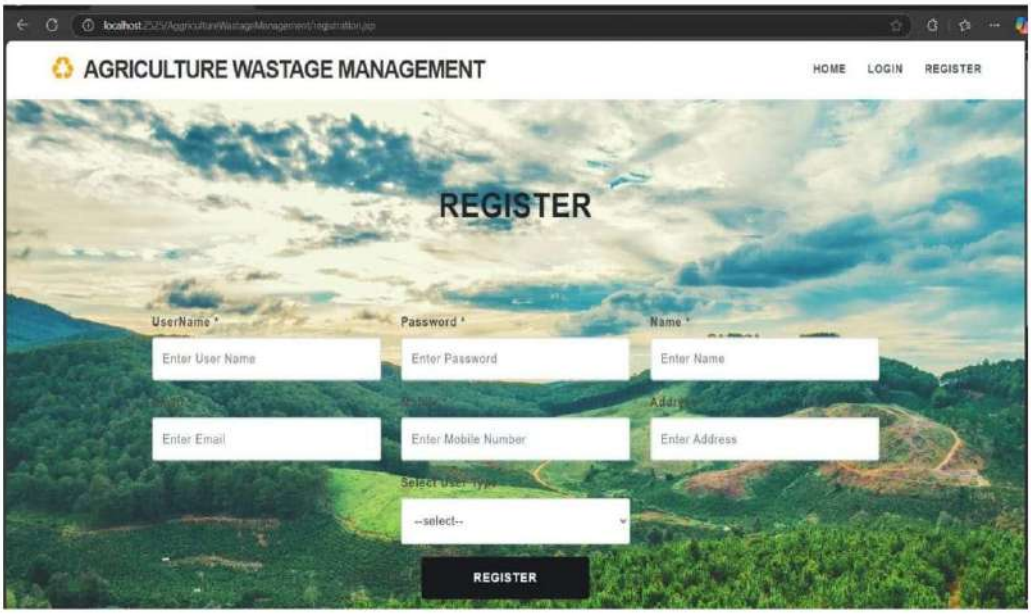


Fig 12 User Registration page

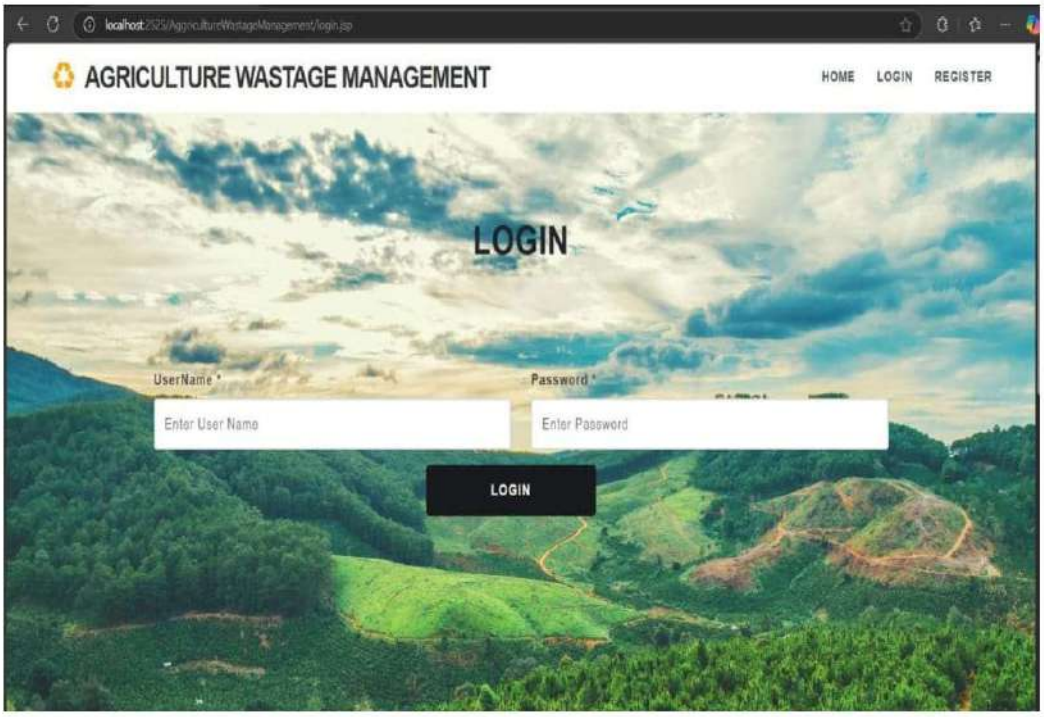


Fig 13 User Login page

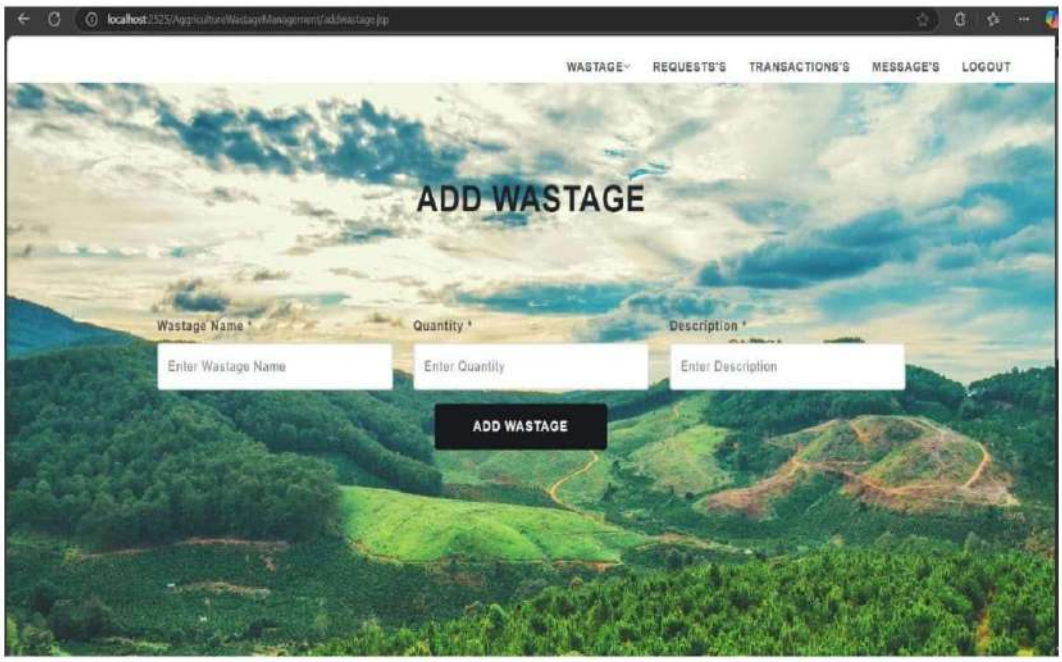


Fig 14 Add wastage for Farmers

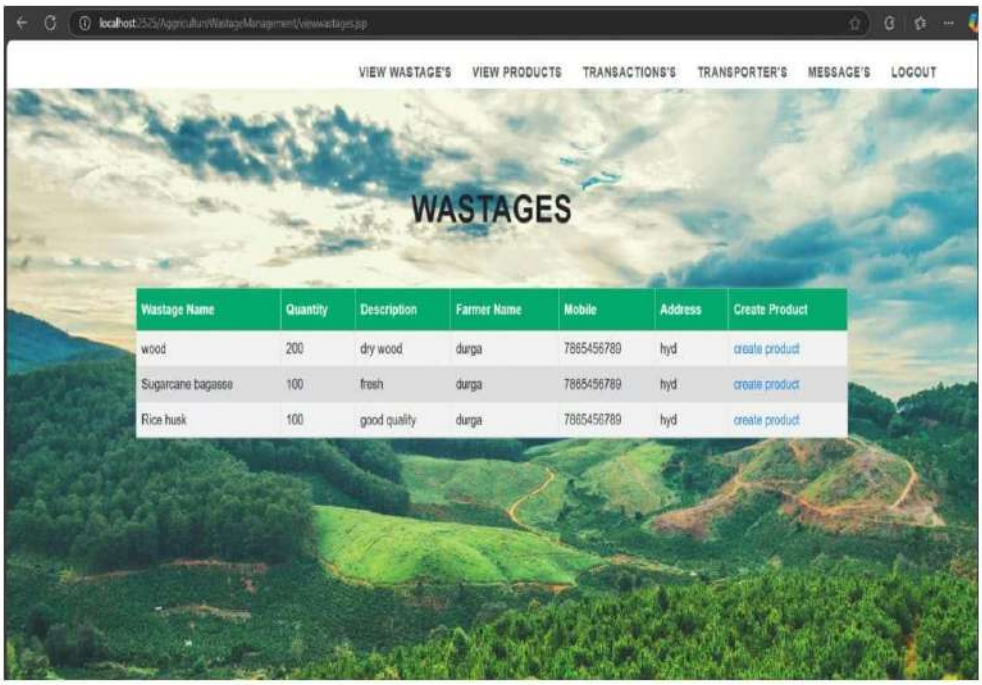


Fig 15 View Wastages for Industrialists

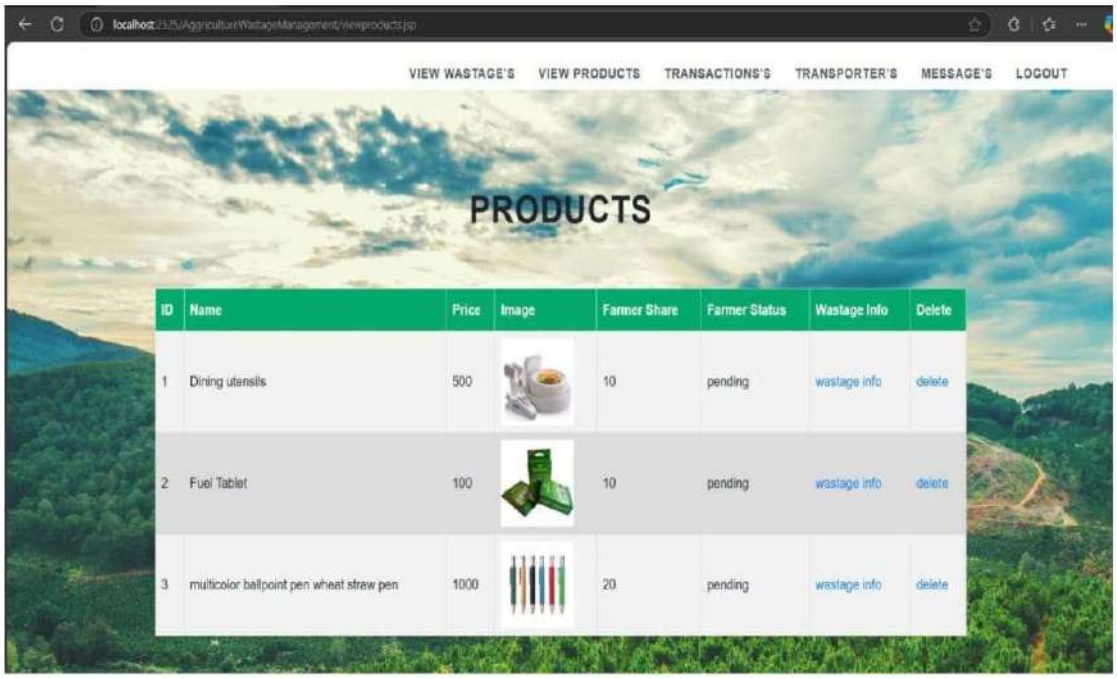


Fig 16 View Products for customers

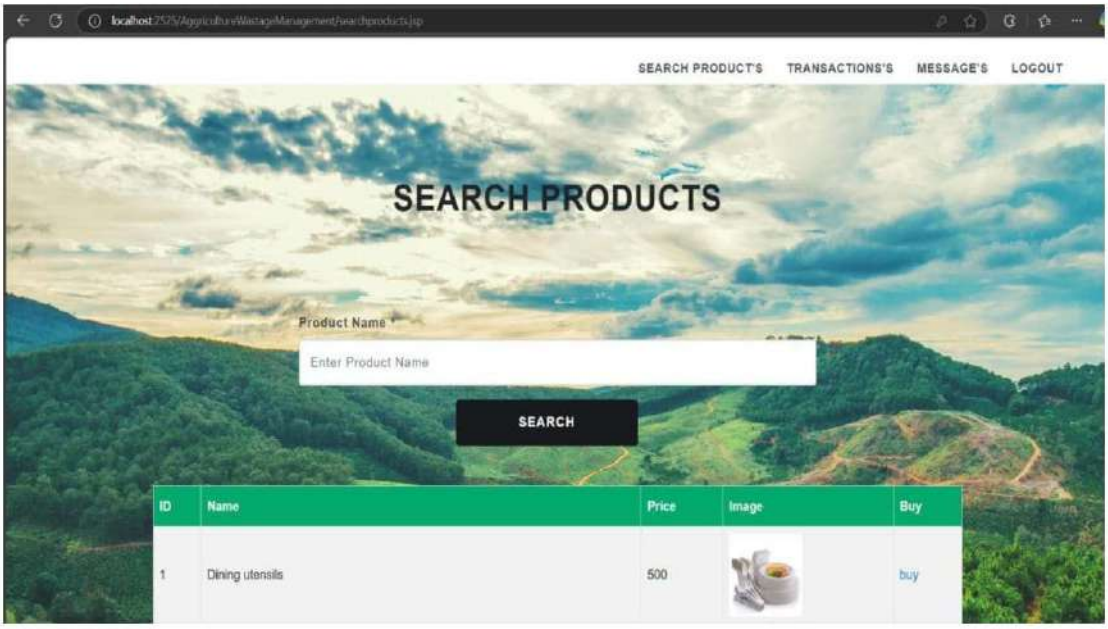


Fig 17 Search Products

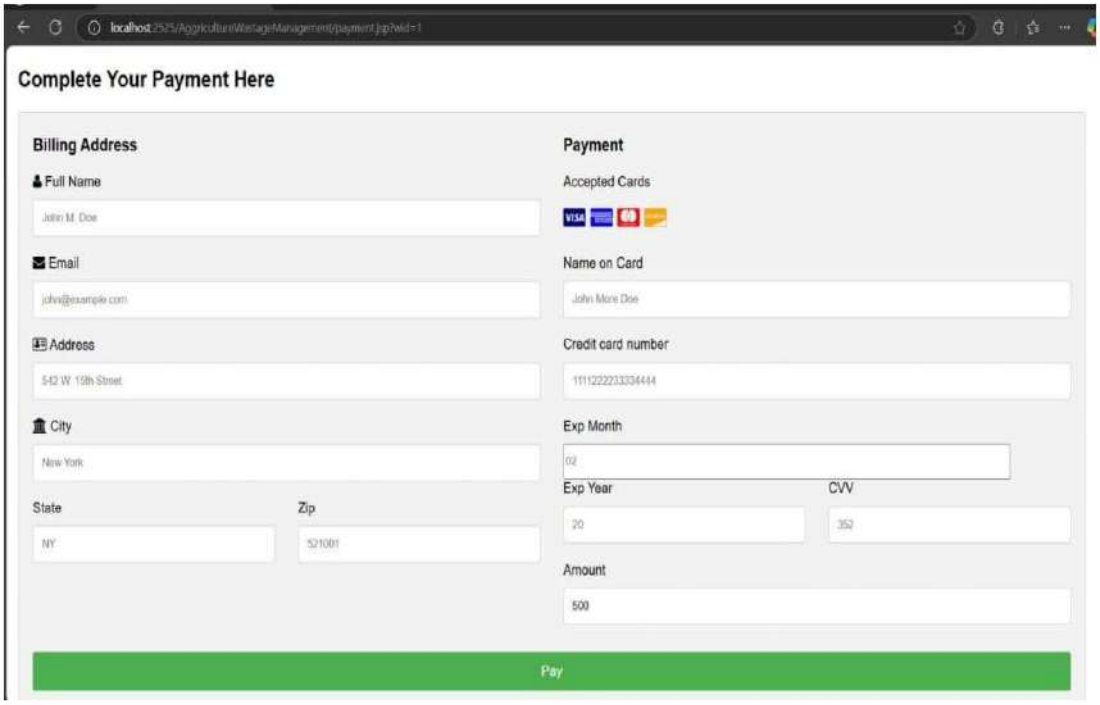


Fig 18 Payment Page

## Conclusion and Future Scope

### Conclusion

The Agricultural Waste Management System plays a vital role in enhancing sustainability by efficiently handling and converting agricultural waste into valuable resources. It reduces harmful environmental impacts, such as air pollution from crop residue burning, while optimizing waste processing for better productivity. By transforming waste into biofuels, organic fertilizers, and other useful products, it promotes resource conservation and supports renewable energy initiatives, contributing to a more sustainable agricultural sector. Additionally, this system offers economic benefits by enabling farmers to earn profits from selling waste-based products, creating new income opportunities. The financial incentives encourage the adoption of eco-friendly practices and reinforce the principles of a circular economy where waste is minimized, and resources are reused. By integrating sustainability, profitability, and environmental stewardship, agricultural waste management supports a healthier ecosystem and a more resilient agricultural economy.

### Future Scope

1. Mobile App Transformation: Converting the Agricultural Waste Management System into a mobile app provides easy access for farmers, ensuring a user-friendly interface and real-time data synchronization for efficient resource management.

2.Engage farmers through challenges and rewards: Engaging farmers with challenges, rewards, and forums motivates sustainable practices, fosters a sense of community, and encourages knowledge sharing for waste reduction.

**References**

[1] "Solid Waste Management: Challenges and Recent Solutions" by Singh, Suhani, Ismail, and Srivastava (2023). This book provides a holistic picture of waste and its management techniques, with recent advancements and projections for the future, aiming to maximize value-added products for environmental sustainability on a cost-effective basis.

[2] "Solid Waste Management: Principles and Practice" (2023). This book discusses solid waste management issues from global to local levels, offering an overview of the methods and paradigms of this burgeoning field.

[3] Web Technologies, Uttam K Roy, Oxford University Press.

[4] "The Journal of Solid Waste Technology and Management". This journal publishes full-length papers that provide significant contributions to the field of solid and liquid waste technology, management, policies, energy recovery, and more.

[5] Adejumo, I. O. and Adebiyi, O.A. 2022. Agricultural solid wastes: Causes, effects, and effective management.

[6] Goodship, V. (2010). "Management, Recycling and Reuse of Waste Composites", CRC press,UK.