Major Project– Semester VII
Internal Presentation-I

Harvestify

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Introduction

Agriculture, the cornerstone of our global food supply, faces ever-increasing challenges in the 21st century. With a burgeoning population and the specter of climate change looming large, the need for innovative solutions in farming has never been more pressing. Enter the world of machine learning, where data-driven technologies hold the promise of transforming agriculture into a smarter, more efficient, and sustainable industry.

This project embarks on a journey into the realm of machine learning-based solutions for crop disease detection and crop and fertilizer recommendation a transformative leap that has the potential to reshape the way we cultivate and protect our crops. By harnessing the power of machine learning , we aim to revolutionize how farmers make critical decisions that impact both their yields and the environment

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Literature Survey

Sr. No	Author	Title & Publication	Key findings/Gap
1	Wasswa Shafik, Ali Tufail , Abdallah Namoun	A Systematic Review on Plant Disease Detection : Motivations , Classification ,Techniques , Datasets, Challenges and Future Trends	Vision based Artificial Intelligence (AI) , Machin Learning (ML) methods and models to provide disease detection solutions.
2	Deepti Dighe , Harshada Joshi , Aishwarya Katkar	Survey of Crop Recommendation Systems	Precision Agriculture, agriculture, maximum crop yield, minimum investment, environmental factors, economic factors, agricultural recommendation system.

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Literature Survey

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3	Kushal M U, Mrs.Nikitha S, Shashank L M,	Literature Survey of Plant Disease Detection using CNN	Deep learning model for illness detection that makes use of CNN and Capsule Network (CapsNet).
4	S. Lakshmi Devi, U. Ramesh, P. Preethi, R	The Review on Crop and Fertilizer Prediction using Deep Learning	Deep Learning, Machine Learning, Agriculture, crop prediction, fertilizer

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Existing System / Proposed System

Existing

"Krishi Yojana" typically refers to various agricultural schemes and initiatives in India aimed at promoting agricultural development, rural welfare, and the well-being of farmers. These schemes are implemented by the Indian government and state governments to address the diverse needs of the agricultural sector. Some key components of Krishi Yojana may include subsidies, financial assistance, training programs, and infrastructure development projects to improve agricultural productivity and farmers' livelihoods. Each Krishi Yojana may have specific objectives, such as increasing crop yields, ensuring food security, enhancing farm income, and promoting sustainable farming practices. It's important to note that the specific details and scope of Krishi Yojana programs can vary over time and across different Indian states.

Proposed

A machine learning based website that recommends the best crop to grow, fertilizers to use, and the diseases caught by your crops is a valuable tool for farmers. It can help farmers to save time and money by making more informed decisions about their crops. The website would collect data on the farmer's location, soil type, climate, and other factors. It would then use machine learning algorithms to recommend the best crops to grow in that particular area. The website would also recommend fertilizers and pesticides that are appropriate for the selected crops. Additionally, the website would provide information on diseases that are common to the selected crops and how to prevent or treat them.

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Problem Definition

The agricultural sector faces numerous challenges, including the need to produce more food for a growing global population, adapt to changing climate conditions, and use resources efficiently to ensure sustainability. To address these challenges, we propose an ML-based agriculture project aimed at optimizing crop yield and resource management through precision agriculture techniques.

Key Problem to Address :

- Yield Prediction
- Weed Management
- Disease Detection
- Climate Resilience

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Software & Hardware Requirements

Software

- Flask (Python)
- Bootstrap
- HTML
- CSS
- JavaScript

Hardware

- Minimum 4GB RAM
- 125GB ROM
- Intel i3 Processor or higher
- Active Internet Connection

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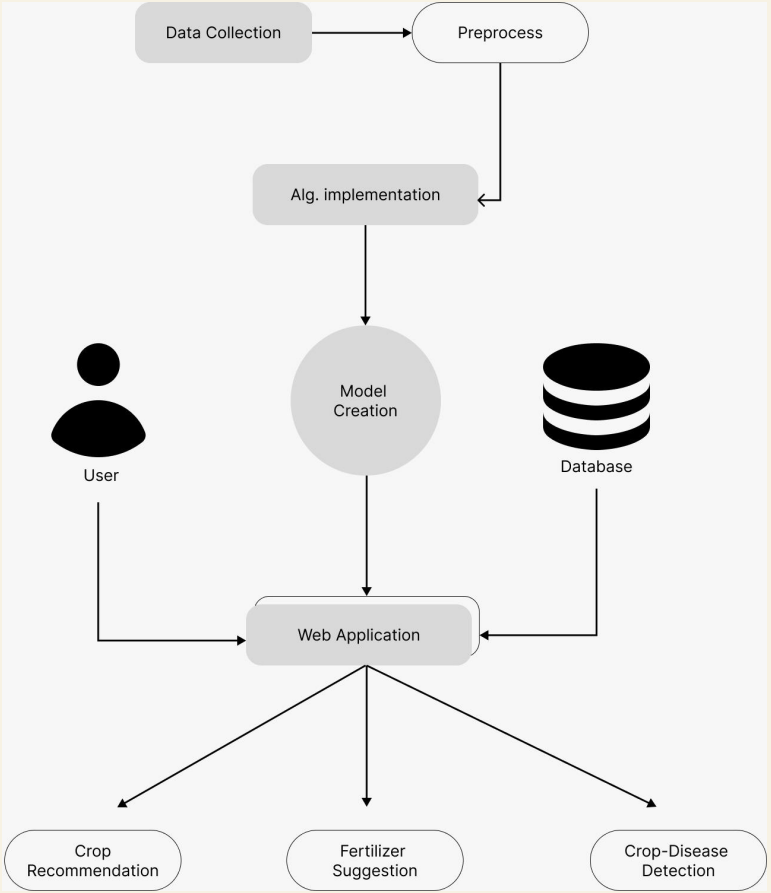
System Architecture



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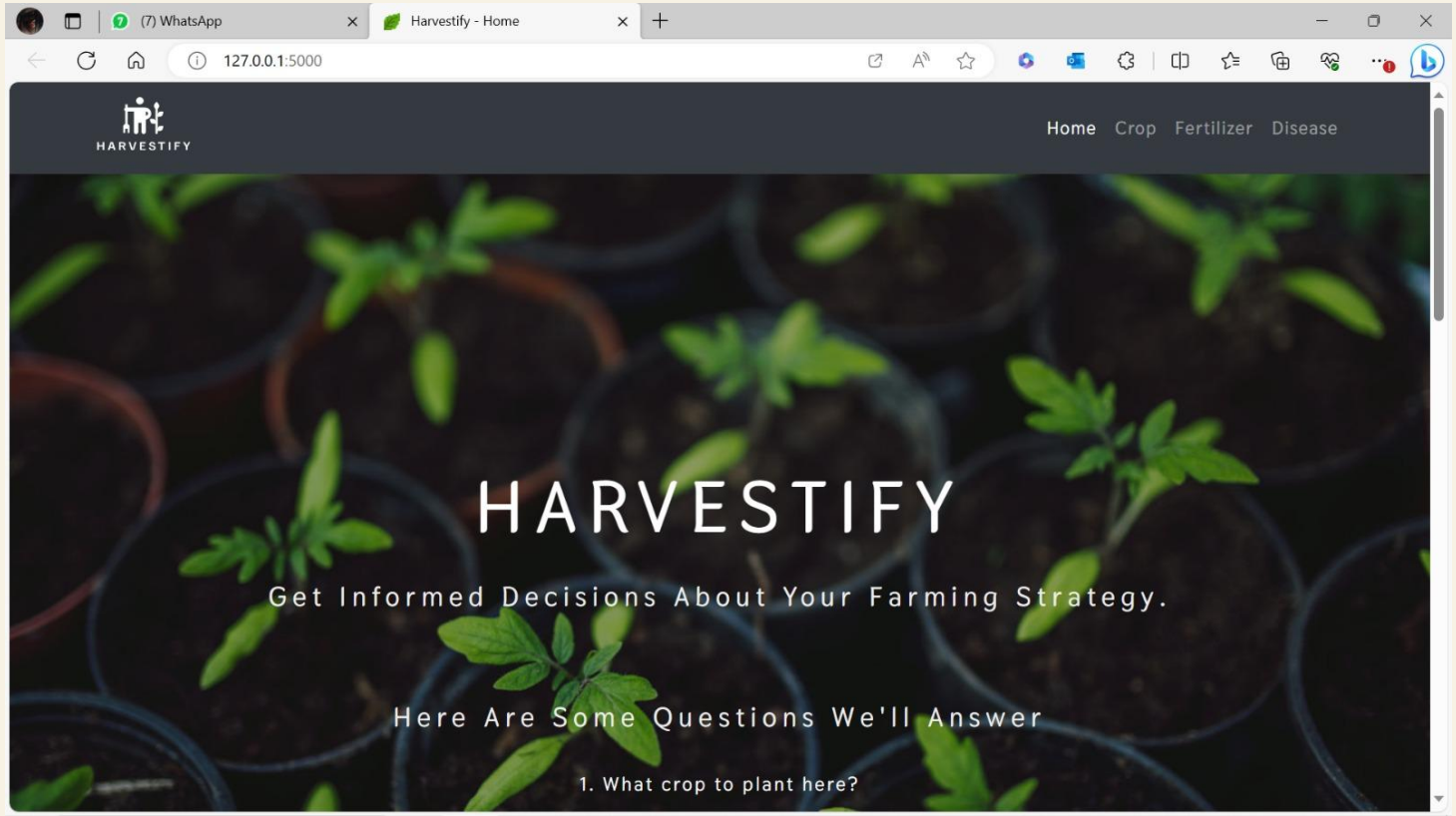
Implementation



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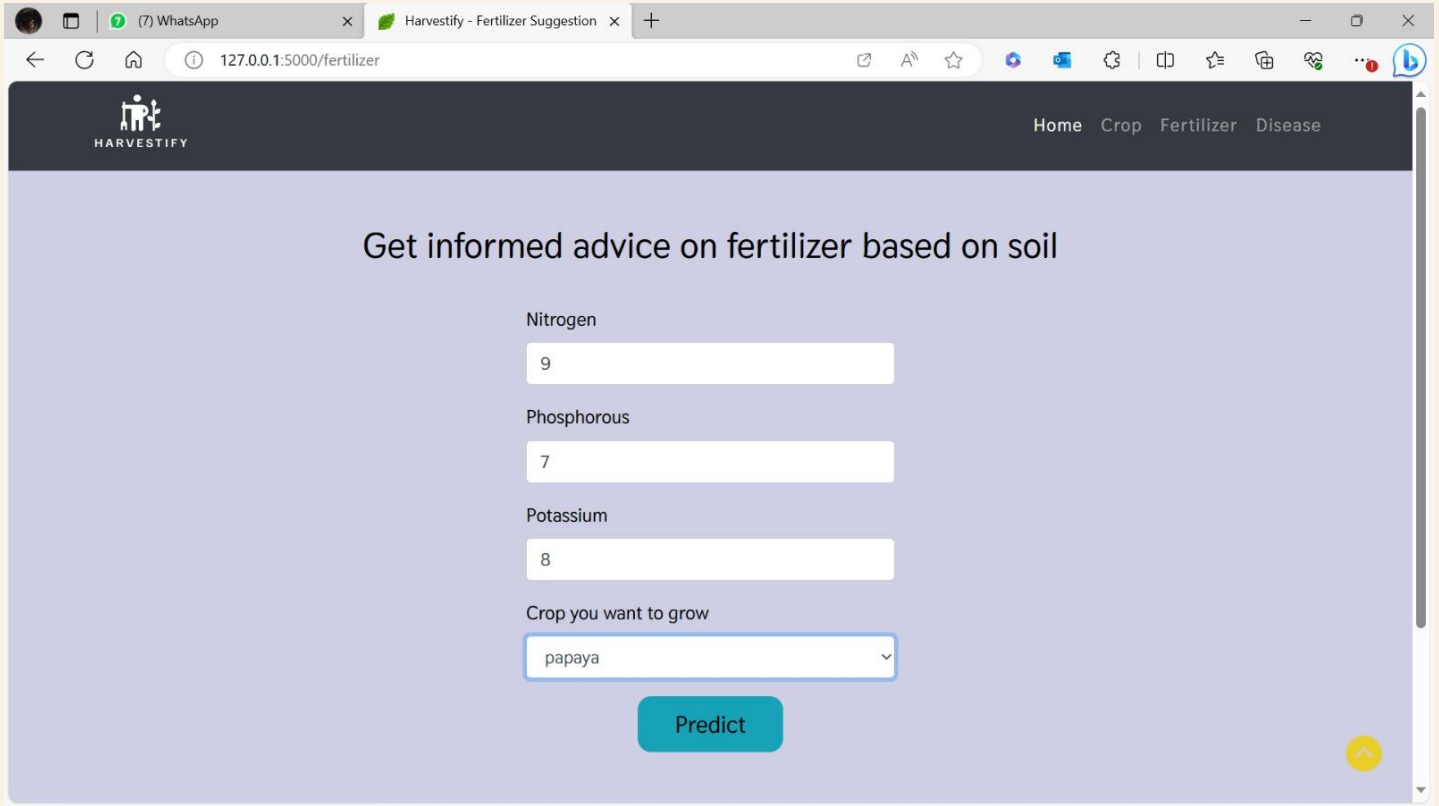
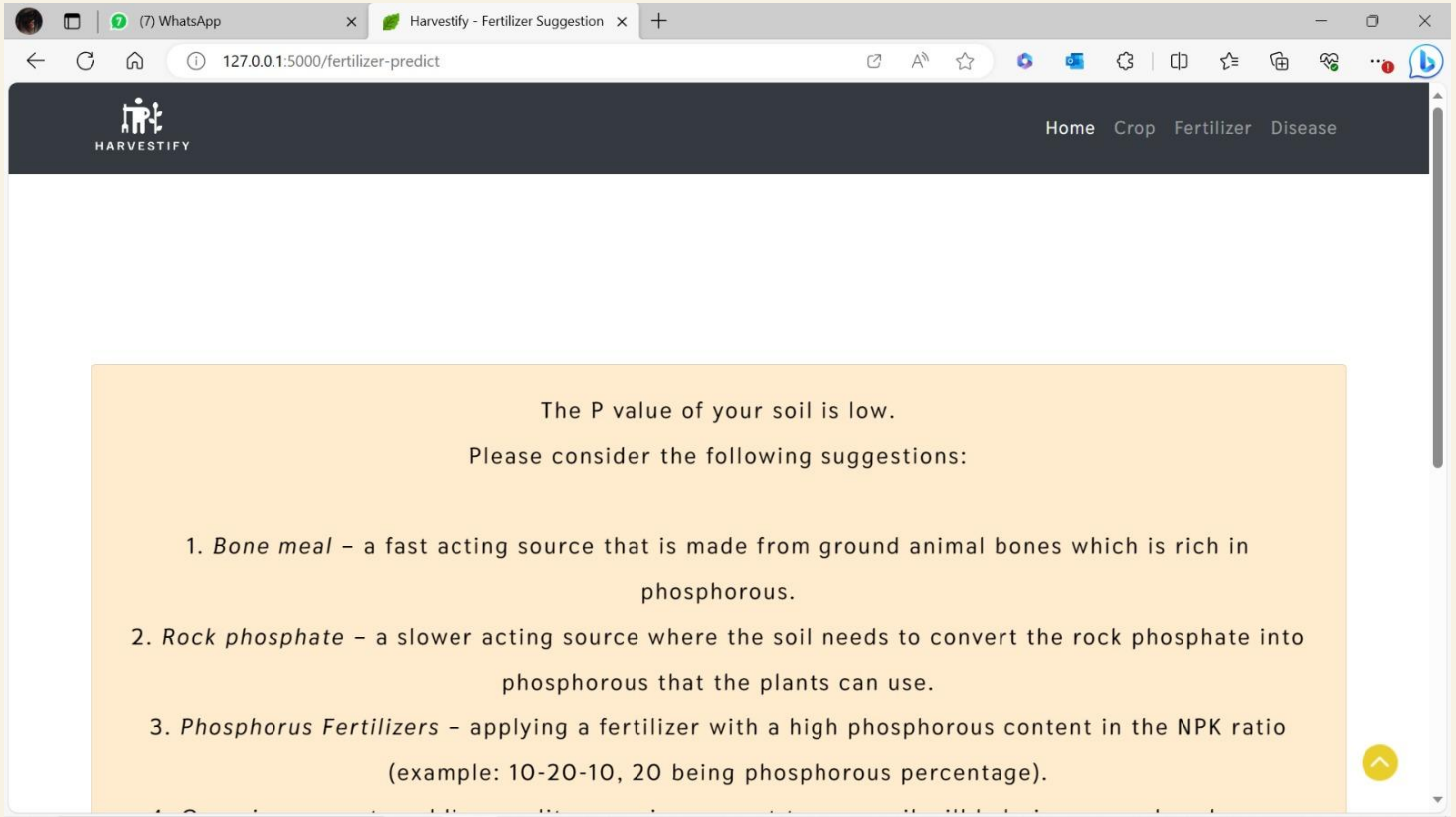
Implementation



Implementation



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Applications

- Crop Yield Prediction
- Farm Equipment Optimization
- Disease and Pest Detection
- Precision Farming

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Conclusion

In conclusion, the development and implementation of a machine learning-based project for crop disease detection and crop and fertilizer recommendation mark a significant leap forward in modern agriculture. This innovative approach harnesses the power of data and artificial intelligence to address critical challenges faced by farmers and the agricultural industry as a whole.

By deploying machine learning models to identify crop diseases at early stages, this project not only helps farmers minimize crop losses but also reduces the reliance on chemical treatments, promoting sustainable farming practices. Additionally, the ability to recommend specific crop varieties and appropriate fertilizer applications based on data analysis enhances crop yields, optimizes resource usage, and ultimately increases farm profitability.

In an era where the global population continues to grow, and environmental concerns loom large, the utilization of machine learning in agriculture emerges as a beacon of hope. It empowers farmers with the knowledge and tools they need to navigate complex challenges, adapt to changing environmental conditions, and contribute to food security on a global scale.

References

- https://www.kaggle.com/datasets/atharvaingle/crop-recommendation-dataset
- https://www.kaggle.com/code/atharvaingle/plant-disease-classification-resnet-99-2
- https://www.irjet.net/archives/V5/i11/IRJET-V5I1190.pdf
- https://ieeexplore.ieee.org/document/10147225

Thank you

Market trends

01

Mars

Despite being red, Mars is actually a cold place full of iron oxide dust

02

Jupiter

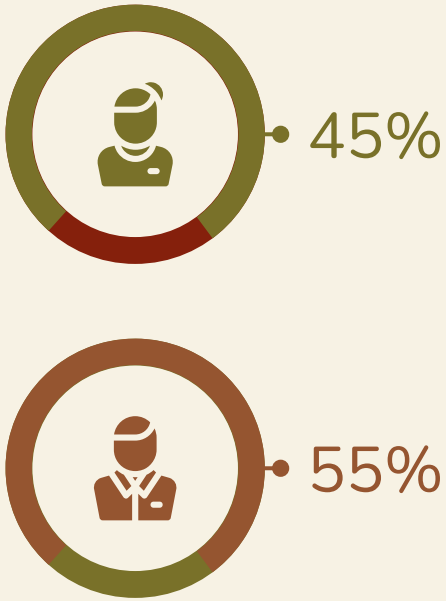
It’s a gas giant and the biggest planet in the Solar System

03

Saturn

This is the ringed planet. It’s composed mostly of hydrogen and helium

Target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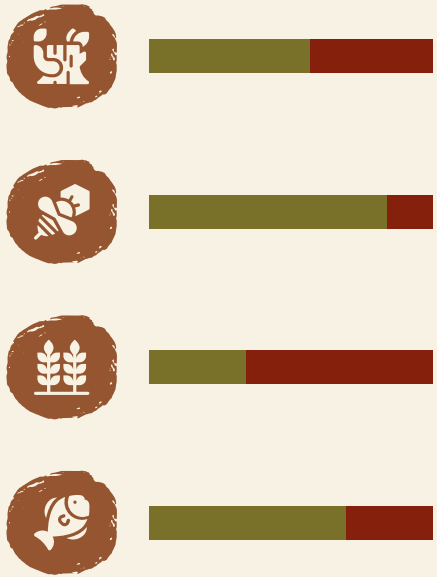


Jupiter
It’s the biggest
Saturn
The ringed one
Earth
We live here