LEAF GREEN

RICE LEAF DISEASE IMAGE CLASSIFICATION

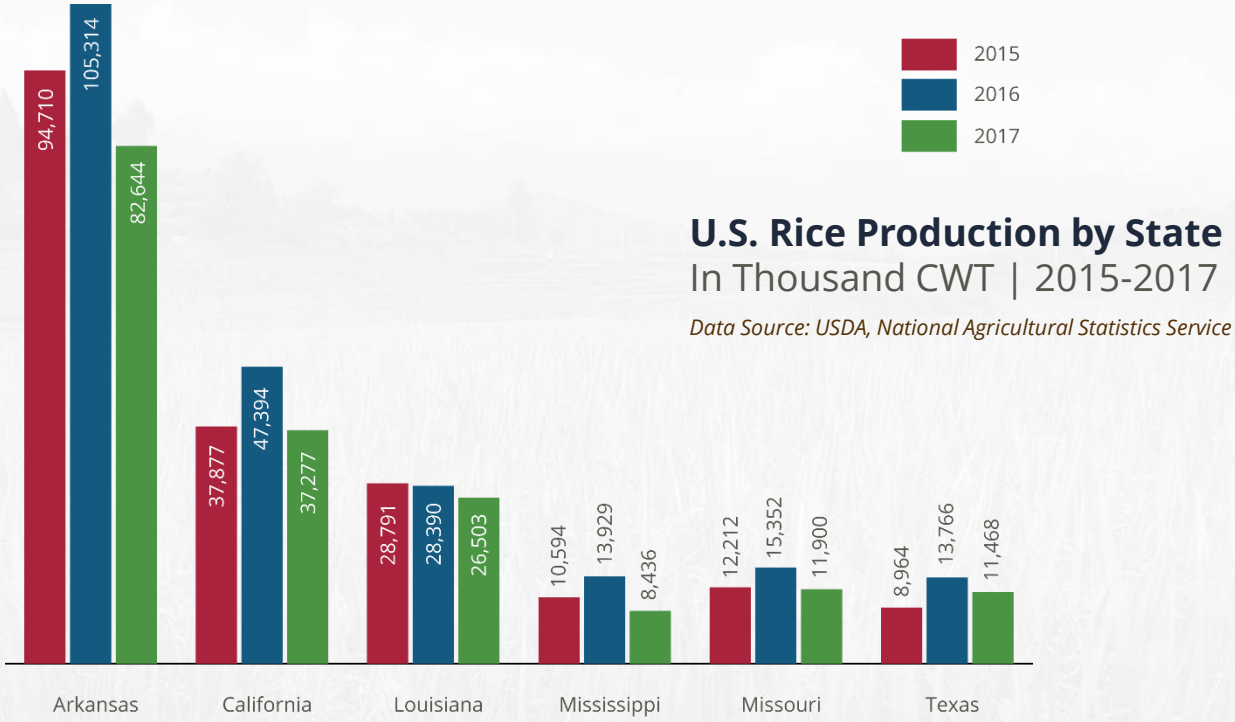
Nurgul Kurbanali kyzy

9/20/2022

CONTENTS

01 INTRODUCTION
02 PROBLEM STATEMENT
03 BUSINESS VALUE
04 DATA UNDERSTANDING
05 METHODOLOGY
06 RESULTS
RECOMMENDATION
07 FUTURE WORK

Introduction



Rice production is the third largest among cereals in the United State. Rice farms are the most capital-intensive, and have the highest national land rental rate average.

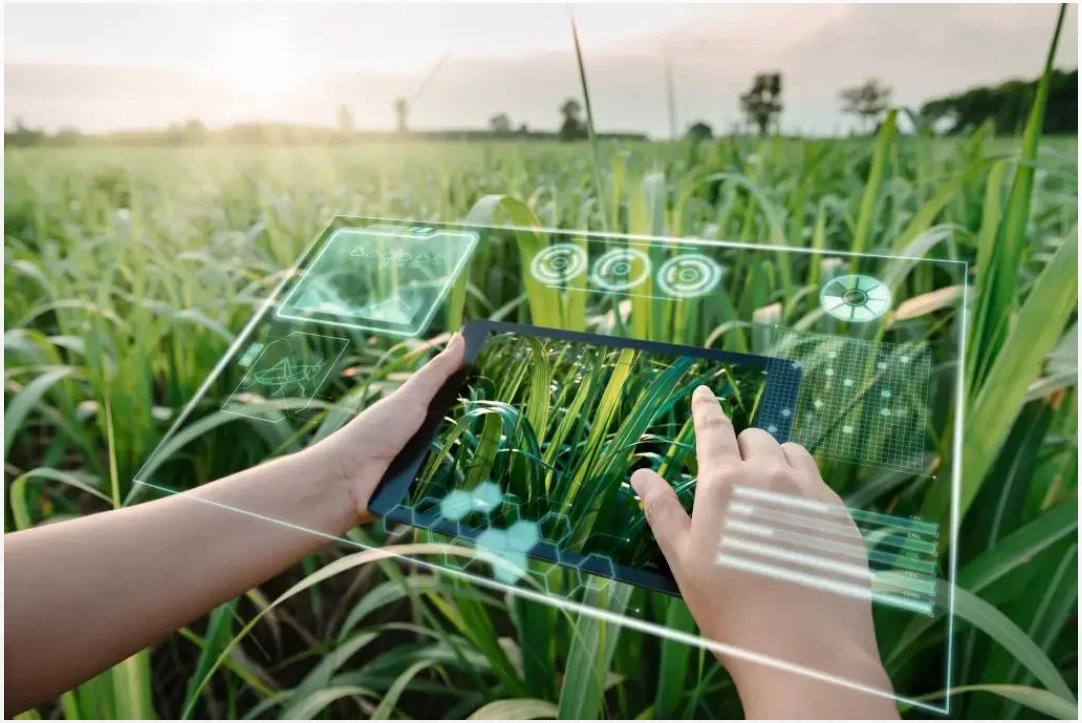
Problem Statement

Plant pest and bacterial diseases are often severe during periods of *warm temperatures* and *high moisture*. Thus, it becomes a difficult task for cultivators to individually identify these cases, especially for large fields.

1. The visual observation requires expertise, and it may vary subject to an individual which may lead to an error

2. Laboratory test is time consuming and may not be able to provide the results in time.

Business Value

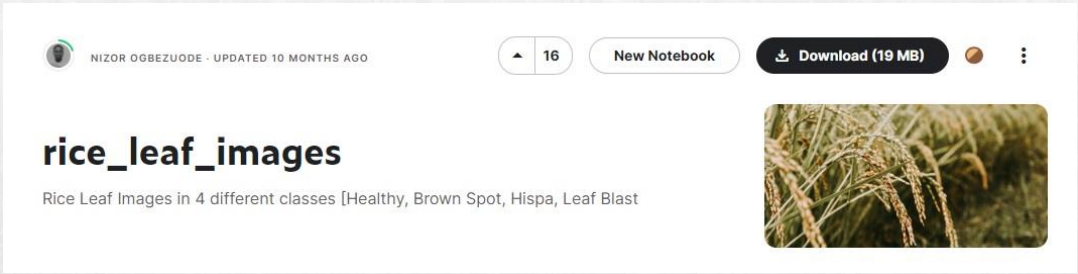


Use LEAF GREEN app to scan your rice leaves for diseases.

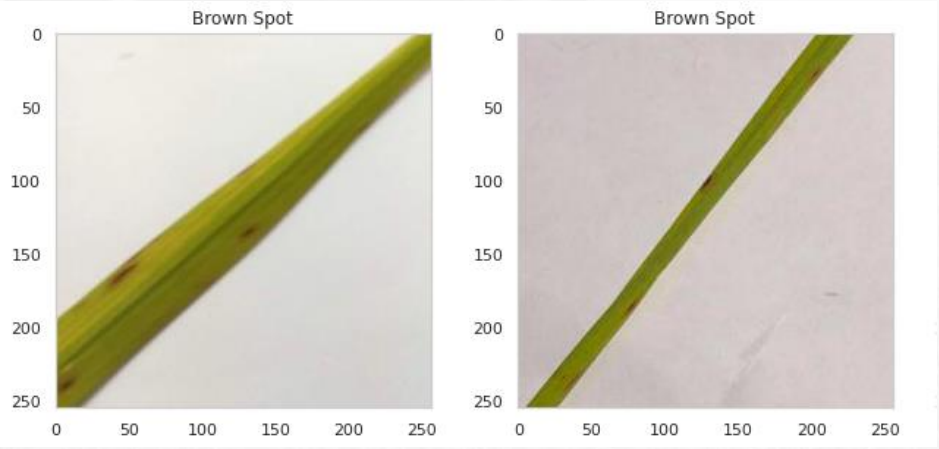
Our proven mobile solution able to predict three common rice leaf diseases *(Brown Spot, Leaf Blast, Hispa)* as early as possible before it spreads to the rest of the rice plants.

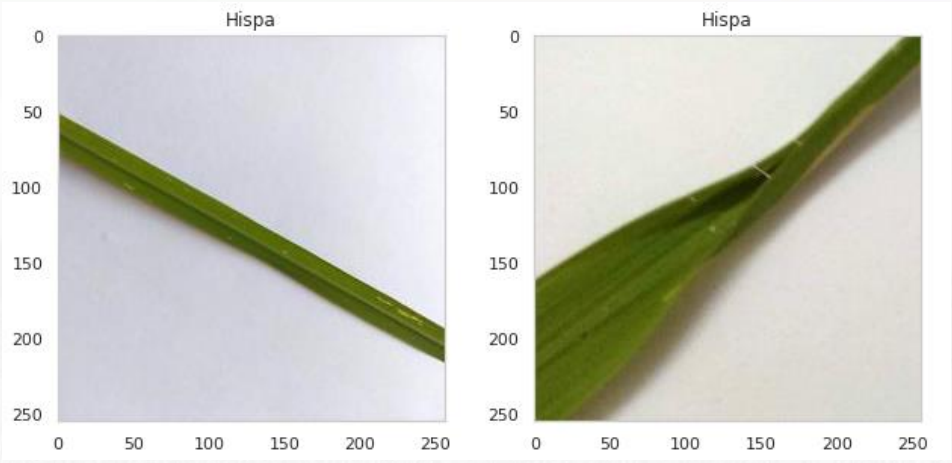
Data Understanding

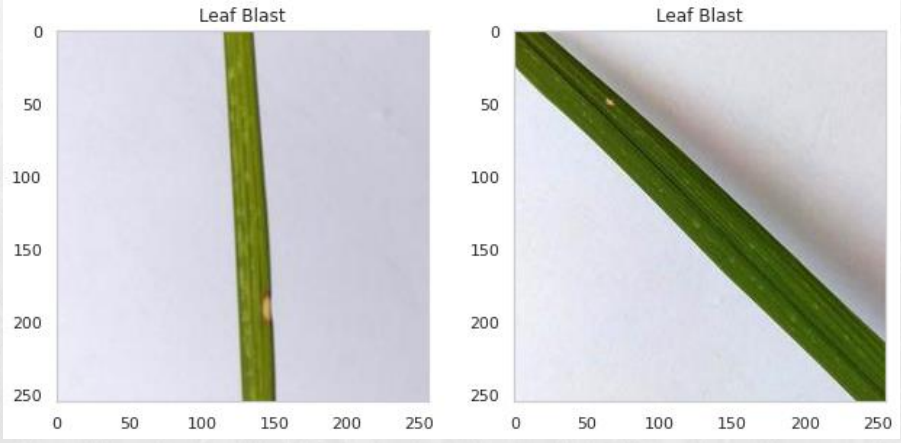
Data source is from the open-source public data in Kaggle

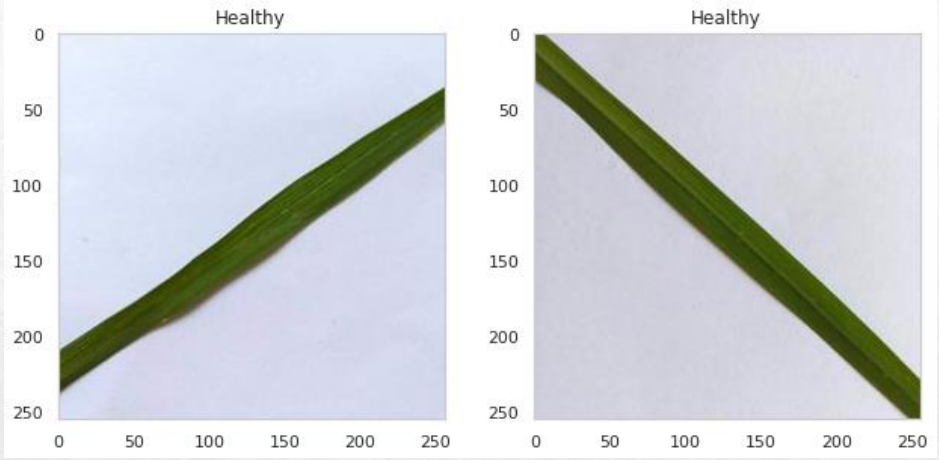


Data Samples





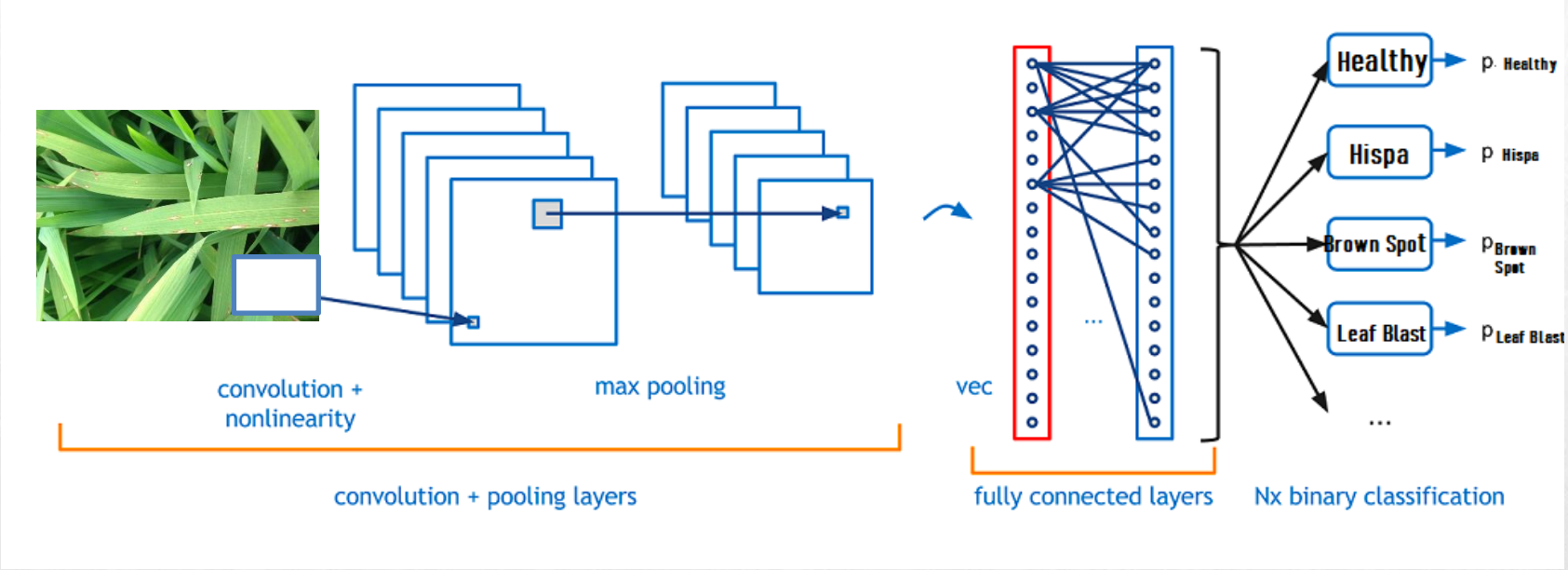




Methodology

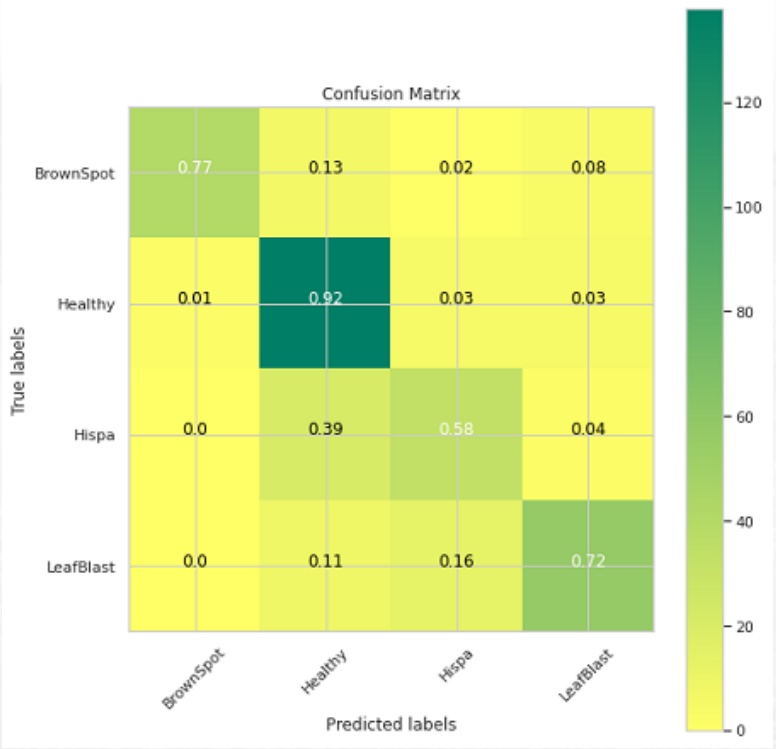
How does LEAF GREEN work?

We reviewed thousands of images of healthy and diseased rice leaves and trained a model to classify these images.



Results

LEAF GREEN can tell



Average F1 test score ≈ 77%

Classification Report

	precision	recall	f1-score	support
BrownSpot	0.95	0.77	0.85	53
Healthy	0.78	0.92	0.85	150
Hispa	0.63	0.58	0.61	57
LeafBlast	0.84	0.72	0.78	79
accuracy			0.79	339
macro avg	0.80	0.75	0.77	339
weighted avg	0.80	0.79	0.79	339

Recommendation

Our recommendation use **LEAF GREEN**

HEALTHY RICE PLANT
FRESH ENVIRONMENT
HAPPY FARMERS !!!

Future Work

Let's work in collaboration for

More Users
More Rice Image Data
More Accurate Rice Disease Predictions

EARLY DISEASE PREVENTION!

THANK YOU

ANY QUESTIONS?

You can find me at nurkamalova@gmail.com