

PROJECT OVERVIEW

Pomegranate, a high-value export crop in India, is highly susceptible to fungal and bacterial diseases, especially during humid seasons. These infections often remain unnoticed until visible damage occurs, causing major crop loss. Most small farmers rely on reactive methods like visual inspection and lack access to expert diagnosis or costly tools. This highlights the urgent need for an affordable, real-time, on-field solution for early disease detection and prevention.

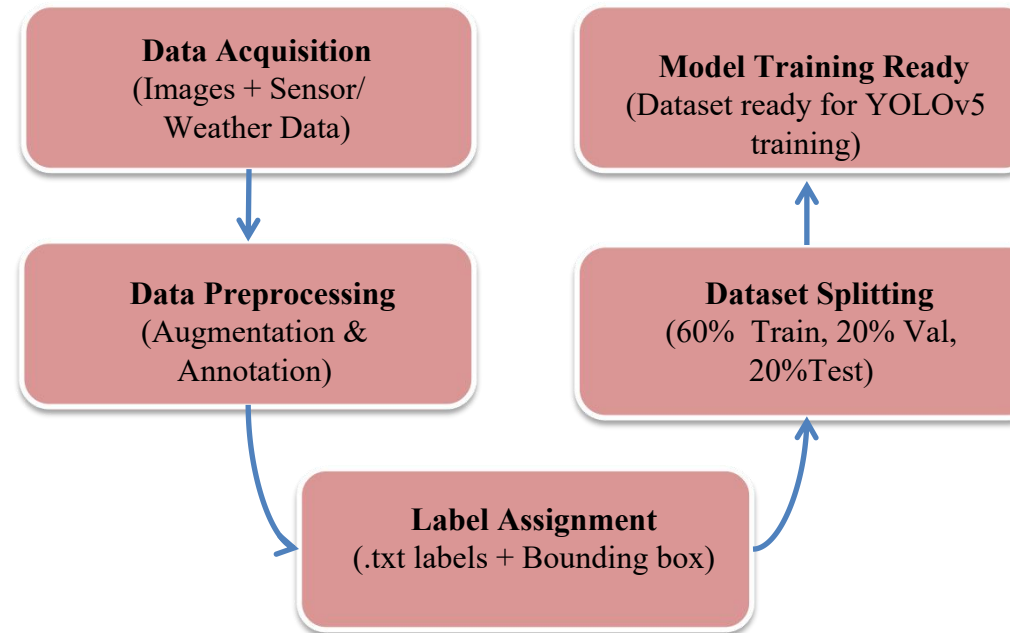
KEY FEATURES

1. Deep Learning-Based Detection
2. Multi-Class Classification
3. Custom Dataset Integration
4. Automated Label Generation
5. Model Training-Ready Pipeline
6. Scalable & Adaptable

TECHNOLOGY STACK



METHODOLOGY



DEVELOPMENT

SOFTWARE SYSTEM

1. Dataset Setup
 - Installed Kaggle API & configured kaggle.json
 - Downloaded Pomegranate Disease dataset from Kaggle
2. Directory & Structure
 - Created YOLOv5 folder format: images/ & labels/ for train, val, test
3. Data Processing
 - Collected image-label pairs
 - Stratified split: 60% Train, 20% Val, 20% Test
4. Label Generation
 - Created YOLO-compatible .txt files with dummy bounding boxes
5. Ready for Training
 - Organized dataset in required structure for YOLOv5 training

MENTOR



DR. RAMAN KUMAR GOYAL

TEAM MEMBERS



AMAN
(102316045)

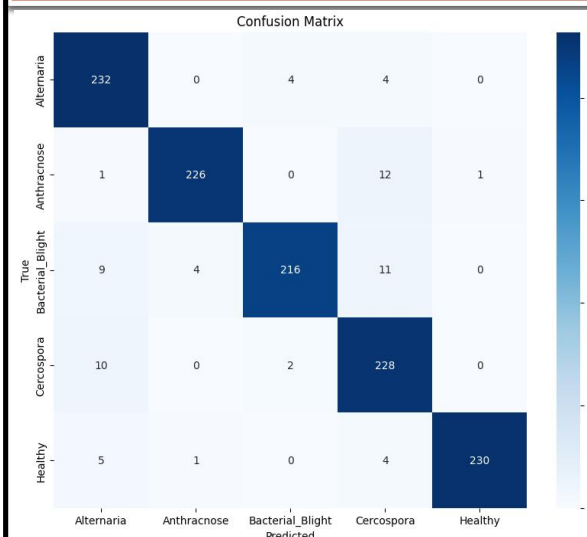


MADHAV
(102316028)

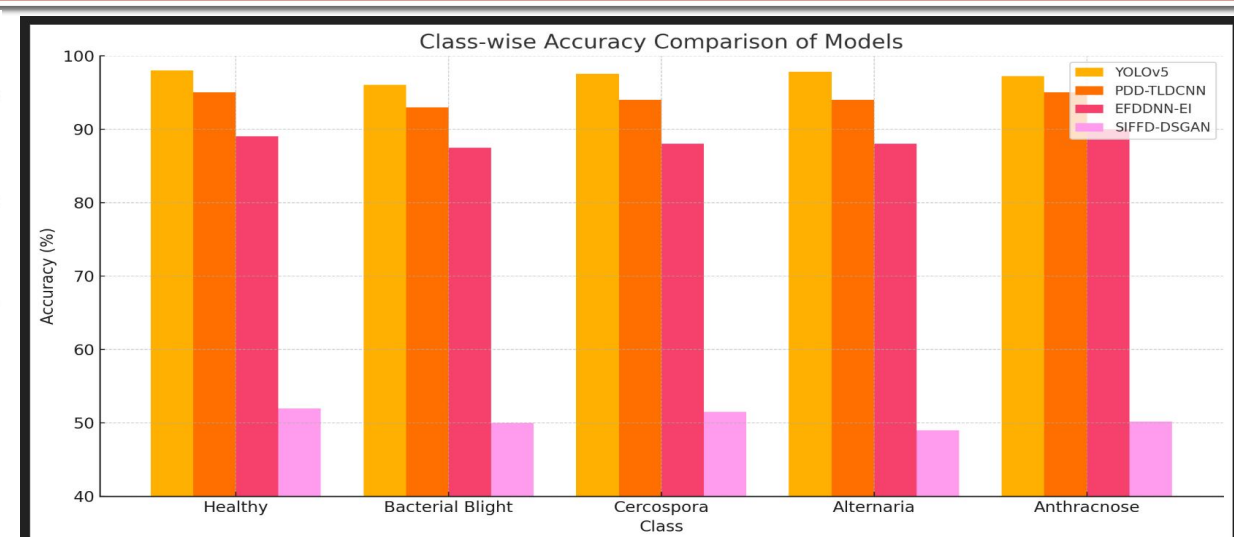


SHORYA
(102316062)

RESULTS / FINDINGS



Confusion Matrix



Class-wise Accuracy Comparison of models