GUIDED BY DR. RATNESH RANJAN
TEAM MEMBERS:
2203A51L15
2203A51L42
2203A51L56
2203A51L59
2203A51L82

CROP DISEASE PREDICTION USING MACHINE LEARNING

Abstract

Crop diseases pose a significant threat to global agriculture and food security.

This project leverages the Plant Village dataset, featuring diverse crop species and diseases with high-quality images and detailed annotations.

Our aim is to develop a machine learning model for early disease detection, resource-efficient intervention, and enhanced crop yield.

By utilizing this rich dataset and community-contributed knowledge, we address the critical need for sustainable and data-driven approaches in agriculture, contributing to food security and environmental sustainability.

(a) Rice leaf roller (*Marasmia exigua*)

(b) Winter grain mite (*Penthaleus major*)

OBJECTIVES

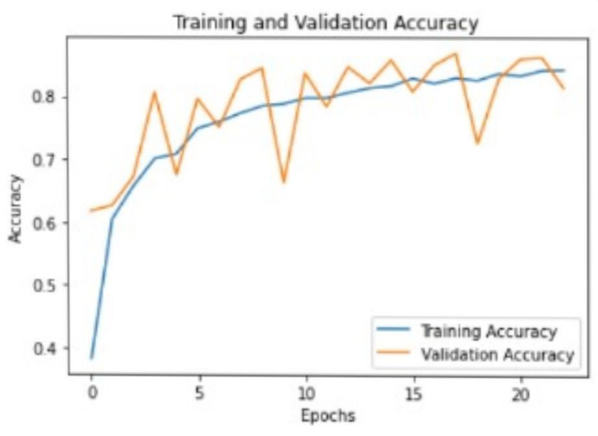
Disease Early Detection
Precision Agriculture
Crop Yield Optimization
Economic Sustainability
Environmental impact

(a) Strawberry leaf scorch (original)

(b) Strawberry leaf scorch (segmented)

CONCLUSION

In conclusion, this project leveraging the Plant Village dataset for crop disease prediction using machine learning represents a promising step towards sustainable and efficient agriculture. While it has shown remarkable results in disease detection, it also underscores the need for ongoing efforts to address data quality, class imbalances, and resource limitations. With continued research and development, this approach holds the potential to significantly benefit the agricultural industry, enhancing crop yields, reducing environmental impact, and contributing to food security.



REFERENCE

1.Roser, M. Future population growth. In Our World in Data; University of Oxford: Oxford, UK, 2013. [Google Scholar]

2.Fróna, D.; Szenderák, J.; Harangi-Rákos, M. The challenge of feeding the world. Sustainability 2019, 11, 5816. [Google Scholar] [CrossRef]

3.Ray, D.K.; Mueller, N.D.; West, P.C.; Foley, J.A. Yield trends are insufficient to double global crop production by 2050. PLoS ONE 2013, 8, e66428. [Google Scholar] [CrossRef]

ACKNOWLEDGEMENT

Crop diseases pose a significant threat to global agriculture and food security.

This project leverages the Plant Village dataset, featuring diverse crop species and diseases with high-quality images and detailed annotations.

Our aim is to develop a machine learning model for early disease detection, resource-efficient intervention, and enhanced crop yield.

By utilizing this rich dataset and community-contributed knowledge, we address the critical need for sustainable and data-driven approaches in agriculture, contributing to food security and environmental sustainability.

These techniques utilize various algorithms and data sources to help farmers and researchers identify, monitor, and manage crop diseases.

Machine learning-based crop disease detection and classification techniques have gained significant attention in agriculture for early and accurate diagnosis of plant diseases.