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作品名稱　AGRO-GUARD:Machine Learning-Driven Plant Real-Time Disease Detection,Clustering and Community Notifications

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關鍵詞　Precision Agriculture, Disease Identification, Spatial Clustering, Machine Learning, Community Resilience, Agricultural Technology.

AGRO-GUARD: Machine Learning-Driven Plant Real-Time Disease Detection, Clustering and Community Notifications

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Abstract:

Agro-guard aims to revolutionize disease identification and community-based projects in the field of agriculture. Integrating Machine learning, Computer vision, clustering, and community-based technology, this project helped farmers to detect their plant disease with their solution and for early warning of plant disease which was spreading in their community which helped in crop management. The research project is divided into three parts.First,Integrating Machine learning to detect and classify plant disease with their solutions.Second,Integrating Density-Based Spatial Clustering of Applications with Noise (DBSCAN),to identify disease and analyze the pattern within agricultural regions.Third,Establishing notification system to notify real-time alerts to farmers about disease spreading in particular region.The research is crucial because it solve one of the crucial problem of our community which is untimely detection of disease.The finding of the research highlight the effectiveness of Agro-Guard framework in early disease detection and community detection.The machine learning models achieved high accuracy in identifying common plant disease and clustering results the pattern in diseases that were very important for notifying the community.The significance of these findings is that it can build powerful system which will overall grow the production of crops and plants due to timely update of the disease prevailing in the community.It contributes in sustainability production of crops and plants which ultimately ensure the good livelihood of farmer.

Keywords:Precision Agriculture, Disease Identification, Spatial Clustering, Machine Learning, Community Resilience, Agricultural Technology.

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1. The author developed an ML driven plant disease detection tool. The DBSCAN method is adopted for disease detection.

2. The data acquired by the tool can be analyzed for the prevention of disease propagation in the agricultural community. This has potential values for the agriculture community.

3. The approaches including the clustering and the notification appear to be a routine applications of existing techniques. Some discussions on the innovation of the proposed approach or framework are recommended.

4. The results of training and inference can be better explained and documented.