CROP PEST RECOGNITION & CLASSIFICATION BASED ON DEEPESTNET DEEP LEARNING MODEL

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❓ PROBLEM STATEMENT

Farmers experience major crop damage due to:
- Inaccurate pest identification
- Time-consuming detection processes
- Inefficient pest management strategies

Existing models like Faster R-CNN are computationally expensive and less effective with small pest objects. Hence, there is a need for a faster and more accurate model optimized for real-time field deployment.

💡 Our Solution

We propose DeepestNet, an AI-powered crop pest recognition system using EfficientNet-B4 for feature extraction and classification.

Key Features:
- High accuracy and speed
- Lightweight and scalable model
- Supports multiple pest categories
- Deployable via mobile devices, drones, or farm cameras

✅ Advantages

- High Accuracy: Uses advanced CNN architecture
- Real-time Detection: Quick processing for immediate action
- Environmentally Friendly: Reduces pesticide misuse
- Scalable: Works with drones, phones, or farm IoT devices
- Cost-effective: Avoids expensive equipment or manual scouting

🌽 Applications

Smart Farming & Precision Agriculture
Automated Crop Monitoring Systems
Agricultural Research & Pest Behavior Analysis
Government Agricultural Departments
Mobile Apps for Farmers

🔄 Workflow

Image Capture
Farmers or drones capture images of affected crops.

Image Preprocessing
Resizing, normalization, and data augmentation improve model input.

Feature Extraction
EfficientNet-B4 extracts deep image features.

Pest Classification
DeepestNet classifies pests using a softmax layer.

Result Display
Outputs pest name and control suggestions.

Potato beetle

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