Project Presentation

PLANTOSPHERE : AN AGRICULTURE MANAGEMENT SYSTEM

Project Domain: AI ML Based Application
Project ID: 2021IT06

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Introduction

- India is an agricultural country, where more than 50 percent of the people depend on agriculture.
- The agri-business commitment to India's national revenue is all the more important, as farming in India is regarded to be a backbone in the Indian economy.
- The impact of pests on the businesses of the agriculture industry are huge and there numbers must be controlled.
- With the help of deep learning models in the automated detection of pest conditions (categorization of pest images on the basis of CNN models)

Requirements of Projects

Front-End Software Requirement

- Android
- Google Colab

Back-End Software Requirement

- Firebase

  Python

Hardware Requirements

- RAM- 4 GB for development.
- Hard Disk - Minimum 20 GB

Analysis of Problem Based on Project Objective

- Making an agriculture application to monitor plant's health that finds out the pest which has infected the plant by uploading the photographs of the leaves.
- Recommendation of crops by uploading photographs of the land, and suggesting which crops are feasible for better cultivation according to the soil and the environment, to help our farmers.
- Building a portal and adding Agriculture news and government schemes to it.
- Making a community for farmers and buyers with live mandi rates.

Existing Work

- For diagnosing illness in sick plant leaves, Ferentinos (2018) presented a model based on Convolution Neural Networks. For identification, it also employs deep learning algorithms. For testing and training purposes, it provides 58 separate classes of sick and healthy data. In a real-time setting, the proposed model is quite successful. The database comprises a collection of pictures taken in laboratory and outdoor conditions, as well as common and scientific names for plants and diseases. Deep learning models such as AlexNetOWTBn and VGG are employed, with success rates of 99.49 percent and 99.53 percent, respectively, with error rates of 0.017 and 0.02. The performance of the various models is evaluated for both original and pre-processed pictures.
- Ip et al. (2018) focused on big data approaches for crop protection. Several crop-protection measures are also discussed. It also includes a brief discussion of the Markov random field. Herbicide resistance is predicted using a Markov random field, with characteristics such as soil pH, shire status, quantity of cultivation, and stubble management considered.

Conclusion and Future Plan

- The aim of the proposed solution is to identify illnesses in crops by means of the deep learning method, which is the Convolutional Neural Network. The model is essentially evaluated for certain species of plants with certain kinds of plant diseases. The total system findings indicate that the MobileNet model functions better than other models and provides improved accuracy in illness detection. The number of plant types and their diseases will expand as an addition to the project.
- Without involving any middlemen between farmers and consumers and earning a profit, farmers may sell/purchase farm products at an ideal cost. Farmers will find it more helpful to know information about existing farms and feel it is a safer and more valuable website.
- The framework registers the right harvest depending on the soil and leaves it to be planted by the farmers. The suggestion model given is an efficient way to resolve farmers' difficulty when they pick the correct crop in the harvesting season. The model has been validated with information from a data region in India and tested.

References

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Thank You ！