Smart Crop Monitoring & Plant Disease Detection

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Problem Statement

The main purpose is to detect the diseased part of the plant leaf using MATLAB and sent alert message to the farmer using MIT App. There are various types of diseases on the plant leaf that cause problems in the development of crops.

Background

Early disease detection is a major issue dealt with the plantation crops.
First step involves in keen and regular observation of plants
It becomes difficult to monitor the crop regularly.

Dataset and Features / Project Requirements / Product Features

Hardware Requirements

a) ESP32
b) Soil Moisture Sensor
c) PIR Sensor
d) DHT11 Sensor
e) LDR Sensor
f) Barometric Sensor
g) IR Sensor

Design Approach / Methods

a) With the help of SVM and KNN algorithm we have achieved the accuracy as 96% and 98% respectively.
b) By using MATLAB, we have captured images and detected the diseases in the plant

Results and Discussion

a) Crop monitoring and MATLAB are the two results we have obtained from this project.
b) we have SVM and KNN algorithm to find the accuracy in our project
c) By using GSM module messages has been sent to the farmer

Summary of Project Outcome

a) We have collected the data using sensors and transmitted to google firebase.
b) We have used MIT app for visualizing the data
c) We have used MATLAB for detection of diseases using SVM and KNN algorithm

Conclusions and Future Work

a) The KNN classification is more accurate than SVM algorithm in our project
b) We have used USSD functionality to implement an offline control mechanism for farm management
c) we can enhance this system and implement on larger areas

References

a) Naveen balaji gowthaman,Navya priya,"IOT based smart crop monitoring in farm land",2018 .

b) Lydia S Sabnath,Rakshitha H S,Pushpalatha N and ajeshwari D,"Leaf Disease Detection and Monitoring system using IOT"2020





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