CROP PREDICTION AND PLANT LEAF DISEASE PREDICTION USING DEEP LEARNING

Dangat Sudarshan[1], Dhamale Nishant[2], Shinde Kalpesh[3], Khatri Anand[4]

[1]Dangat Sudarshan Computer Engineering & Jaihind College of Engineering Kuran
[2]Dhamale Nishant Computer Engineering & Jaihind College of Engineering Kuran
[3]Shinde Kalpesh Computer Engineering & Jaihind College of Engineering Kuran
[4]Bangar Abhishek Computer Engineering & Jaihind College of Engineering Kuran

---***---

Abstract - As a rule, agribusiness is the foundation of India and furthermore assumes a significant part in the Indian economy by giving a specific level of a homegrown item to guarantee food security. Be that as it may, presently a-days, food creation and expectation is getting drained because of unnatural climatic changes, which will antagonistically influence the economy of ranchers by getting a helpless yield and furthermore assist the ranchers with staying less natural in anticipating the future harvests. This examination work helps the fledgling rancher in such a manner to direct them for planting the sensible yields by sending AI, one of the cutting edge innovations in crop forecast and illness expectation. CNN calculation advances in the manner to accomplish it. The seed information of the harvests is gathered here, with the proper boundaries like temperature, moistness, and dampness content, which assists the yields with accomplishing an effective development. Also as the product, a portable application for Android is being created. The clients are urged to enter boundaries like temperature and their area will be taken consequently in this application to begin the expectation interaction.

Key Words: Deep Learning, Crop Prediction, Neural Network, Classification

1.INTRODUCTION

It is seen that sicknesses in the harvest have become so tricky that decrease the amount and nature of the yields in the agribusiness. Thus, the specialists need to identify these issues which may be costly. In a portion of the spots, the ranchers can't reach specialists and they need to travel significant distances to reach out to the specialists. This may be costly for the ranchers and furthermore, parcel of time will be burned-through. Utilizing AI, we can foresee the harvest and furthermore assume that there are any side effects of illness in the yields or not. A few AI calculations like CNN can be utilized. This venture centers around each idea that are associated with horticulture. It is essential to anticipate and screen the yields on the grounds that even a solitary infected harvest can be the justification for the event of illnesses in many yields. This issue is extremely destroying that can deter the ranchers to develop the harvests and in light of this, some of them have considered surrendering. Inexperienced pesticide usage can cause the development of long-term resistance to the pathogens, severely reducing the ability to fight back. Timely and accurate diagnosis of plant diseases is one of the pillars of precision agriculture

2. MOTIVATION

There are numerous websites and applications that offer a variety of different bundles. They do not, however, plan according to tourist schedules, which is why we are building a voice assistant system in which tourists identify their needs, time, date, interests, and hobbies, and the system then recommends packages with costs, schedules, hotels, and points of interest. season. In addition, system makes recommendations based on the user's interests. As a personal aid, we are offering all findings in the form of recommendation suggestions in the form of voice.
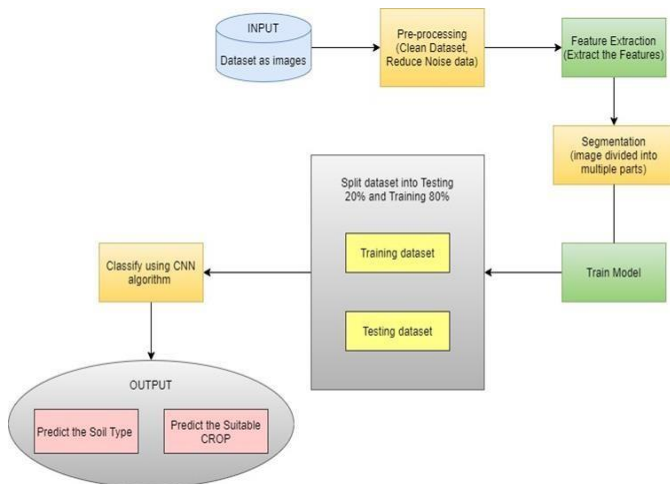
3.LITERATURE SURVEY

1. Fatin Farhan Haque, Ahmed Abdelgawad, Venkata Prasanth Yanambaka, Kumar Yelamarthi "Crop Yield Analysis Using Machine Learning Algorithms"

2. Shima Ramesh "Plant Disease Detection Using Machine Learning", 2018 International Conference on Design Innovations for 3Cs Compute Communicate Control

3. Ramesh Medar "Crop Yield Prediction using Machine Learning Techniques"2020 International Journal of Engineering Research Technology (IJERT).

4. P. S. Vijayabhaskar, Sreemathi.R, Keertanaa.E "CROP PREDICTION USING PREDICTIVE ANALYTICS"

4. SYSTEM ARCHITECTURE

The modules in plant disease detection are image collection, image pre-processing, image segmentation, Selection of classifier.

a. **Image collection**: Picture assortment is the progression where the pomegranate leaf picture is taken image as information. The Deep Neural Network is prepared on datasets of solid and unhealthy yield leaves. It fills the need by grouping pictures of leaves into unhealthy or solid classes dependent on their example of deformity. As the leaves have surface and visual similitudes, they are credits for recognizing illness types. Subsequently, computational vision applied to profound learning gives an effective method for taking care of the issue.

b. **Image Pre-processing**: The aim of pre-processing is an improvement of the image data that suppresses unwanted distortions or enhances some image features important for further processing. The data is processed and passed on for further classification.

c. **Image Segmentation**: Picture segmentation is the method involved with partitioning an advanced picture into various portions. Partitioning is finished by k means grouping.

d. **Selection of Classifier**: In this stage to recognize and order the plant leaf illnesses, we are utilizing the CNN(Convolutional Neural Network).the histogram and accordingly on the size of the local district.

5. PROPOSED SYSTEM

Crop suggestion and also disease prediction is one of the challenging problems in precision agriculture and many models have been proposed and validated so far. This the problem requires the use of several datasets since yield depends on many different factors such as climate, weather, and soil, use of fertilizer, etc . to develop crop

prediction and crop disease prediction system.
In the period of SDLC, genuine advancement starts, and the writing computer program is constructed. The execution of configuration starts concerning composing code. Designers need to adhere to the coding rules portrayed by their board and programming apparatuses like compilers, mediators, debuggers, and so forth are utilized to create and carry out the code.

7. CONCLUSIONS

A model is proposed for anticipating soil series and giving appropriate harvest yield ideas to that particular soil and identifying plant leaf sickness. The model has been tried by applying various types of deep calculations. CNN shows the most elevated precision in soil arrangement and recommends crops with less time. It gives us more precious when contrasted with the existing framework and gives more advantage to ranchers.

8.REFERENCES

[1] "Plant Disease Detection And Its Solution Using image Classification" by Saradhambal.G, Dhivya.R, Latha.S, R.Rajesh in International Journal of Pure and Applied Mathematics Vol. 119,no.14, pp. 879- 884, 2018

[2] "Plant Leaf Disease Detection and Classification Based on CNN with LVQ Algorithm" by Melike Sardogan, Adem Tuncer, Yunus Ozen in 3rd International Conference on Computer Science and Engineering, 2018

[3] "Plant Disease Classification Using Image Segmentation and SVM Techniques" by K.Elangovan, S.Nalini in International Journal of Computational Intelligence Research ISSN 0973-1873 Vol.13,no.7, pp.-1821-1828, 2017

[4] Ranjeet Kaur, Manjeet Kaur "A Brief Review on Plant Disease Detection using Image Processing" IJCSMC, Vol. 6, Issue 2, 2017

[5] Sandesh Raut, AmitFulsunge "Plant Disease Detection in Image Processing Using MATLAB" IJIRSET Vol. 6,Issue