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Real-Time Agrobase Solution

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Abstract: *For detecting and finding cure information for plant diseases, Agricultural scientists play a vital role. Manually identifying the crop disease is hard and time consuming for farmers.Hence by using Machine learning we can identify the disease affected by just scanning the leafof the crop in little amount of time. Now a days farmers are facing lots of problems. Even some are unaware about how to take care of plants for better result. And when farmers go to buy fertilizers in shops, they are not given proper fertilizers. So, there should be something which will advise the solution for each and every problem of farmers from crop sowing & care taking.Farmers may be unaware of the diseases that may arise during various parts of the growing season. So, this project aims to provide farmers all the facilities and advice in a digital way. Using this system farmers will be able to recognize the crop diseases easily and will get the smart advice for taking care of crops. And also, we are providing farmers ways to manage theiragricultural waste and make money. There will also be a market available for buying seeds. This is the all-in-one solution for agricultural development.*

Keywords: Plant disease detection, feature extraction, image processing

I. INTRODUCTION

Agriculture is the most vital aspect of our lives. Nearly 60-70% of our rural households dependon agriculture. It plays a key role in the development of the nation. In the 21st century, the Nation has made great progress in all sectors like medical, science, and agriculture. Many of the plants are used for the development of society. Plants help us in every part of our lives like food, fabric etc. While Agricultural practices like sowing, irrigation, manufacturing, weeding, harvesting and storage farmers face lots of problems due to climate change, soil erosion and biodiversity loss. Farmers sow a variety of crops but diseases affect the growth of crops. Even some farmers are unaware of the changes and diseases to crops due to climate change. In orderto increase production of crops and benefit farmers, study of the crop diseases and the proper solution for them is important. Firstly, monitoring health and analysis of the plant diseases is a must. Farmers don't get the proper advice and fertilizers from the local shops. There is a need for a platform where farmers can get proper fertilizers with proper advice on how to takecare of the farm during various seasons. One more major problem which occurs after crop production is to manage the agricultural waste. Agricultural waste is used by lots of companiesas raw data for some products as well as used for food for pet animals. So farmers should havea system where they can easily buy their agricultural waste and the one who needs it will be available for them easily. Detecting and analyzing crops diseases is a major task as it requires a large amount of data and time. The image detection technique using machine Learning is used for plant disease detection**.** This article introduces the application of an all-in-one solutionfor all the above problems occurred in agricultural practices.

II. LITERATURE SURVEY

1.We are observing 3 major locations including Akole(Ahmednagar), Ahmadpur (Latur) and Amravati. These are our hometowns and are about 400 to 500 KM away from each other so the area our project covers is about 20+ districts as our analysis. Main agri products location wise Nagar/Nashik: Onions, sugarcane Latur: Soyabean, Sugarcane Wardha: Cotton, Pigeon Pea, Soyabean.

2.In order to know about the previous research work done in this direction, several studies dedicated to the topic were referred. There are several papers published which gives us a little idea about various approaches for crop disease detection. Stephen Gang Wu et al in 2007, has developed a leaf recognition algorithm which is used to extract features

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and highly efficient algorithms for recognition purposes. A Probabilistic Neural Network (PNN) was used for recognition of plant leaves. The accuracy of recognitionobserved was 90%.

3.Detection of disease by extracting color features: Mohmmad Ei-Helly proposed a paper "Integrating Diagnostic Expert System with Image Processing via Loosely Coupled Technique" in which he developed an expert system using image processing. This expert system analyzes the diseases by observation using four main image processing phases from a leaf. These are enhancement, segmentation, feature extraction and classification. Using this system they tested different types of crop diseases like Leaf miner, Powdery etc.

III. PROPOSED SYSTEM

The Realtime agrobase system secured through Authentication is the mechanism by which a person proves their identity to a system. It is the process of proving that a subject is the valid user of an account. Often, the authentication process involves a simple username and password. But other more complex authentication factors or credential-protection mechanisms are involved in order to provide strong protection for the logon and account- verification process. The authentication process requires that the subject provide an identity and then proof of that identity.

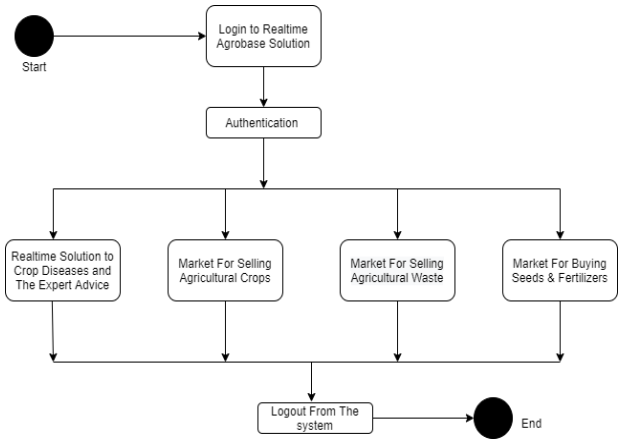

Fig.1 Structure of Proposed System

Realtime solution to crop diseases and the expert advice in section, the images of the plant leafare captured through the mobile application by using camera the raw data passed for Feature extraction, the Feature extraction plays an important role for identification of an object. In many applications of image processing feature extraction is used. Color, texture, morphology, edges etc. are the features which can be used in plant disease detection. Data passed for trainingto train data by using TensorFlow. Machine learning is the subfield of computer science. It evolved from the study of pattern recognition and computational learning theory in artificial intelligence, machine learning explores the study and construction of algorithms that can learn from and make predictions on data. Automatic detection of plant diseases is an important taskas it may prove beneficial in monitoring large fields of crops, and thus automatically detect diseases from symptoms that appear on plant leaves. Thus system detection of plant disease with the help of supervised machine learning techniques provides more accurate and guidancefor disease management. The main part of the plant to examine the disease is the leaf. The major categories of plant leaf diseases are based on viral, fungal and bacteria.

IV. METHODOLOGY

- Capture images: Image Capture is an application program from Android that enables users to upload pictures from digital cameras.
- Raw data: A camera raw image file contains minimally processed data from the image sensor of either a digital camera
- Data alignment: Image alignment is the process of matching one image called template, Training set to rotate, resize and adding some random noise to images in order to avoid over-fitting

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- Feature extraction: it starts from an initial set of measured data and builds derived values intended to be informative and non-redundant, facilitating the subsequent learning and generalization steps, and in some cases leading to better human interpretations. Feature extraction is related to dimensionality reduction

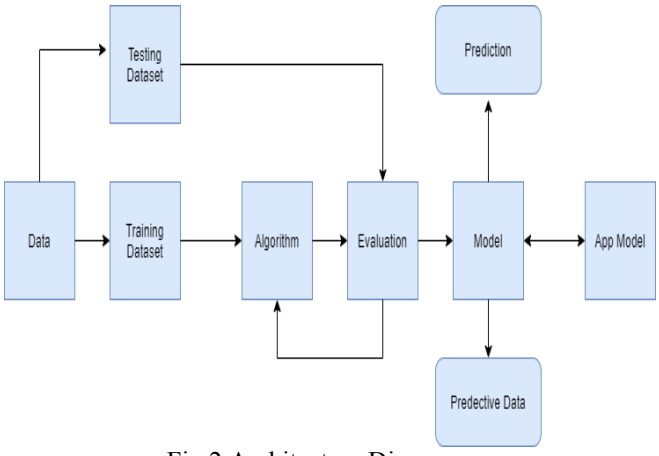

Fig.2 Architecture Diagram

- Data training: The training dateset is used to prepare a model, to train it. We pretend the test dateset is new data where the output values are withheld from the algorithm. We gather predictions from the trained model on the inputs from the test dateset and compare them to the withheld output values of the test set.
- Image evolution: Model evaluation aims to estimate the generalization accuracy of a model on future data.
- Application android: android application upload images on server and display the results. Step 10
- Web application: The web application would be developed using python the images fetch from android application and start the processing on data.
- Result: the generated result will pass to the mobile application.

V. ALGORITHM:

Step 1 : start
Step 2 : Login activity validate the user data.
Step 3 : Fetch the all database dynamically from admin panel
Step 4 : Select the any activity as per user requirement
Step 5 : Start the Crop disease detection module
Step 6 : System camera application used to click the images.
Step 7 : Raw data send to server application, and train the dateset Using TensorFlow API
Step 8 : Output data send from server the android application
Step 9: By using output data its will show the solution which treatment we need to do on crop.
Step 10:Click on the solution, the solution page is recommended to user which pesticide product we need to use.
Step 11:Selected product add in cart
Step 12:Complete the payment, already payment gateway is defined
Step 13:Order add in profile
Step 14:Exit

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VI. IMPLEMENTATION

PLANOF PROJECT IMPLEMENTATION:

OUTCOME:

Farmer will get the information regarding various crop diseases, what measures to be taken for the diseases, what fertilizers and pesticides to be used and how to take care of crops.

Farmers will be able to easily detect what disease the crop is affected and the solutions to be taken will also be available to farmer at single click.

Farmers get Proper solution for various type of crop diseases. so it help to increase crop productions.

Farmers will be able to easily manage and make from the agricultural waste by this application.

There will also be a market available for buying seeds and selling their crops production.

This is the all-in-one solution for agricultural development.

VII. APPLICATIONS:

- Get Crop Disease information
- Get Proper Fertilizer information.
- Solution For Crop disease.
- Market for Fertilizer Selling and Buying

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VIII. RESULT

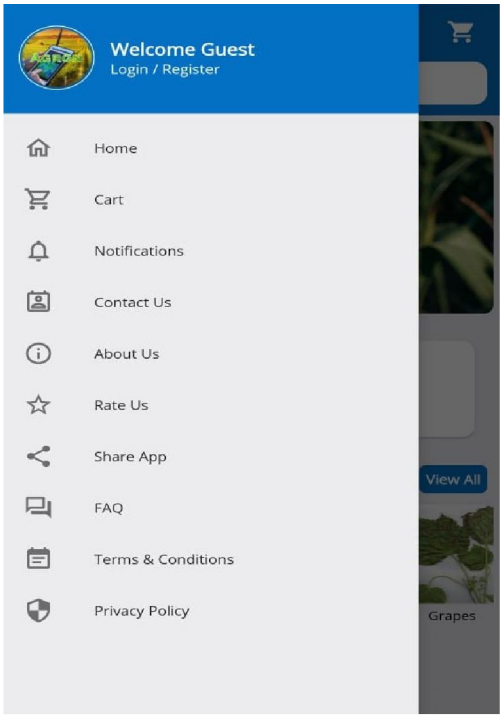
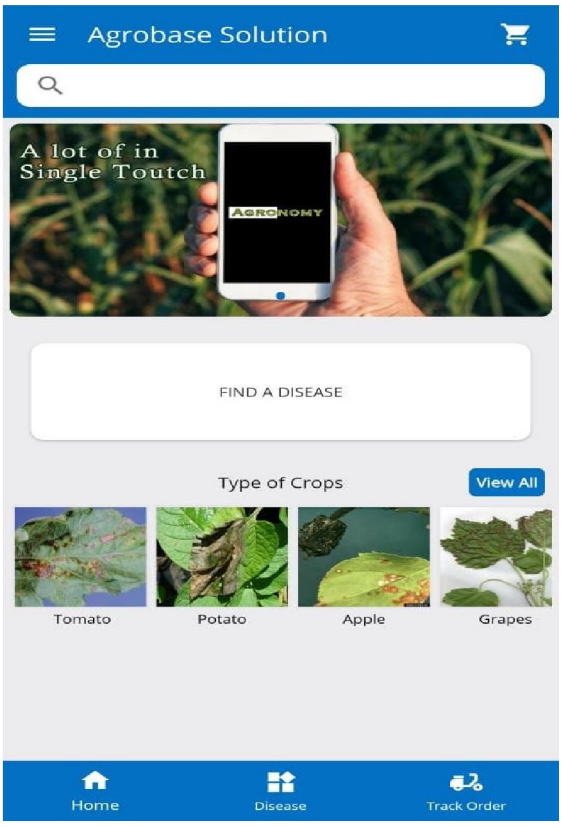


Fig: Home page activity detection



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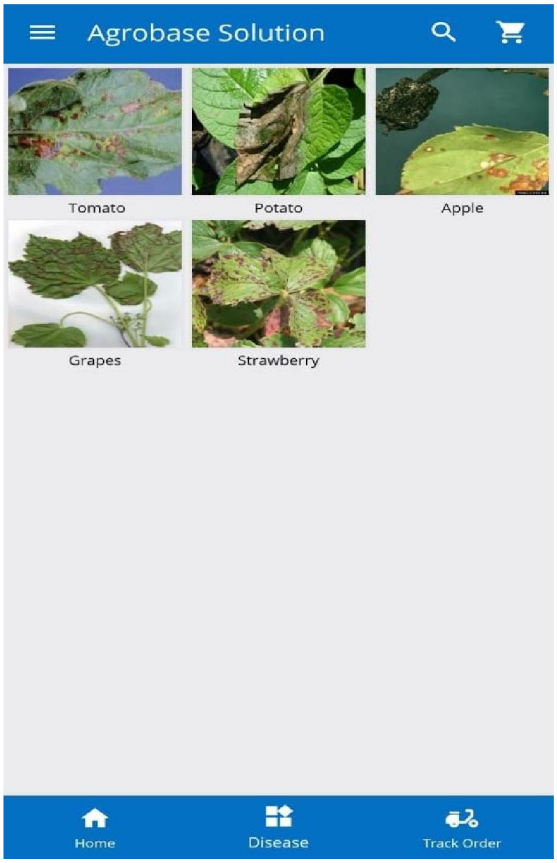

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