INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN COMPUTER & COMMUNICATION ENGINEERING

INTERNATIONAL STANDARD SERIAL NUMBER INDIA

Impact Factor: 8.379

Soil Doctor : The Helpmate

Dr . A.B. Gavali, Miss. Pallavi Vijaykumar Jathar, Miss. Vaishnavi Vishnu Kadam, Mr. Rushikesh Sanajy Chinchkar, Miss. Shreya Dilip Vedpathak

Department of Computer Engineering, Savitribai Phule Pune University, Indapur, India

Department of Computer Engineering, Savitribai Phule Pune University, Indapur, India

Department of Computer Engineering, Savitribai Phule Pune University, Indapur, India

Department of Computer Engineering, Savitribai Phule Pune University, Indapur, India

Department of Computer Engineering, Savitribai Phule Pune University, Indapur, India

ABSTRACT— A crop productivity is affected by different fertilizers and chemicals used in the farming.For cultivating vegetables, fertilizers include micronutrients like zinc, nitrogen, and others. Crops should be able to handle the negative effects created by the environment and inconsistent sources in order to supply the increasing demand for food. Precision agriculture has a three layer structure that is comparable to networks. Details about various factors, goods, and operational environment can be obtained through the sensors to send and receive data between various devices and from a distant server. Application layer used for analysis the data, visualization and prediction the soil and crop suitable for the particular soil.

KEYWORDS-Iternet of Things (IoT), Sensors, Crop recommendation, Crop prediction.

I. INTRODUCTION

Agriculture is one of the most important professions practiced in India. It is a very important economic sector and plays a most important role in the overall development of the country. It also contributes a large portion of employment [1]. Researchers have started offering solutions by integrating the Internet of Things with deep learning techniques, or "Smart IoT," to feed food for an increasing population in nations like India [2, 6]. Because of this development, e-farming has adopted a new pattern in which all the sensors required for farming are linked to the distant server through wireless or remote protocols in a distributed setting. The farmers can keep an eye on these fields even when they are a long way away thanks to their intelligence [3]. IOT base smart farming improve the agriculture system in real time. It is helpful for farmer to identify the soil type and different features like moisture, humidity. It keeps various factors like humidity, temperature, moisture of soil, etc. The design paper consists of seven sections. In the first section, we have given information about the both proposed system and existing system. In the previous system, they use the KNN algorithm for predicting crops. In our system, we use the CNN algorithm and two sensors i.e. moisture and DHTto detect the temperature, humidity, and moisture of the soil. The second section consists of the system architecture of the project. The next section includes the data flow of the project. In the next section, we have described the application and the last section is about the conclusion in which we overcome the problem in existing system.

II. RELATED WORK

Data pre-processing in problem-solving is regarded as an important machine learning phase. Pre-processing is extracting the functionality adding the corrected gathered data, and adding the missing values. The format of the data set is difficult for the analysis process. Pre-processing in which we remove the noise in the real image.Preprocessing entails adding the correct collection of data, missing values, and functionality extraction. The amount of data required to characterize a large collection of data would be less if the features were extracted. The traning data is collected is determine the soil, crop and features through the pre-processed data.
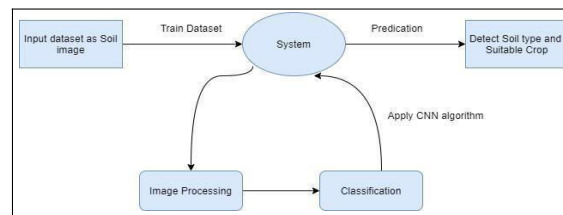
A.   SYSTEM ARCHITECTURE

Due to India's harsh weather, crops may become submerged in water as a result of heavy rains and flooding. This renders the soil's moisture level inadequate for high yield. Each crop has a range of soil water content that influences production. Temperature and humidity are two more elements that have an impact on crop output. As a result, they must be kept

within their specific ranges for each crop variety. The implementation of our project will address this problem. It aids farmers in preventing excessive waterlogging of their crops.
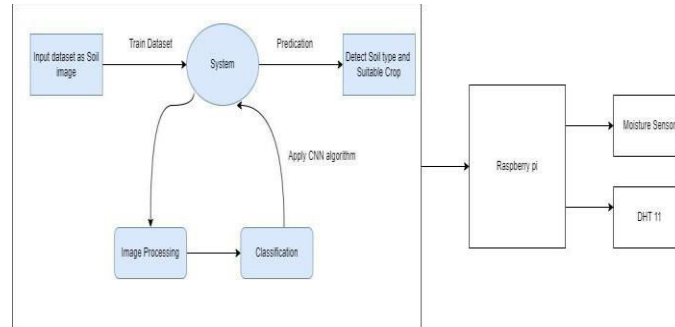
Dataflow Diagram

In this section, the following figure shows the data flow of the system which consists of input and output processing.

B.   PROBLEM STATEMENT

The system architecture consists of hardware and software systems. In the software system we have given input as a soiled image by using the CNN algorithm we extract the features of the soil and pre-process the image and then the system gives the output and which predicts the soil type and suitable crop for the given input image. In the hardware system, we have used two sensors i.e. DHT11 and Moisture sensors which detect the humidity temperature, and moisture of the soil.

C.   HARDWARE INTERFACES

- RAM: 8GB In machine learning algorithm use the high level libraries so we need the minimum 8GB RAM.
- Hard Disk: 40GB The minimum 40 GB hard disk required for implementation.
- Sensors: Moisture Sensor, DHT 11
- Processor: Intel i5 Processor

D.   SOFTWARE INTERFACES

- Software: anaconda navigator
- IDE: Spyder The best integrated development environment to run the program is spyder.
- Coding Language: Python(version 3.5) In computer programming language to build the software and conduct data analysis python is used.
- Operating System: Windows 10 The operating system which support all type of installation and it is latest operating system.

E.   ADVANTAGES

- By using sensors we detect moisture, humidity, temperature, etc in the soil.

- Predicting the productivity of crops in different climatic conditions can help farmers and can be helpful for increasing the productivity of crops.
- This model can be used to select the better crops for the region.

F.   APPLICATION

- Producing, growing, improving, and protecting are some of the important characteristics of a farm identifying these characteristics can be helpful.
- It is mainly used in choosing of crops for yielding.
- It can be applicable to terrace gardening also.
- It might be used for nurseries.
- It is a short time solution for farmers.

III. RESULT

Before Here in this section, we are going to see the results. The first window page is about the Home Page of the system. It consists of two options login and registration option for end users. If we have already registered then we can log in to the next if not then register for a new account and create a user I'd and password for the user to login.
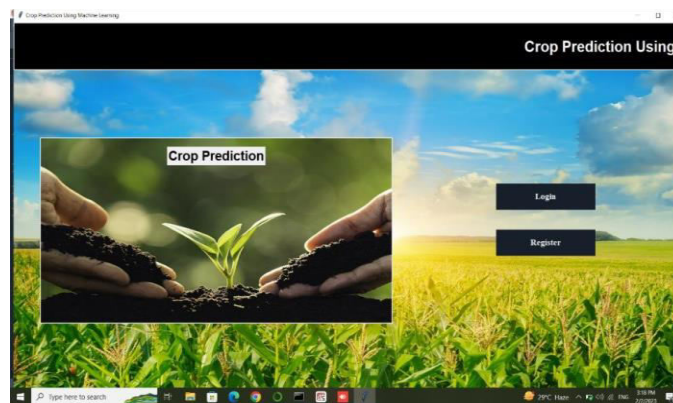

Fig.1 Home Page

The second figure is about login page. In which we can login by entering user name and password. If not register account then go to register page.
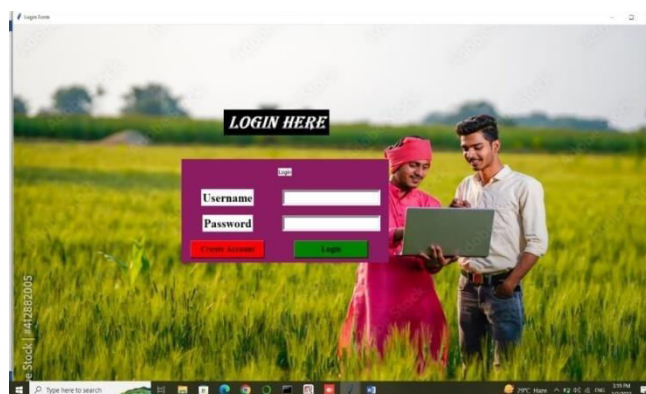

Fig. 2 Login Page

The registration form is the third window through which can create an account by filling in the following details of the user they are Full Name, Address, Email, Phone No., Gender, Age, User Name, and Password.
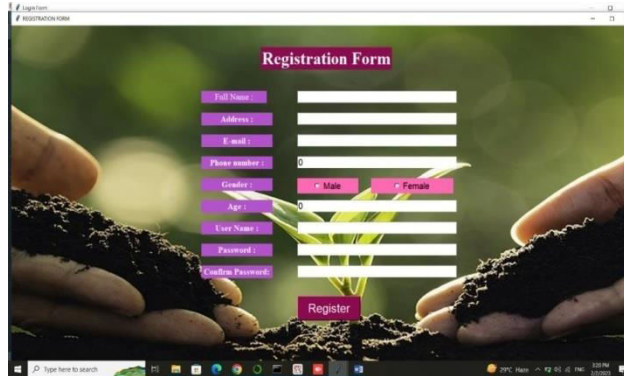

Fig. 3Registration Page

The last window is the result page. In which by selecting the image of soil from dataset and by applying CNN algorithm we predict the suitable crop.
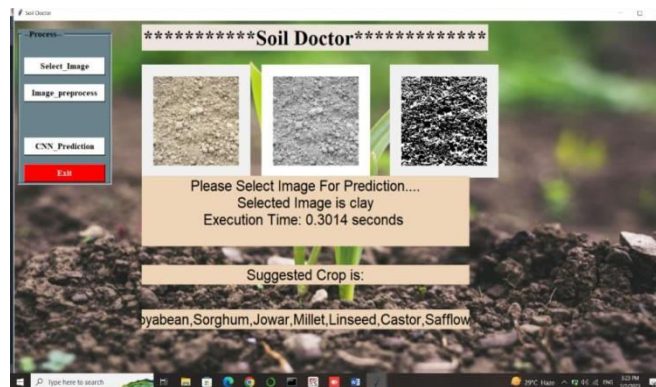

Fig. 4Result Page

IV. COMPARATIVE STUDY

In existing system use the RNN algorithm for the identifying soil type and also to find out the predicted crop. Now in the our system use the CNN (Convolution Neural Network) algorithm to identifying the soil type. It not sufficient to find out the only soil type. So in this system uses of different sensors to identify the features in the soil. This are the moisture and DHT11 sensor which identify the temperature, moisture and humidity in soil. It is applicable for the real soil in previous system it uses only the soil images for prediction.

V. CONCLUSION

In India agriculture is primary source of supply chain to fulfil the daily needs of human being. Also it is helpful in economic growth. The growth of agriculture directly impact on the growth of country. So it is necessary that every farmer know different technologies to improve the help of yielded crop. This technology helpful for improve yielded crop health and also helpful for identifying the suitable crop for the soil.

REFERENCES

1. Supervised Machine learning Approach for Crop Yield Prediction in Agriculture Sector. Dr. Y. Jeevan Nagendra Kumar1 V. Span dana V.S. Vaishnavi3 , K. Neha4 ,(2020).
2. Soil Classification and Crop Suggestion using Machine learning
techniques. Periasamy J.K (2021).
3. Soil Classifications n & Crop Suggestion based on HSV, GLCM, Gabor Wavelet Techniques and Decision Tree Classifier in Image Pro. 1 abimala.rajendr an@gmail.com 2 sashyaflora@gmail.com 3 sripriya2198@ gmail.com [(2020).
4. Real-Time Monitoring of Agricultural Land with Crop Prediction and Animal Intrusion Prevention using the Internet of Things and Machine Learning at Edge. Nikhil R Prof. Anisha B S Dr. Ramakanth Kumar P (2020).
5. CROP PREDICTION USING PREDICTIVE ANALYTICS. P. S. Vijayabaskar, Sreemathi.R, Keertanaa. E(2017)..901225.
6. Smart home automation using the virtue of IoT V Yadav, S Borate, S Devar, R Gaikwad, AB Gavali2017 2nd International Conference for Convergence in Technology (I2CT), 313-3

INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN COMPUTER & COMMUNICATION ENGINEERING

📱 9940 572 462   🟢 6381 907 438   ✉ ijircce@gmail.com

Scan to save the contact details