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School of Computer Science and Engineering

J Component report

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M. Prasad
29/4/22

AGRICULTURE ANALYSIS AND ASSISTANCE PORTAL

by

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A project report submitted to

Dr. M. Prasad

SCHOOL OF COMPUTER SCIENCE AND ENGINEERING

in partial fulfilment of the requirements for the course of

CSE3002 – Internet and Web Programming

in

B. Tech. Computer Science and Engineering



Vandalur – Kelambakkam Road

Chennai – 600127

MAY 2022

BONAFIDE CERTIFICATE

Certified that this project report entitled "**AGRICULTURE ANALYSIS AND ASSISTANCE PORTAL**" is a bonafide work of Shravani Swaroop Urala - 19BPS1019, Sahil Faizal - 19BPS1083 and Sanjay Sundaresan - 19BPS1113 **who** carried out the Project work under my supervision and guidance for **CSE3002 - Internet and Web Programming.**

Dr. M. Prasad

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ABSTRACT

The initiative is aimed at solving the most common problems faced by the farmers through Artificial Intelligence Technologies. In this project we have incorporated different modules for functionalities like Weather Forecasting, Leaf Disease Detection, Fruit Quality Prediction and Market Price Tracker. The monitoring feature will be followed by remedial measures in case of any abnormality. *The focus is placed on the design and components of the web interface* that forms the backbone of user interaction in this project.

All these models will be integrated to the web page and offered as a consolidated portal. For AI model building, Tensorflow framework and Python will be used. An interactive interface will be provided adhering to the principles and heuristics of web design. Use of analytics further enhances the efficacy of the portal by retrieving useful information and presenting them in an optimized manner.

ACKNOWLEDGEMENT

We wish to express our sincere thanks and deep sense of gratitude to our project guide, **Dr.M.Prasad**, Assistant Professor, School of Computer Science and Engineering (SCOPE), for his consistent encouragement and valuable guidance offered to us in a pleasant manner throughout the course of the project work.

We are extremely grateful to **Dr. Nithyanandam P**, Head of the Department (HoD), B.Tech Computer Science and Engineering, SCSE, VIT Chennai for extending the facilities of the School towards our project and for his unstinting support.

We express our thanks to **Dr. Ganesan R**, Dean of the School of Computer Science & Engineering, VIT Chennai, for his support throughout the course of this project.

We also take this opportunity to thank all the faculty of the School for their support and their wisdom imparted to us throughout the course.

We thank our parents, family, and friends for bearing with us throughout the course of our project and for the opportunity they provided us in undergoing this course in such a prestigious institution.

Shravani Swaroop Urala

Sahil Faizal

Sanjay Sundaresan

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1. INTRODUCTION

Many domains have benefited from the advancement of technologies but the usage of technology in the Agriculture sector in India has been very limited. Indian agriculture is hassled by several problems which are resulting from the decline in production. One of the most innovative pieces of the digital transformation is the ability to use machine learning and advanced analytics to mine data for trends. The insight provided allows sow the right seeds based on the nutrients available in the soil for its growth, keep track of the prices on goods in market and to identify leaf diseases in crops grown by him. Overall the system is intended to efficiently handle the use cases for which it is built for and help the farmers to maximize their output with minimal loss or wastage.

To support small-scale and large-scale farmers alike by augmenting their traditional farming practices with technology-driven enhancements that equip them to automate the crop-monitoring and quality management process, along with convenient access to agriculture experts for advice and support for selling their crops by connecting them with potential large-volume buyers without the hassle of negotiating prices.

2. OBJECTIVES

- Plant Leaf disease monitoring and prediction
- Soil quality monitoring used for crop recommendation
- Real time analysis of Market prices for crops

3. TOOLS/SOFTWARE REQUIREMENT

- Tensor flow
- Keras
- Python
- Technologies : Computer Vision, Image processing, machine learning
- Google Colab
- HTML, CSS, JS
- Flask - to integrate the backend and frontend

4. LIST OF MODULES AND THEIR DESCRIPTION

i) **Leaf Disease Prediction System** - Crop diseases are a major threat to food security, but their rapid identification remains difficult in many parts of the world due to the lack of the necessary infrastructure. The combination of increasing global smartphone penetration and recent advances in computer vision made possible by deep learning has paved the way for smartphone-assisted disease diagnosis. So as a part of this we are planning to develop an effective computer vision model which can predict the disease stage

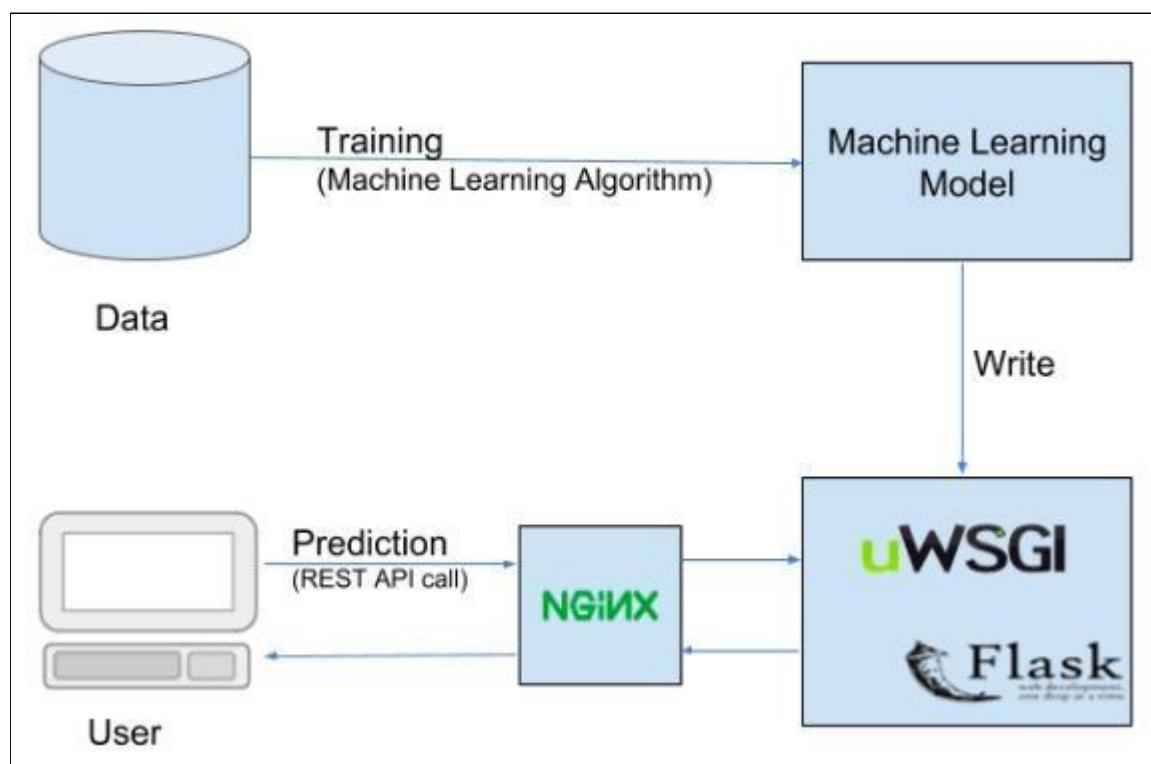
in various crops like potato, tomato and cotton. The disease prediction for Cotton and Potato has been implemented

ii) **Market Price Tracker** - This module focuses on keeping the farmers updated about fair prices in the market in accordance with the latest trends in the most common and in-demand crops. Low levels of awareness about contemporary price trends has proved to be a major problem that leaves farmers vulnerable to accepting lower prices than what is deemed to be an accepted market rate. By having access to real-time information in this regard, the problem is circumvented. The module includes simple, easy to interpret graphs that track the widely accepted market price range of crops. It can also be integrated with the quality prediction module to enhance the demand for an appropriate price. The market price tracker for onion prices has been implemented.

iii) **Soil quality monitoring and crop recommendation** - Monitoring and controlling the quality of soil is integral to the health of crops. Farmers usually rely on their instinct to track the status of the soil in their lands, but this is often problematic for large portions of land, and is often a tedious task to perform on a regular basis. With access to the right sensors distributed according to the topography of the land, it is possible to monitor the quality of soil while accounting for the changes in the environment in real-time. Any alarming signs in the general health of the soil (physical, chemical and biological indicators) can be gauged to a considerable extent with the added benefit of automation.

This module has been developed to identify crops that can be grown in the given parameters of soil nutrients

5. ARCHITECTURE



6. OUTPUT SCREENSHOTS

```

sanjay@ubuntu:~/Desktop/flaskapp$ eb init -i
Select a default region
1) us-east-1 : US East (N. Virginia)
2) us-west-1 : US West (N. California)
3) us-west-2 : US West (Oregon)
4) eu-west-1 : EU (Ireland)
5) eu-central-1 : EU (Frankfurt)
6) ap-south-1 : Asia Pacific (Mumbai)
7) ap-southeast-1 : Asia Pacific (Singapore)
8) ap-southeast-2 : Asia Pacific (Sydney)
9) ap-northeast-1 : Asia Pacific (Tokyo)
10) ap-northeast-2 : Asia Pacific (Seoul)
11) sa-east-1 : South America (Sao Paulo)
12) cn-north-1 : China (Beijing)
13) cn-northwest-1 : China (Ningxia)
14) us-east-2 : US East (Ohio)
15) ca-central-1 : Canada (Central)
16) eu-west-2 : EU (London)
17) eu-west-3 : EU (Paris)
18) eu-north-1 : EU (Stockholm)
19) eu-south-1 : EU (Milano)
20) ap-east-1 : Asia Pacific (Hong Kong)
21) me-south-1 : Middle East (Bahrain)
22) af-south-1 : Africa (Cape Town)
(default is 3): 6

You have not yet set up your credentials or your credentials are incorrect
You must provide your credentials.
(aws-access-id): AKIAYKK7FTWKDELPVFEL
(aws-secret-key): 8HKTAm/93VbRbcWVsOTWSC7Kx88I+mpOH5ols0Vt

Select an application to use
1) sanjay
2) [ Create new Application ]
(default is 2): 2

Enter Application Name
(default is "flaskapp"): FarmLife
Application FarmLife has been created.

It appears you are using Python. Is this correct?
(Y/n): Y
Select a platform branch.
1) Python 3.8 running on 64bit Amazon Linux 2
2) Python 3.7 running on 64bit Amazon Linux 2
3) Python 3.6 running on 64bit Amazon Linux (Deprecated)

```

```

Cannot setup CodeCommit because there is no Source Control setup, continuing with initiali
Do you want to set up SSH for your instances?
(Y/n): Y

Select a keypair.
1) kp-1
2) sanjay.
3) temp
4) [ Create new KeyPair ]
(default is 3): 2

```

```

sanjay@ubuntu:~/Desktop/flaskapp$ eb create
Enter Environment Name
(default is FarmLife-dev): FL
Environment name must be 4 to 40 characters in length. It can only contain letters, numbers, and hyphens. It can not start or end with a hyphen
Enter Environment Name
(default is FarmLife-dev):
Enter DNS CNAME prefix
(default is FarmLife-dev): FarmLife

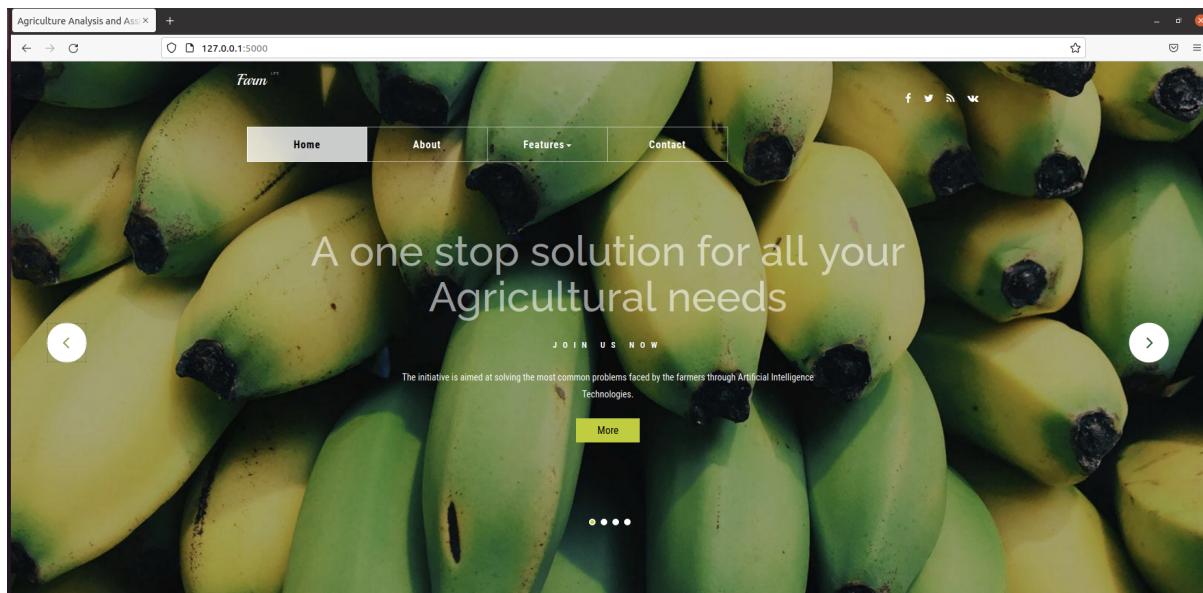
Select a load balancer type
1) classic
2) application
3) network
(default is 2): 2

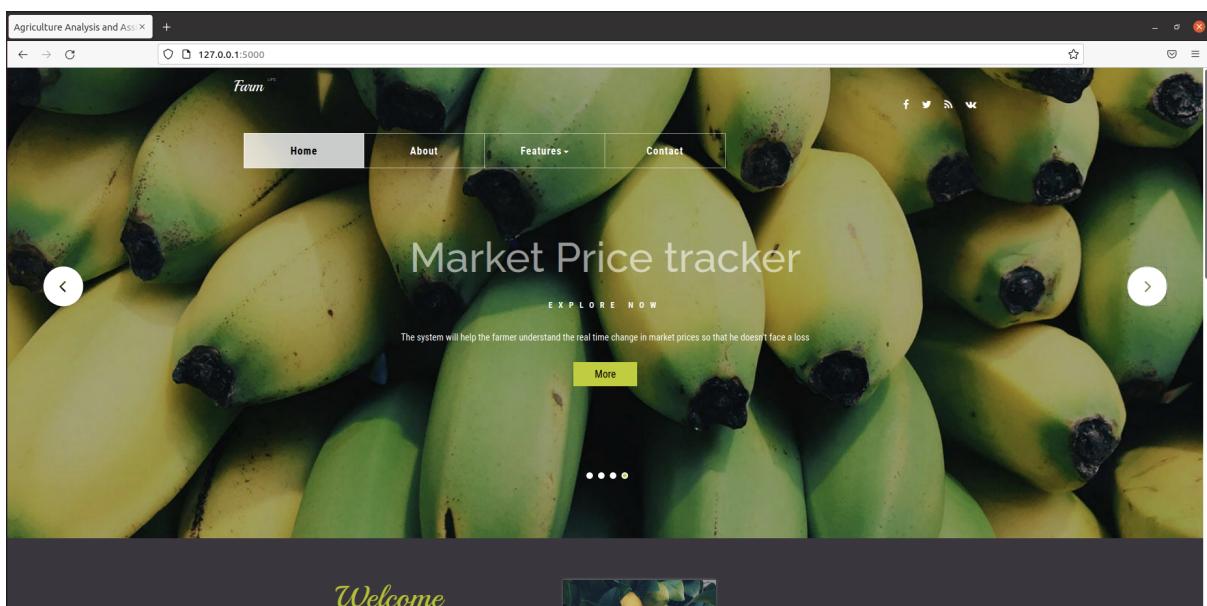
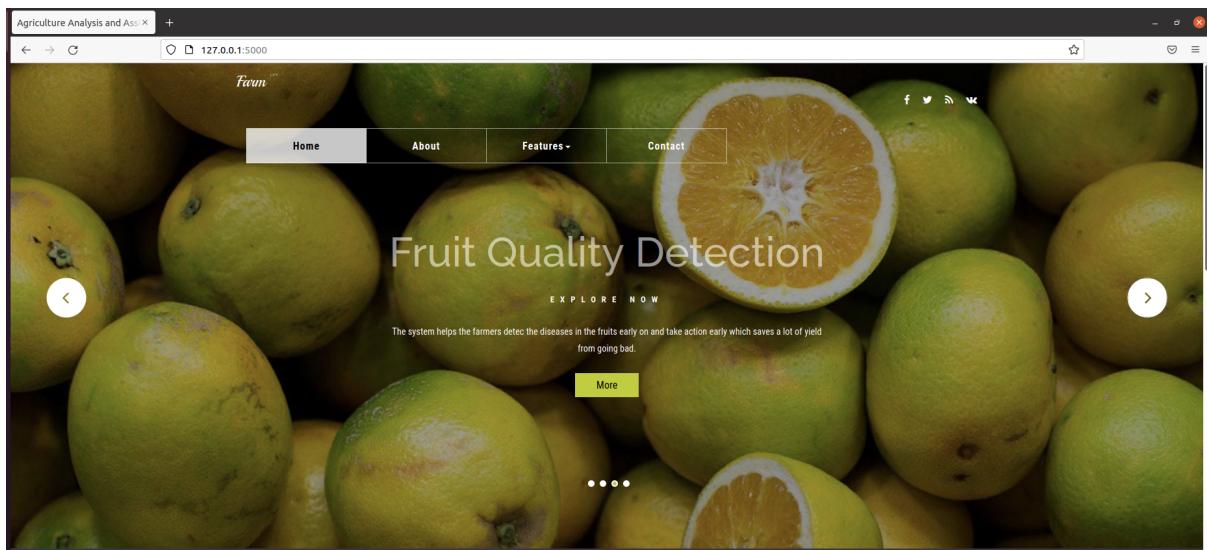
Would you like to enable Spot Fleet requests for this environment? (y/N): N
Creating application version archive "app-220427_092545874790".
Uploading FarmLife/app-220427_092545874790.zip to S3. This may take a while.
Upload Complete.

Environment details for: FarmLife-dev
 Application name: FarmLife
 Region: ap-south-1
 Deployed Version: app-220427_092545874790
 Environment ID: e-aquuhpp2fb
 Platform: arn:aws:elasticbeanstalk:ap-south-1::platform/Python 3.8 running on 64bit Amazon Linux 2/3.3.12
 Tier: WebServer-Standard-1.0
 CNAME: FarmLife.ap-south-1.elasticbeanstalk.com
 Updated: 2022-04-27 16:26:13.653000+00:00

Printing Status:
2022-04-27 16:26:12    INFO    createEnvironment is starting.
2022-04-27 16:26:14    INFO    Using elasticbeanstalk-ap-south-1-571967118740 as Amazon S3 storage bucket for environment data.
-- Events -- (safe to Ctrl+C)

```





Agriculture Analysis and Assistant

Welcome to Farm Life

A one stop solution for your agricultural needs ! Our system will help the farmers understand the detect the problems in the leaves and fruits of their crops early and suggest remedies for the same so that there won't be a loss of produce. The Market Price Tracker will enable the farmers to keep a check on the prices everywhere and decide how to sell their produce accordingly.

[More](#)

Our Services

A leaf disease predictor to monitor the fields at all times and check any outbreak of plant diseases. A fruit disease predictor to detect any diseases in the growth of fruits early on and cure them. A market price tracker to help keep the farmer in touch with the latest pricing trends so that they don't suffer losses.

Leaf Disease Predictor
Monitor the fields at all times and check any outbreak of plant diseases.

Fruit Disease Predictor
detect any diseases in the growth of fruits early on and cure them.

Market Price Tracker
Help keep the farmer in touch with the latest pricing trends so that they don't suffer losses.

Crop Recommender
Crop Recommendations customized according to soil type

Agriculture Analysis and Assistant

[Our Services](#)

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Leaf Disease Predictor
Monitor the fields at all times and check any outbreak of plant diseases.

Fruit Disease Predictor
detect any diseases in the growth of fruits early on and cure them.

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Help keep the farmer in touch with the latest pricing trends so that they don't suffer losses.

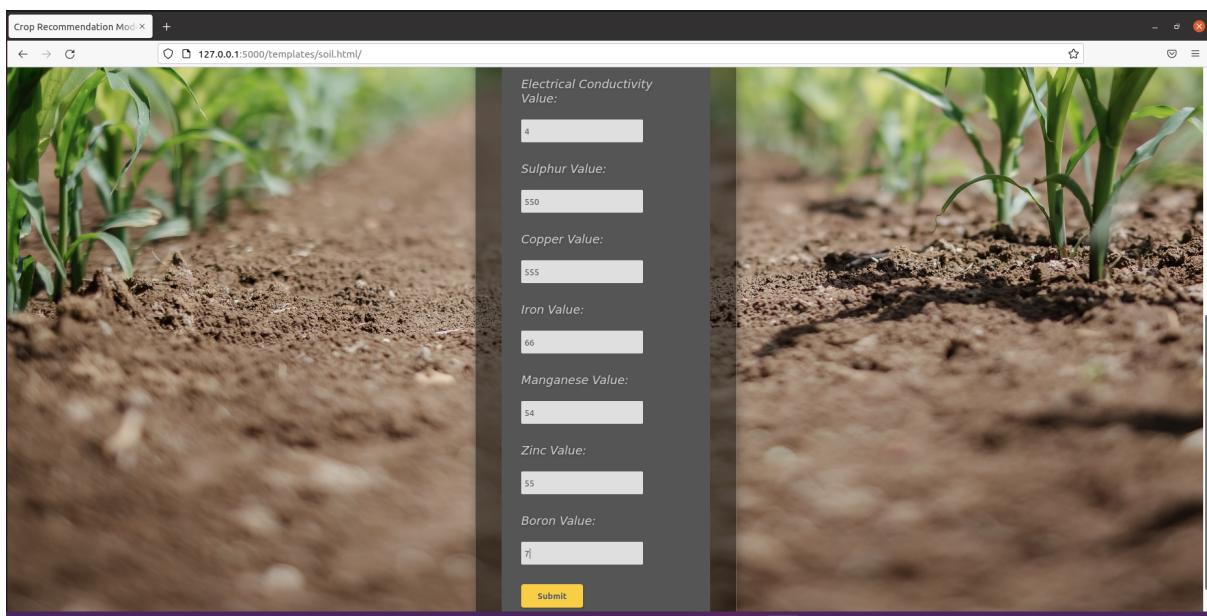
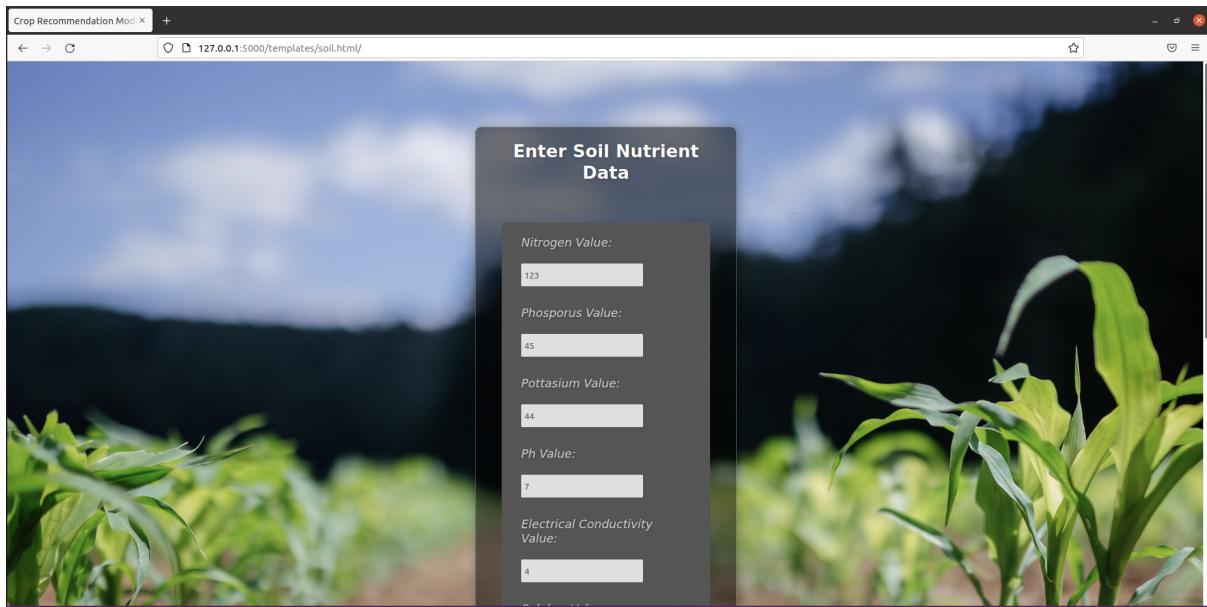
Crop Recommender
Crop Recommendations customized according to soil type

About
A student initiative to make lives better for farmers by creating a system that allows farmers to monitor their crops regularly and informs them of all the possible diseases in order to take action early and avoid losses of produce and income

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Shravani Sanjay Sahil - Project



Crop Recommendation Model

127.0.0.1:5000/templates/soil_pred.html/

The type number of crop recommended is:
[0]

NUMBER	CROP NAME
0	Grapes
1	Mango
2	Mulberry
3	Pomegranate
4	Potato

127.0.0.1:5000/templates/leaf-disease.html

Farm

Home About Features Contact

Drop Leaf Picture

Predict

COTTON PLANT DISEASE PREDICTION

127.0.0.1:5000/predict



Diseased Cotton Plant

Disease Name
Attack of Leaf Sucking and Chewing Pests

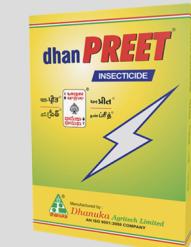
Solution for Disease
Use any one Systemic Insecticide, which contain Flonicamid 50% / Thiamethoxam 25% WG / Imidacloprid 17.8 SL / Acetamiprid 20% SP.

Recommended Products

COTTON PLANT DISEASE +

127.0.0.1:5000/predict

Recommended Products

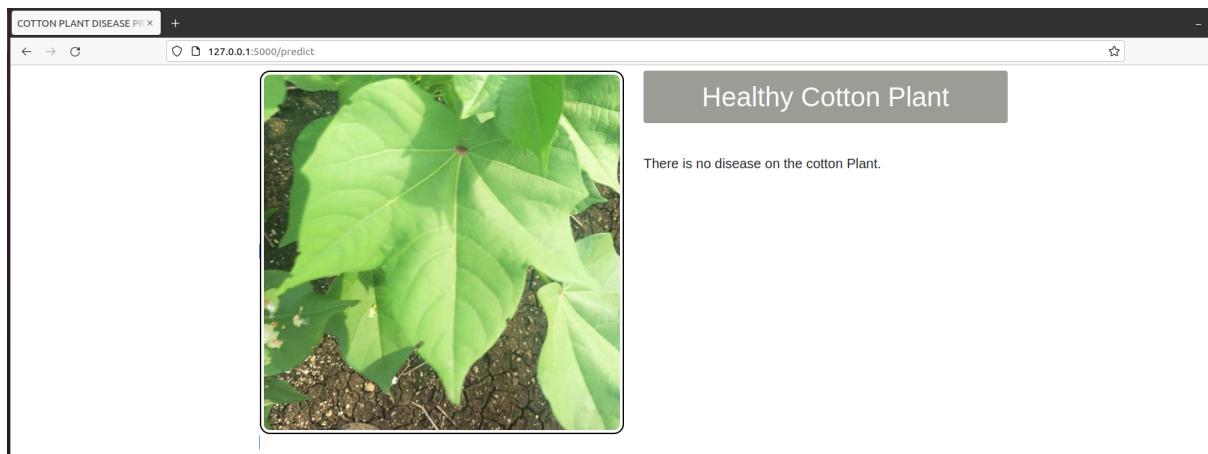
 <p>Dose: 60-80 gm/Acre</p>	 <p>Dose: 60-80 gm/Acre</p>	 <p>Dose: 60-80 gm/Acre</p>
 <p>Dose: 25-40 gm/Acre</p>	 <p>Dose: 25-35 ml/Acre</p>	 <p>Dose: 60-80 gm/Acre</p>

COTTON PLANT DISEASE +

127.0.0.1:5000/predict

 <p>Dose: 60-80 gm/Acre</p>	 <p>Dose: 60-80 gm/Acre</p>	 <p>Dose: 60-80 gm/Acre</p>
 <p>Dose: 25-40 gm/Acre</p>	 <p>Dose: 25-35 ml/Acre</p>	 <p>Dose: 60-80 gm/Acre</p>

Sahil Shravani Sanjay - Project



Link for code :

[https://drive.google.com/file/d/1AcqYn0BiHLj0gBvp-BAAPETcxNaiT716/v
iew?usp=sharing](https://drive.google.com/file/d/1AcqYn0BiHLj0gBvp-BAAPETcxNaiT716/view?usp=sharing)

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