WELCOME

FERTILIZER RECOMMENDATION SYSTEM FOR DISEASE PREDICTION

NALAIYA THIRAN PROJECT REPORT

IBM-Project-10083-1668681292

TEAM ID: PNT2022TMID32003

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PROBLEM STATEMENT

Mr. Narasimma Rao is a 65-year-old man. He had an own farming land and do Agriculture for past 30 Years, in this 30 Years he Faced a problem in Choosing Fertilizers and Controlling of Plant Disease.

- Narasimma Rao wants to know the better recommendation for fertilizers for plants with the disease.
- He has faced huge losses for a long time.
- This problem is usually faced by most farmers.
- Mr. Narasimma Rao needs to know the result immediately.

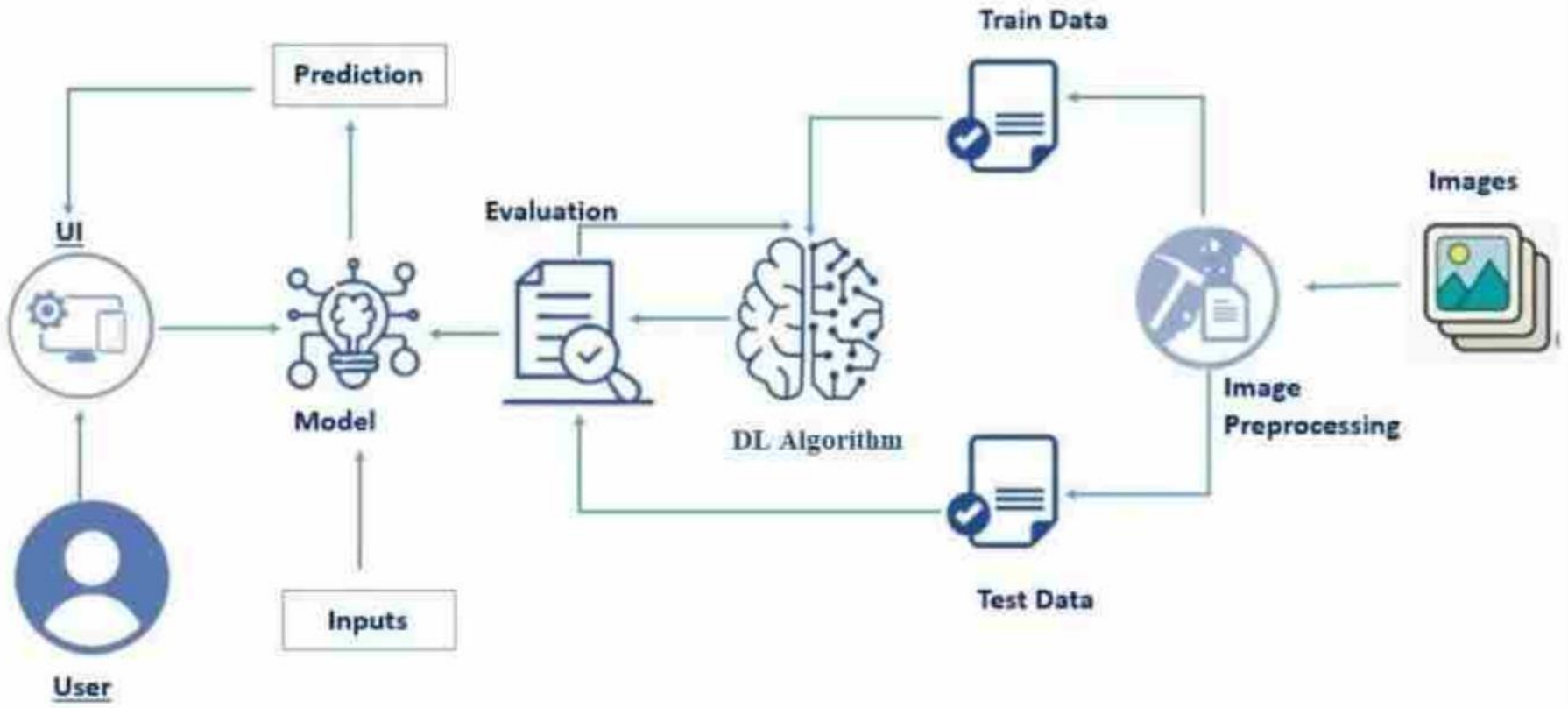
PROPOSED SOLUTION

- The solution to the problem is machine learning which is one of the applications of Artificial Intelligence, is being used to implement the proposed system. Crop recommendation is going to recommend you the best crop you can grow in your land as per the soil nutrition value and along with as per the climate in that region. And recommending the best fertilizer for every particular crop is also a challenging task.

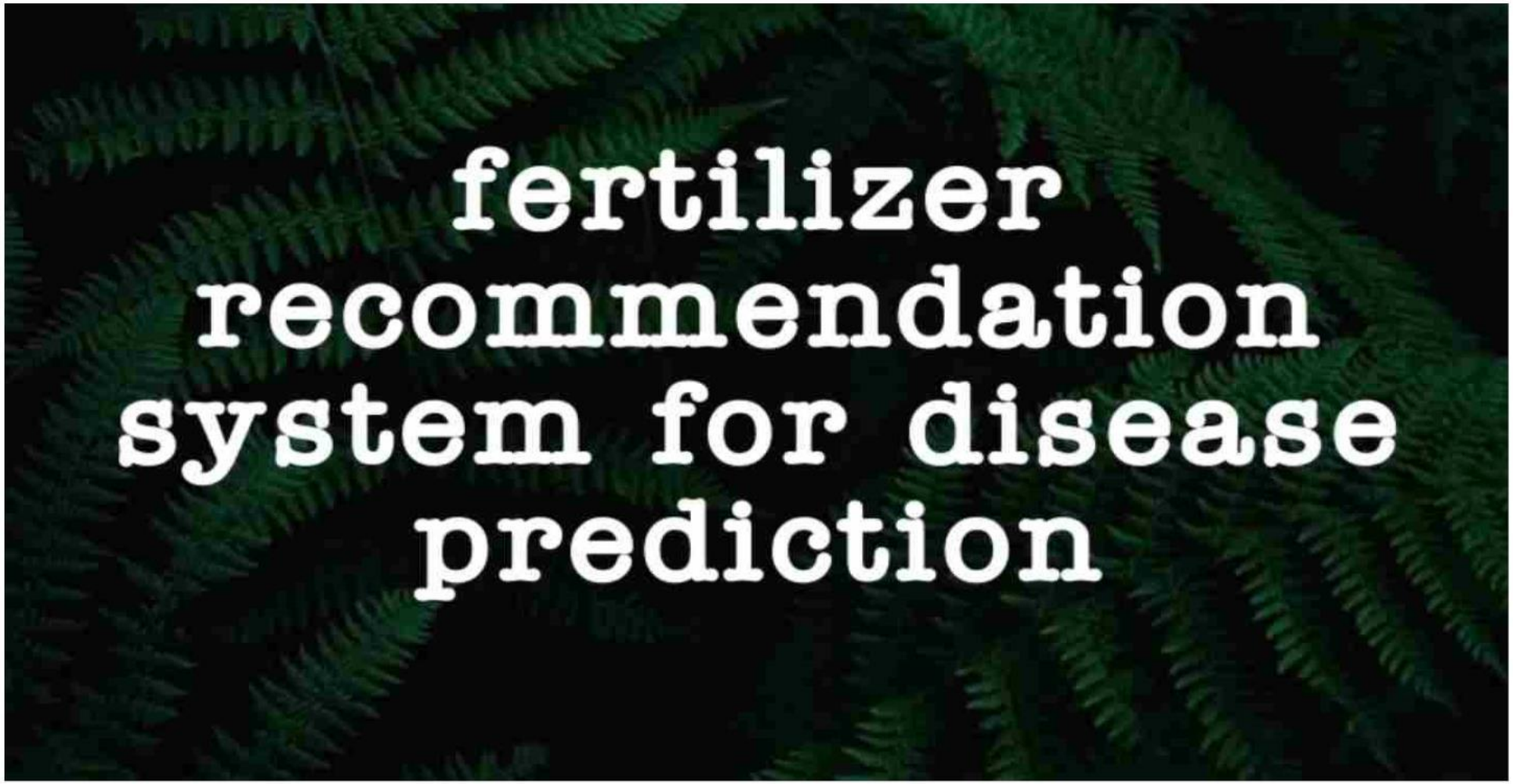
- The other and most important issue is when a plant gets caught by heterogeneous diseases that effect on less amount of agriculture production and compromises with quality as well. To overcome all these issues this recommendation has been proposed .

- Nowadays a lot of research and work is being implemented in the smart and modern agriculture domain. Crop recommendation is characterized by a soil database comprised of Nitrogen, Phosphorus, potassium.

TECHNICAL ARCHITECTURE

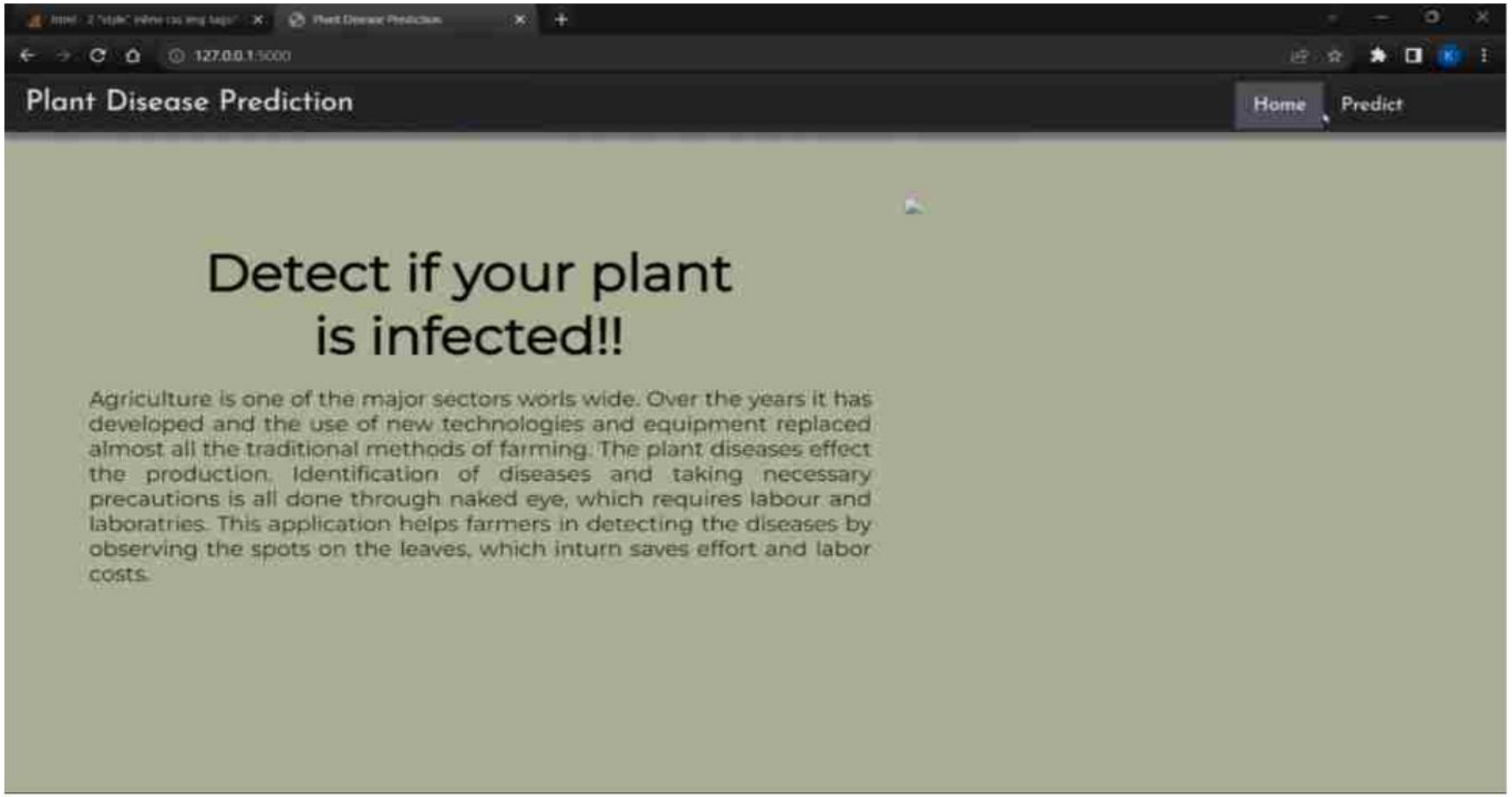


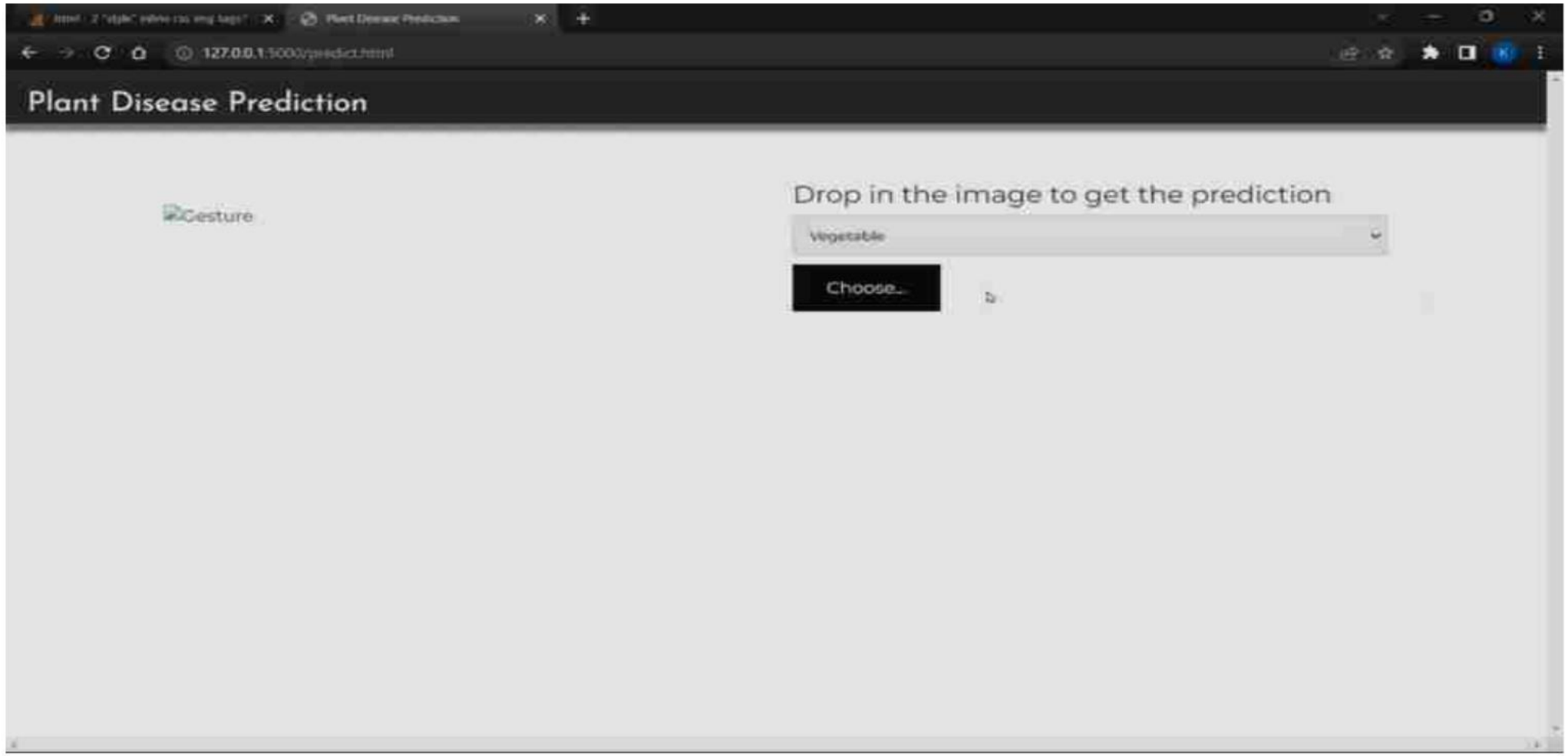
PROJECT DEMO VIDEO



PERFORMANCE METRICES(RESULTS)

SCREENSHOT




Plant Disease Prediction
Drop in the image to get the prediction
Vegetable
Choose...

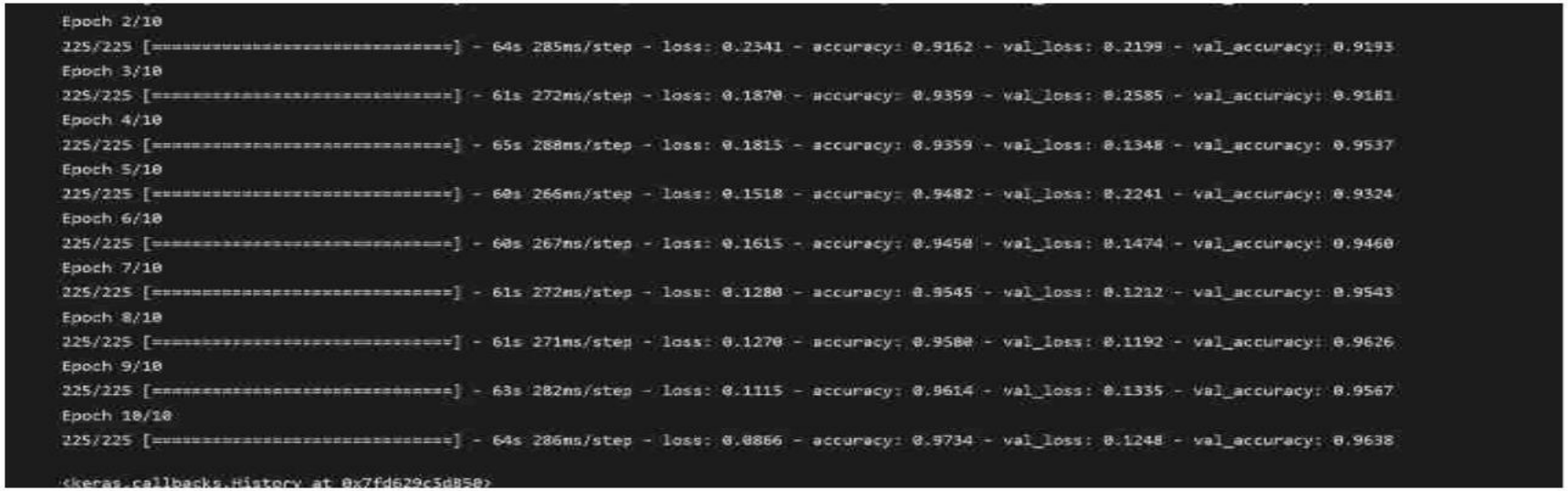
MODEL SUMMARY OF FRUITS

```
Model: "sequential"
_________________________________________________________________
 Layer (type)                Output Shape              Param #
=================================================================
 conv2d (Conv2D)             (None, 62, 62, 32)        896

 max_pooling2d (MaxPooling2D  (None, 31, 31, 32)       0
 )

 flatten (Flatten)           (None, 30752)             0

 dense (Dense)               (None, 300)               9225900

 dense_1 (Dense)             (None, 150)               45150

 dense_2 (Dense)             (None, 6)                 906

=================================================================
Total params: 9,272,852
Trainable params: 9,272,852
Non-trainable params: 0
_________________________________________________________________
```

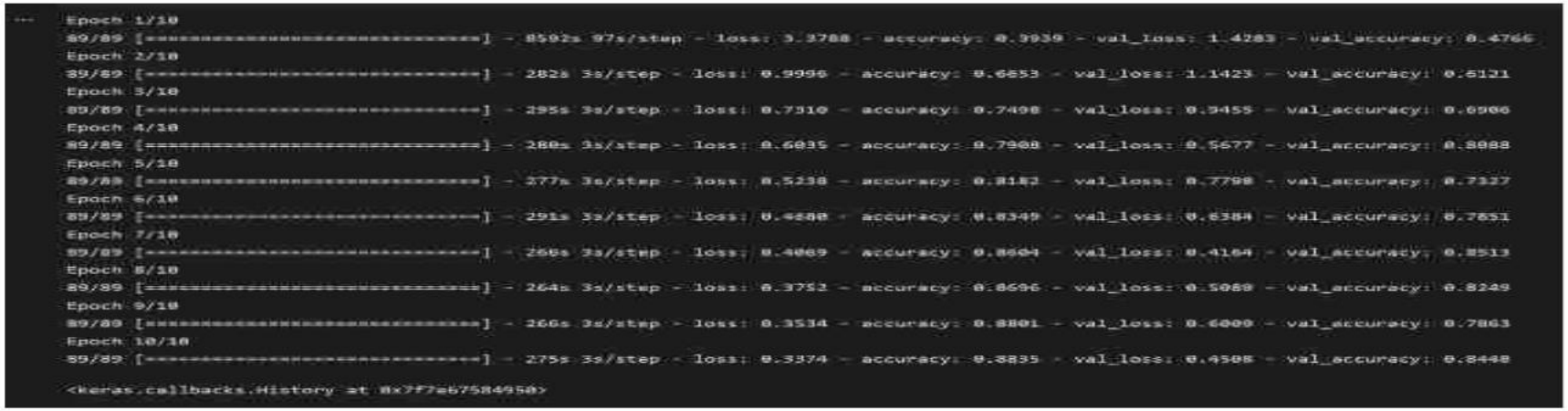
MODEL SUMMARY OF VEGITABLES

```
Model: "sequential"
_________________________________________________________________
 Layer (type)                Output Shape              Param #
=================================================================
 conv2d (Conv2D)             (None, 126, 126, 32)      896

 max_pooling2d (MaxPooling2D  (None, 63, 63, 32)       0
 )

 flatten (Flatten)           (None, 127008)            0

 dense (Dense)               (None, 300)               38102700

 dense_1 (Dense)             (None, 150)               45150

 dense_2 (Dense)             (None, 9)                 1359

=================================================================
Total params: 38,150,105
Trainable params: 38,150,105
Non-trainable params: 0
_________________________________________________________________
```

ACCURACY FOR FRUITS



ACCURACY FOR VEGITABLES



SCALABILITY AND FEATURES SCOPE

The system successfully interprets various Diseases and is also capable of providing fertilizers suggestion for the respective disease. Furthermore, this system can be made more robust by incorporating more image dataset with wider variations like more than one leaf in a single image. An App could also be developed for the project whichcould make the work of the farmers easier. They could directly upload image on the app and it would tell the disease and the cure then and there. This would reduce the time and efforts. This project is limited to just one crop for now but in the future more crops and even flowers dataset can be added so that it is helpful for every agricultural need. Newer models can also be added and tried with time which may result in better accuracy and would make the model even faster.

THANK YOU