POTATO DISEASE DETECTION

MAJOR PROJECT (4IT31)

INFORMATION TECHNOLOGY DEPARTMENT
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Abstract

potato is one of the major crops. potato production is being hampered due to some diseases which are increasing the cost of farmers in potato production. However, some potato diseases are hampering potato production.
the program predicts with an accuracy of 97.66% in testing with 20% test data and 80% train data.

Introduction

This project is created to obtain an image from the farmer of the diseased crop preferably the stem or the leaves through the Android Application installed on farmers phone. The image will then process using image-processing technique and the disease type will be detected. The diseases affected to the crop and the amount of fertilizer or the pesticide/insecticide to be used will be updated in the Android Application that was previously used by the farmer to upload image.

Methodology

These are methods we used in our model building and application development.

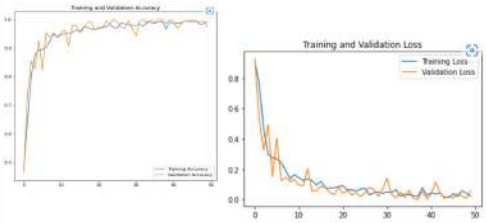
Pre-processing: In this stage, 2152 images are used to divide into 3 classes. Each data from each class used are divided into training dataset and testing dataset with ratio of 80:20.

Model Building: In this stage, using CNN the sequential model is formed.

Model Training: Once the model is built, it needs to be trained.

```
In [25]: EPOCHS = 50
         history = models.fit(
             train_ds,
             epochs=EPOCHS,
             batch_size=BATCH_SIZE,
             validation_data=val_ds,
             verbose=1,
         )
Epoch 45/50
54/54 [==============================] - 81s 2s/step - loss: 0.0126 - accuracy: 0.9958 - val_loss: 0.0203 - val_accuracy: 0.9
896
Epoch 46/50
54/54 [==============================] - 82s 2s/step - loss: 0.0302 - accuracy: 0.9890 - val_loss: 0.0081 - val_accuracy: 1.0
000
Epoch 47/50
54/54 [==============================] - 81s 1s/step - loss: 0.0167 - accuracy: 0.9954 - val_loss: 0.0390 - val_accuracy: 0.9
688
Epoch 48/50
54/54 [==============================] - 81s 1s/step - loss: 0.0593 - accuracy: 0.9821 - val_loss: 0.0219 - val_accuracy: 0.9
896
Epoch 49/50
54/54 [==============================] - 81s 1s/step - loss: 0.0413 - accuracy: 0.9855 - val_loss: 0.0082 - val_accuracy: 0.9
948
Epoch 50/50
54/54 [==============================] - 81s 2s/step - loss: 0.0214 - accuracy: 0.9907 - val_loss: 0.0595 - val_accuracy: 0.9
740
```

Model Evaluation: The testing accuracy and validation accuracy of our model are checked, model loss is noted.



User Interface

Conclusion

We made this mobile application for disease detection in potato plants at early stages with as much as accuracy we can get.

References

[1] Severity Identification of Potato Late Blight Disease from Crop Images Captured under Uncontrolled Environment Sandika Biswas*, Bhushan Jagyasi.

[2] POTATO LEAF DISEASE DETECTION AND CLASSIFICATION USING CNN Anushka Bangal, Dhiraj Pagar, Hemant Patil, Neha Pande.

[3] A novel framework for potato leaf disease detection using an efficient deep learning model Rabbia Mahum, Haris Munir, Zaib-Un-Nisa.

[4] https://www.Mdpi.com/20274292/10/10/15/htm.

Team

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