

Animal Species Identifier

GARUDA

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INTRODUCTION

Nowadays, Identification of animal species is a difficult activity sometimes leading to uncertainty. Birds and Snakes allow us to search certain organisms within the environment as they respond quickly to changes in the atmosphere. But collecting and gathering their information requires huge efforts by humans as well as being a much more expensive method. In such situations, a robust system must be in place that will provide large-scale animal information processing and serve as a valuable resource for scholars, government agencies and so on. Consequently, naming animal species plays a significant role here for determining which species belongs to a specific image of animal species. The model of CNN consists of three layers, that is, input layer, hidden layer, and output layer.

PROPOSED APPROACH

The most popular neural network model being used for image classification problems is Convolutional Neural Networks. The CNN model conjuration for bird species identification utilized a stack of convolution layers comprising an input layer, two fully connected layers, and one final output softmax layer.. Convolutional layers apply a convolution operation to the input and this passes the resulting information on to the next layer.

Whenever a user will upload an image of any bird/snake species on the web application, the model detects the patterns and key features from the image. Further, the characteristic traits of that species is identified and compared with the set of various species present in 500 species dataset.

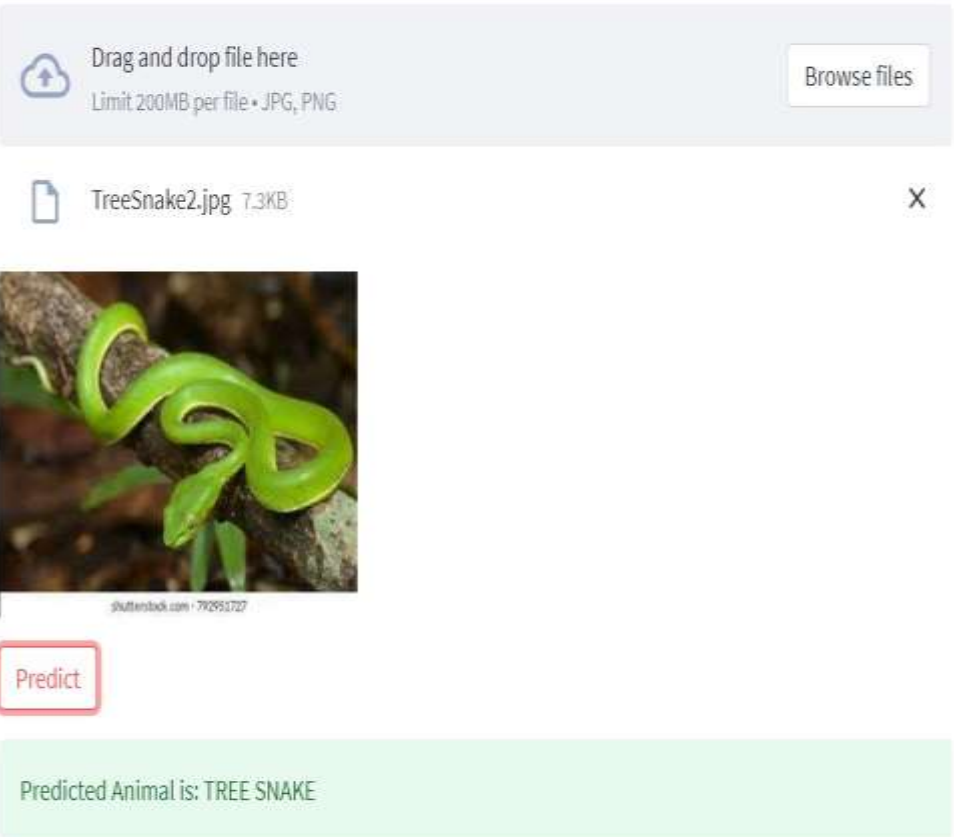
In case if the traits and features of the unknown species gets matched with any of the existing species in the dataset, then the model will predict and return the corresponding species information.

If in case, the species does not match with any of the trained images in the dataset, then the model will predict and return the closest one similar to the unknown species.

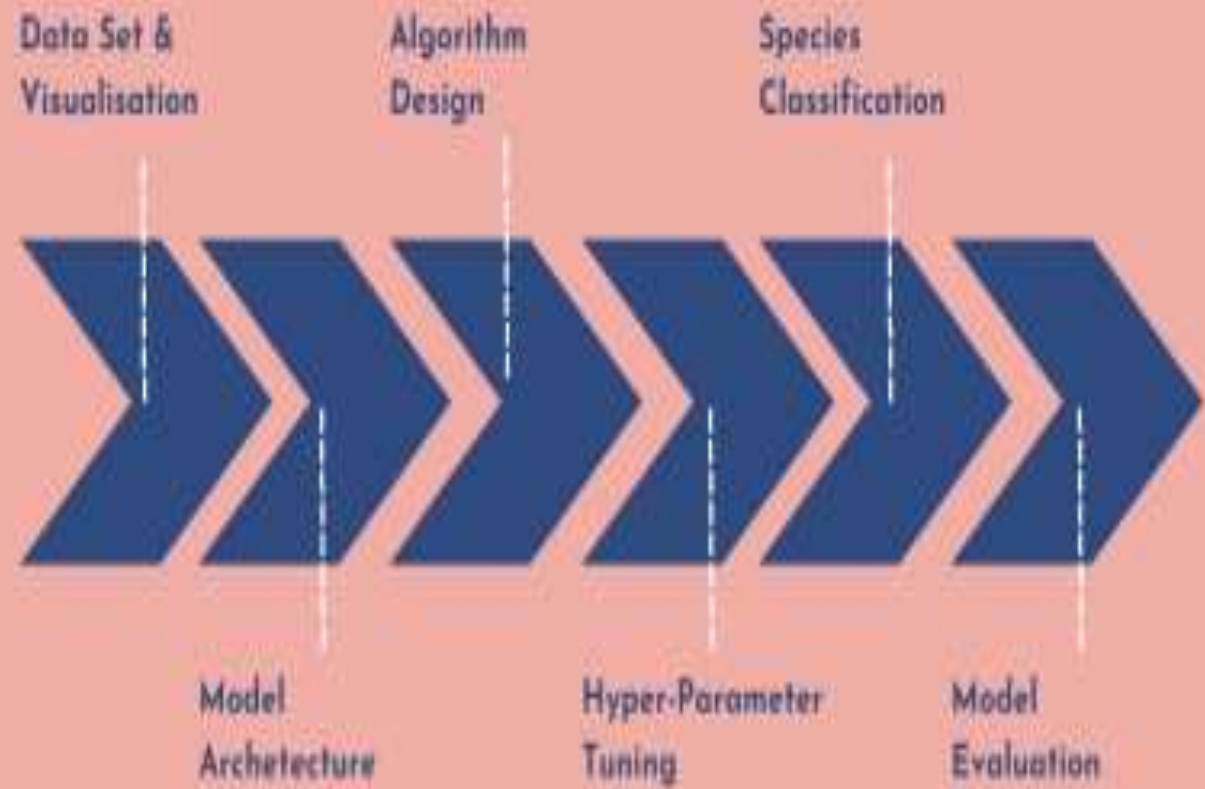
Grayscale is used for [assessing the color shading](#) in between products and the customer's approval sample or among pieces in production.

FEATURES

- User Friendly Interface
- Project has very simple and ease to use interface for all range of users.



Proposed Approach



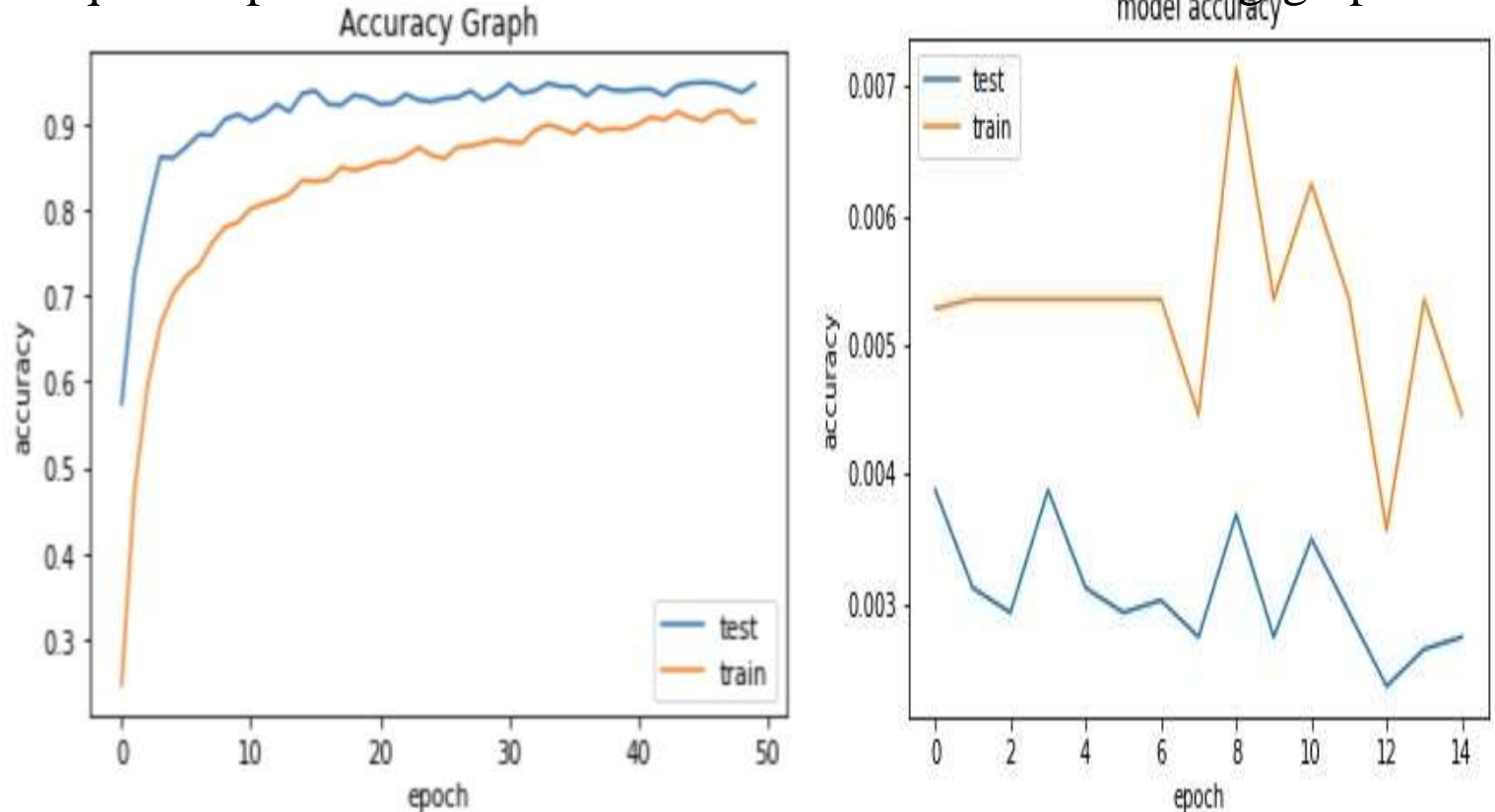
TECHNOLOGY USED

- **Deep Learning** is a subset of Machine Learning Algorithms that is very good at recognizing patterns but typically requires a large amount of data
- **Library.-**TensorFlow is an open source software library for high performance numerical computation. Its flexible architecture allows easy deployment of computation
- **Dataset.-**A dataset is a collection of data. For performing the deep learning operations and training of the model, we have used the two datasets : BIRDS 500 SPECIES- IMAGE CLASSIFICATION and SNAKE SPECIES Dataset from kaggle platform
- **Convolution Neural Network-**A convolutional neural network (CNN or ConvNet) is a network architecture for deep learning that learns directly from data. CNNs are particularly useful for finding patterns in images to recognize objects, classes, and categories.

EXPERIMENT ANALYSIS

After the training phase, the dataset is ready to be tested against a variety of testing images of animal species.

Below shows the scoresheet based on the result generated by the system. After analysis of these result it has observe that,the species those are having the highest score has been predicted as a required species. this result can be shown in the follwing graph.



CONCLUSION

Through an analysis of the data set we also found that the relative number of training samples for each bird species is quite uneven, which seems to lead to a favoritism, from the model of bird species, and that some bird species are difficult to classify than others.The trained dataset is created using 50000 steps, higher the number of steps higher its accuracy. The accuracy of the trained dataset is 93%. The testing dataset has nearly 1000 images with an accuracy of 80%.

To develop such a system a trained dataset is required to classify an image. Trained dataset consists of two parts: trained result and test result. The dataset has to be retrained to achieve higher accuracy in identification.

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