

# IBM Project

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Intelligent Alert System for Tribal People

# Team Members

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# About Our Project

The aim of our project is to help tribal people recognise wild animals using Convolution Neural Networks (CNN) Classification to protect them from dangerous wild animals. Tribals live in dense forests- remote areas at a relatively greater distance from technologically advanced urban areas and have no proper surveillance or guidance system.

Whenever a wild animal is detected the model will send an SMS alerting that person. We believe our model would contribute loads and ensure safer practices for these people.

# Dataset Description

Our dataset has three categories - Wild Animal, Human, Domestic Animal having over 3300 images with an accuracy of 90%.

# Pre Processing Our Model

Tensorflow and Keras Deep Learning Libraries for training our model.

3 Classes - Domestic Animal, Human, Wild Animals

1. 3336 images for Training the model.
2. 483 images for Testing the model.

Kernel size is 2x2 and converting the images in 2D.

# Adding Hidden Layers

We have added 3 hidden layers with 300,100,60 units using “Relu” Activation function.

The output layer has 3 units and “Softmax” Activation function.

```
model.add(Dense(kernel_initializer='uniform',activation='relu',units=300))
```

```
model.add(Dense(kernel_initializer='uniform',activation='relu',units=100))
```

```
model.add(Dense(kernel_initializer='uniform',activation='relu',units=60))
```

# Compiling Our Model

Number of epochs - 60

Steps Per Epoch - 31

```
model.compile(loss='categorical_crossentropy',optimizer='adam',metrics=["accuracy"])  
model.fit_generator(x_train,steps_per_epoch=31,epochs=60,validation_data=x_test,validation  
steps=10)
```

# Finalising Our Model

Accuracy - 92.36%

Val Accuracy - 87.5%

Saving our model in an .H5 file.

```
model.save('animal_custom.h5')
```



# Testing Our Model

Using OpenCV Library the camera will capture live feed and the model will continuously predict the animal and sends SMS if a wild animal is detected. Using this method the accuracy will decrease because a normal camera is not powerful enough to capture the image properly unlike FaceID camera in iPhones.

# Flask Integration

Integrating our model in a WebApp will make it easy for the user to predict the class of animals. The user will upload the image and it will run through the model and predict the animal.

For SMS service we have used Twilio to send automated messages.

## ANIMAL RECOGNITION

The visual performance of Humans is much better than that of computers, probably because of superior high-level image understanding, contextual knowledge, and massively parallel processing. But human capabilities deteriorate drastically after an extended period of surveillance, also certain working environments are either inaccessible or too hazardous for human beings. So for these reasons, automatic recognition systems are developed for various applications. Driven by advances in computing capability and image processing technology, computer mimicry of human vision has recently gained ground in a number of practical applications.

PLEASE UPLOAD AN ANIMAL IMAGE

UPLOAD



RESULT: THE PREDICTED ANIMAL IS : WILD ANIMAL

# Video Link

[https://drive.google.com/file/d/1RX1GfFSfy\\_th8v1XOllcKsI5WxKU2lfj/view?usp=sharing](https://drive.google.com/file/d/1RX1GfFSfy_th8v1XOllcKsI5WxKU2lfj/view?usp=sharing)