**Image Classification based on convolutional Neural Network(CNN)**

Project Report

Submitted in partial fulfillment of the requirements for the award of the degree of

Bachelor of Technology in Department of Computer Science Engineering

By

G.Deepthi (170030436)

N.Vijaya SriLakshmi (170030914)

P.Mounika (170030985)

U.Govardhani(170031320)

Under the supervision of

###### Dr. P.Lakshmi Prassanna



**Department of Computer Science and Engineering KONERU LAKSHMAIAH EDUCATION FOUNDATION**

Green fields, Vaddeswaram-522502, Guntur (Dt), Andhra Pradesh, India.

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**Department of Computer Science and Engineering**

**Green fields, Vaddeswaram**



**DECLARATION**

The project entitled “Image Classification based on convolutional Neural Network(CNN)” is a record of bona fide work of **G.Deepthi (170030436), N.Vijaya SriLakshmi (170030914), P.Mounika (170030985), U.Govardhani(170031320)** submitted in partial fulfilment for the award of B Tech in Department of Computer Science and Engineering to K LEF. The results embodied in this report have not been copied from any other department/University/Institute.

**G.Deepthi (170030436)**

**N.Vijaya SriLakshmi (170030914)**

**P.Mounika (170030985)**

**U.Govardhani(170031320)**

Place: Vaddeswaram

Date:

**K L E F**

**Department of Computer Science and Engineering**

**Green fields, Vaddeswaram**



**CERTIFICATE**

This is to certify that the project report entitled **“Image Classification based on convolutional Neural Network(CNN)”** is being submitted by G.Deepthi(170030436),N.Vijaya SriLakshmi(170030914),P.Mounika (170030985), U.Govardhani(170031320) submitted in partial fulfilment of the requirement for the award of degree in Bachelor of Technology in Computer Science and Engineering to the Koneru Lakshmaiah Education Foundation during the academic year 2020-2021 is a record of bonafide work carried out under our guidance and supervision. The results embodied in this report have not been copied from any other departments/University/Institute.

**Signature of the Supervisor**

**Dr. P.Lakshmi Prassanna**

**Signature of the HOD Signature of the External Examiner**

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**G.Deepthi (170030436),**

**N.VijayaSriLakshmi(170030914)**

**, P.Mounika (170030985),**

**U.Govardhani(170031320)**

# ABSTRACT

COVID-19 outbreak was first reported in Wuhan, China and has spread around more than 50 countries. World Health Organization declared COVID-19 as a Public Health Emergency of International Concern (PHEIC) on 30th January 2020. Naturally, a rising communicable disease involves fast spreading, endangering the health of vast numbers of individuals, and thus requires immediate actions to prevent the disease at the community level. Therefore, COVID-19 Analysis and Tracking System is implemented as an online platform that gives latest and reliable news development, also as statistics and analysis on COVID-19. This project aims to collects and analyzes COVID-19 cases, deaths, and recoveries for the most complete testing data available for US states and Territories. This Project exists because every person, newsroom, and government agency in the United States deserves access to the most complete picture of COVID-19 testing data that can be assembled.

**Key Words**: - COVID-19, Data Resources, Testing Data, Tracker Function, Data Annotations.

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**CHAPTER-1 COVID-19**

#### Introduction

#### The objective of the project is to identify and classify the images using Neural Networks. We train the Neural Networks to identify the animal species it belongs to. In this project we will take the dataset and that dataset is divided into number of epochs and based on that epochs we will calculate the percentage of the number of cats and dogs. Previous papers have taken the images with security like captcha. But we are taking images of animals using datasets without having security signs and calculate the accuracy in the form of percentage of animals.

#### Methods and Materials

#### The Dogs vs. Cats image classification has been around for a long time now. The challenge in Kaggle on Dogs vs. Cats is trying to solve the CAPTCHA challenge, which relay on the problem of distinguishing images easily. It is easy for humans, but evidence suggests that cats and dogs are particularly difficult to tell apart automatically. Many people has worked or are working on constructing machine learning classifiers to address this problem. A classifier based on color features got 56.9% accuracy on the Asirra dataset. An accuracy of 82.7% was achieved from a SVM classifier based on a combination of color and texture features.

#### Block Diagram, Flowchart, Models, Results

#### In our project we will build a convolutional neural network to solve the problem and achieve higher performance and better results, we would be working on subset of these images. Our dataset would be comprising of total 10000 images. Keras would used for model building. choose some fixed dataset to use as an input. We will take two different type of animals and identify which type of species it is. To solve the CAPTCHA challenge, which relay on the problem of distinguishing images of dogs and cats. Convolutional networks are simply neural networks that use convolution in place of general matrix multiplication in at least one of their layers.

#### 

#### Fig-1 Block Diagram for image classification of dogs and cats

#### Firstly, we are taking an input image of dog or cat and applying the convolution layers on the given image and pooling layers on the image and classifying the images weather it is a cat or dog.

#### 

#### Fig-2 Testing and training graph

#### For Humans It is easy to identify, but evidence suggests that cats and dogs are particularly difficult to tell apart automatically. We will visualize and differentiate a code which can be used in the form of 0's and 1's and classify them like cat as 0 and Dog as 1.

#### 

#### Fig-3 Identification of dog(1) and cat(0)

#### 

#### Fig-4 Graph for number of dogs and cats

#### Convolutional layers contain many features maps, which are two dimensional hidden nodes. Every feature map owns a weight matrix called kernel and different feature maps owns different kernels. Kernels do convolutional operation with every feature map in previous layers.

#### Conclusion

#### In this paper we build a deep convolutional neural network for image classification (cat and dog images). Despite of using only a subset of the images an accuracy of 90.10% was obtained. If the whole dataset is used,we will get the better accuracy.

#### Limitations

#### We can identify only limited number of species or we can compare with any of the two animals but not the dataset containing many animals .As long as the dataset is increasing, our project becomes complex to identify the animal species.

#### Future Direction

#### Comparison of animal species is done manually across the globe. But this project helps us to compare with modern scope like Neural Network which makes our work easier and efficient.

#### References

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