

# MULTI LEVEL IMAGE CLASSIFICATION

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# ABSTRACT


Every image in the real world contains objects with multiple labels, there is a need to develop systems that can accurately identify and label multiple attributes within the image. This process, called multi-label classification.

This forms the foundation for this project. Classification is a method to extract information from data sets. This is done by dividing the data into categories based on some features. The idea is to derive a model which can perform the sorting process by training it on data objects where the category, or label, is known.

In this project, system will take input as an image, then it will classify that which type of automobile is this, and what is the colour of this image.

We have trained a model to classify objects based on two attributes: colour and the type of automobile present in the image.

# INTRODUCTION

- This project is working on multi label classification algorithm that classify an image into multiple classes .
  - ▶ We are trained a model that is able to classify the category of automobile appear in the picture as well as the color of the automobile .
  - ▶ The categories are truck, car, bike, ship, helicopter.
  - ▶ The colors are red, green, balck and white.
- 
- Several white lines of varying lengths and slopes are drawn in the bottom right corner of the slide, creating a modern, abstract graphic element.

# EXISTING SYSTEM

There exists a wide range of applications for multi-labelled predictions, such as text categorization, semantic image labeling, gene functionality classification etc. and the scope and interest is increasing with modern applications.

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# PROPOSED SYSTEM

## Objective:

It will classify the image category and color of the image that will feed to the model. that can be used in various application of artificial intelligence.

For example it can be used in traffic to identify any automobile or in robotics to give the

Robot such intelligence to recognise the automobile type and color.

## Advantages:

Helpful in artificial intelligence field.

# IMPLEMENTATION

## **Functional requirement:**

Model take an image as input

Generate an output that specify category and color of the automobile.

## **Software requirement:**

Platform: Jupyter notebook

Language : Python 3

Dataset : automobile dataset(custom)

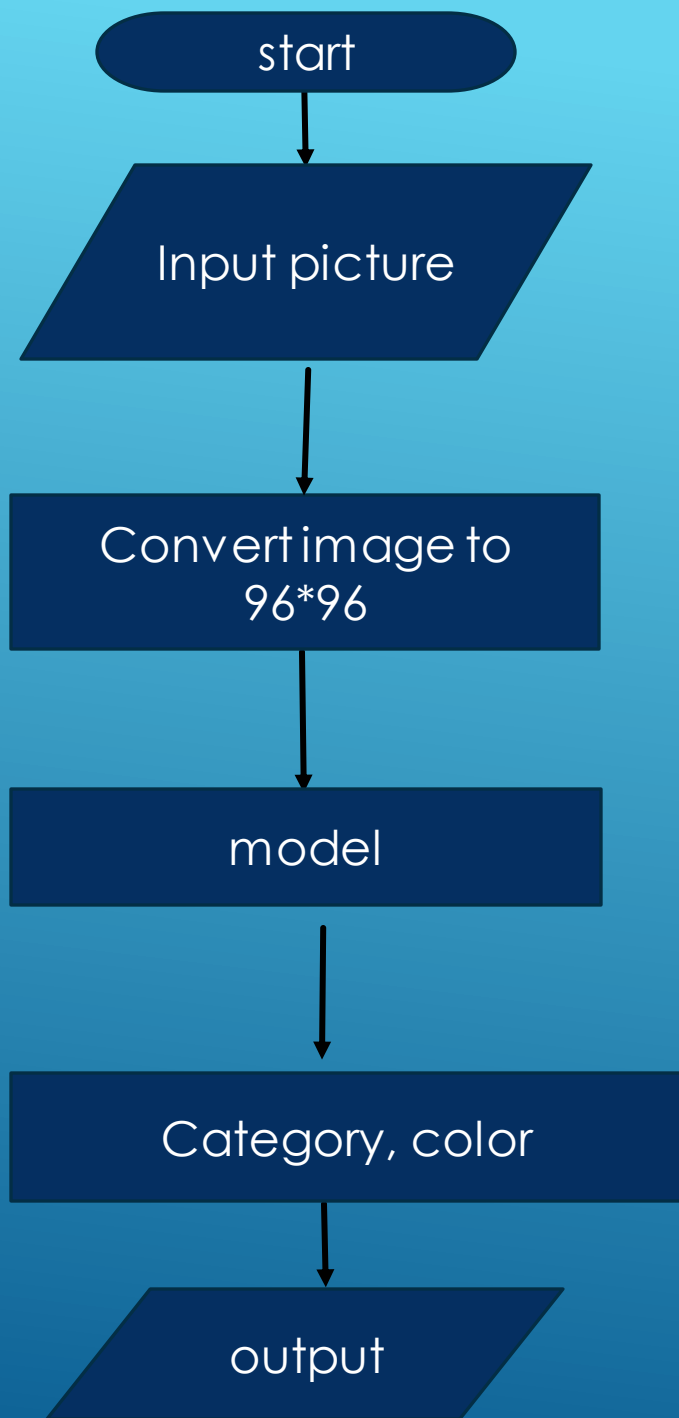
Operating system : windows

GUI Frontend technology: HTML

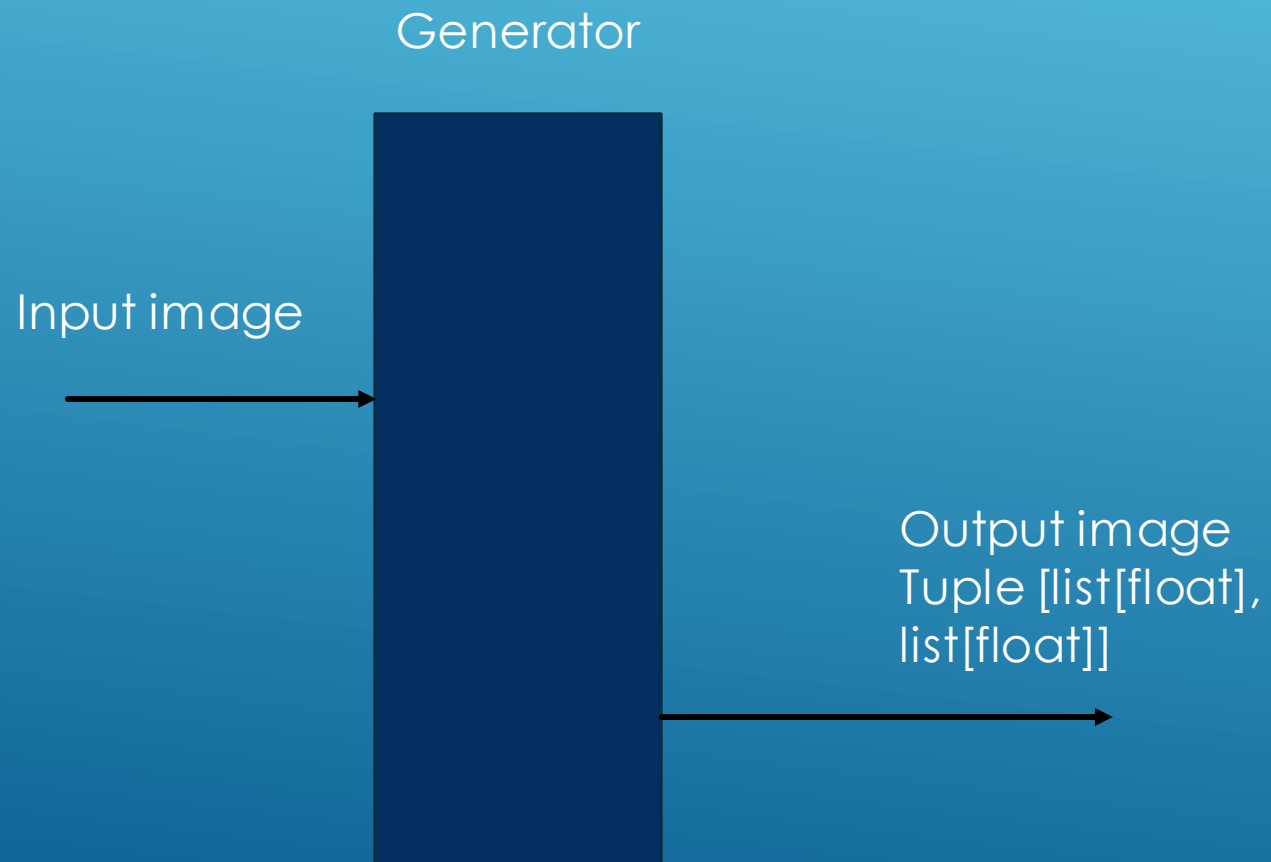
GUI backend technology: Flask

DESIGN

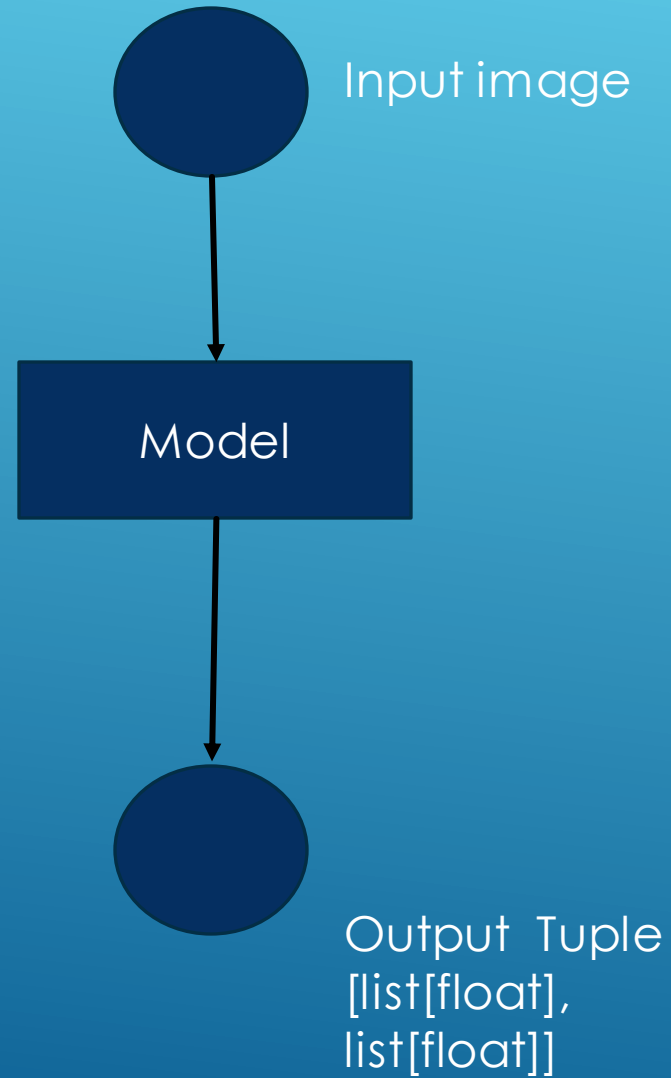




# SEQUENCE DIAGRAM

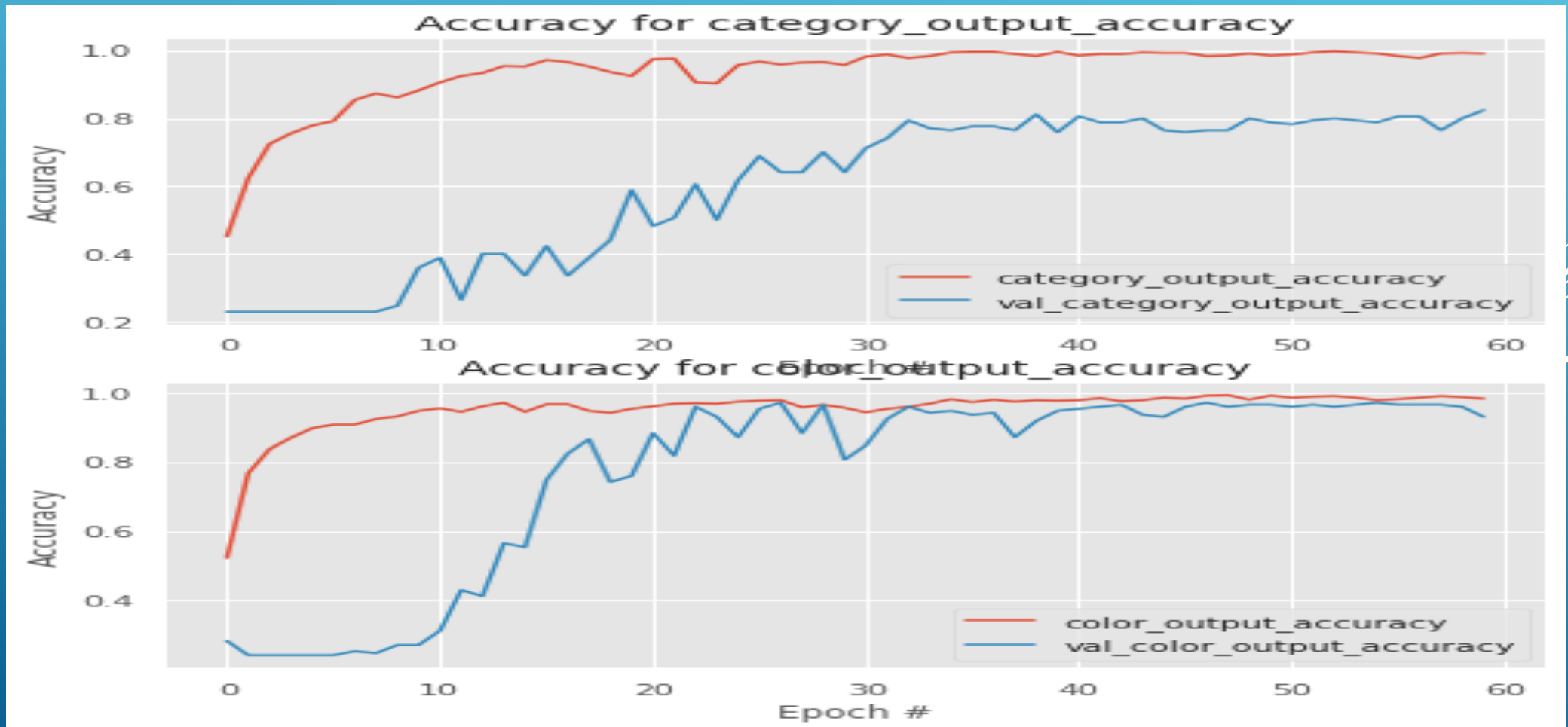


# ACTIVITY DIAGRAM




# RESULT ANALYSIS(CURRENT SITUATION)

- Training of model has done with 84.23% of accuracy.
- GUI.

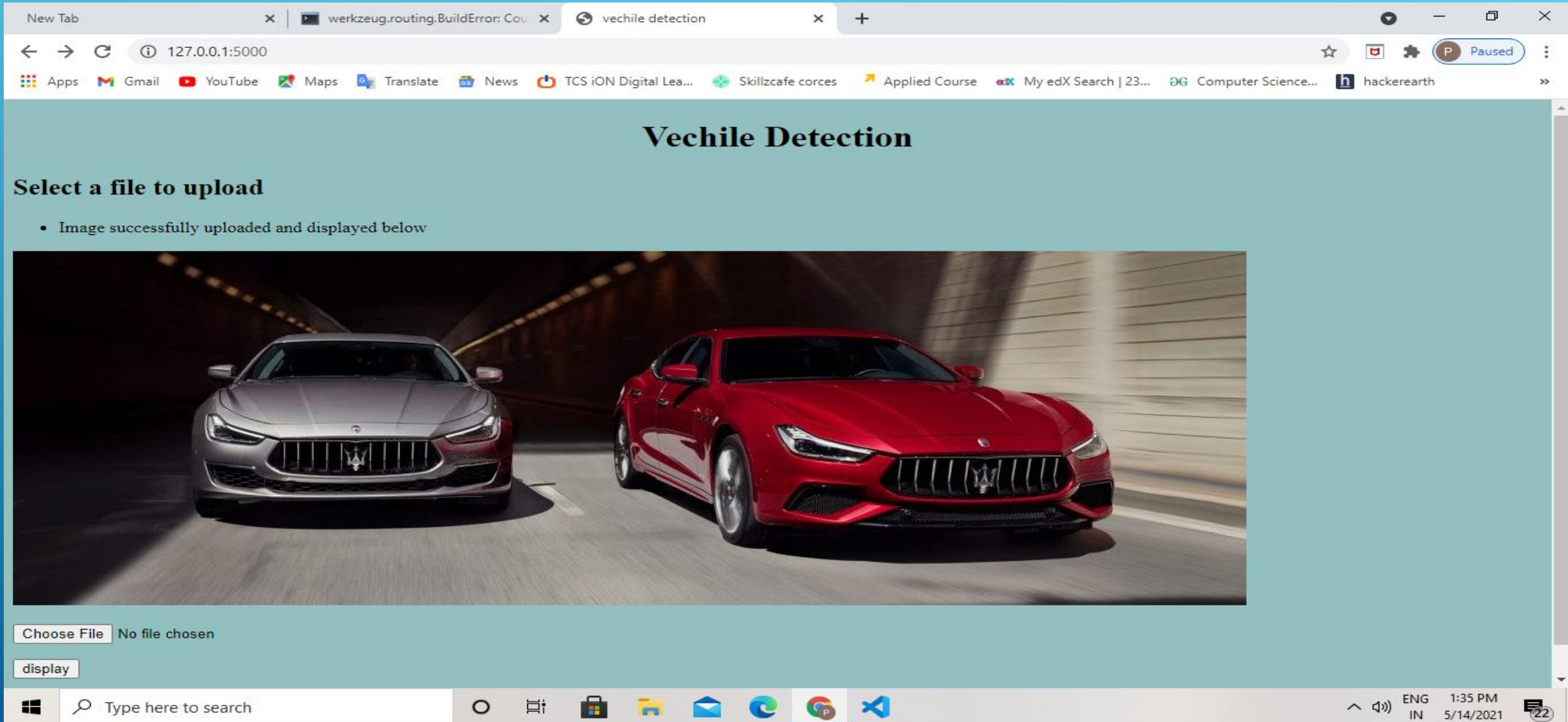


# CONCLUSION

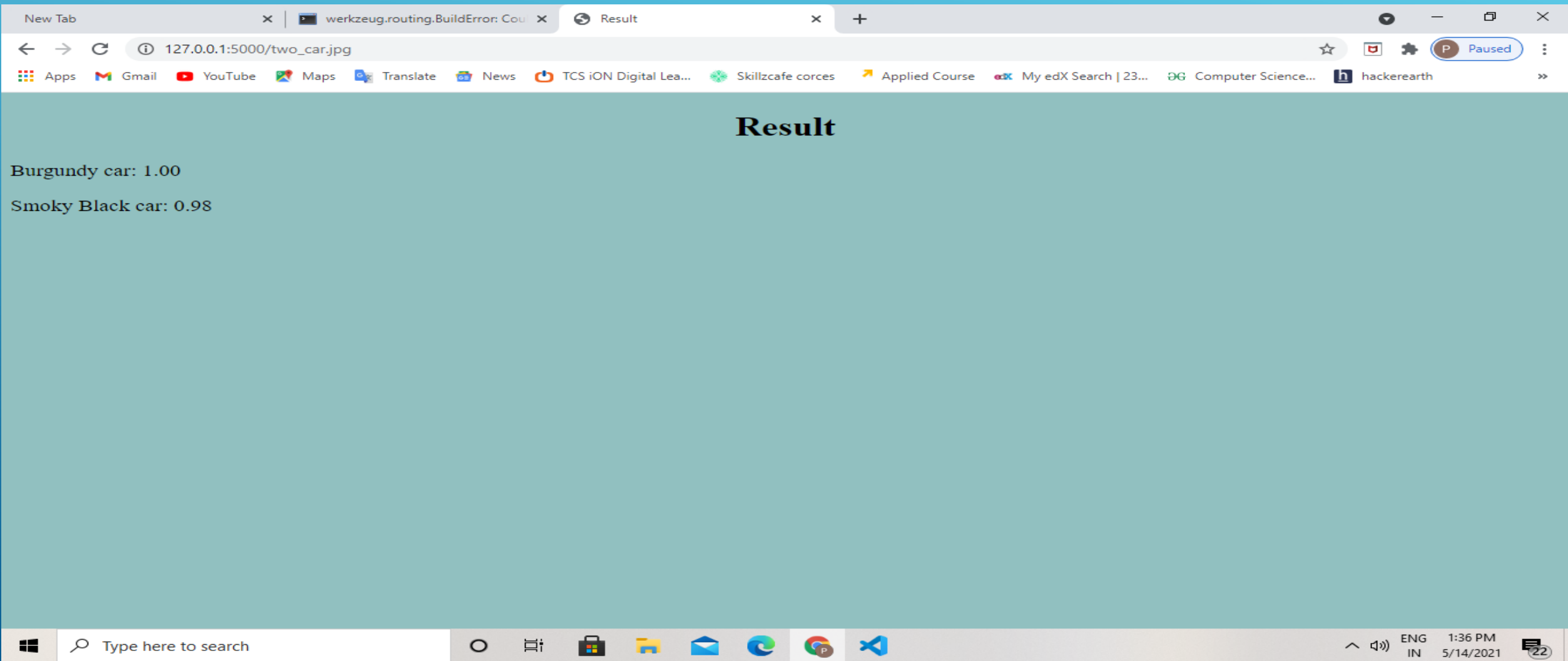
The project developed shows how a simple neural network can be trained to identify multiple data points from an input image. This is a stepping stone to full-range computer vision, which can aid artificial intelligence in breaking new grounds. With further development, the convolutional neural network developed can be used to identify dozens of objects, each with multiple attributes that are labelled autonomously by the model

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# SCREENSHOTS



# SCREENSHOT



THANK YOU

