**Face Mask Detector for COVID-19 Pandemic-**

* Algorithm used for object detection - YOLOv3

YOLO (You Only Look Once) takes only one forward propagation pass through the network to make the predictions.

YOLO V3 was implemented using a darknet framework, which originally has a 53 layer network trained on Imagenet.

For the task of detection, 53 more layers are added to it, giving us a 106 layer fully convolutional underlying architecture for YOLO V3

The algorithm divides the image into grids and runs the image classification and localization algorithm on each of the grid cells.

It predicts N bounding boxes and confidence scores in each grid. The confidence score reflects the accuracy of the bounding box of that class.

* Google Colab -

Colab allows anybody to write and execute arbitrary python code through the browser, and is especially well suited to machine learning,

data analysis and education. More technically, Colab is a hosted Jupyter notebook service that requires no setup to use, while providing

free access to computing resources including GPUs.

* Darknet -

Darknet is an open source neural network framework for real time object detection**.** YLOV3 uses Darknet-53 to make feature detection and the most important reason it is fast because it is written in C and CUDA.

* Dataset -

We got the dataset from Kaggle where they have used more than 1300 images of people in real time video streams. After that they have cropped and labelled each image as with\_mask or without\_mask using Labelimg tool.

* Steps to execute the Project -

**Step 1 :** Prepare the dataset

**Step 2 :** Set up google drive and collab accounts

**Step 3** : Clone, Configure and compile Darknet

**Step 4 :** configure yolov3.cfg file

**Step 5** : create .names file

**Step 6 :** create .data files

**Step 7 :** create folder for image

**Step 8 :** Download pre-trained weights

**Step 9 :** start training