

# ANALYSE THE LOCATION OF CAPTURED IMAGE USING BOUNDINGBOX ALGORITHM

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## ABSTRACT

Global pandemic COVID-19 situations emerged in a plague of dangerous disorder in all around the global. Wearing a face mask will assist prevent the spread of infection and save youthe man or woman from contracting any airborne infectious germs. Using Face Mask Detection System, you possibly can screen if the people are sporting mask or now not. Here HAAR-CASACADE set of rules is used for photo detection. Collating with other present algorithms, this classifier produces a high recognition price regardless of various expressions, efficient characteristic choice and low collection of false positive capabilities. HAAR feature-primarily based cascade classifier system makes use of only 200 capabilities out of 6000 capabilities to yield a popularity fee of 85-95%. According to this motivation we demand masks detection as a unique and public fitness service gadget for the duration of the worldwide pandemic COVID-19 epidemic. The model is skilled by using face masks picture and non-face masks image.

**Keywords:** voila and jones , haar-cascade ,bounding box.

## I.INTRODUCTION

The international has now not yet absolutely Recover this pandemic and the vaccine which could efficiently deal with Covid-19 is but to be determined. However, to lessen the impact of the pandemic on the USA's economy, several governments have allowed a restricted variety of economic sports to be resumed as soon as the variety of latest instances of Covid19 has dropped beneath a sure degree. As these countries cautiously restarting their monetary sports, issues have emerged regarding place of work safety within the new put up-Covid-19 environment.

To lessen the possibility of contamination, it's miles counseled that people ought to wear masks and keep a distance of at least 1 meter from each other. Deep mastering has gained greater attention in object detection and become used for human detection functions and increase a face mask detection tool which can hit upon whether or not the character is wearing masks or no longer.

This may be performed by evaluation of the classification outcomes by way of reading actual-time streaming from the Camera. In deep mastering tasks, we need a schooling facts set. It is the real data set used to train the model for performing diverse moves.

## II. OBJECTIVE

The main objective of the paper is to find the location of the captured image using bounding box algorithm.

## III. RELATED WORKS

Samuel Ady Sanjaya and Suryo Adi Rakhmawan developed in Face Mask Detection Using MobileNetV2. In the paper, a machine learning algorithm MobilenetV2 is used for face mask identification. The steps for building the model are collecting the data, pre-processing, splitting the data, 5 testing the model, and implementing the model. The proposed model can achieve an accuracy of 96.85%. [7]

Chhaya Gupta and Nasib Singh Gill proposed a system of Corona mask: A Face Mask Detector for Real-Time Data. Convolutional Neural Network (CNN) algorithm is used in this project to erect faces. In this paper, a data set has been created which consists of 1238 images which are divided into two classes as “mask” and “no mask”. Live streaming videos can also be used as input and people wearing a mask and not wearing a mask can be detected. The convolutional neural network is trained on the data set and it gives 95% of accuracy. [1]

Riya Chiragkumar Shah and Rutva Jignesh Shah in proposed a system of Detection of Face Mask using Convolutional Neural Network. The model proposed here is designed and modelled using python libraries namely tensorflow, keras and opencv. The model used is the MobileNetV2 of convolutional neural networks. In this paper, a model is developed using the above mentioned libraries. The model is tested for different conditions with different hyper parameters. First dataset is fed in the model, run the training program, which trains the model on the given dataset. Then the detection program is run, which turns on the video stream, captures the frames continuously from the video stream with an anchor box using object detection process. The output is then passed through MobileNetV2 layers where it is classified into people wearing a mask surrounded by green boxes and people not wearing a box surrounded by red boxes. [5]

Safa Teboulbi, Seifeddine Messaoud, Mohamed Ali Hajjaji and Abdellatif Mtibaa developed a system in Real-Time Implementation of AI Based Face Mask Detection and Social Distancing Measuring System for COVID-19 Prevention. This research paper focuses on implementing a Face Mask and Social Distancing Detection model as an embedded vision system. The pertained models such as the MobileNet, ResNet Classifier, and VGG are used. This paper consists of two principal blocks. The first block includes the 7 training and the testing models, whereas the second block consists of the whole framework testing. This result detects people wearing a mask and not wearing a mask and ensures social distancing. [6]

K. Wang, In 2016 was proposed deep cascade convolutional network method that used Fast-R-CNN, in the researches they used Detection Date Set and Benchmark method and Annotated Face in-the-Wild method in a dataset for testing part. For image input, the beginning stage starts by Lower Stage Classification Networks which scan the whole image in numerous scales with the 95% reject of detection windows, resize image and put it in Lower Stage Calibration Networks form size adjution and nearby faces. The high abandon place was in the Higher Stage of Classification Net-works, afterwards adjust by Higher stage Calibration Networks for spatial locations uses Fast-R-CNN Networks. [4]

Francois Chollet presents an interpretation of Inception modules in convolutional neural networks as being an intermediate step in-between regular convolution and the depth wise separable convolution operation. Image classification dataset comprising 350 million images and 17,000 classes. Considering the Xception architecture has same number of parameters as Inception V3, the performance gains are not due to increased capacity but rather to a more efficient use of model parameters. [3]

## IV. METHODOLOGY

### WORKFLOW

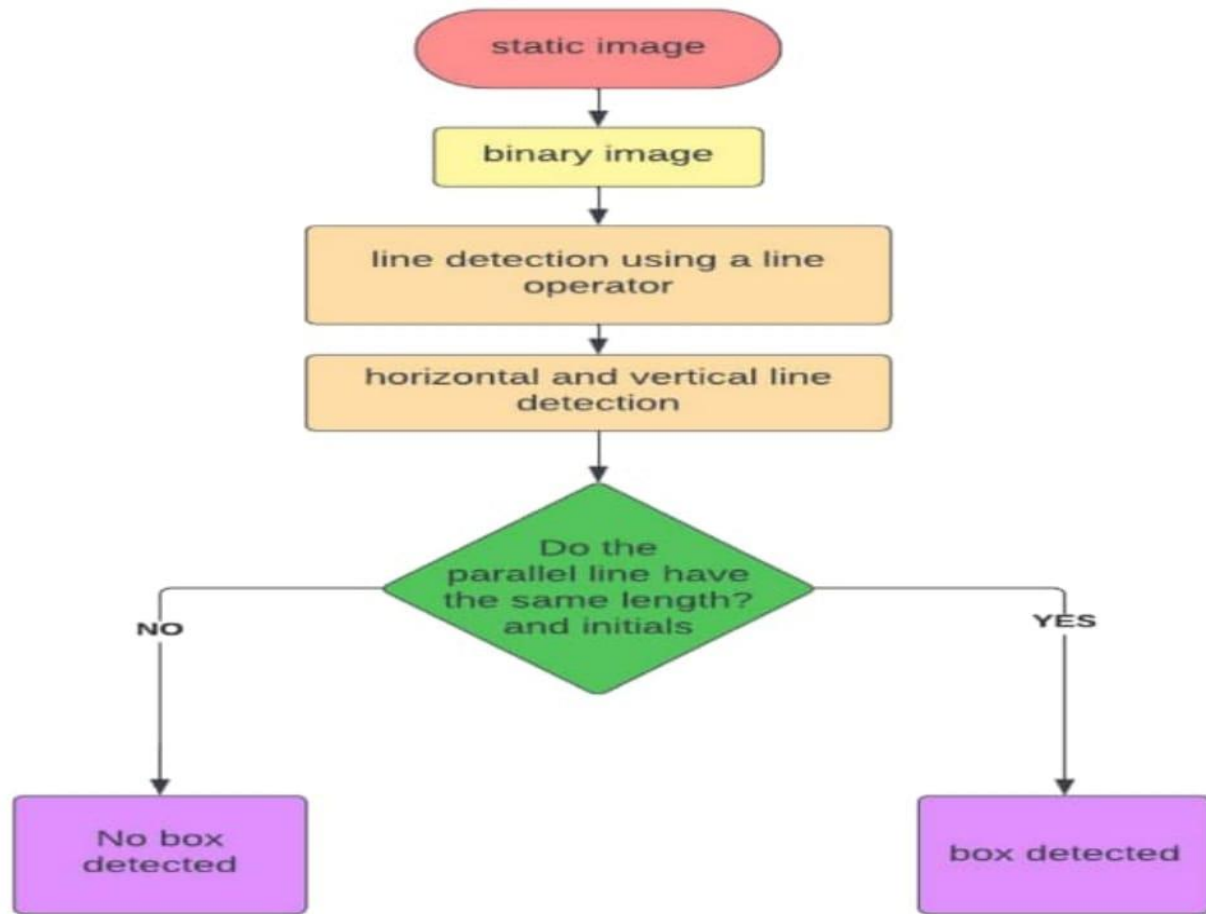


Fig 4.1  
Ref: [2]

## A. VIOLA-JONES OBJECT DETECTION FRAMEWORK

- Viola-Jones Object detection framework primarily based in HAAR features
- The Viola-Jones set of rules is one of the most popular algorithms for gadgets popularity in an picture.
- This studies paper offers with the opportunities of parametric optimization of the Viola- Jones algorithm to gain most efficiency of the algorithm in precise environmental situations.
- It is proven that with the use of extra changes it is viable to increase the speed of the algorithm in a specific photo by 2-five instances with the lack of accuracy and completeness of the paintings by means of no longer more than the three-5%.
- An object is diagnosed in a new photo through in my view comparing each function from the brand new photograph to this database and finding candidate matching functions based totally on Euclidean distance in their feature vectors.
- From the whole set of fits, subsets of key points that agree on the item and its vicinity, scale, and orientation in the new photo are identified to clear out correct suits.
- Object matches that pass these kinds of tests may be recognized as correct with excessive confidence.

## B. HAAR Feature-Based Cascade

- Classifiers It is an Object Detection Algorithm used to become aware of faces in an photograph or a actual time video.
- Dense grid of uniformly spaced cells and makes use of overlapping nearby assessment normalization for improved accuracy.
- It is an effective manner for item detection. In this method, lot of tremendous and negative pictures are used to educate the classifier.
- In this, a version is pre-skilled with frontal functions is evolved and used in this experiment to come across the faces in actual-time.

## C. BOUNBING BOX

The set of rules proposed an efficient real-time deep getting to know-based technique to automate the approach of detecting masked faces, wherein every masked face is recognized in real-time with the assist of bounding packing containers. The extensive trials had been accomplished with popular models, in particular, Faster CNN and HAAR DATAS. F-CNN has better precision, however for applying this in actual-worldwide surveillance cameras, it is probably desired to use the version with VIOLA JONES set of rules as it performs unmarried-shot detection and has a much better frame charge than Faster-CNN or every different ultra-current item detection algorithm. If it observes the Rate accuracy trade off on real time with the assist on BOUNDING BOX(B-BOX). Which version to apply, additionally is predicated upon on the assets to be had. If excessive-prevent GPUs are to be had on the deployed devices, quicker CNN should be used. SVM may be used to deployed on supervised analysing strategies of type, regression and outliers' detection. Since this technique is noticeably touchy to the spatial vicinity of the virtual digicam, the equal method may be great-tuned to higher adjust with the corresponding difficulty of view. These fashions can be used together with surveillance cameras

in workplaces, metros, railway stations and crowded public regions to check if people are following policies and sporting marks. The skilled weights furnished by the authors can be further improved by using the usage of training on large datasets and might then be used in real- worldwide applications.

A Bounding Box has the subsequent houses:

Height – The top of the bounding box as a ratio of the overall image top.

Left – The left coordinate of the bounding field as a ratio of typical photograph width.

Top – The top coordinate of the bounding field as a ratio of ordinary picture top.

Width – The width of the bounding box as a ratio of the general photograph width.

Each Bounding Box assets has a price among zero and 1. Each belongings price is a ratio of the overall photo width (Left and Width) or peak (Height and Top). For instance, if the input image is seven hundred x two hundred pixels, and the top-left coordinate of the bounding box is 350 x 50 pixels, the API returns a Left value of zero.5 (350/seven hundred) and a Top value of 0.25 (50/two hundred).



## V. RESULT

To display the bounding box with the correct location and size, it multiple's the Bounding Box values by the image width or height to get the pixel values. The pixel values are used to display the bounding box. It is displayed in fig 5.1 and 5.2.

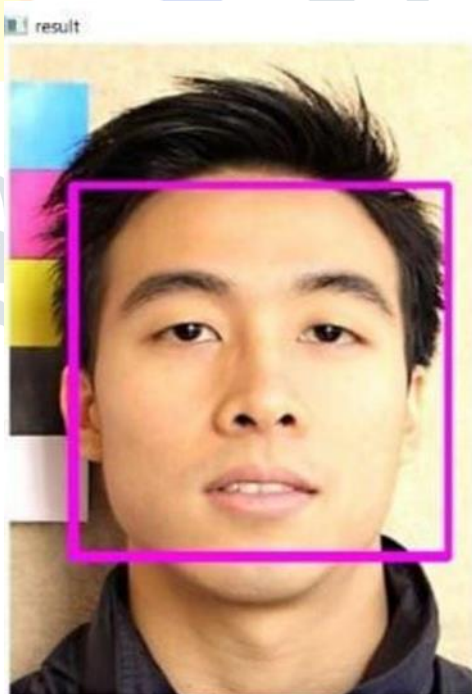


Fig 5.1

Fig 5.2 VI. CONCLUSION

As the technology is booming with rising traits consequently the novel face mask detector which can likely make a contribution to public healthcare. The model is skilled on a genuine dataset. In this OpenCV, HAAR-



CASCADE, SVM and CNN to hit upon whether or not humans were wearing face masks or not. The fashions had been tested with snap shots and actual- time video. The accuracy of the version is performed and, the optimization of the version is a continuous process and we're building an accurate solution via tuning the hyper parameters. This particular version might be used as a use case for area analytics. By the developing this gadget, we can hit upon if the person is sporting a face mask and permit their access would be of first-rate help to the society.

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