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Real Time Face Mask & Social Distance Detector

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ABSTRACT

Coronavirus has impacted the world gravely. Studies have shown that wearing a facial covering is one of the protections to decrease the risk of viral transmission. Also, numerous public spots as well as open specialist organizations expect clients to utilize the help and spot provided that they wear cover accurately. At some point it may not be not difficult to physically follow the client, regardless of whether they are wearing the veil. That is the reason this innovation holds the key here. In this framework, we propose facial covering recognition utilizing picture handling which is one of the great precision and effective facial covering indicator. This proposed framework is of three phases for example 1. Picture preprocessing 2. Face recognition and harvest 3. Facial covering classifier. Our framework is equipped for identifying covered and exposed faces and can be coordinated with cameras and other hand recognizing the distance between two individuals regardless of whether they are keep separation .

Keywords: - Covid_19, Image Processing, Mask, CNN

1. INTRODUCTION

In Wuhan, China toward the finish of 2019 Corona Virus was recognized. From that time, it has been spreading out of control in a backwoods region. Millions have been impacted and around 1,799,505 have tragically died as on 30th of December 2020, close to 12 months since this infection came to presence. Individuals who have this ailment can require as long as about fourteen days to fix, with the gamble of experiencing extra clinical issues brought about by it. Children and older people have turned out to be at the most raised risk to get the disease, which could in any event, achieve demise. Accordingly, it has been centered around to contain the contamination than to fix it. The disease spreads through the air, imparted by one person to one more by contact, yet also by talking and hacking. The concern was progressed to WHO (World Health Organization) which suggested that facial covers and social eliminating is the reaction to it, until a fix is made. Putting a facial covering on can decrease the risk of getting polluted by an uncommon degree, not solely to the one wearing it yet furthermore to the others that he collaborates with. Wearing shroud each time we go out is something we can do with little effort that can

satisfactorily save lives, and that is absolutely why it is in such a ton of interest now of time. Henceforth we have proposed a framework with two modules for example Facial covering and social separating

2. RELATED WORK

Sahana Srinivasan et.al [1] gives a comparable examination of different face acknowledgment and facial covering request models. Finally, a video dataset naming strategy is proposed close by the named video dataset to compensate for the shortfall of dataset locally and is used for evaluation of the system. The structure execution is evaluated to the extent that precision, F1 score similarly as the assumption time, which should be low for practical significance. The system performs with an accuracy of 91.2% and F1 score of 90.79% on the undeniable video dataset and has an ordinary assumption time of 7.12 seconds for 78 housings of a video.

In [2] proposed a structure where For appraisal of the pre-arranged model, mAP (Mean Average) still up in the air for both the use cases (Social Distancing and Face Mask Detection), it works by differentiating the ground-truth hopping box versus the recognized box and, in the end, returns the score. The higher the mAP score would be, the better model is in the area of articles. Mean Average not entirely set in stone for two extraordinary cutoff points (0.25 % and 0.50 %) with 101 survey centers. Three particular classes were made for gathering those were Good, Bad and None, for which True Positive and False Positive still up in the air with ROC Curve for better plan.

In [3] surveys different significant learning associations to encourage such identifiers. In this survey, the ongoing article disclosure models used for surveillance and people acknowledgment are researched. The one-stage and two-stage locaters close by their applications and execution are spread out in a total manner. Significant Learning models like AdaBoost, Voila-Jones, varieties of CNN including ResNet, VGG-16, single-shot locaters MobileNet, and types of YOLO are inspected and dissected.

In[4] structure revolves around a response for help with approving suitable social eliminating and wearing covers out in the open using YOLO object disclosure on video film and

pictures consistently. The preliminary outcomes showed in the paper determine that the ID of covered appearances and human subjects reliant upon YOLO has more grounded life and faster acknowledgment speed when diverged from its adversaries. Their proposed object area model achieved a mean typical exactness score of 94.75% with an induction speed of 38 FPS on record.

In [5] proposed a structure where they have taken one of the measures used to prevent COVID-19 spread and intended to cultivate a significant learning model to organize people regardless of a cloak at public spots like schools, colleges, and corporates. Made estimation using thoughts of significant trade learning and changing. The structure made on the MobileNetv2 base model, the head of it was superseded by the custom facial covering revelation estimation and engaged the planning of face hidden and non-face hid pictures. The testing results have shown an accuracy of 98% on the two characterizations with shroud and without cover.

3. OBJECTIVES OF SYSTEM

- To prevent the spread of Corona virus by promoting the use of face masks with the help of effective technology to detect the face mask.
- To take necessary precautions for the safety of society by predicting the future outbreaks of COVID-19.
- To ensure a safe working environment.
- To save the lives of people.

4. MOTIVATION

Our main motive, Face mask detection with Social Distancing is the task of identifying an already detected object as that person wear mask or not and they are walking with maintaining Social Distance to each other.

5. SYSTEM ARCHITECTURE

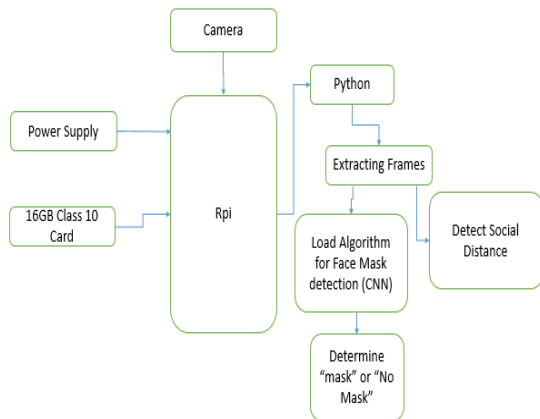


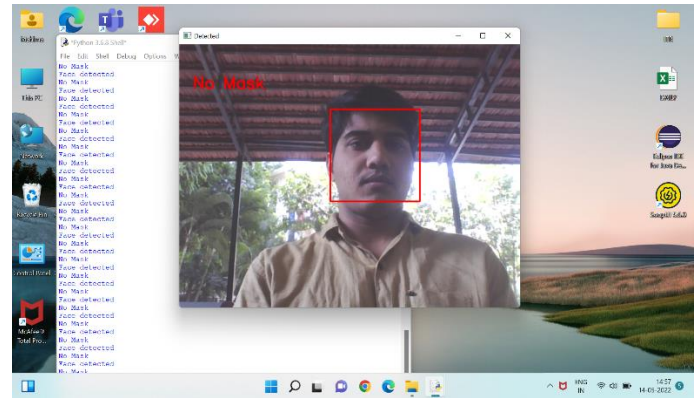
Fig: - System Architecture

6. METHODOLOGY

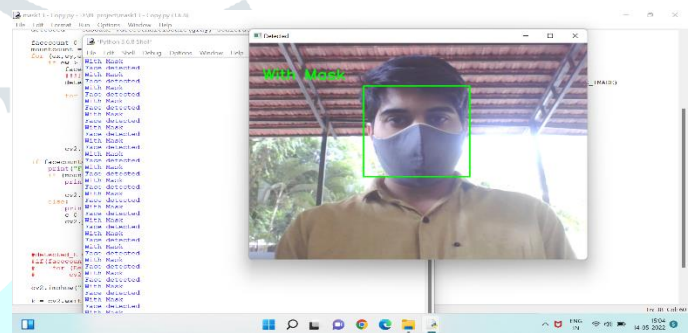
We are fostering the task for recognizing regardless of whether individual is wearing a cover and in any event, for estimating the temperature of individual. This framework centers around how to recognize an individual wearing a veil on picture or video transfer with the assistance of Deep Learning and Machine Learning utilizing Keras, TensorFlow, OpenCV and the Scikit-Learn library. We have utilized proposed design which is a precise and effective and can be applied to inserted gadget.

For the assurance the model planned works out ROI(Region of Interest), and later on process jumping box an incentive for a specific face and guarantee that the case falls inside the limits. . The "Green " variety box will be for with veil and "Red" variety box will be for without cover. When all recognition is executed we will show the result. Too same will be for social removing indicator module. Alert is been produced as needs be.

7. EXPERIMENTAL AND RESULT



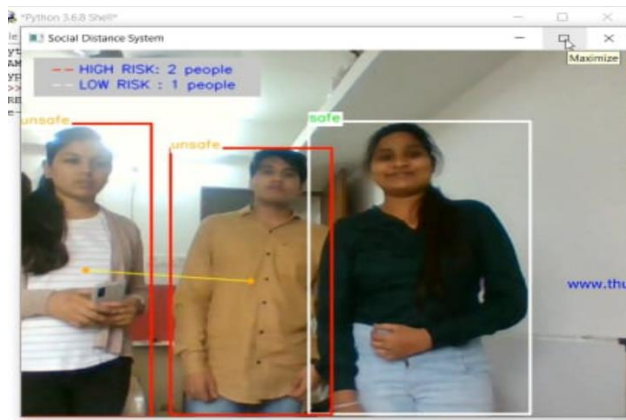
No Mask



With Mask



Safe Distance



Unsafe Distance

8. ACKNOWLEDGEMENT

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9. CONCLUSION

In this pandemic circumstance, where all individuals in nations are dreaming to fully recover standard, this framework will assume successful part in observing the utilization of facial coverings at working environments. As the innovation are blossoming with arising patterns the accessibility so we have novel facial covering indicator which might potentially add to public medical services. With the increment and blossoming innovation and arising patterns in methods. We have proposed as little framework i.e novel facial covering identifier which might conceivably add to public healthcare. We are utilizing OpenCV, tensor stream, keras and calculation to identify regardless of whether individuals were wearing facial coverings. By the improvement of facial covering discovery we can identify in the event that the individual is wearing a facial covering and, surprisingly, the social removing where we are working out the distance and distinguishing regardless of whether the individual is following the social separating.

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