



SOCIAL DISTANCING DETECTION USING OPEN CV

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Abstract: Recently, the outbreak of Corona virus Disease (COVID-19) has spread rapidly across the world and thus social distancing has become one of mandatory preventive measures to avoid physical contact. This survey paper emphasizes on a surveillance method which uses Open-CV, Computer vision and Deep learning to keep a track on the pedestrians and avoid overcrowding. The implementation can be done using closed circuit television (CCTV) and Drones where the camera will detect the crowd with the help of object detection and compute the distance between them. The Euclidean distance between two people will be calculated in pixels and is compared with given standard distance and if it is observed to be less than the standard distance the local authorities or local police authorities will be notified.

Keywords: Covid-19, Monitoring, Social Distancing, OPEN CV

I. INTRODUCTION

In practice Social Distancing this means that avoiding close proximity to other people will aid in slowing the spread of infectious diseases. Social distancing is one of the non-pharmaceutical infection control actions that can stop or slow down the spread of a highly contagious disease. The virus that causes COVID-19 is currently spreading easily from person-to-person. When a healthy person comes into contact with respiratory droplets from coughs or sneezes of an infected person, they are can catch the infection.

The World Health Organization (WHO) states that "COVID-19 is transmitted via droplets and fomites during close unprotected contact between an infector and infected. A fomite is an object or material which is likely to carry infection, such as clothes, utensils, and furniture. Therefore, transmission of the infection can be avoided by staying away from other people as well as from touching infected fomites. Social distancing aims to decrease or interrupt transmission of COVID-19 in a population[1] by minimizing contact between potentially infected individuals and healthy individuals, or between population groups with high rates of transmission and population groups with no or low levels of transmission

II. PRAPOSED SYSTEM

In the present situation, a deep learning based framework is proposed that utilizes object detection and tracking models to aid in the social distancing remedy for dealing with the escalation of COVID-19 cases. In order to maintain the balance of speed and accuracy, YOLO v3 alongside the Deepsort are utilized as object detection and tracking approaches while surrounding each detected object with the bounding boxes. Later, these bounding boxes are utilized to compute the pairwise with computationally efficient vectorized representation for identifying the clusters of people not obeying the order of social distancing.

III. IMPLEMENTATION AND DISCUSSION

The Praposed System will be implemented according to the given flow:

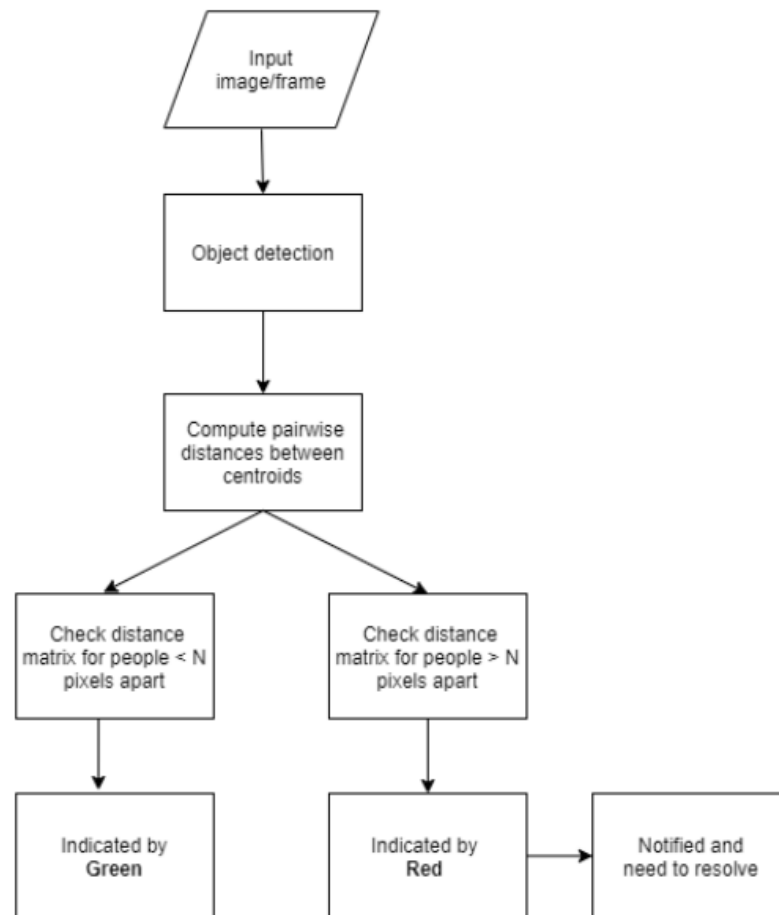


Fig. 1 System Flow

IV. CONCLUSION

The article proposes an efficient real-time deep learning based framework to automate the process of monitoring the social distancing via object detection and tracking approaches, where each individual is identified in the real-time with the help of bounding boxes. The generated bounding boxes aid in identifying the clusters or groups of people satisfying the closeness property computed with the help of pairwise vectorized approach. The number of violations are confirmed by computing the number of groups formed and violation index term computed as the ratio of the number of people to the number of groups. Since this approach is highly sensitive to the spatial location of the camera, the same approach can be fine tuned to better adjust with the corresponding field of view.

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