Crowd detector to stop spread of Corona virus

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ABSTRACT
As we Recently see how the corona virus pulled all the world in pandemic, many lost lives ,many experience the horrific virus but the one who follow the rules that is, Social Distancing(of 6 feet between individuals),wash and sanitize hand (approx. Once in a hour or coming from outside) ,were safe. But we cannot neglect the importance of our ownselves because we protect ourselves first. But many of us did not follow these rules they gather in huge number which cause more spreading of COVID-19. Thats why we made this project to prevent the Corona Virus here by using Raspberry pi and open CV we were able to detect the number of people through the camera(CCTV) and detect the number of person present at that place we put our camera and if the number is more than the people allowed it send the E-mail to police authorities to look at that place.

I. INTRODUCTION

The Pandemic situation over take the world and make condition go worst, as suggested by World Health Organization (WHO) the most important factor to prevent the virus is to maintain social distancing and no gathering of people because if it is not followed it can escalate the number of cases very rapidly.

To monitor the gathering of people at a place CCTV or Drone can be used to track the human activities and it can also help to a maintained social distancing by restricting people. By using this project we can prevent massive gathering and violation of the rules.

II. LITERATURE SURVEY

In 2017, Dr. S Syed Ameer Abbas and his co-authors proposed a system for human tracking and crowd management using raspberry pi and Open-CV. A cascade classifier was trained for head detection from the scene is trained using Haar features through OpenCV. The whole concept of their idea was to record the crowded scene using a camera and Raspberry pi3 that has a quad core ARMv8 central processing unit which processes the video frame by frame. The head count is measured and the crowd is managed by comparing the value with the threshold and if it surpasses the threshold the prevention can be done accordingly .

In 2018, Joel Joseph Joy and his co-authors proposed a system of traffic density identification which was based on image processing. The queue length and the traffic densities were recorded from the images taken from the camera. The video input was taken and fuzzy logic was applied to handle the concept of partial truth. The outcome of partial truth concept could range anywhere between completely true and completely false .

In 2020, Adrian Rosebrock published an article on social distancing detector which is based on OpenCV, Computer Vision and Deep Learning concept. The article throws a light on social distancing during the pandemic period and it focuses on social distance monitoring through CCTV cameras installed across streets. The camera records the distance between people in pixels and compares it with the standard measurement and thus behave as a social distancing detector. This social distance detector application logic resides in the file.py script and this file is responsible for looping over frame of a video stream and ensuring that people are maintaining a healthy distance from one another. It is compatible with both video files and webcam streams.

In 2019, Neel Bhave and his co-authors proposed a system which is a complete working model which comprised of Reinforcement model and Object detection algorithms. In this they used YOLO (You Only Look Once) Real Time Object Detection which has less shortcomings, is much faster, provides accurate results and can be trained for more than 200 classes. Reinforcement learning is an area of machine learning which is responsible for providing the green phase timing according to the current state of traffic and learn from the actions taken .

III. CONCLUSION

As we envision the world post COVID-19 pandemic the need of self-responsibility emerges irrefutably. The scenario would mostly focus on accepting and obeying the precautions and rules that WHO has imposed more precisely as

responsibility of one will totally embark on themselves and not government. Social Distancing would undoubtedly be the most important factor as COVID 19 spreads through close contact with infected ones. In order to supervise large mobs, an effective solution is important and this survey paper focuses on that. Using installed CCTV and drones, authorities can keep a track of human activities and control large crowd to come together and prevent violating the law.

As far as people are maintaining a safe distance they would be indicated with green light, and as the CCTV captures more and more crowd gathering, red light would pop-up and the allocated police of that area will be notified and the situation can come under control immediately.

As controlling large mob is not an easy task, using this survey, conditions can be managed before situation goes out of control. Thus, implementing this idea can reduce the on ground efforts of the police and they can entirely focus on supervising conditions exclusively on those areas where conditions are unfavorable and thus, they can utilize time wisely and save energy for equitable situations.

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