ARTIFICIAL INTELLIGENCE-BASED COVID 19 SOLUTION COMPLIANCE

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In today's world, where contagious diseases are spreading very quickly, people's manual monitoring of rules is at a high risk of getting infected. To cut the contact between the person in charge of monitoring and the people who are getting monitored, an AI-based monitoring system is required. In this project we developed an ai based automated system that detects for covid symptoms in people and also detects if the person has worn a mask or not.

INTRODUCTION

As in the current situation, the covid'19 spreading very fastly, so the World Health Organization issues some guidelines for everyone. WHO advises to wear a face mask and prevent touching the nose,eye and face or washing hands after a constant interval of time. Apart from it WHO considered conjunctivitis as the basic symptom and to date prevention is one of the most important ways to control the spread of novel coronavirus and that will lead to the flattening of the curve. Redness in the eye(conjunctivitis) is a symptom of covid-19. So by detecting it we can reduce the chance of spreading of the covid-19 virus. In the present scenario of pandemics, wearing a mask is necessary. By not wearing a face mask, the person has the risk of being infected and poses a risk of infecting others in case the person is already infected. So the detection of face masks is very much needed to tell people to wear masks to prevent the disease from spreading.

IMPLEMENTATION

Conjunctivitis detection:

1. In conjunctivitis detection, we have taken the 68 face landmarks in which we have six coordinates both for the left and right eye. Using those coordinates we extracted the sclera portion of the eye and applied a red-colored mask that can remove redness from

the sclera portion of the eye. If the redness is above a particular threshold value, we can say that this specific person has conjunctivitis.

Mask Detection;

1. In mask detection, we have used the IMAGEAI python package in which we could do custom object detection using the pre-trained YOLOv3 architecture on the coco-dataset. So we have trained our Deep Learning model using this technique of transfer learning and further used our web cam stream only to test for the real-time verification. The results were very accurate. The model performs with the accuracy of around 98.8%.

Dataset Used

https://drive.google.com/drive/folders/1p0SH7r05DqxAqxmetmuUXuOPcqn4iiez?usp=sharing

USE CASES

It can be used at any place where people can gather. Prominently public places like airports, railway stations, shopping malls, schools and any organization have more chances of people coming in contact with others.

This ai system can be installed at the entry gate of any place for better monitoring. If someone gets detected with conjunctivitis then the person can be asked for covid-test. Also people without masks can be prevented from going to the location. This can reduce the chances of people getting infected from gathering places.

FUTURE SCOPE

In Our current product we are detecting the mask but in future we can extend it to different products. Some of the product we are mentioning below:

1) Sound Alert System
2) Social Distancing Surveillance
3) Fever Detection using thermal imaging

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