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Automatıc Social Dıstancıng Mechanism for Preventing Covid-19 Using Deep Learnıng

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Abstract

COVID-19 is one of the viruses that was drastically spread, causing chaos in the entire world. Most of the scientists have studied the mechanisms to prevent this virus, and one of the mechanisms to mitigate the effect of COVID-19 is social distancing. People intentionally or unintentionally forget this distancing mechanism. We propose a novel mechanism, which will alert the users when they are approaching the others with a distance of fewer than two meters. This mechanism is available made available in an app where people can easily install this in the smart mobile. We have also developed a mechanism that automatically processes the CC tv footage and monitor the social distancing practice & alert the administrators. The system was thoroughly trained and tested with 20,410 videos and have achieved an average accuracy of 79.3%.

Keywords: Deep Learning, COVID-19, Social Distancing.

Introduction

In the start of December, 2019, Covid-19 infection that slipped from creatures to people in Wuhan city, China caused a flare-up of respiratory sickness. Some of the measurable, dynamic what's more, numerical models of the Covid-19 flare-up including the SEIR model have been created to dissect its transmission dynamics. In spite of the fact that these epidemiological models are valuable for assessing the elements of transmission, focusing on assets and assessing the effect of intercession procedures, the models require parameters and rely upon numerous presumptions. Not at all like framework recognizable proof in building where the parameters in the models are evaluated utilizing genuine information, at the flare-up, assessed parameters utilizing ongoing information are most certainly not promptly available. Most examinations utilized theorized parameters and consequently don't fit the information great. The exactness of gauging the future instances of Covid-19 utilizing these models may not be extremely high.

Literature Survey

One article detailed that up to 70% of the store network could be cut off and the scourge could be controlled if contact and disengagement, isolate and segregation were properly cultivated . The top needs in Iran are currently roundabout and thorough endeavors to direct epidemiological examinations and distinguishing proof of all parts of the ailment (wellspring of sickness, repository, pathways, infectivity, hatching period, rate and commonness, pathogenicity, immunogenicity, crowd resistance, causes, pestilence and pandemic example, essential and auxiliary assault rates, reaction time, time required for disengagement and isolate, treatment regimens, antibodies and other counteraction techniques, illness reconnaissance and factual announcing) and proof based mediations and scourge control.

Use of encounters in China and South Korea scourge demonstrates the sickness development in the nation to be strategically scattered and the pandemic will be controlled sooner rather than later, showing that preventive exercises in the two nations have been increasingly helpful among all East Asian nations. Clearly, social conditions are additionally viable. Given the expectation and demonstrating of the quantity of instances of coronavirus in Iran and on the grounds that the infection is coursing in the nation for in any event half a month, we will have a climbing pattern in the coming weeks. Utilization of the encounters of China, which took just about 70 days to finish the scourge bend, has arrived at a level; it is suggested that the accompanying epidemiological proposals be actualized speedily and that intercessions suggested by the World Health Organization be executed .

Design of the System

The design of the system is shown in the fig 1.

Step 1: The input is taken from CCT vedios

Step 2: The feature extraction is done , which identifies wether the given object is human or non human.

Step 3: Then the System will process the preprocessed elements in the terms of three.

Step 4: Summerization technique enables the alaraming procedure to confirm and alert people.

Step 5: The anomly detection identifies the people not practicing the distance.

Step 6: The density maps identifies the people and alerts them.

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Results and Discussion

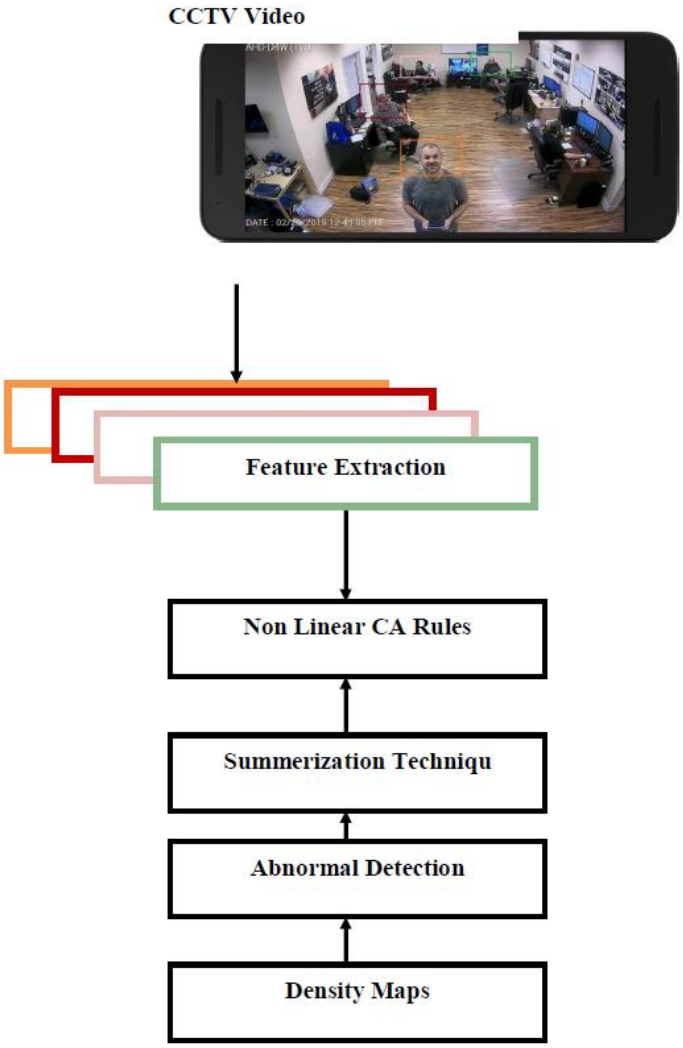

Figure 1.DL Architecture

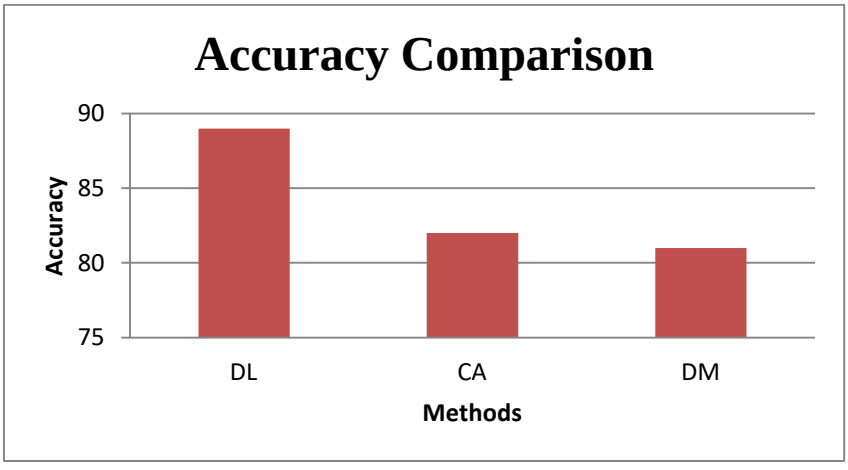

Figure 2.Comparision of the Methdos in terms of accuracy

We have collected twenty thousand vedios from the standard database , where 80% of the vedios are considered for training and rest for testing . After a through training and testing the classifier reports an accuracy of 79.3%.

Conclusion

Social distancing is vital to demolish COVID-19. We have proposed a novel mechanisam to implement and alert this technique with deep learning. The proposed system was throughtly trained and tested to alert people who are not implementing this social distancing mechanisam.We have achieved an accuracy of 79.3 which is considerabl at this moment and can be imporved further. This system can be implemented by augmenting CNN with CA for better prediction.

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