COVID DETECTION STRATEGY

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Abstract: The early detection and diagnosing of COVID-19 and therefore the correct separation of non-COVID-19 cases at the bottom cost and within the early stages of the illness are among the most challenges within the current COVID-19 pandemic. regarding the novelty of the illness, diagnostic strategies supported tomography pictures suffer from shortcomings despite their several applications in diagnostic centers. consequently, medical and pc researchers tend to use machine-learning models to investigate radiology images. Material and strategies. the gift systematic review was conducted by looking out the 3 databases of Pub Med, Scopus, and net of Science from All Saints' Day, 2019, to July 20, 2020, supported an enquiry strategy. a complete of 168 articles were extracted and, by applying the inclusion and exclusion criteria, thirty seven articles were hand-picked because the analysis population. Result. *is review study provides an summary of the present state of all models for the detection and diagnosing of COVID-19 through radiology modalities and their process supported deep learning. per the findings, deep learning-based models have a unprecedented capacity to supply Associate in Nursing correct and economical system for the detection and diagnosing of COVID-19, the employment of that within the process of modalities would result in a big increase in sensitivity and specificity values. Conclusion. *e application of deep learning in the field of COVID-19 radiologic image process reduces false-positive and negative errors within the detection and diagnosing of this illness and offers a singular chance to supply quick, cheap, and safe diagnostic services to patients.

Index Terms: Covid19 , Machine Learning , Data Science

I. INTROODUCTION

With the eruption of associate degree unknown sickness in late 2019 in China, some individuals became infected with the sickness during a local market. The sickness was fully unknown initially, but specialists diagnosed its symptoms as kind of like those of corona virus infection and respiratory disorder [1–4]. the particular explanation for this widespread sickness was at the start unknown, however when the laboratory examination and analysis of positive body fluid by real-time enzyme chain reaction (PCR) take a look at, the viral infection was confirmed and eventually named "COVID- 19" upon the advice of the planet Health Organization (WHO). Over a brief amount, the COVID-19 epidemic crossed geographical boundaries with a devastating effect on the health, economy, and welfare of the global population . supported the World meters (worldometers.info) statistics, till Gregorian calendar month five, 2021, more than eighty six million individuals worldwide shrunken COVID-19, of whom quite one,870,000 individuals died formally thanks to the sickness. the first detection of COVID-19 is important not just for patient care however conjointly for public health by ensuring the patients' isolation and dominant the pandemic . Thanks to the novelty of the sickness, ways that to fight it weren't far-famed within the time period, however researchers considered screening and fast designation of infected patients and their separation from the community of healthy people as a crucial live. *e clinical options of COVID-19 embrace metabolism symptoms, fever, cough, dyspnoea, and respiratory illness. However, these symptoms don't always indicate COVID-19 and square measure discovered in several cases of respiratory illness, resulting in diagnostic issues for physicians.

While the RT-PCR check is that the gold customary for identification COVID-19, its limiting aspects with sure features that build it tough to diagnose the un-wellness. RTPCR is a terribly long, complex, costly, and manual process. One in all the drawbacks of this methodology is that they want for a laboratory kit, the supply of that is tough or perhaps impossible for several countries throughout crises and epidemics. Like all diagnostic and laboratory strategies in attention systems, this methodology isn't error-free and is biased. It needs an skilled laboratory technician to sample the nasal and throat mucous membrane that could be a painful methodology, and this is often why many folks refuse to bear nasal swab sampling . additional significantly, several studies indicated the low sensitivity of the RT-PCR test; many studies have reported the sensitivity of this diagnostic methodology to be half-hour to hour, indicating a decrease within the accuracy of the diagnosing of COVID-19 in several cases. Some studies conjointly pointed to its false-negative rate and contradictory results. One of the foremost necessary ways that to diagnose COVID-19 is to use tomography pictures, as well as X-ray and computed tomography (CT) scan. Chest imaging could be a fast and simple procedure counselled by medical and health protocols and has been mentioned in many texts because the initial tool in screening throughout epidemics .

II. LITERATURE REVIEW

In recent months, researchers have investigated and analyzed chest X-ray images using deep learning algorithms to detect COVID-19. First, the images are preprocessed using the CNN technique for extracting better features, which are fed in deep learning algorithms for image classification.

Ahammed et al. proposed a deep neural network based system where CNN provided high accuracy (94.03%). The authors trained the system with normal, pneumonia and COVID-19 patient's chest X-ray images. The limitation of the work was that a dataset with only 285 images was used for developing the system, and this small number of data was not perfect for training a deep learning-based system for the COVID-19 prediction.

Chowdhury et al. worked with chest X-ray images to develop a novel framework named PDCOVIDNet based on parallel-dilated CNN. In the proposed method, the authors used a dilated convolution in the parallel stack that could capture and stretch necessary features for obtaining a detection accuracy of 96.58%.

Abbas et al. proposed and validated a deep convolution neural network called decompose, transfer, and compose (DeTraC) to detect COVID-19 patients from their chest X-ray images. They proposed a decomposition mechanism to check irregularities from the dataset by investigating class boundaries for obtaining a high accuracy (93.1%) and sensitivity (100%).

Azemin et al. used a deep learning method based on the ResNet-101 CNN model. In their proposed method, thousands of images were used in the pre-trained phase to recognize meaningful objects and retrained to detect abnormality in the chest X-ray images. The accuracy of this method was only 71.9%.

El-Rashidy et al. introduced a framework consisted of three layers: patient layer, cloud layer and hospital layer. A set of data was collected from the patient layer using some wearable sensors and a mobile app. A neural network-based deep learning model was used to detect COVID-19 using the patient X-ray images. The proposed model achieved 97.9% accuracy and 98.85% specificity.

Khan et al. developed a new architecture for the diagnosis of X-ray images as the COVID-19 or normal using pre-trained deep learning models like ResNet50, VGG16, VGG19 and DensNet121, where VGG16 and VGG19 showed the best accuracies. The proposed model consisted of two phases like preprocessing and data augmentation, and transfer learning, and finally showed 99.3% accuracy.

In the proposed model by Loey et al. three deep transfer models like AlexNet, GoogleNet and ResNet18 were employed on a dataset of 307 images with four different types of classes: COVID-19, normal, pneumonia bacterial and pneumonia virus
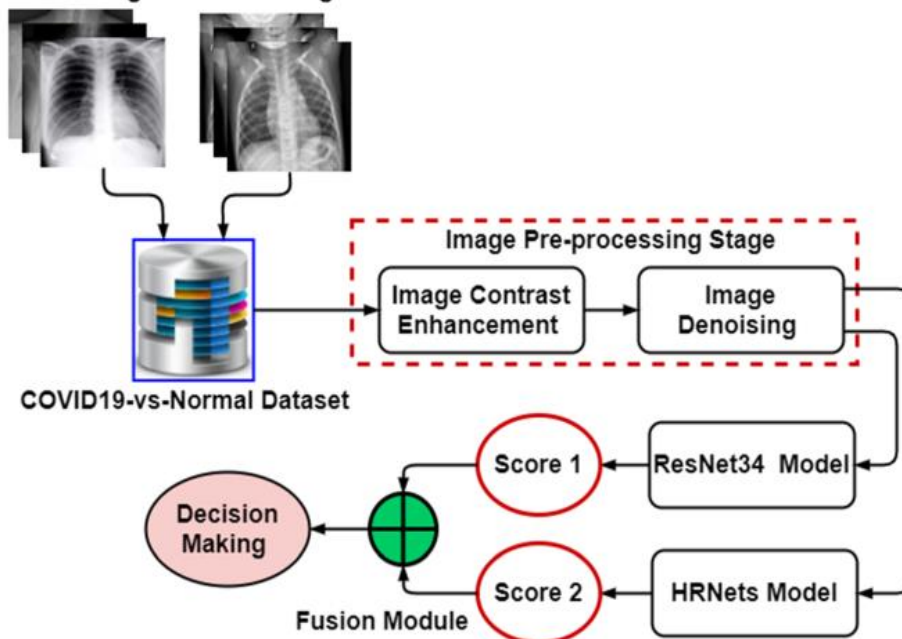
III. PROPOSED SYSTEM

fig 1.work flow of proposed system

STEPS IN THE PROECT **--:**

1) In these project we will take CT image of covid19 positive person

2) Take the another CT image of covid19 negative person

3) Using KNN algorithm we will compare the result of both image in our project

4)After comparing result if the person detect covid19 positive then person will not be allow to go his /her home

5) the person is covid19 negative then allow to sent his her home

IV. CONCLU SION

Early prediction of COVID-19 patients is vital to prevent the spread of the disease to other people. In this study, we proposed a deep transfer learning based approach using Chest X-ray images obtained from normal, COVID-19, bacterial and viral pneumonia patients to predict COVID-19 patients automatically. Performance results show that ResNet50 pre-trained model yielded the highest accuracy among five models for used three different datasets (Dataset-1: 96.1%, Dataset-2: 99.5% and Dataset-3: 99.7%) . In the light of our findings, it is believed that it will help radiologists to make decisions in clinical practice due to the higher performance. In order to detect COVID-19 at an early stage, this study gives insight on how deep transfer learning methods can be used. In subsequent studies, the classification performance of different CNN models can be tested by increasing the number of COVID-19 Chest X-ray images in the dataset. the performance of two deep learning networks (SegNet & U-NET) was compared in their ability to detect diseased areas in medical images of the lungs of COVID-19 patients. The results demonstrated the ability of the SegNet network to distinguish between infected and healthy tissues in these images. A comparison of these two networks was also performed in a multiple classification procedure of infected areas in lung images. The results showed the U-NET network's ability to distinguish between these areas. The results obtained in this paper represent promising prospects for the possibility of using deep learning to assist in an objective diagnosis of COVID-19 disease through CT images of the lung.

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