**Deep Neural Architecture for Face mask Detection on Simulated Masked Face Dataset against Covid-19 Pandemic**

**Alternate title:**

Real-time detection of face mask using deep learning approach based on convolution neural networks

**Aim**:

 To apply the Deep Learning techniques based on convolution neural network improving the face mask detector accuracy.

**Synopsis:**

The corona virus disease 2019 (COVID-19) has globally infected over 2.7million people and caused over 180,000 deaths. There are several similar large scale serious respiratory diseases, such as severe acute respiratory syndrome (SARS) and the Middle East respiratory syndrome (MERS), which occurred in the past few years. Therefore, more and more people are concerned about their health, and public health is considered as the top priority for governments. Furthermore, many public service providers require customers to use the service only if they wear masks. Face mask detection has become a crucial computer vision task to help the global society, but research related to face mask detection is limited.

**Existing System:**

Corona virus disease 2019 has affected the world seriously. One major protection method for people is to wear masks in public areas. Furthermore, many public service providers require customers to use the service only if they wear masks correctly. However, there are only a few research studies about face mask detection based on image analysis. So, it is a very big issue and virus spreading problem. That’s the reason for we are taking in this project.

**Proposed System:**

We propose Retina Face Mask, which is a high-accuracy and efficient face mask detector. The proposed Retina Face Mask is a one-stage detector, which consists of a feature pyramid network to fuse high-level semantic information with multiple feature maps, and a novel context attention module to focus on detecting face masks. Face mask detection refers to detect whether a person wearing a mask or not.

**Module Description:**

* Dataset
* Face detection CNN
* Training process
* Face mask detection

**Data set**

First, we collected a dataset form the internet. We are collecting 2 types of dataset with mask dataset and without mask dataset.

**Face Detection:**

After collecting the dataset we categorized in to 2 parts. Detect the faces using deep leaning algorithms. CNN algorithms are used to detect the faces accurately.

**Training Process**

We are train the collected video frames using Deep leaning techniques. Because, it will train to multiple times and push a very fast results. Deep Learning is a one of the best algorithm for making a project and it is also give an accurate output.

**Mask Detection:**

Finally, it will working in real time detection with mask or without mask.

**Software Requirements:**

* Operating System : Windows 7 , 8, 10 (64 bit)
* Software : Python 3.7
* Tools : Anaconda (Jupyter Note Book IDE)

**Hardware Requirements:**

* Hard Disk : 500GB and Above
* RAM : 4GB and Above
* Processor : I3 and Above

**Architecture Diagram:**

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Video Recording

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Convolutional neural network

Face Mask Data

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Mask

Detection

 Face Match