Project Proposal

Face Mask Detection

Special Topics in Networking

2232-CSE-5349-002

Github link:
https://github.com/SaiNikhilKanchukatla3300/CSE5349-Team10

TEAM - 10

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Abstract:

Nearly all of us frequently wear face masks as a kind of protection from the COVID-19 Pandemic. In most large public meetings, including malls, theaters, and parks, it becomes increasingly important to check if the crowd is wearing face masks. Society would benefit greatly from the creation of an AI system that could determine whether someone is wearing a face mask and then permit them admission. Using the Deep Learning method known as Convolutional Neural Networks, a straightforward Face Mask detection system is constructed in this (CNN). The TensorFlow framework and the OpenCV library, which are extensively used for real-time applications, were combined to create this CNN model. This model can also be used to create software that will scan everyone entering a public meeting. We are expecting to achieve 97% accuracy with this model. Further use of this can lead to even greater precision.

Workflow:

We gather the dataset which is the data collected from few websites and create the dataset and create a separate training set of size 0.8 x dataset. Next, we preprocess the dataset and segregate the train and test dataset, we collect the photos, and classify the image features using the training data. Finally, we create the output using the chosen classifier and with a few other parameters and find the output based on the trained set. The obtained data is analyzed and further improved by optimizing the code.

Functionalities :

- Face-mask detection:
  Identifying the individual whether they are wearing facemask or not.
- Automated alerts:
  In case of severity, individuals without mask are identified and required action is taken against them)
- Analysis of data extracted:
  Analysis of data extracted from observing individuals are wearing face masks or not helps to take accurate decisions.
- Contactless:

Identifying the individual regarding the face mask without any physical contact.

- Security:

This technology helps to increase security in terms of maintaining hygiene, by identifying persons with out mask.

Basic Components:

- Image input
- Face detection
- Face Alignment
- Mask detection

Tools :

- Jupyter Notebook
- Python

Libraries :

- Tensorflow
- Keras
- Numpy
- Sklearn
- Matplotlib

Dividing the work into smaller tasks :

Avinash Reddy Sallagonda

- Gathering Datasets
- Finding out the supported libraries
- training the Model
- Identifying the loop holes in the data

Sai Nikhil Kanchukatla :

- studying about tensor flow
- Gathering datasets
- Identifying the loop holes in the model

Narendhar Reddy Mareddy:

- Training the dataset
- Testing the output
- Optimizing the model

Sai Rishith Reddy Gade:

- Finding out the supported libraries
- Analyzing the results
  optimizing the code and accuracy

Work Schedule :

04-08-2023:

- Gathering the required libraries
- Gathering Datasets
- Setting up the code flow
- Preprocessing the data

04-15-2023:

- Training the data
- Labeling the data
- Building the partial model

04-19-2023:

- Building the model completely
- Testing the model and finding out the accuracy for the images
- Analyzing the results

04-23-2023:

- optimizing the code
- Testing the output