Face mask detection through Video stream

# **Libraries Used**

* **Tensorflow** (Deep learning module)
* **MTCNN** (Pre Trained deep learning model for face detection and localization)
* **OpenCV** (For Video Stream)
* **Numpy** (for numerical operations)

# **Process Followed**

1. Creation of a model to detect classify a face is masked or not
   1. Found a dataset which contained faces with and without mask
   2. Trained a CNN model from scratch on the data set to make predictions
   3. Trained a Pre-Trained **MobilenetV2** model on the data set to classify the faces with better accuracy
2. Classifying faces from a video stream
   1. Used **opencv** to get the video stream
   2. From the video stream used **MTCNN** model for face detection and localization
   3. Once the faces were detected I stored the cropped faces in a List.
   4. Once the stream is over used the **tensorflow** **model** we trained in first part to classify the faces in two categories
   5. Saved the faces in the folder respective to their categories i.e. With mask and without mask

# **Steps to run the project**

1. Open the tensorflowFacedetection.py file
2. Update the path variables present under the **“##PATH##”** comment.
3. Give the path for Video you want to stream.
4. After that run the python file using any compiler.
5. **Now it will automatically stop once the stream is over or you can stop the stream by pressing “S”**
6. Now you can wait for a while as the code will now classify the faces.
7. Check the folder present in resources folder for the respective faces with or without masks.

# **Link to the Dataset used for training model**

**https://drive.google.com/drive/folders/1XDte2DL2Mf\_hw4NsmGst7QtYoU7sMBVG**