Intelligent Vision

Team Name: Team I.V.

Members:

1. Shambhavi Aggarwal (Leader)
2. Dharven Doshi
3. Bhargav Akhani

Track: Artificial Intelligence

Github repo of team leader:
https://github.com/agg-shambhavi

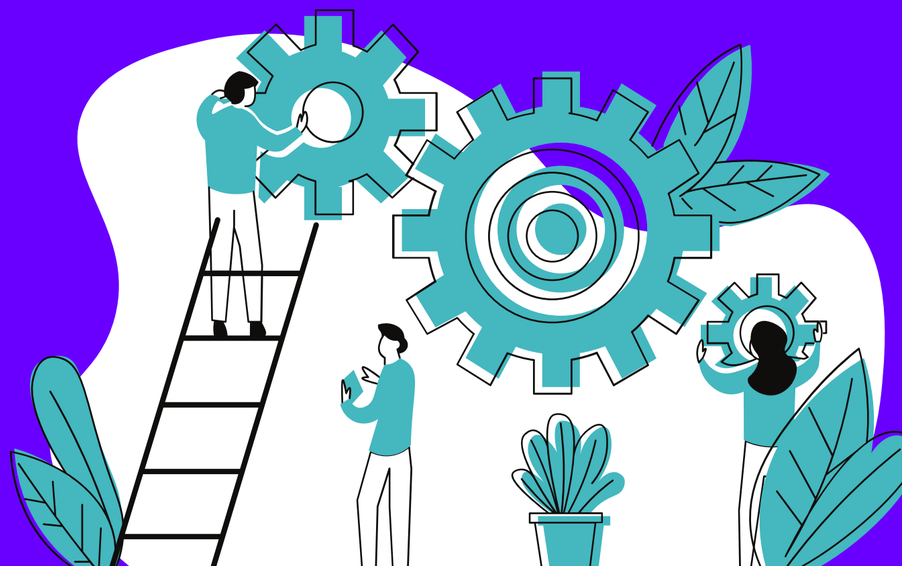
Our Idea

We are aiming to make a tool that will assist crime investigation authorities to rapidly analyze CCTV recordings/videos.

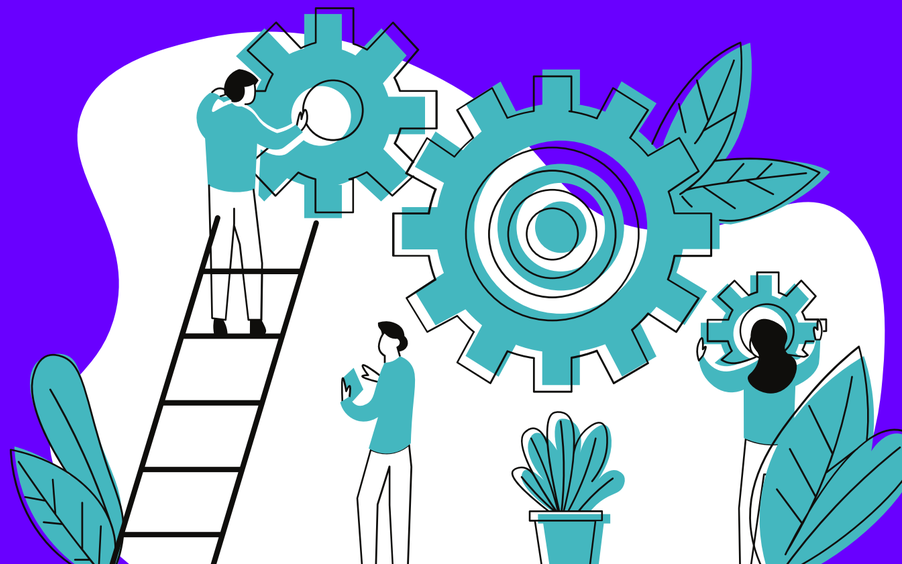
Let's say we have an image of a suspect, and we have the CCTV recording of the crime scene. Enter the suspect's picture and the video recording in our tool, and our tool will find the suspect's face in the video recording. You will be able to see the frames in which the suspect appeared in the video.

Finding someone manually in a video is a time-consuming task!

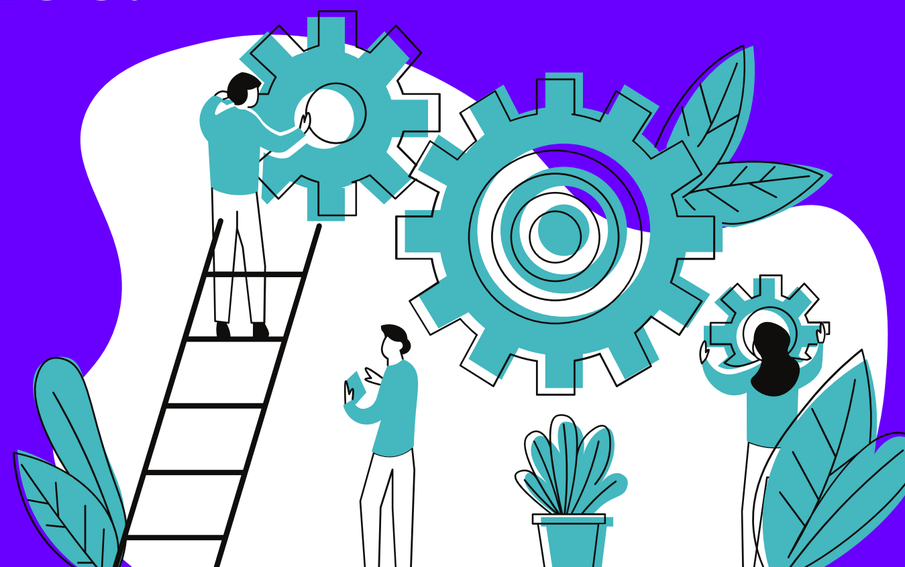
Methodology



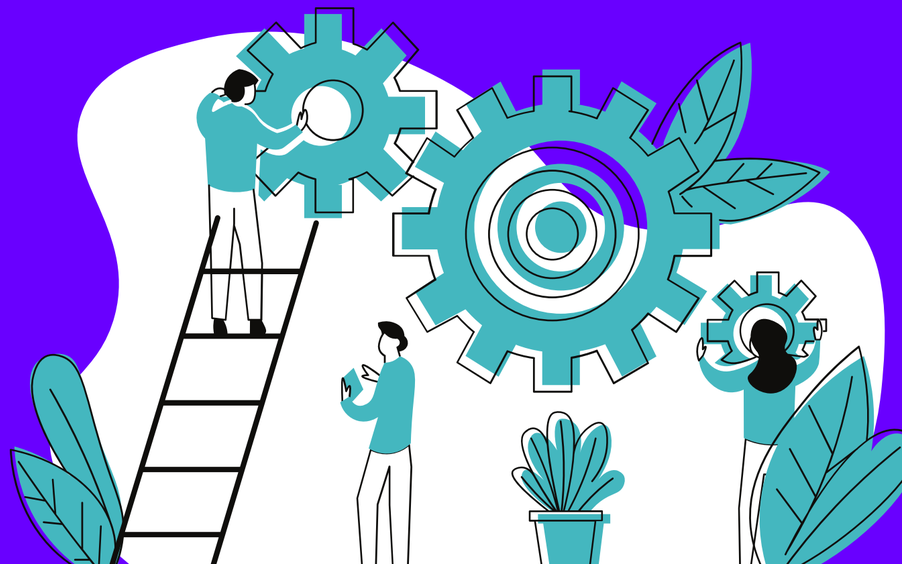
Step 1: Dividing the video into frames.



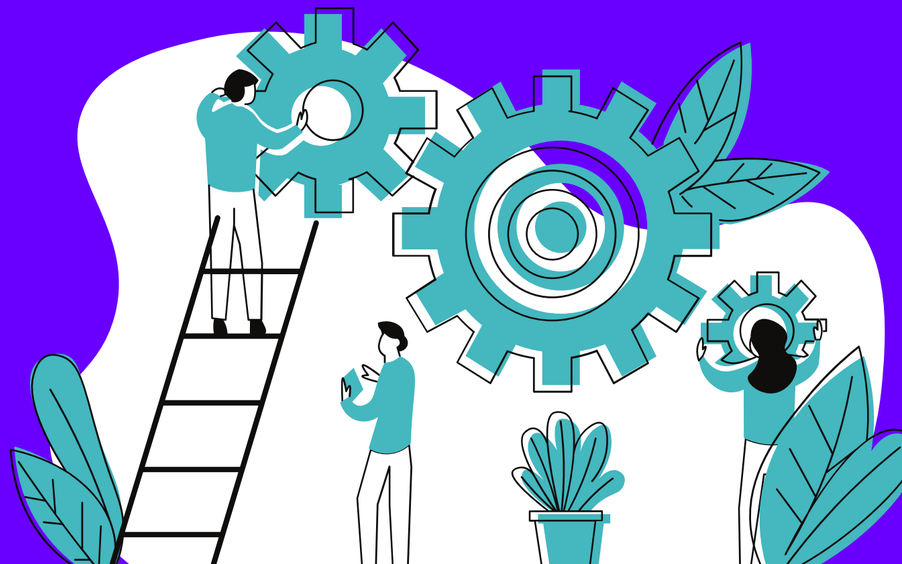
Step 2: Detect faces in the frames using face-recognition library and put those frames into a list.



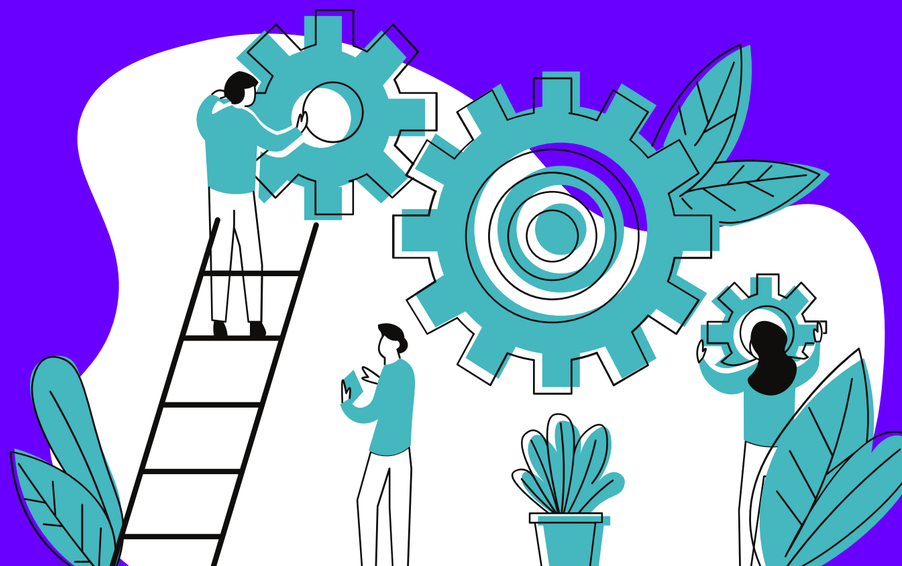
Step 3: Encode detected faces using face-recognition library.



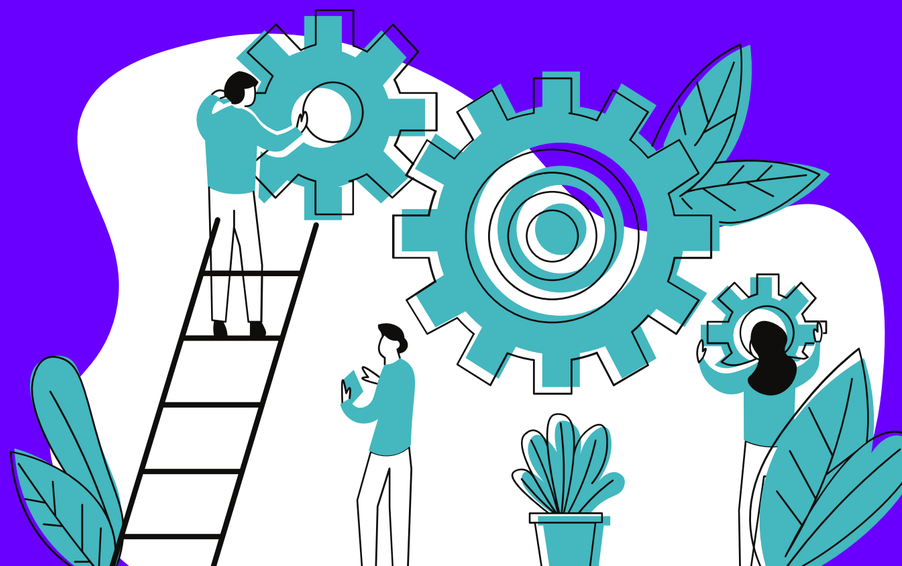
Step 4: Cluster the encodings using DBSCAN clustering algorithm.



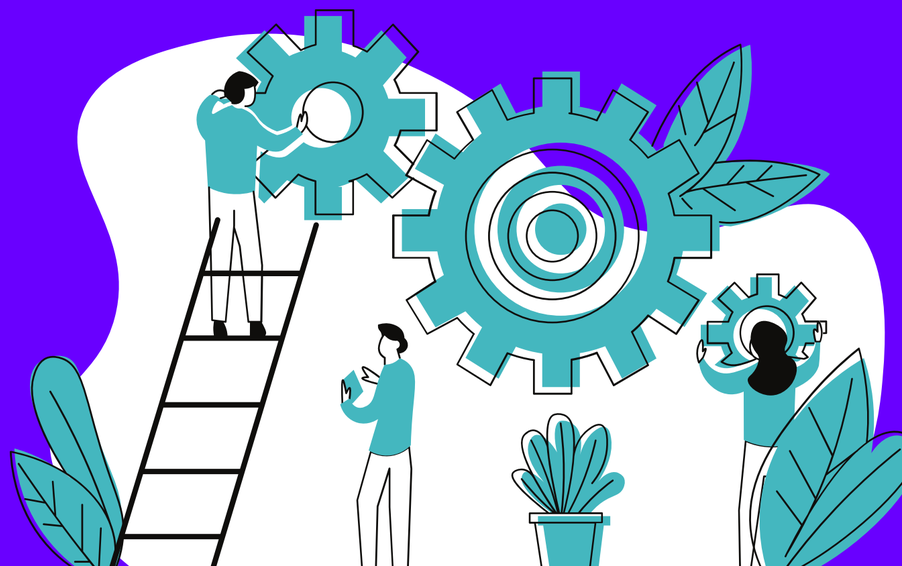
Step 5: Detect the face in the given image and encode it using face-recognition library.



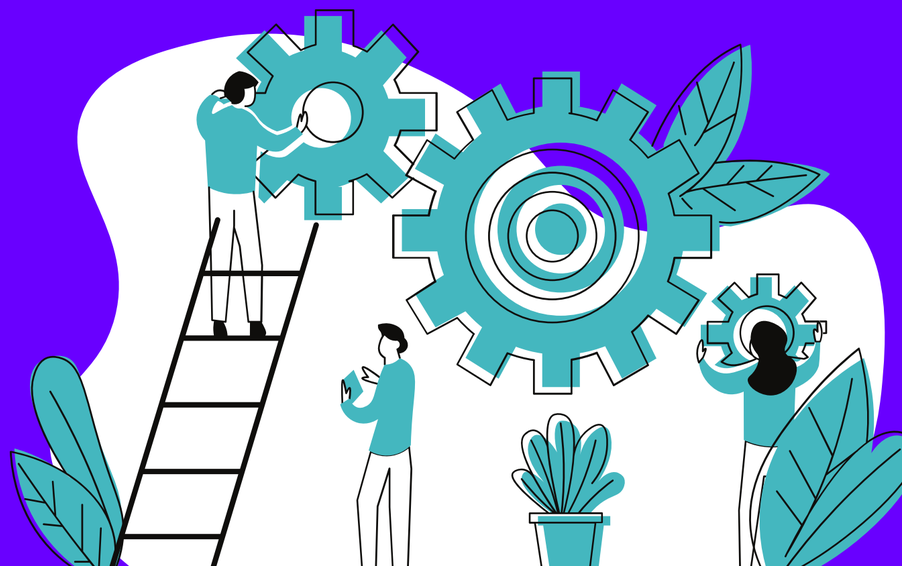
Step 6: Consider the labels of DBSCAN Algorithm as target variables and convert the unsupervised problem into supervised algorithm.



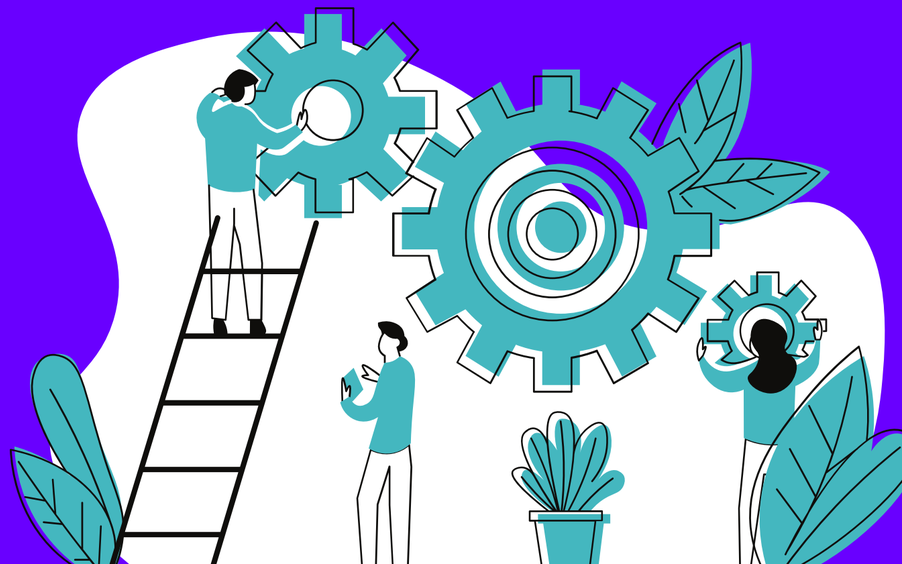
Step 7: Take the encodings of the faces as x_train and targets of DBSCAN as y_train.



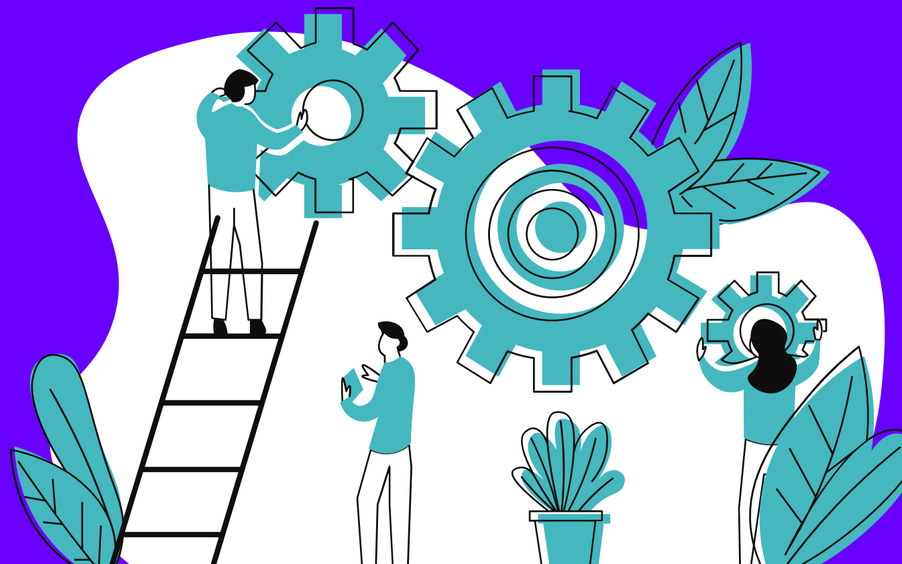
Step 8: Train the Support vector machines on the newly formed dataset.



Step 9: Predict the cluster of the input image face.



Step 10: Retrive all the faces in the predicted cluster.



Tech Stack

Front-end : HTML, CSS, Bootstrap, JavaScript
Back-end: Flask
Machine Learning Libraries: Numpy, Pandas, Sci-Kit Learn, Face-recognition, OpenCV

Thank you!