An Artificiality Intelligent Video Player using Face Detection and Recognition

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Problem Statement

1. To make an Artificial Intelligence Video Player which is controlled by facial expressions.
2. On closing eye video should be stopped and again on opening eye video should be started.
3. Video should be stopped if no face is detected for a time.
4. On no face detected program should be stopped after some time.

Challenge

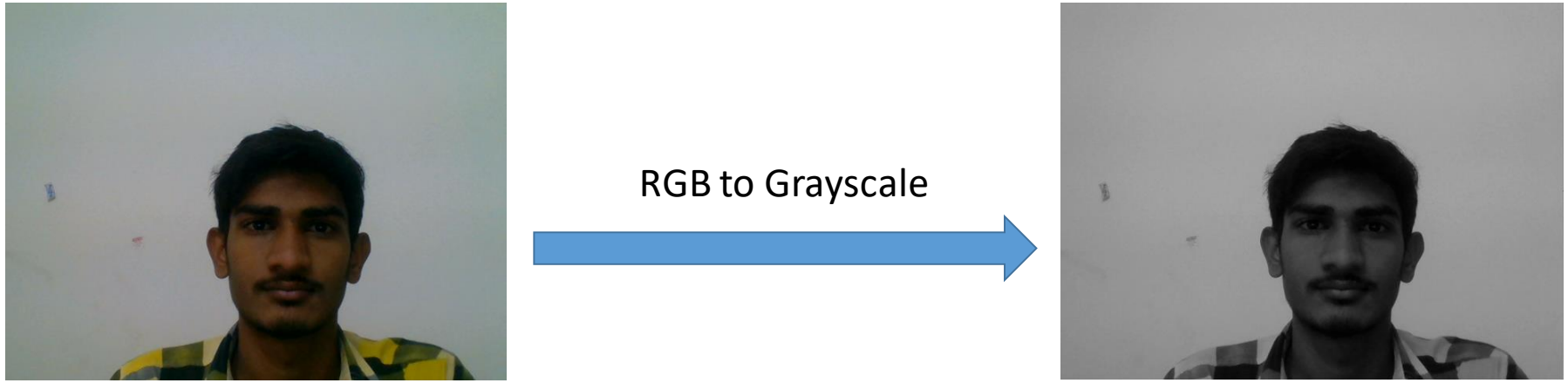
- We had no knowledge of Python and machine learning.
- We have to learn the basics of face detection
- Linking/Making video player for Python was difficult

Algorithms

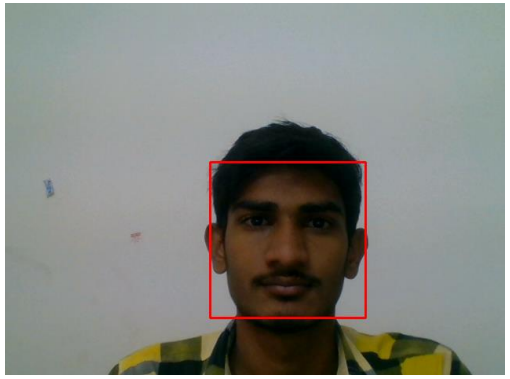
- We are using **Viola Jones** method for face detection.
- The algorithm has four stages:
    1. Haar Feature Selection
    2. Creating an Integral Image
    3. Adaboost Training
    4. Cascading Classifiers
- The goal is to distinguish faces from non-faces.
- For eye detection we are using same face detection technique but with different classifiers.

Process (1): Preprocessing

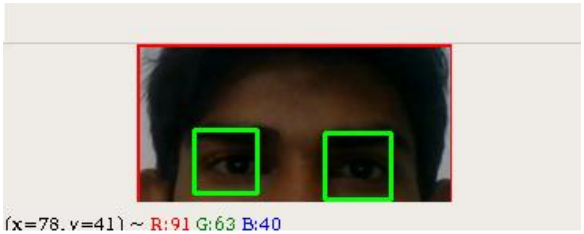
- Take an RGB image.
- Convert it to Grayscale image (RGB weight: 0.2989, 0.5870, 0.1140).



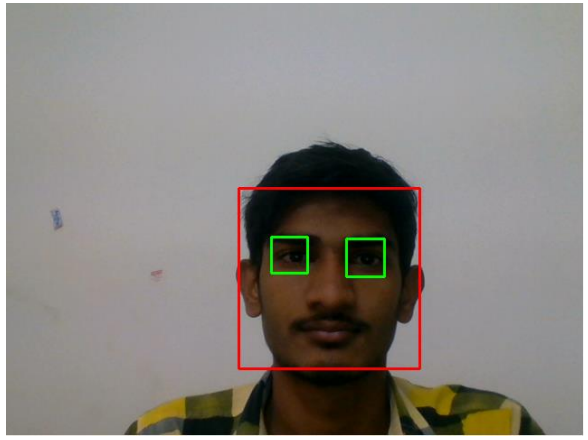
Process (2): Face and eyes detection



Find face(s) in given grayscale image and draw rectangle around it.

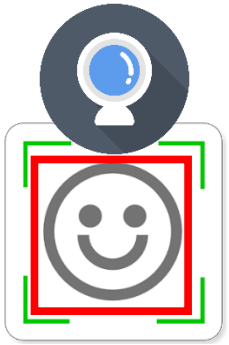


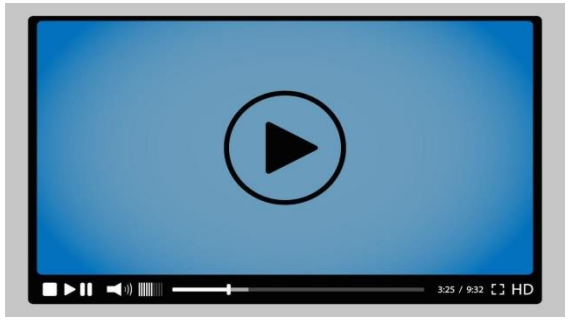
Next, detect eyes in given face.
The eye detector also detects eye below the nose.
So we are detecting eye in the upper half of face.



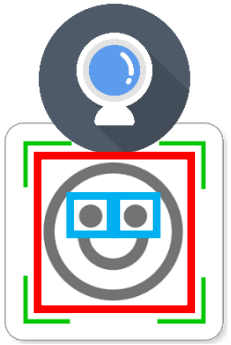
Detected face and eyes in an image

Process (3): Playback control

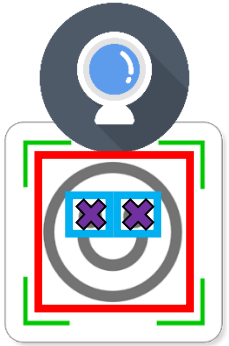


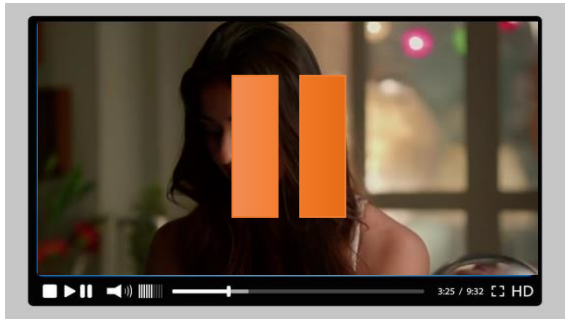


1. Detect face for every frame of video input by webcam

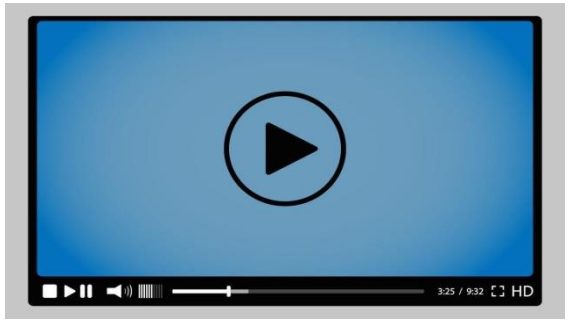


2. On successful detection of the face and eyes, play the video



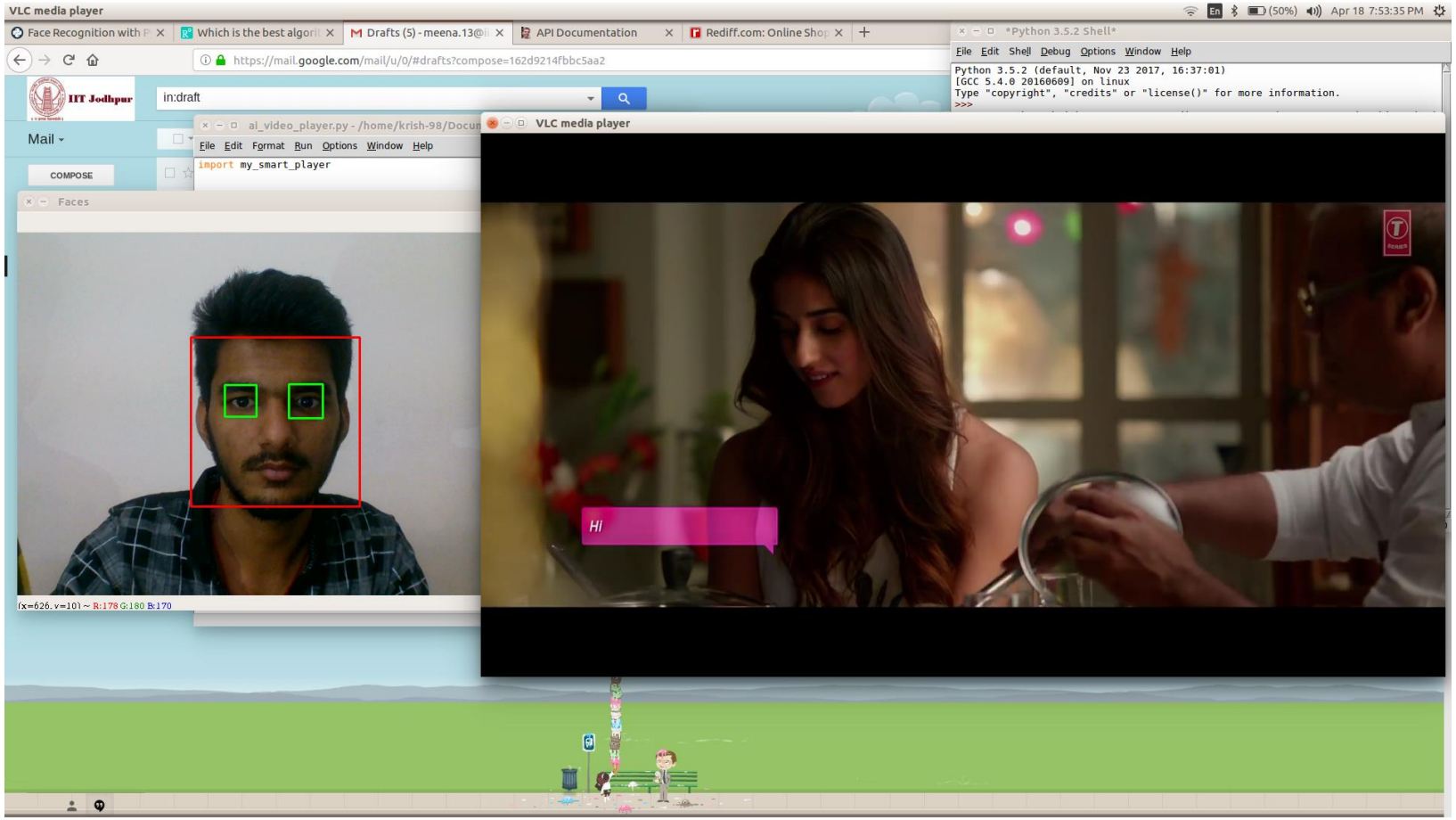


3. On closing of eyes, video pauses



4. When no face is detected, video player is closed

Result


VLC media player
Face Recognition with P
Which is the best algorit
Drafts (5) - meena.13@li
API Documentation
Rediff.com: Online Shop
https://mail.google.com/mail/u/0/#drafts?compose=162d9214fbbc5aa2
IIT Jodhpur
in:draft
Mail
COMPOSE
ai_video_player.py - /home/krish-98/Docun
File Edit Format Run Options Window Help
import my_smart_player
Faces
Python 3.5.2 Shell
File Edit Shell Debug Options Window Help
Python 3.5.2 (default, Nov 23 2017, 16:37:01)
[GCC 5.4.0 20160609] on linux
Type "copyright", "credits" or "license()" for more information.
>>>
VLC media player
Hi
Apr 18 7:53:35 PM

Thank You