INTELLIGENT MUSIC PLAYER

By Najiya Nazrin P N
S3 MCA
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Project Guide: Prof. Minu R Nath

Introduction

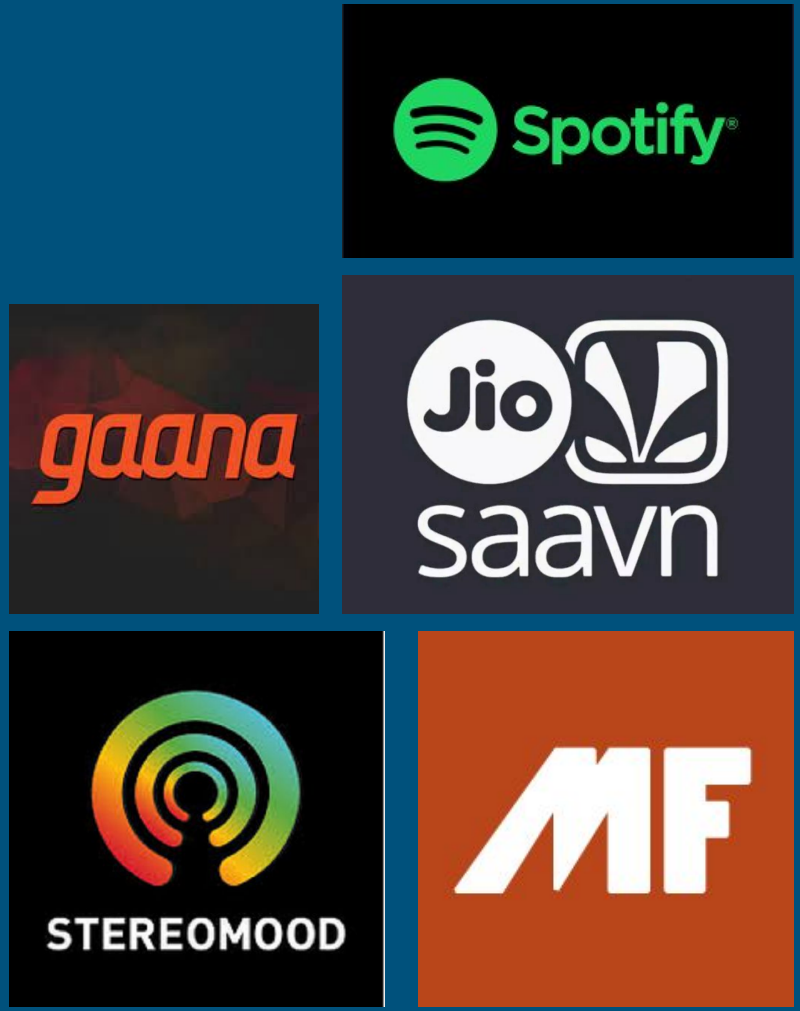
- List of songs that comply with the “emotion” derived from the input provided.
- Web application aimed at scanning and interpreting the data and accordingly playing music.
- Artificial intelligence technologies

Literature Review

- Emotion Based Music Player, Nikhil Zaware, Tejas Rajgure, Amey Bhadang, D. D. Sapkal
- Facial Expression Based Music Player, Prof. Jayshree Jha, Akshay Mangaonkar, Deep Mistry, Nipun Jambaulikar, Prathamesh Kolhatkar
- Real time emotions recognition and analysis based music player, Mahek Gupta, Shreya Singhal, Mohit Pandey, International Journal of Advance Research, Ideas and Innovations in Technology
- BEHAVIOURAL, EMOTIONAL STATE BASED MUSIC SELECTION & PLAYLIST GENERATING PLAYER, Jangid sheetal Kailash, Vaishnika Balmukund Patil, Neha Vinay Patil, Ajahar Ismailkha Pathan
- Facial Emotion Detection using CNN, Rohit Jadhav, Jayesh Bhuke, Nita Patil
- Facialemotiondetectionbriefreview, Illiana Azizan, Fatimah Khalid

Existing system

- Gaana, Saavn and Spotify
- Moodfuse
- Steromood

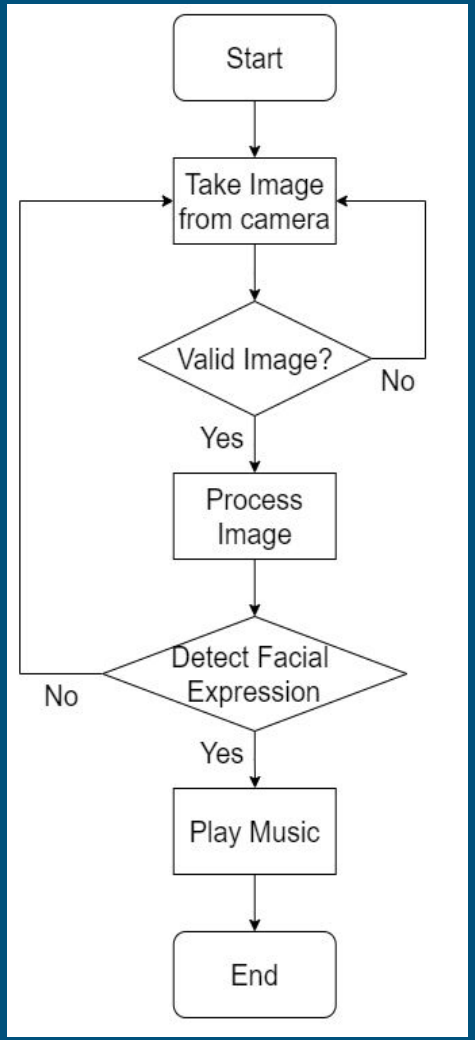


Proposed system

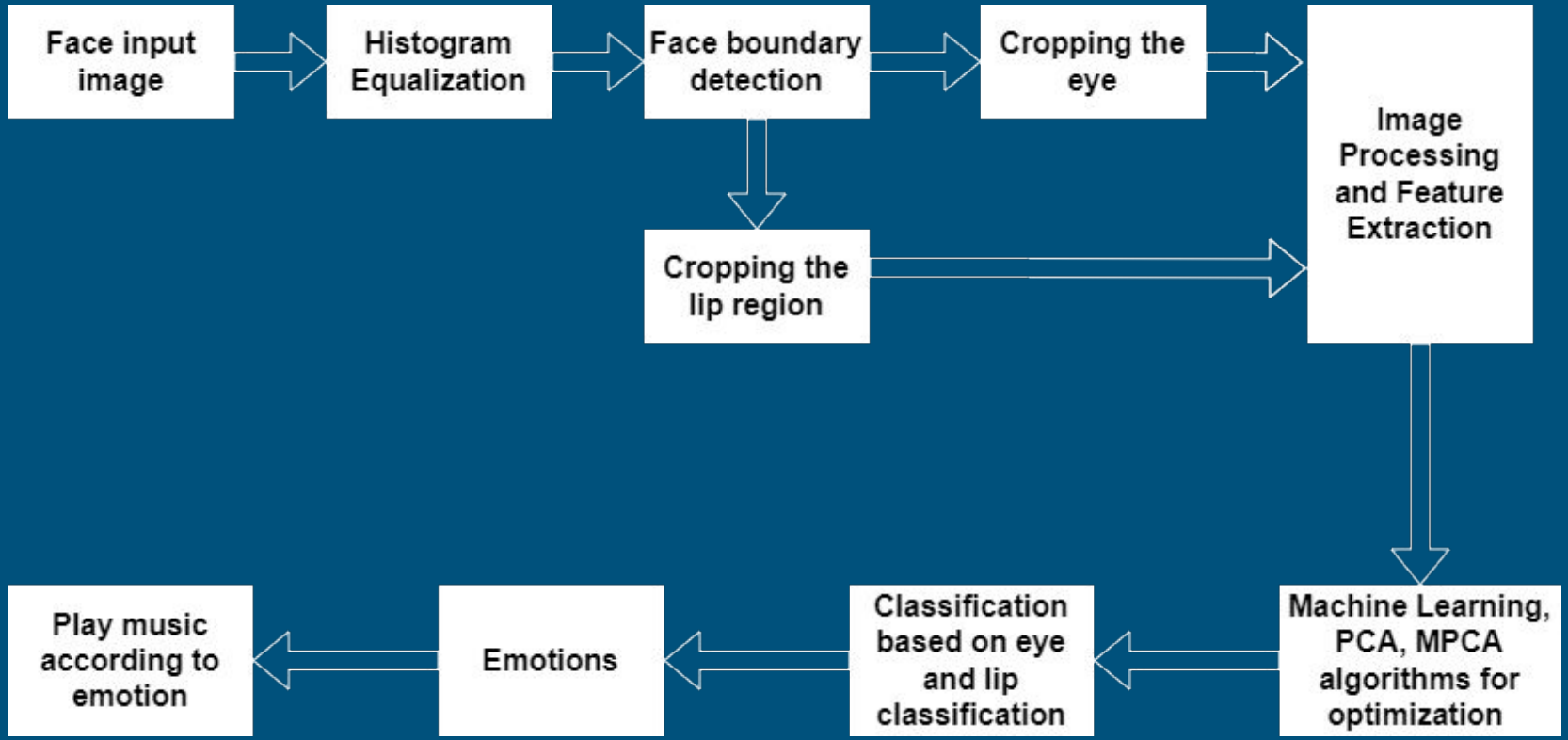
- The Application is developed by using Streamlit, OpenCV, Convolutional Neural Network.
- FER-2013 dataset
- Emotion is detected and plays the song.

Project Includes

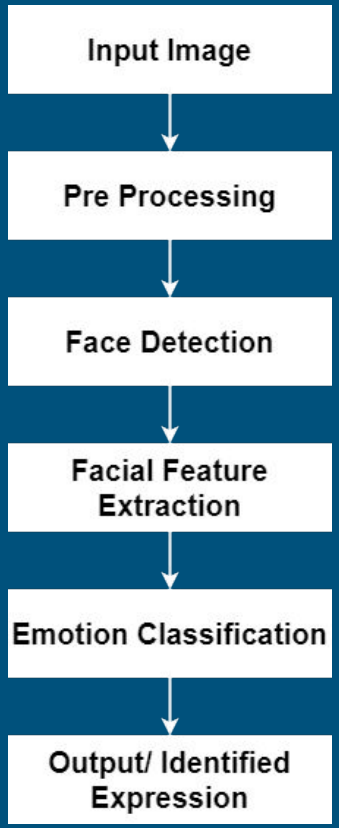
- Facial Emotion Recognition
- Plays the music



Block diagram for data collection



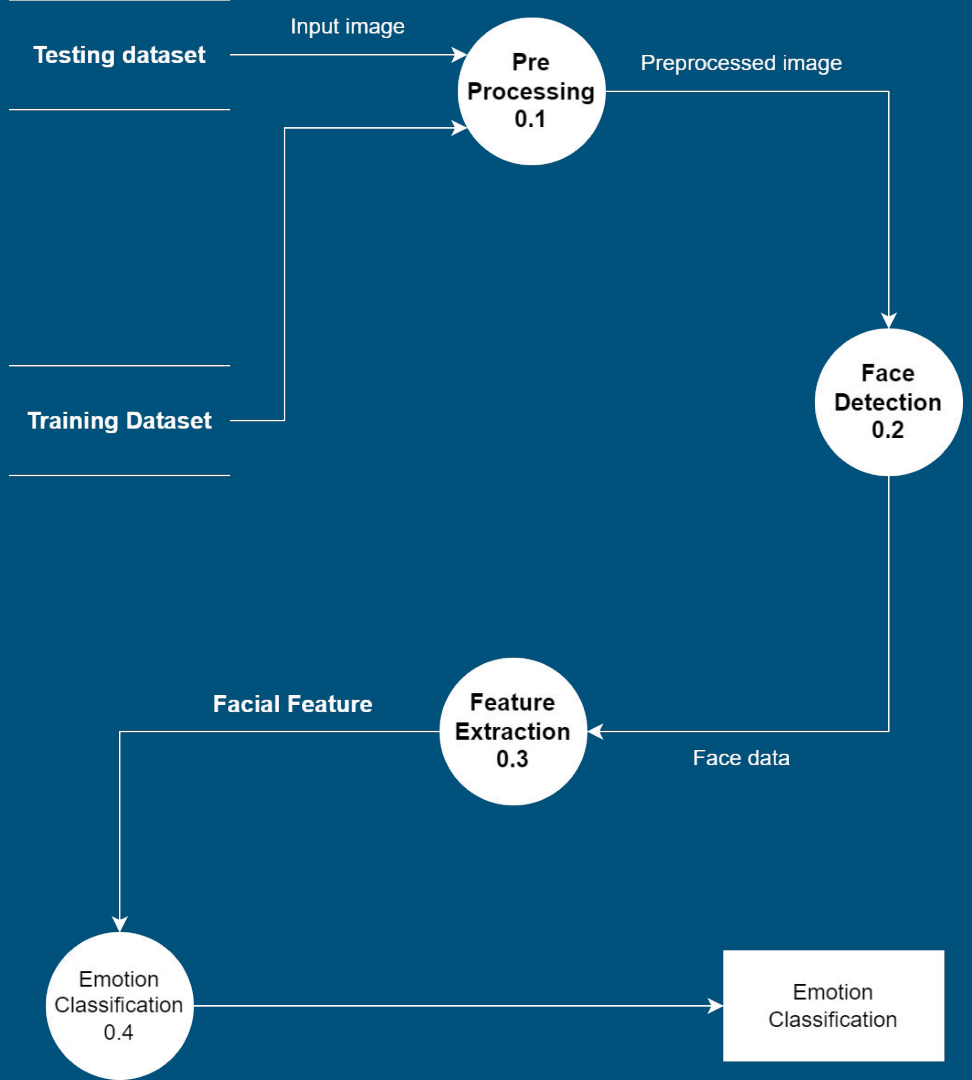
How Facial Emotion Recognition Works



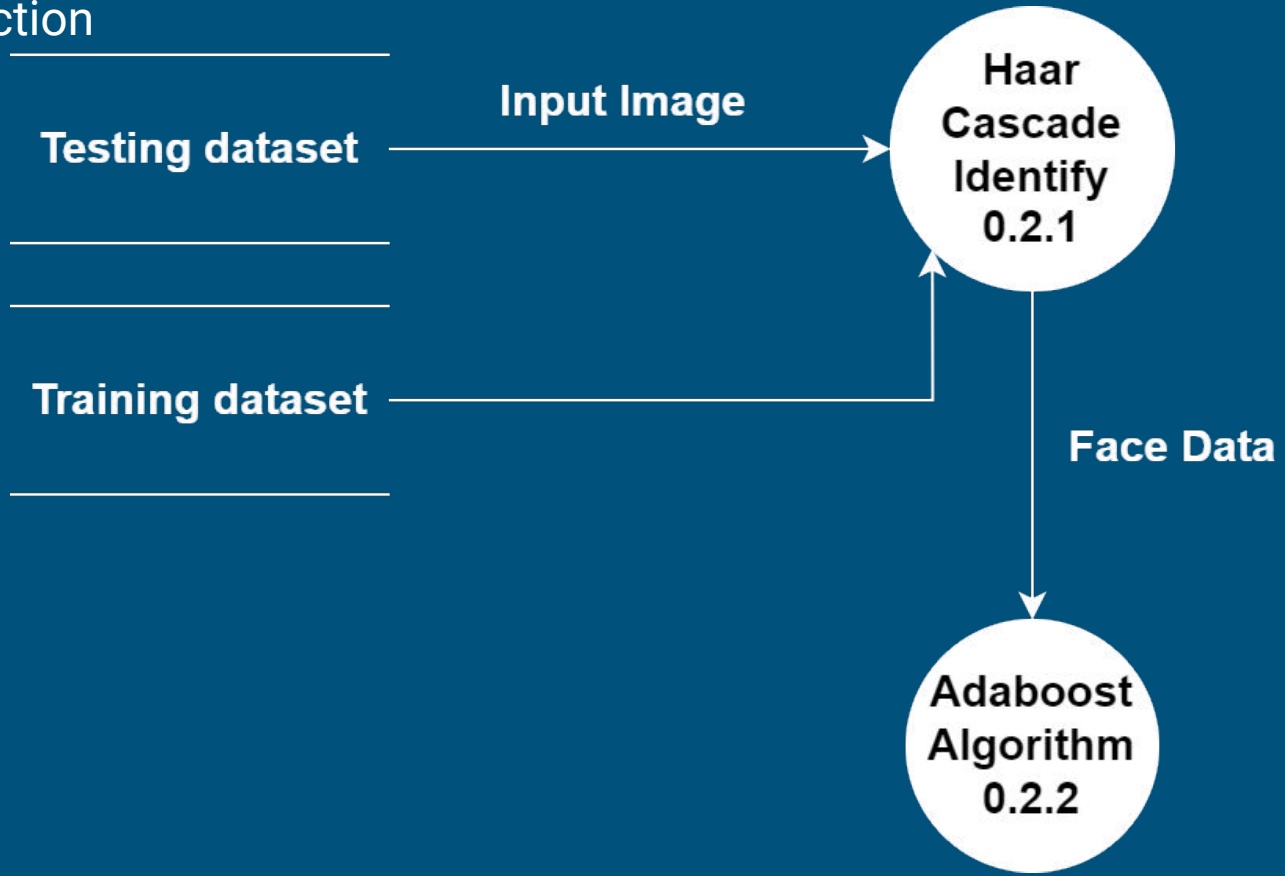
DFD of Emotion Recognition

Level 0

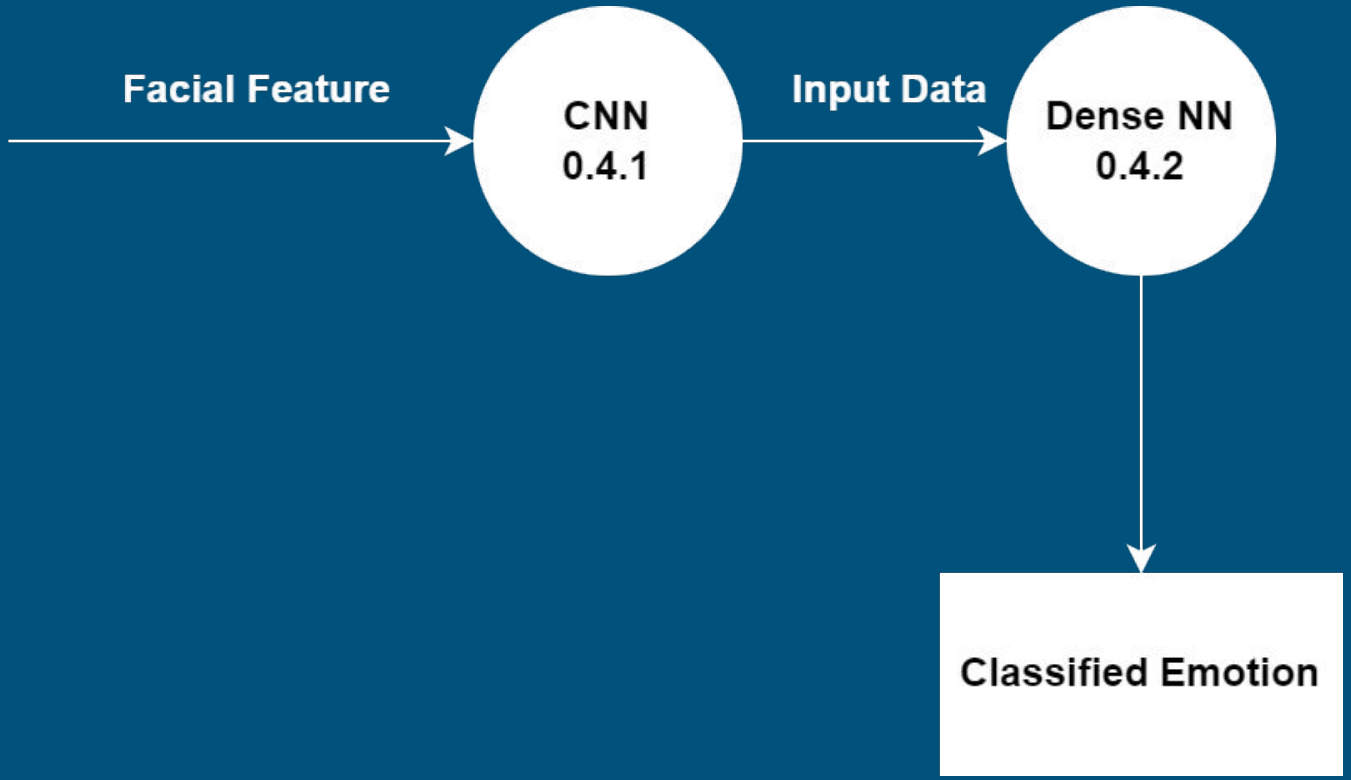
Level 1


Testing dataset
Input image
Pre Processing 0.1
Preprocessed image
Training Dataset
Face Detection 0.2
Facial Feature
Feature Extraction 0.3
Face data
Emotion Classification 0.4
Emotion Classification

Level 2 - Face Detection



Level 2 - Emotion Classification



HaarCascade

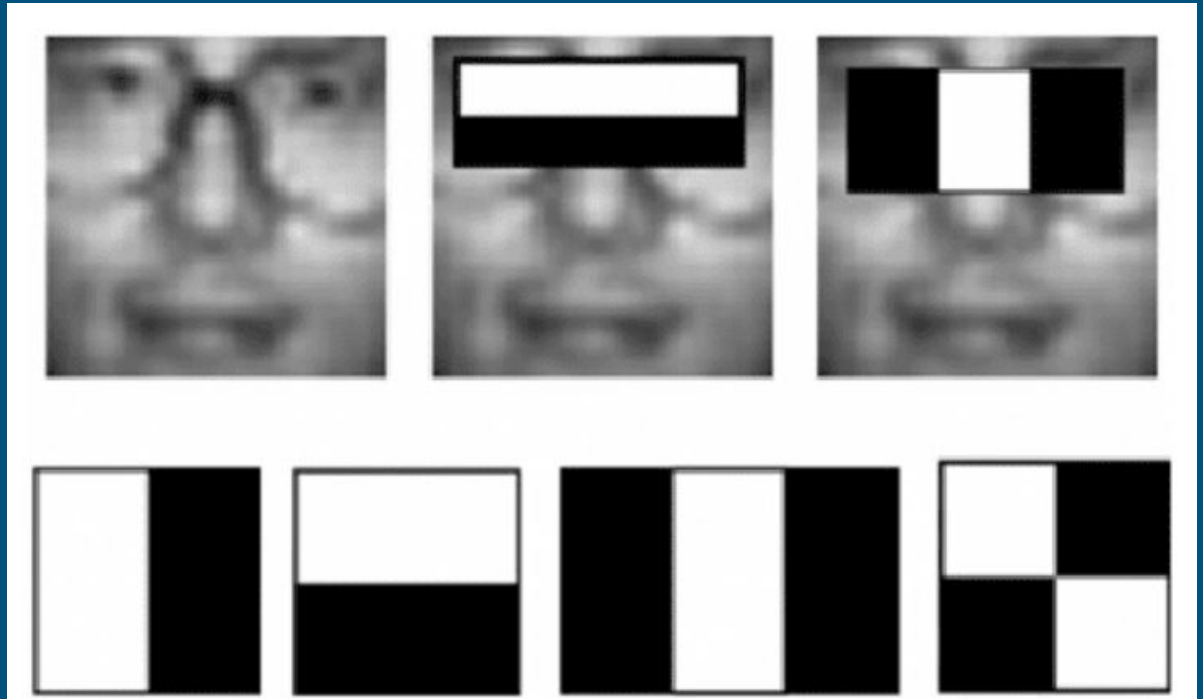
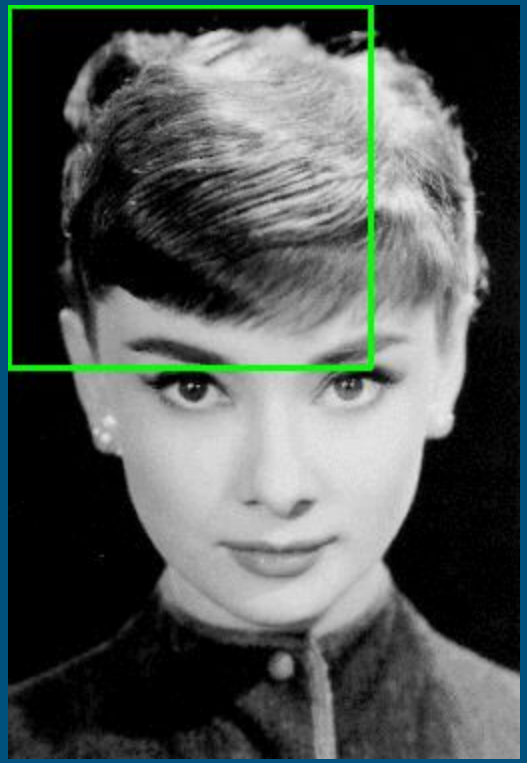
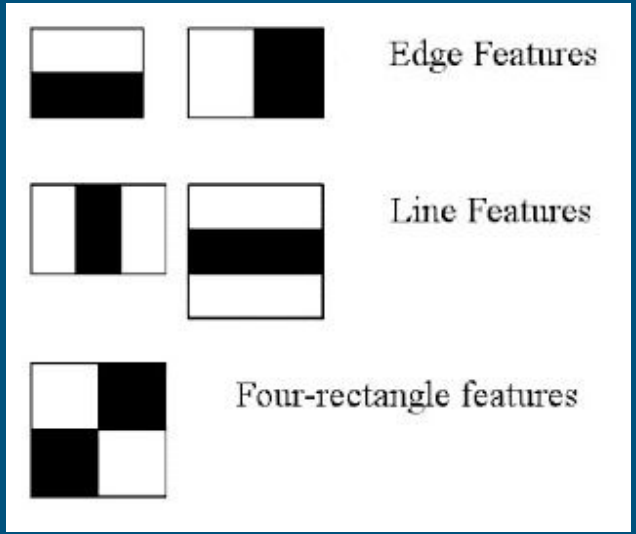


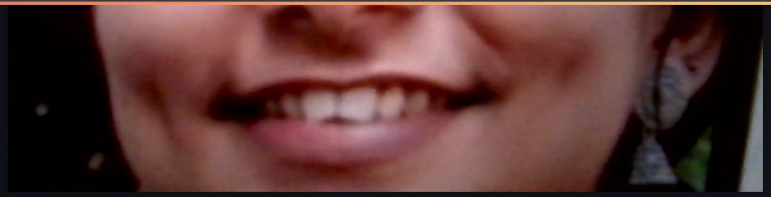
Figure 1: First introduced in 2001, Haar cascades are a class of object detection algorithms



- Sliding a fixed size window across image.
- At each of these phases, window stops, computes some features, and then classifies the region as
  - *Yes, this region does contain a face.*
  - *No, this region does not contain a face.*



- Five rectangular regions Corresponding difference of sums
- Features classify parts of a face
- **AdaBoost algorithm** to select which ones correspond to facial regions.



RUNNING... Stop

Capture

happy

0:53 / 2:13

Made with Streamlit

RUNNING... Stop

Capture

sad

0:16 / 2:28

Made with Streamlit

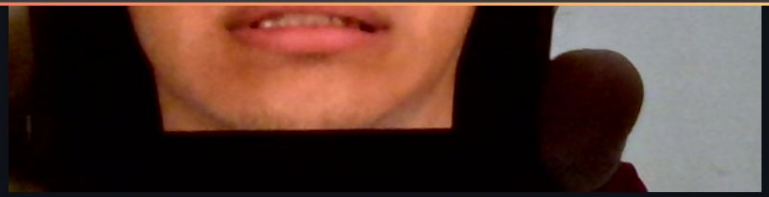
RUNNING... Stop

Capture

angry

0:15 / 2:02

RUNNING... Stop



Capture

fear

0:02 / 2:57

Made with Streamlit

Advantages

- Can be used for visually impaired person
- Efficient and effective
- No trouble of troublesome selection of songs.
- Ease of use
- Plays almost all songs as in other applications we may miss some of our favourite songs.

Disadvantages

- Lot of training data is required.
- Need regular monitoring.
- Camera dependent.
- Mixed mood detection is not provided.

Conclusion

- Developed an application for predicting the emotion of the user using Convolution neural networks.
- Plays songs according to the emotion of the user
- Applied it on various images and achieved an accuracy of above 80%.
- Would like to modify to a better version as an android application.