INTELLIGENT MUSIC PLAYER

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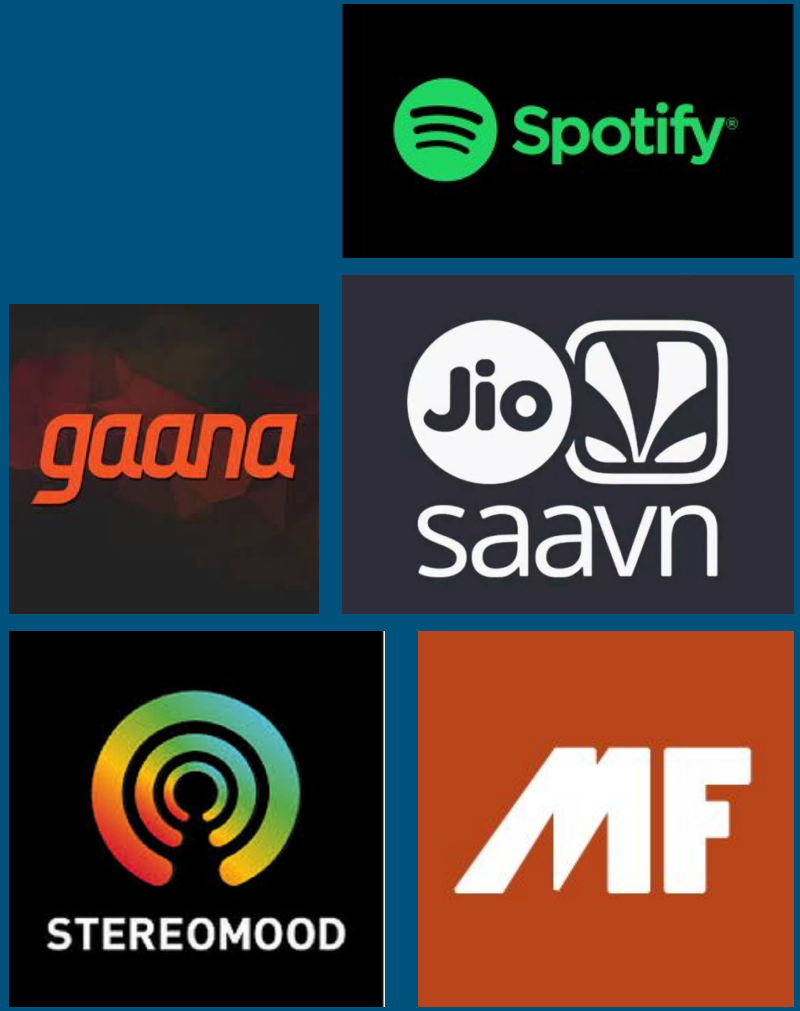
Introduction

- List of songs that comply with the “mood” derived from the input provided.
- No manually segregating or grouping songs into different lists and helps in generating an appropriate playlist based on an individual's emotional features.
- Android application aimed at scanning and interpreting the data and accordingly creating a playlist.
- Combination of artificial intelligence technologies and generalized music therapy approaches

Existing system

- Gaana, Saavn and Spotify
- Moodfuse
- Steromood

Not possible to be utilized by blind people.

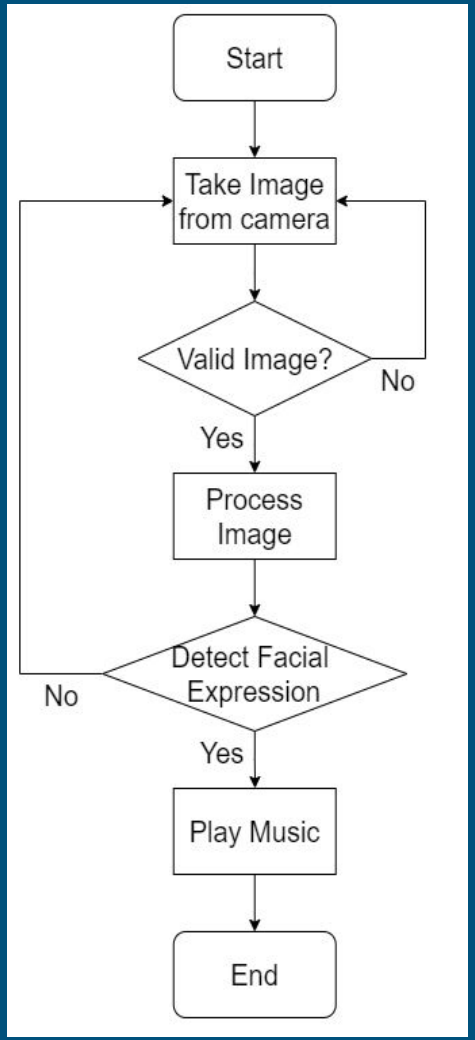


Proposed system

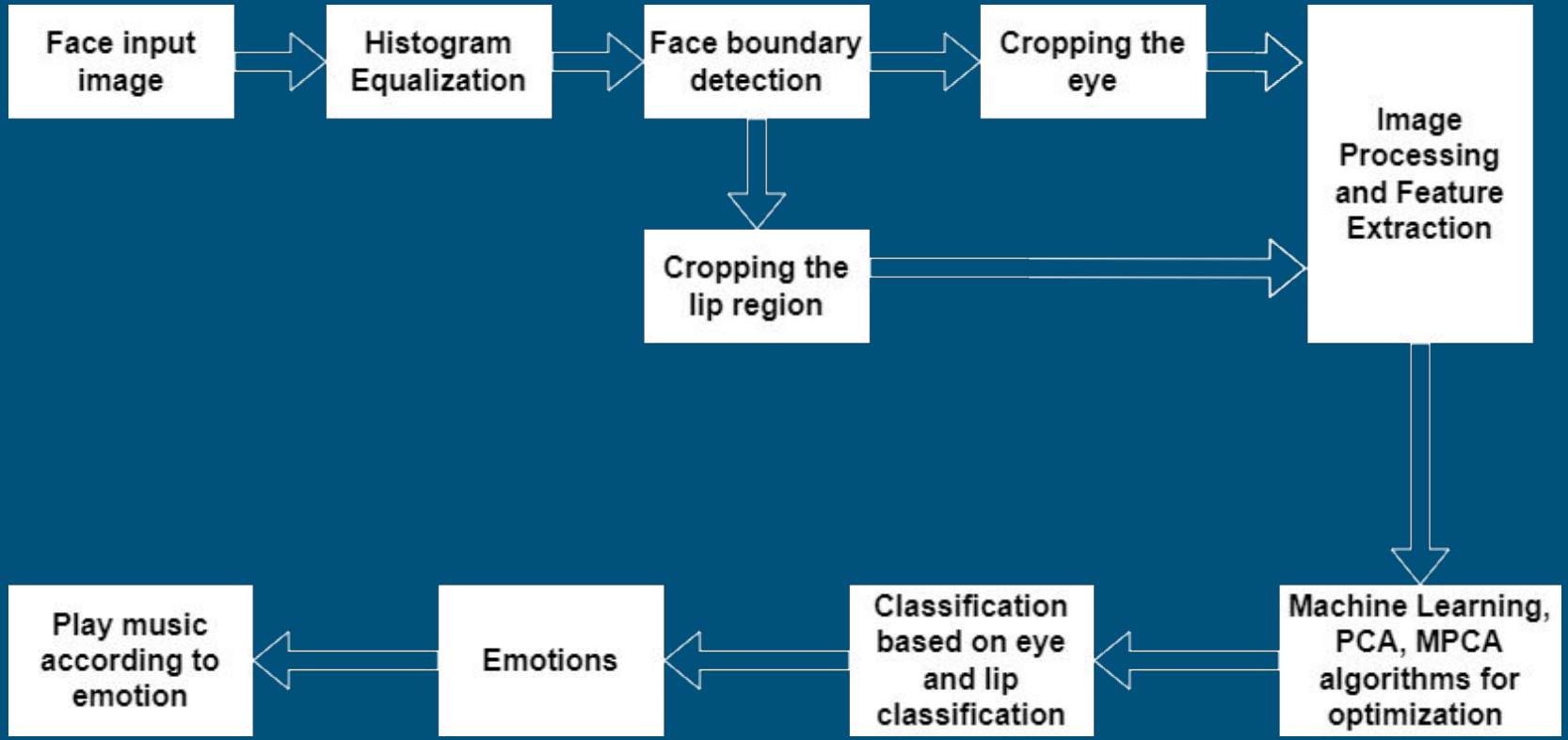
- The Application is accessible by any one who creates a Profile on the system [Tensorflow, OpenCV, Firebase, Convolutional Neural Network].
- The Application is designed to meet the following needs of the users as described below;
    - Creating an account or signing up, signing in
    - Adding, removing, updating songs
    - Personalized playlist & Recommendations
    - Capturing Emotions using a camera.

Project Includes

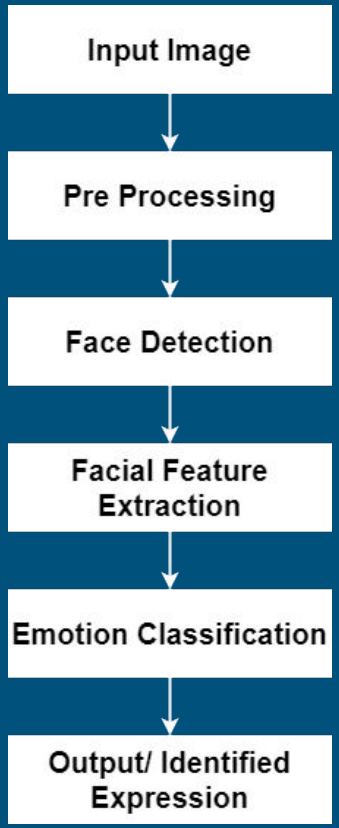
- Facial Emotion Recognition
- Music playlist classification
- Plays the music



Block diagram for data collection



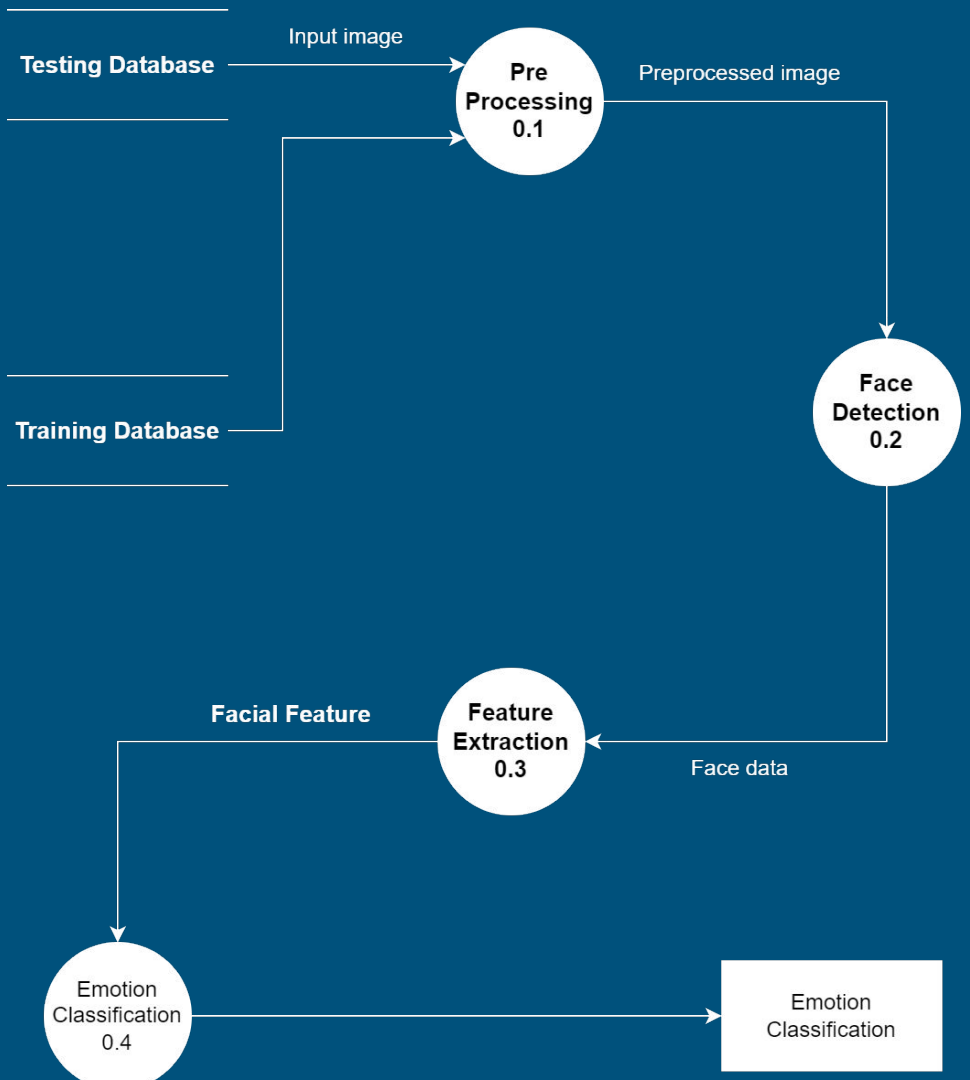
How Facial Emotion Recognition Works



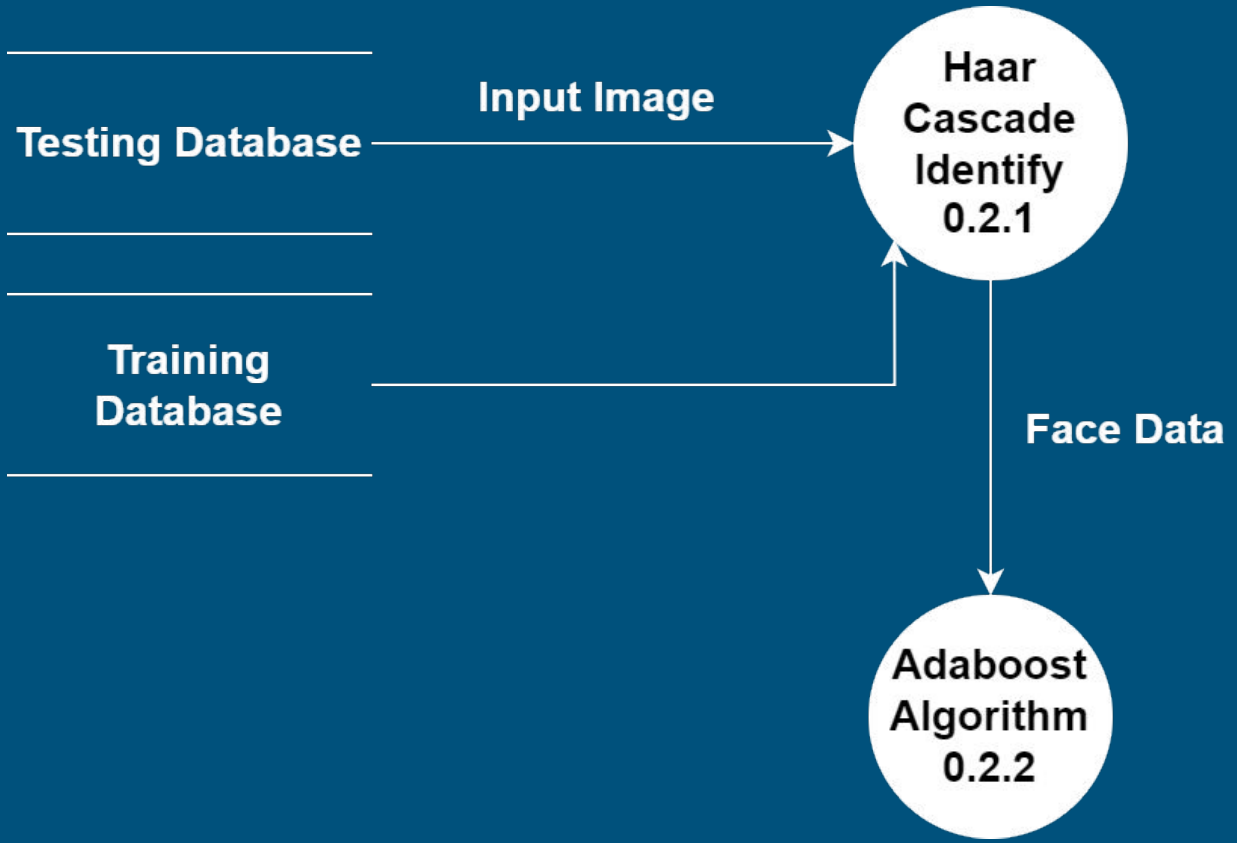
DFD of Emotion Recognition

Level 0

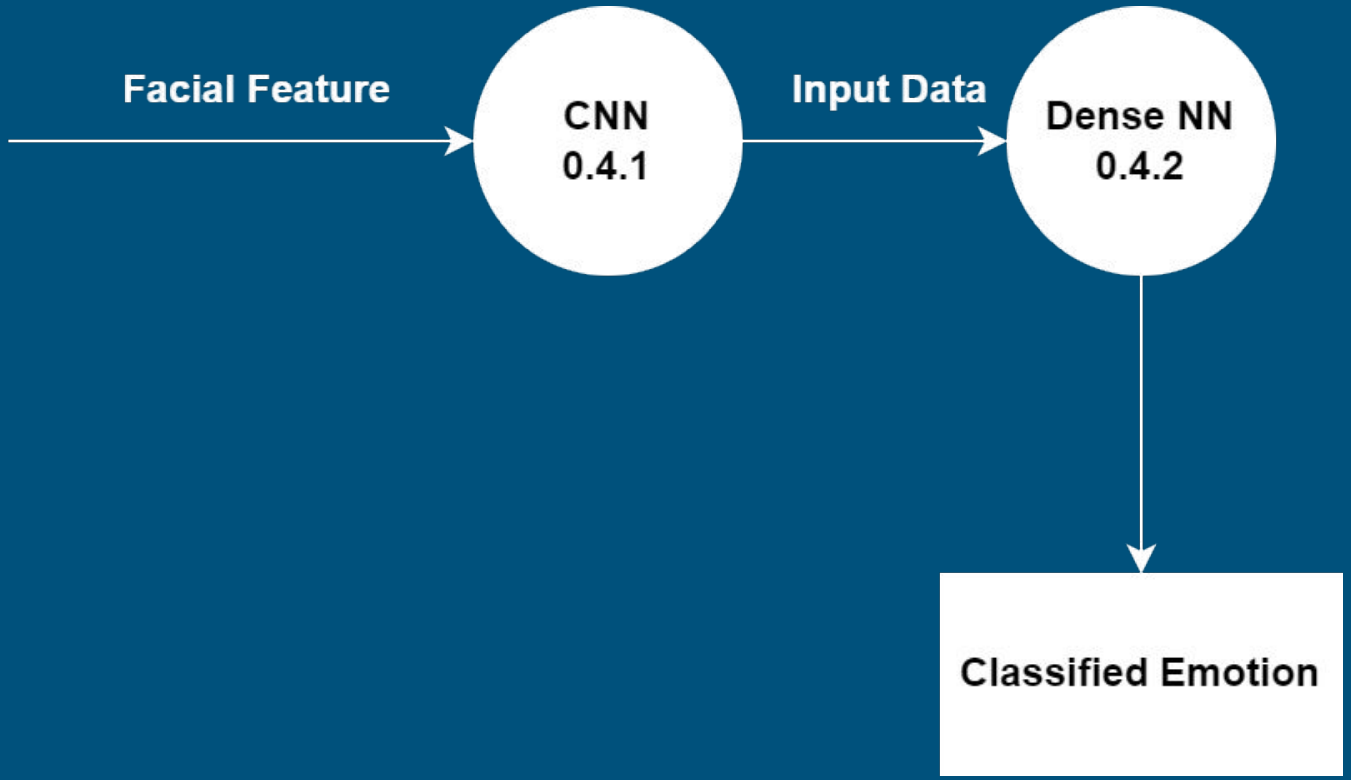
Level 1


Testing Database
Input image
Pre Processing 0.1
Preprocessed image
Training Database
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



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
- Facialemotiodetectionbriefreview, Illiana Azizan, Fatimah Khalid

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

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

Algorithm(Facial Emotion Recognition)

Step 1 :Collection of a data set of images. (Grayscale images of faces each labeled with one of the 7 emotion classes: anger, disgust, fear, happiness, sadness, surprise, and neutral.

Step 2 :Pre-processing of images.

Step 3 :Detection of a face from each image.

Step 4 :The cropped face is converted into grayscale images.

Step 5 : The pipeline ensures every image can be fed into the input layer as a numpy array.

Step 6 :The numpy array gets passed into the Convolution2D layer.

Algorithm(Facial Emotion Recognition)

Step 7 : Convolution generates feature maps.

Step 8 :Pooling method called MaxPooling2D that uses (2, 2) windows across the feature map only keeping the maximum pixel value.

Step 9 :During training, Neural network Forward propagation and Backward propagation performed on the pixel values.

Step 10 :The Softmax function presents itself as a probability for each emotion class. The model is able to show the detail probability composition of the emotions in the face.