A Mini Project Report on

"MOOD BASED MUSIC RECOMMENDATION SYSTEM"

Submitted in partial fulfilment of the requirement for Degree in Bachelor of Engineering (Information Technology)

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CERTIFICATE

This is to certify that the Mini Project entitled

“MOOD BASED MUSIC RECOMMENDATION SYSTEM”

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In partial fulfilment of the degree of **B.E**. in **Information Technology** for term work of theSemester VI Mini Project – 2 B is approved.

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External Examiner **Internal Examiner**

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Internal Guide

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Head of the Department **Principal**

Date: - **College Seal**

Declaration

I declare that this written submission represents my ideas in my own words and where others' ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

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ABSTRACT

A mood-based music recommendation system is a type of music recommendation system that uses data on listeners emotional state to recommend music that aligns with their mood. This can be accomplished through a technique of machine learning algorithm to predict the listener's mood based on factor of activity.

The system will recognize the mood of the person and will recommend the song. Now the face will be captured by using web camera and using machine learning algorithms.

This project aims to improve the user experience by providing more personalized and relevant music recommendations that align with the listener's current mood. Users will have no pain to make a decision on what to listen to, the system will recommend the music.

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CHAPTER 1
INTRODUCTION

INTRODUCTION

1.1 BACKGROUND

Human emotions can be roughly divided into six categories: fear, disgust, anger, surprise, sadness, and gladness. These feelings are quite understated. Emotions basically depict how we feel responding to certain events or situations. They are intense feelings directed towards someone or something. Some people are more emotionally charged than others, yet people constantly express their emotions. Even a minor difference can cause a change in expression, and since facial muscle contortions are quite minimal, identifying these variances can be difficult. It is possible to narrow the emphasis to just the parts of the face that exhibit the most emotions, such as the area surrounding the lips and eyes, but it is still crucial to understand how these gestures are identified and classified. These tasks have been tackled using machine learning and neural networks, with positive outcomes. Due to their success in pattern identification and classification, machine learning algorithms can also be used to identify moods. With the development of digital music technology, the development of a personalized music recommendation system which recommends music for users is essential. It is a big challenge to provide recommendations from the large data available on the internet. Our project aims to create a music recommendation system/music player which will detect the users face, identify the current mood and then recommend a song based on the detected mood.

1.2 MOTIVATION

There are cases when humans get depressed due to high workload, failure in their job or aim, or else due to family issues due to which their mental state begin to degrade. Thus, they hop on to music to mitigate their depression. But people are so busy or tired that they sometimes get confused to which song to listen. So, here comes the mood-based music recommendation system which recommends music based on the mood of the person.

The traditional approach of recommending music based on genre, popularity, or previous listening history may not always align with user's current mood or emotional state. By recommending music based on mood, the system aims to better understand the user's emotional needs and provide music that they are more likely enjoy in that moment. Additionally, the use of mood-based recommendation can also help users discover new music that they may not have otherwise found, as they may not have actively searched for music in a specific mood or genre.

1.3 OBJECTIVE

The system uses algorithm to analyze the user's mood and suggest music that matches that mood, providing, a personalized listening experience.

- To suggest music based on their current mood or desired mood.
- To enhance user's music listening experience.

1.4 PROBLEM DEFINITION

The problem statement for the mood-based music recommendation system is to design and develop a software application that can accurately classify the user's mood and recommend songs that match the user's mood in real-time. The system must be able to provide a personalized music experience for users based on their current mood, taking into account the most important factor that contribute to the user's mood which is his/her facial expression. The system needs to collect data about the user's mood in real-time. The accuracy of the mood classification and the quality of the music recommendations will be critical to the success of the system. The system then recommends songs based on the user's mood.

The ultimate goal of this project is to create a mood-based music recommendation system that provides an enjoyable and personalized music experience for users, while also addressing the challenges of accurately classifying mood, providing diverse music recommendations, and incorporating user feedback.

CHAPTER 2

LITERATURE SURVEY AND ANALYSIS

LITERATURE SURVEY AND ANALYSIS

For the development of the project some papers, systems and technologies are referred.

2.1 RELATED WORK

Machine Learning Algorithm: A Review [1]

Machine learning is used to teach machines how to handle the data more efficiently. Sometimes after viewing the data, we cannot interpret the pattern or extract information from the data. In that case, we apply machine learning. With the abundance of datasets available, the demand for machine learning is in rise. Many industries from medicine to military apply machine learning to extract relevant information. The purpose of machine learning is to learn from the data. Many studies have been done on how to make machines learn by themselves. Many mathematicians and programmers apply several approaches to find the solution of this problem.

A Quick Review of Machine Learning Algorithms [2]

The above research paper describes the various machine learning algorithms. There is various algorithm such as supervised, unsupervised and semi-supervised machine algorithm. The paper describes advantages and disadvantages of respective algorithms. The paper also discussed about machine learning algorithm solving techniques such as clustering, classifications and regression. The authors of the paper also discussed about the examples of the respective algorithms.

Implementation of Emotion based Music Recommendation System using SVM Algorithm [3]

The system uses SVM (Support Vector Machine) algorithm for detecting the emotion of the user. The SVM algorithm compares the emotion detected with the dataset incorporated. The paper throws light on disadvantages of another algorithm such as DNN (Deep Neural Network). The existing PMRS algorithms are limited to recommending songs based on latent music features presented in the user's music listening history.

Emotion Based Music Recommendation System [4]

Human emotion plays a vital role in recent times. Emotion is based on human feelings which can be both expressed or not. Emotion expresses the human's individual behavior which can be in different forms. Extraction of the emotion states humans individual state of behavior. The objective of this project is to extract feature from human face and detect emotion. And to play music according to the emotion detected. However, many existing techniques use previous data to suggest music and the other algorithms used are normally slow, usually they are less accurate, and it even require additional hardware like EEG or physiological sensors. Facial expressions are captured a local capturing device or an inbuilt camera. Here we use algorithm for the recognition of the feature from the captured image. Thus, the proposed system is based on the facial expression captured and music will be played automatically.

Mood Based Music Recommendation system: VIBY [5]

Psychological research has proven that music relieves stress, elevates mood, and is responsible for the release of “feel-good” chemicals like oxytocin, serotonin, and dopamine. It comes as no surprise that music has been a popular tool in rehabilitation centers and therapy for various disorders, thus with the interminably rising numbers of people facing mental health-related issues across the globe, addressing mental health concerns is more crucial than ever. Despite the existing music recommendation systems, there is a dearth of holistically curated algorithms that take care of the needs of users. Few platforms provide mood-based music recommendation services and even fewer achieve this by combining the therapeutic effects that music appropriate to the situation has to offer. Given that an undeniable majority of people turn to music on a regular basis and that music has been proven to increase cognition, memory and sleep quality while reducing anxiety, pain, and blood pressure, it is the need of the hour to fashion a product that extracts all the benefits of music in the most extensive and deployable method possible. Our project aims to ameliorate our users' mental state by building a comprehensive mood-based music recommendation system called "Viby". Our application employs Machine Learning and NLP algorithms to make music therapy accessible by identifying the user’s emotions.

Dimensionality Reduction -A Study [6]

The paper depicts about the dimensionality reduction algorithm. The Dimensionality reduction algorithm is used n recommendation system to predict the data required. It is a type of data mining algorithm, it has various types forward elimination, backward elimination, low variance filter, missing values etc. the one drawback of this algorithm is that while reducing the number of dimensions it can miss the important dimension which may affect the system.

By thorough research and analysis, the best algorithm for recommendation system is CNN Algorithm.

SR NO.	REFERRED PAPER NAME	FEATURES	LIMITATIONS
1.	Machine Learning Algorithm: A Review [1]	Describes about the machine learning algorithm applications and overall summary about the algorithms.	The paper fails to describe about the various algorithm such as CNN, Haarcascade,etc
2.	A Quick Review of Machine Learning Algorithms [2]	Depicts the various types of machine learning algorithm. Furthermore, providing brief description about supervised, semi-supervised and unsupervised machine learning algorithm	The paper describes the most frequently used algorithm but doesn't explain the algorithm that are rarely used but are equally important.
3.	Implementation of Emotion based Music Recommendation System using SVM Algorithm [3]	Provides knowledge about SVM algorithm and along with that it highlights the disadvantages of DNN, LSTM and GRU algorithm.	The paper discusses about its limitation of not taking users preferences into the consideration.
4.	Emotion Based Music Recommendation System [4]	Describes about how the system effectively detects the emotion of the human using physiological sensors and then recommends the music.	The limitation of this system is if hardware components don't work then the whole system is down.
5.	Mood Based Music Recommendation system [5]	Gives idea and knowledge about how NLP algorithm works and provides use and advantages of the NLP algorithm.	The paper describes that using various algorithms also the accuracy of system varies between 60% to 75%.
6.	Dimensionality Reduction [6]	Provides the information about the algorithm and also highlights the advantages and disadvantages of the algorithm.	The paper doesn't explain dimensionality reduction with classification, regression and clustering

Table 2.1: Review of Related Work

2.2 EXISTING SYSTEM:

Following are the papers referred for the existing system.

MOOD DETECTOR- ON MACHINE LEARNING TO IDENTIFY THE MOODS AND EMOTIONS [7]

The mood detector system designed using machine learning detects mood based on three parameters Skin electro conductivity, temperature and pulse. The system is hardware and software based and uses sensors (Temperature Sensor, GRS Sensor and Heartbeat Sensor) to detect the mood. The system uses web application as GUI to display the mood of a person. The person will keep his hand on the working model on three sensors and the sensors as programmed will display the output on web application. The output generated is 100 % validated through use of machine learning algorithm.

MUSIC RECOMMENDATION BASED ON COLOR [8]

The system recommends music based on color, depicts the association of color, music and emotion. The system has GUI for color selection via slider and color wheel. For selection of color libraries are used which gives information about color hue, saturation and value (HSV color model). There are two GUI for system one is color wheel that is based only on Hue and Saturation and second GUI is based on color slider which is based on HSV model. The system has low accuracy of 51.11%.

EMOTION BASED MUSIC RECOMMENDATION SYSTEM USING WEARABLE PHYSIOLOGICAL SENSOR: [9]

The emotion-based music recommendation using physiological sensors is system that is integrated with Galvanic Skin Response (GSR) and photo plethysmography physiological sensor (PPG). The emotion is feed to collaborative recommendation system as supplementary device. The system uses decision tree, support vector machine and k-nearest neighbor's algorithm. The paper consists of visualized result and accuracy about the system. The accuracy rate of 71.53% for arousal prediction and 71.04% for valence prediction by using only GSR signal. By combining the GSR and PPG signal we get accuracy of 72.06% and 71.05% for arousal and valence predictions respectively. The paper claims that there is slight improvement for emotion recognition accuracy for the proposed framework.

MOOD BASED MUSIC RECOMMEND SYSTEM: VIBY [5]

Despite the existing music recommendation systems, there is a dearth of holistically curated algorithms that take care of the needs of users. Few platforms provide mood-based music recommendation services and even fewer achieve this by combining the therapeutic effects that music appropriate to the situation has to offer. The project aims to ameliorate our users' mental state by building a comprehensive mood-based music recommendation system called "Viby". The application employs Machine Learning and NLP algorithms to make music therapy accessible by identifying the user's emotions.

MUSIC RECOMMENDATION SYSTEM USING SPEECH BASED EMOTION RECOGNITION SYSTEM [10]

The system uses user speech as input and based on that it recommends music. As, there is increasing demand in for music streaming platform there is need of such system which helps user choose their music accurately. Using K-means clustering the labels are generated. Using Light Gradient Boosted Machine Classifier with a 5-fold cross validation accuracy of 99.17% forms the recommender model. The overall model system can provide song recommendations based on the detected emotion accurately.

SR. NO	EXISTING SYSTEM	FEATURES AVAILABLE	LIMITATIONS
1.	Mood Detector – ON Machine Learning to Identify mood and emotions [7]	Uses the sensors to detect the mood.	Didn't focused on efficiency and speed of problem solving. Costly due to hardware components
2.	Music Recommendation Based on Color [8]	It recommends based on color or HSV model, Two GUI's: (a) color slider (b) color wheel	Low Accuracy of 51.11% for overall system.
3.	Emotion Base Music Recommendation System using Wearable Physiological Sensor [9]	Good accuracy while detecting the emotion.	High cost. Failure in working of sensor.
4.	Mood based music recommendation system: VIBY [5]	Used brainwave to know about user satisfaction.	Accuracy is less approximately 60%.
5.	Music recommendation system based on speech recognition [10]	The recommender accuracy is pretty high about 80%	The accuracy of emotion recognition via speech is very less.

Table 2.2: Review of Existing System

CHAPTER 3
SYSTEM DESIGN

SYSTEM DESIGN

3.1 FLOW CHART

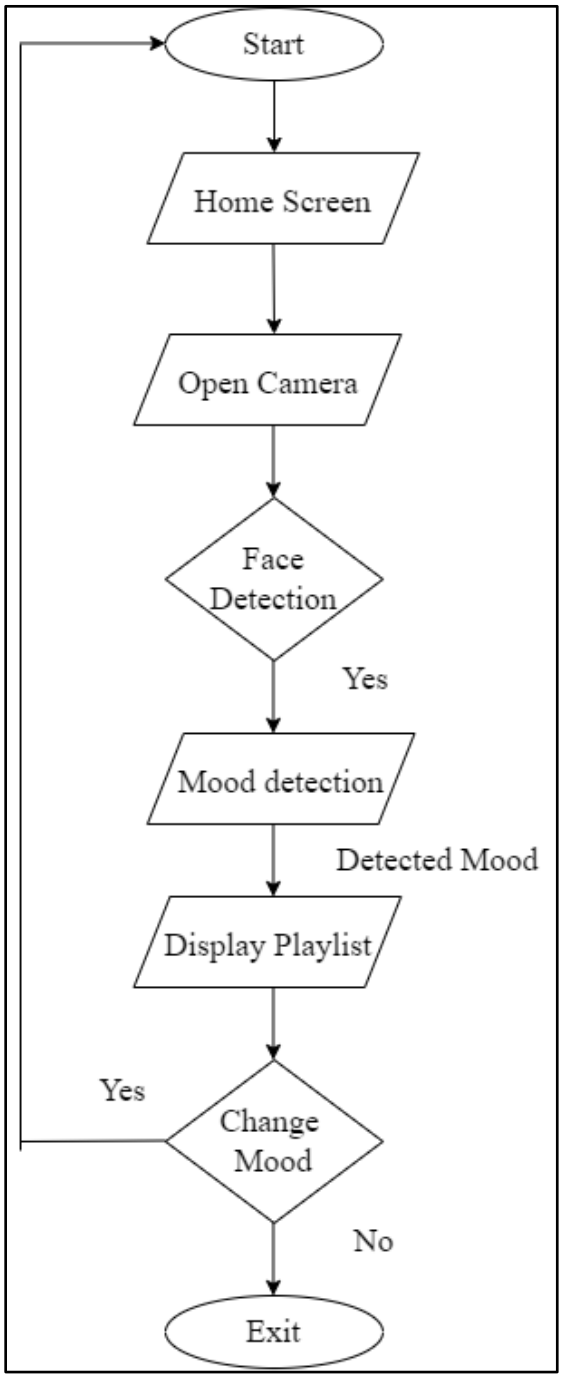

Figure 3.1: - Flow Chart of the system

3.2 ARCHITECTURE DIAGRAM

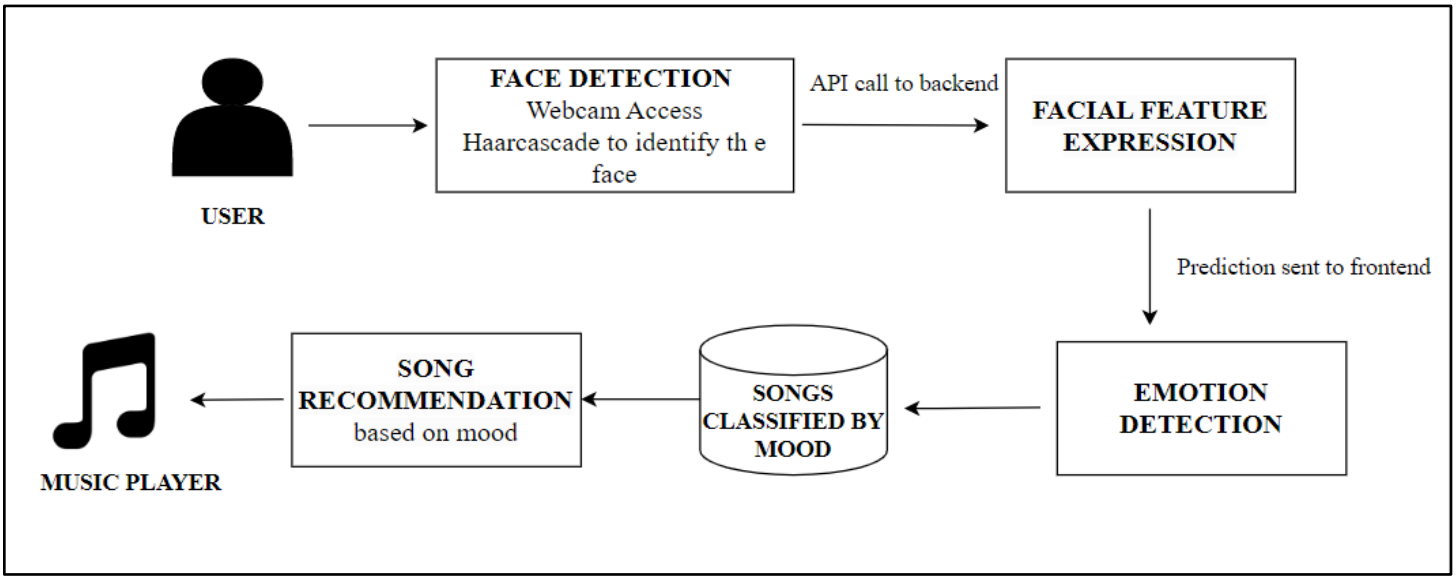

Figure 3.2: - Architecture Diagram of the system

The figure 3.2 depicts the architecture diagram of the system.

(a) FACIAL RECOGNITION:

This is an important module since we are capturing the image of the user which is then sent for the further process of image processing and facial feature extraction in the backend. We request the user to grant access to their webcam which is then used to capture a real time image of the user, this image is then sent to the backend through a Flask API in the converted base64 format. Since this is a web application, we have a frontend and backend containing different elements bind together using Flask. In this project, we are using real-time face detection. Our system will make use of HaarCascade files to determine the presence of faces in the captured image. Real time face detection is an easier problem than detecting face in a static image.

(b) EMOTION DETECTION:

The emotion detection module focuses on feature extraction from the captured image and running the image through a trained model. The classification is done for {“angry”,” disgust”,” fear”,” happy”,” neutral”,” surprise”}. Emotion detection module takes place in the backend of the application. In the backend of the project, the decoded image is first converted to the image that the model is used to - feature extraction is done, cropping of the image so that only the faces in the image are captured using Haarcascade files, then the image is converted into grayscale after which it is passed through the emotion detection model which accurately predicts the emotion in the captured image. The facial points mainly are eyes, eyebrows and lips (basic constraints). The movement of all these feature points is recorded for further detection.

(c) RECOMMENDATION SYSTEM:

The image captured by the webcam will be used for analyzing the mood of the user using an emotion detection module. After the mood is predicted, the already classified songs (based on mood) will be recommended to the user. Suppose a user's current mood is 'happy' the recommendation system will take that into consideration, search for "happy" songs (all the music data will be stored in a Flask database which will be accessed when recommendation process begins), and looks for songs which fall into the same category as that of the predicted mood. The song is then displayed on the user interface in the form of a playlist where the user can listen to the music. The user also has the ability to manually search for his/her preferred song.

3.3 DATA FLOW DIAGRAM

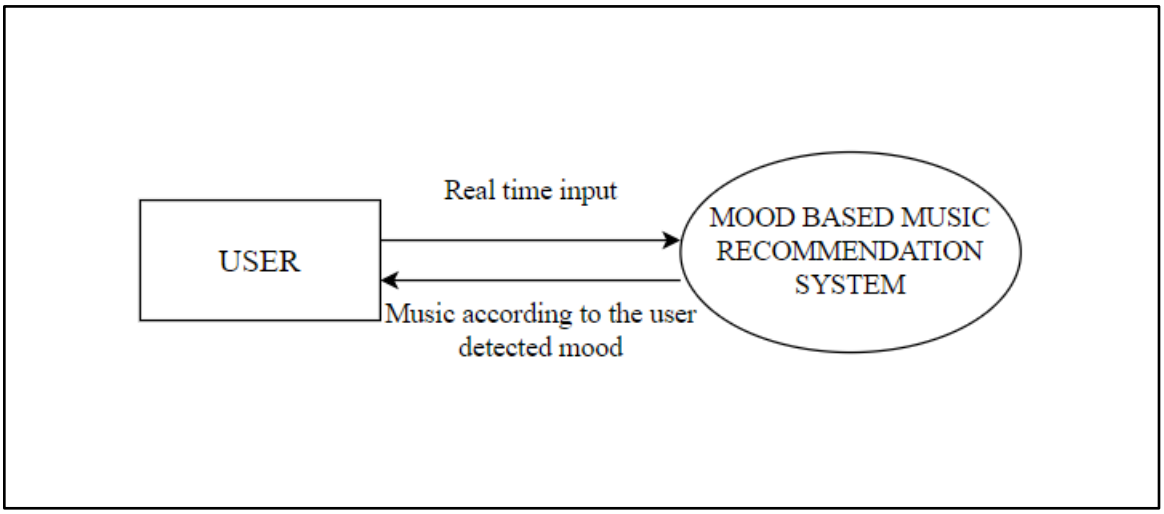

Figure 3.3: - DFD Level 0 diagram of the system

The above diagram is DFD Level 0 diagram of the system which represents the functioning of the system. Initially the user's face is captured as real time input by the system and then according to the emotion detected the system recommends the music.

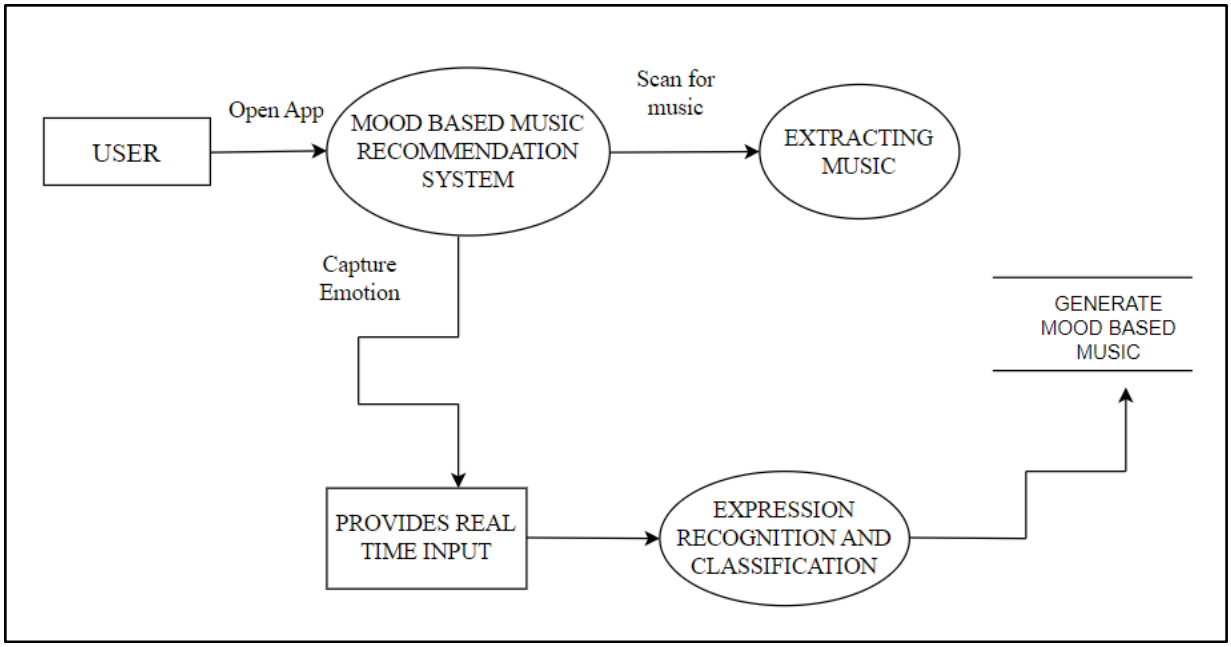

Figure 3.4: - DFD Level 1 diagram of the system

The above diagram is DFD Level 1 diagram of the system. It represents that the system is divided into three modules real time input, expression recognition and classification and extracting music.

(a) REAL TIME INPUT: The module captures the user's emotion using web camera of the system.
(b) EXPRESSION RECOGNITION AND CLASSIFICATION: the module after getting input from the first module is then recognize and classified using CNN algorithm.
(c) EXTRACTING MUSIC: the module after classification of emotion extracts the music as per the emotion recognized and the generates the music based on the mood of the user.

CHAPTER 4
IMPLEMENTATION DETAILS

IMPLEMENTATION DETAILS

To run the project there are certain system requirements to be fulfilled. Following are the system requirement described to run the project.

4.1 SYSTEM REQUIREMENT

4.1.1 HARDWARE

Hardware requirements:

Processor - Intel Pentium 4 or later

RAM - 512 MB or higher

Disk space - 2 GB minimum, 4 GB recommended

4.1.2 SOFTWARE

Technologies – Keras, Tensorflow, Open Cv2,

Flask (version 3.10.4)

Operating system - Windows 8 or later

4.2 SYSTEM IMPLEMENTATION

```
i=0
GR_dict={0:(0,255,0),1:(0,0,255)}

model = tf.keras.models.load_model('final_model.h5')
face_cascade = cv2.CascadeClassifier('haarcascade_frontalface_default.xml')

output=[]
cap = cv2.VideoCapture(0)

while (i<=50):
    ret, img = cap.read()
    #gray = cv2.cvtColor(img,cv2.COLOR_BGR2GRAY)
    faces = face_cascade.detectMultiScale(img,1.05,5)

for x,y,w,h in faces:

    face_img = img[y:y+h,x:x+w]
```

```
        resized = cv2.resize(face_img,(224,224))
        reshaped=resized.reshape(1, 224,224,3)/255
        predictions = model.predict(reshaped)

        # find max indexed array
        max_index = np.argmax(predictions[0])

        emotions = ('angry', 'disgust', 'fear', 'happy', 'sad', 'neutral', 'surprise')
        predicted_emotion = emotions[max_index]
        output.append(predicted_emotion)



        cv2.rectangle(img,(x,y),(x+w,y+h),GR_dict[1],2)
        cv2.rectangle(img,(x,y-40),(x+w,y),GR_dict[1],-1)
        cv2.putText(img, predicted_emotion, (x, y-10),cv2.FONT_HERSHEY_SIMPLEX,0.8,(255,255,255),2)
    i = i+1

    cv2.imshow('LIVE', img)
    key = cv2.waitKey(1)
    if key == 27:
        cap.release()
        cv2.destroyAllWindows()
        break
print(output)
cap.release()
cv2.destroyAllWindows()
final_output1 = st.mode(output)
```

This is a Python code that loads a pre-trained Keras model to recognize emotions from a live video stream using a Haar cascade classifier for face detection. The emotions recognized are 'angry', 'disgust', 'fear', 'happy', 'sad', 'neutral', and 'surprise'. The code captures 50 frames from the video stream and displays the detected emotions for each face in a rectangle around the face. Finally, it prints the most frequently detected emotion from the captured frames.

The output of the code is stored in the list output, which contains the predicted emotion for each face detected in each frame. The mode() function from the statistics module is used to find the most common emotion in the output list, which is stored in the variable final_output1.

```
path = "/content/images/images/validation/angry/10052.jpg"
img = load_img(path, target_size=(224,224) )

i = img_to_array(img)/255
input_arr = np.array([i])
input_arr.shape
```

```
pred = np.argmax(model.predict(input_arr))

print(f" the image is of {op[pred]}")

# to display the image
plt.imshow(input_arr[0])
plt.title("input image")
plt.show()
```

This is a Python code that uses a pre-trained Keras model to predict the emotion from a single image. The image is loaded from the given path and resized to (224,224) using the load_img() function from the tensorflow.keras.preprocessing.image module. Then, the image is converted to a NumPy array and normalized by dividing each pixel value by 255. The resulting NumPy array is reshaped to have the shape (1, 224, 224, 3), which is the expected input shape of the pre-trained Keras model.

The pre-trained Keras model is then used to predict the emotion of the input image using the predict() function, which returns an array of predicted probabilities for each emotion category. The argmax() function is used to find the index of the emotion with the highest predicted probability. The op array is assumed to be a list of emotion categories in the order they were used to train the pre-trained model. Finally, the predicted emotion is printed.

To display the input image, the imshow() and title() functions from the matplotlib.pyplot module are used.

Note that the code assumes that the pre-trained Keras model has been defined and trained to recognize emotions from images, and that the op array is defined and contains the emotion categories used to train the model. Also, the necessary imports such as numpy, matplotlib.pyplot, and tensorflow.keras.preprocessing.image are not shown in the code

CHAPTER 5
EXPERIMENTAL DETAILS

EXPERIMENTAL DETAILS

Results of the system are shown in following figures.

The Figure 5.1 is of home page of mood-based music recommendation system

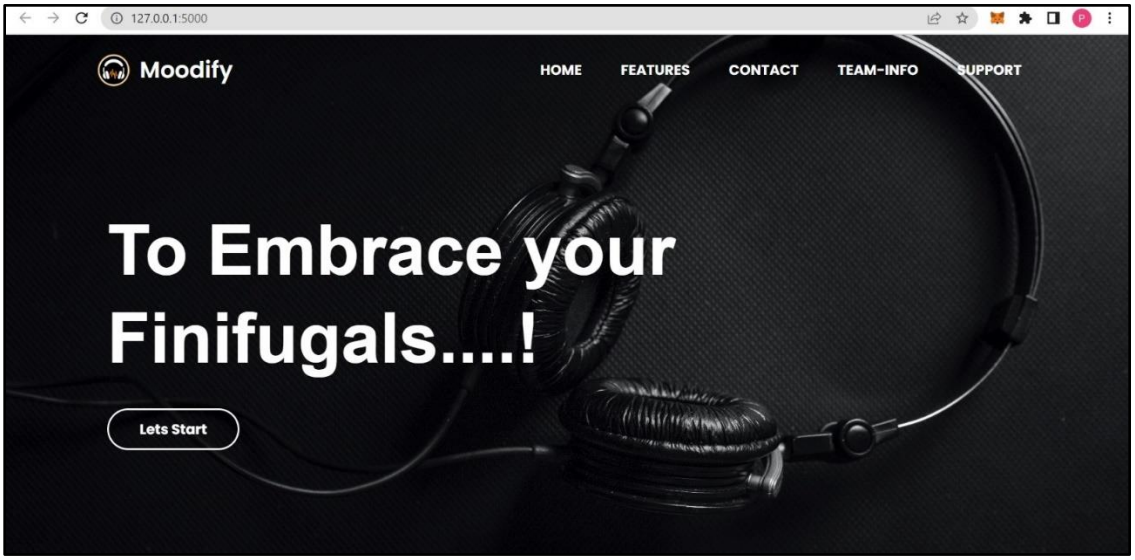

Figure 5.1: - Home Page

The Figure 5.2 is of emotion to be detected by the system.

Figure 5.2: - Emotion to be Detected

The Figure 5.3 is of songs are recommended as per the mood detected.

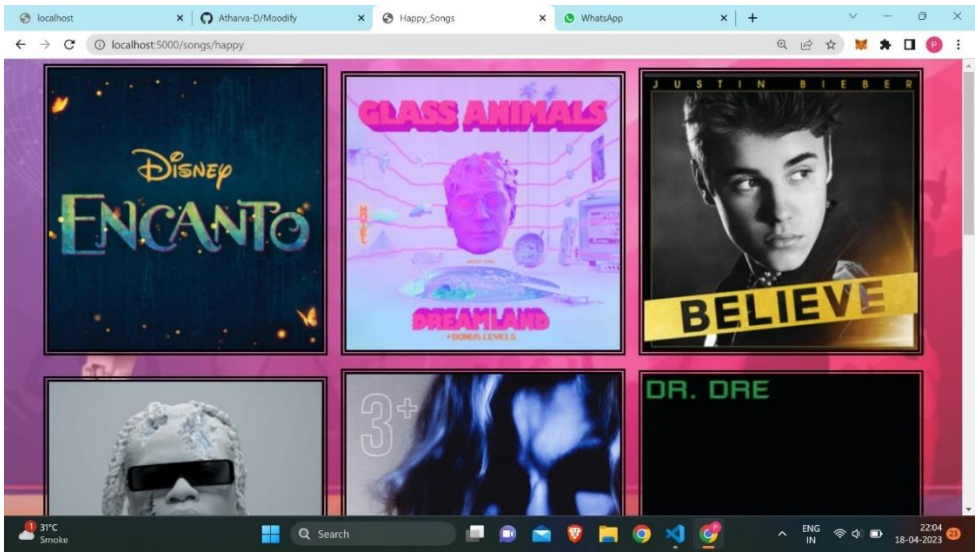

Figure 5.3 : - Songs recommended as per the mood detected

CHAPTER 6
CONCLUSION AND FUTURE SCOPE

CONCLUSION AND FUTURE SCOPE

6.1 CONCLUSION

The development of a mood-based music recommendation system is a challenging task that requires careful consideration of various factors such as accurate mood classification, personalized music recommendations, user feedback, and a user-friendly interface. The system aims to provide a personalized music experience for users by recommending songs that match their current mood, taking into account their facial expressions. The development of this system requires the use of machine learning algorithms to accurately classify the user's mood, and a music database to provide personalized music recommendations. The success of the mood-based music recommendation system relies heavily on the accuracy of the mood classification, the quality of the music recommendations, and the system's ability to incorporate user feedback effectively.

Overall, the mood-based music recommendation system has the potential to provide an enjoyable and personalized music experience for users.

6.2 FUTURE SCOPE

The system has potential future scope applications. Following are the future listed below:

(a) Social Sharing

(b) Playlist Creation

(c) Integration with other music-related services

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APPENDIX A: CODE SAMPLE

App.py

```
from __future__ import division, print_function
#import sys
import os
import cv2
#import re
import numpy as np
import tensorflow as tf
from tensorflow.keras.models import load_model
from tensorflow.keras.preprocessing import image
from flask import Flask, request, render_template
from werkzeug.utils import secure_filename
import statistics as st


app = Flask(__name__)

@app.route("/")
def home():
    return render_template("index1.html")


@app.route('/camera', methods = ['GET', 'POST'])
def camera():
    i=0

    GR_dict={0:(0,255,0),1:(0,0,255)}
    model = tf.keras.models.load_model('final_model.h5')
    face_cascade = cv2.CascadeClassifier('haarcascade_frontalface_default.xml')
    output=[]
    cap = cv2.VideoCapture(0)
    while (i<=30):
        ret, img = cap.read()
        faces = face_cascade.detectMultiScale(img,1.05,5)

        for x,y,w,h in faces:

            face_img = img[y:y+h,x:x+w]

            resized = cv2.resize(face_img,(224,224))
            reshaped=resized.reshape(1, 224,224,3)/255
            predictions = model.predict(reshaped)

            max_index = np.argmax(predictions[0])
```

```
        emotions = ('angry', 'disgust', 'fear', 'happy', 'sad', 'neutral', 'surprise')
        predicted_emotion = emotions[max_index]
        output.append(predicted_emotion)


)


@app.route('/templates/buttons', methods = ['GET','POST'])
def buttons():
   return render_template("buttons.html")

@app.route('/movies/surprise', methods = ['GET', 'POST'])
def moviesSurprise():
   return render_template("moviesSurprise.html")

@app.route('/movies/angry', methods = ['GET', 'POST'])
def moviesAngry():
   return render_template("moviesAngry.html")

@app.route('/movies/sad', methods = ['GET', 'POST'])
def moviesSad():
   return render_template("moviesSad.html")

@app.route('/movies/disgust', methods = ['GET', 'POST'])
def moviesDisgust():
   return render_template("moviesDisgust.html")

@app.route('/movies/happy', methods = ['GET', 'POST'])
def moviesHappy():
   return render_template("moviesHappy.html")

@app.route('/movies/fear', methods = ['GET', 'POST'])
def moviesFear():
   return render_template("moviesFear.html")

@app.route('/movies/neutral', methods = ['GET', 'POST'])
def moviesNeutral():
   return render_template("moviesNeutral.html")

@app.route('/songs/surprise', methods = ['GET', 'POST'])
def songsSurprise():
   return render_template("songsSurprise.html")

@app.route('/songs/angry', methods = ['GET', 'POST'])
def songsAngry():
```

```
    return render_template("songsAngry.html")

@app.route('/songs/sad', methods = ['GET', 'POST'])
def songsSad():
    return render_template("songsSad.html")

@app.route('/songs/disgust', methods = ['GET', 'POST'])
def songsDisgust():
    return render_template("songsDisgust.html")

@app.route('/songs/happy', methods = ['GET', 'POST'])
def songsHappy():
    return render_template("songsHappy.html")

@app.route('/songs/fear', methods = ['GET', 'POST'])
def songsFear():
    return render_template("songsFear.html")

@app.route('/songs/neutral', methods = ['GET', 'POST'])
def songsNeutral():
    return render_template("songsSad.html")

# @app.route('/templates/join_page', methods = ['GET', 'POST'])
# def join():
#     return render_template("join_page.html")

if __name__ == "__main__":
    app.run(debug=True)
```

index.html

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Music Recommendation System</title>
    <style>*{
        margin: 0;
        padding: 0;
        box-sizing: border-box;
        font-family: 'Poppins',sans-serif;
    }
```

```
.header{
    width: 100%;
    height: 100vh;
    background-image: linear-gradient(rgba(5,0,136,0.5),rgba(5,0,136,0.5)),url(static/img1.jpg);
    background-position: center;
    background-size: cover;
    overflow-x: hidden;
}

nav{
    width: 100%;
    display: flex;
    justify-content: space-between;
    padding: 18px 8%;
    transition: background 1s;
}

nav .logo{
    display: flex;
    align-items: center;
    font-size: 26px;
    font-weight: 600;
    color: #FFF;
}

nav .logo img{
    width: 40px;
    margin-right: 10px;

}

nav ul li{
    display: inline-block;
    list-style: none;
    margin: 10px 20px;

}

nav ul li a{
    text-decoration: none;
    color: #FFF;
    font-weight: 800;
}
nav:hover{
    background: #fff;
}
```

```
nav:hover .logo{
    color: #333;
}

nav:hover ul li a{
    color: #333;
}

.content{
    margin-top: 9%;
    margin-left: 9%;
    color: #FFF;


}

.content h1{
    font-size: 120PX;
    font-weight: 600;
    line-height: 140px;
}

.content p{
    max-width: 500px;
    line-height: 28px;
    opacity: 0;
}

.links{
    margin-top: 30px;
    opacity: 0;
}
.links a{
    color: #FFF;
    display: inline-block;
    text-decoration: none;

}
    .links a:hover{
    color: blue;

}
.btn:hover{
    background-color: rgb(0, 195, 255);
}
.btn{
    border: 2px solid #fff;
```

```
    </style>
</head>
<body>
    <div class="header">
        <nav>
            <div class="logo">
                <img src="static/img2.png" alt="">
                <span>Moodify</span>
            </div>
            <ul>
                <li><a href="#">HOME</a></li>
                <li><a href="#">FEATURES</a></li>
                <li><a href="#">CONTACT</a></li>
                <li><a href="http://localhost:5000/templates/join_page">TEAM-INFO</a></li>

                <li><a href="#">SUPPORT</a></li>
            </ul>
        </nav>

        <div class="content">
            <h1 class="slide-left">To Embrace your<br>Finifugals....!</h1>
            <div class="links slide-left">
                <a href="http://localhost:5000/camera" class="btn">Lets Start</a>
            </div>
        </div>
    </br>
    <div class="output" >
        {% if final_output %}
    <h2 style="font-family:Bio-Rhyme">Your Emotion is {{final_output}}</h2>
        <div class="output1" >
        <a href="http://localhost:5000/movies/{{final_output}}" class="btn">Movies</a>
         <a href="http://localhost:5000/songs/{{final_output}}" class="btn">Songs</a>
            </div>
    {% endif %}
      </div>

    </div>
</body>
</html>
```

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Yours sincerely.

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