Parshvanath Charitable Trust's
A. P. SHAH INSTITUTE OF TECHNOLOGY
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(Religious Jain Minority)

Department of Computer Science & Engineering (AI & ML)

Facial Emotion Detection For Personalized Song Recommendations

Computer Science & Engineering (Artificial Intelligence & Machine Learning)

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Project Guide
Ms. Ranjita Asati

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Introduction

- **Our project aims to revolutionize music recommendations by developing a facial emotion detection system. By analyzing users' facial expressions, we personalize song recommendations to match their current emotional state. This enhances user experience and engagement with music streaming platforms.**
- **In today's world of digital music streaming, personalized recommendations are paramount. Our project introduces a novel approach: leveraging facial emotion detection to enhance music suggestions.**
- **By analyzing users' facial expressions in real time, we tailor song recommendations to their current emotional state. This innovative system aims to deepen user engagement and satisfaction with music streaming platforms.**

Objectives

- **To present a comprehensive overview of our project on Facial Emotion Detection for Personalized Song Recommendations, including the methodology, data collection process, system functionality, and potential impact.**
- **Introduce the concept of facial emotion detection for personalized song recommendations. Explain the methodology and technology behind our system. Showcase how facial emotion data is collected and analyzed.**
- **Demonstrate the effectiveness of our system through evaluation metrics and results. Discuss potential applications and future enhancements for the technology.**

Features

- **Real-time Facial Emotion Detection: Utilize advanced facial recognition algorithms to detect and analyze users' emotions in real time.**
- **Personalized Song Recommendations: Recommend songs tailored to the user's current emotional state based on facial expressions.**
- **Seamless Integration: Seamlessly integrate the facial emotion detection system with existing music streaming platforms.**
- **Adaptive Learning: Incorporate machine learning techniques to adapt and improve recommendations over time based on user feedback.**
- **User-Friendly Interface: Develop an intuitive and user-friendly interface for easy interaction and navigation.**

Problem Statement

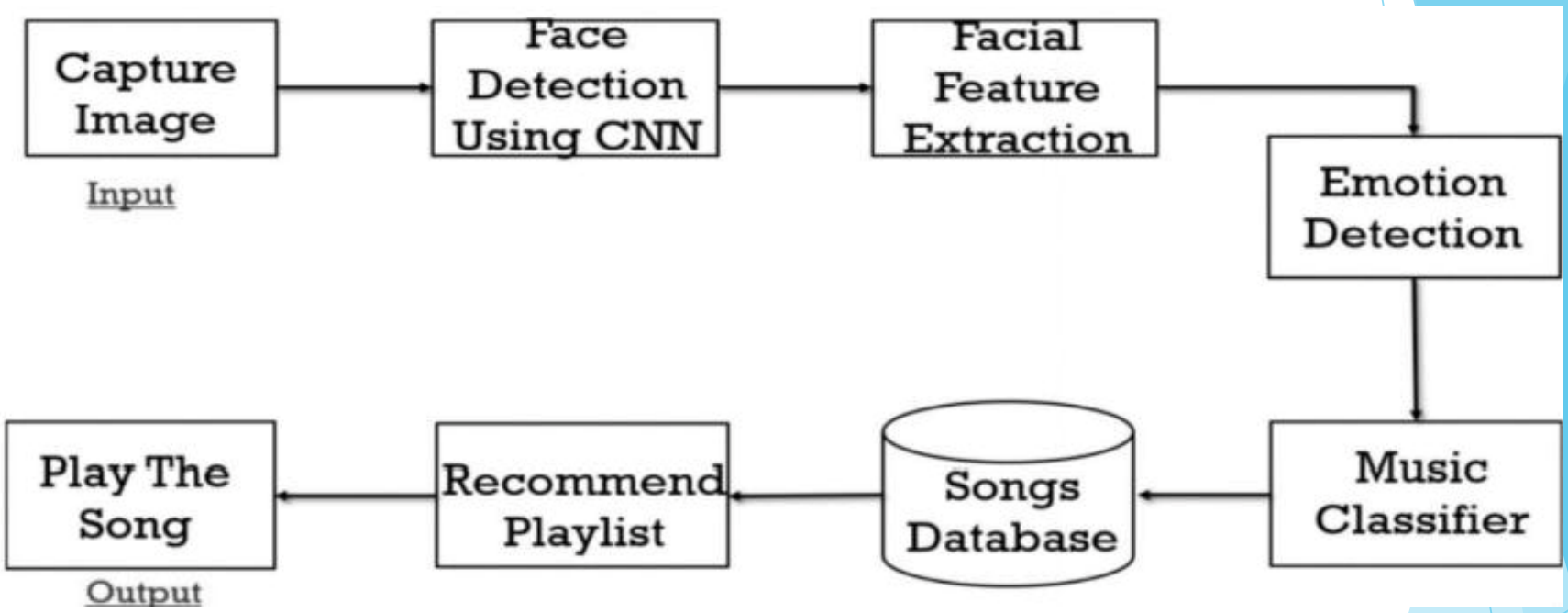
- **In the field of music streaming platforms, users often encounter the challenge of selecting suitable songs that match their current emotional state.**
- **As a result, users may struggle to find music that resonates with their mood at any given moment, leading to a less engaging and personalized music listening experience.**
- **Current music recommendation systems lack the ability to understand users' real-time emotional states, leading to suboptimal song suggestions.**
- **Thus, there is a pressing need for innovative solutions that integrate facial emotion detection technology to enhance personalized song recommendations, enabling users to discover music that aligns with their emotional context and enhances their overall listening experience.**

Literature Survey

Sr. No	Title	Author Name	Description
1.	"Facial Emotion Based Song Recommendation System	**Wayadande, Kuldeep, Parth Narkhede, Srushti Nikam, Nikita Punde, Sejal Hukare, and Rohit Thakur.**	The impact of Song on human emotions and behavior is a well-established field of study, and there is growing interest in developing systems that can recommend music based on a person's current emotional state.
2.	"Mood based music recommendation system	**Mahadik, Ankita, Shambhavi Milgir, Janvi Patel, Vijaya Bharathi Jagan, and Vaishali Kavathekar.**	•The music has special connection with emotion of the person. One's mood can be improved by it in a special way. The classification of the emotion of music is a difficult research area because human perception is subjective.
3.	"Smart music player integrating facial emotion recognition and music mood recommendation."	**Gilda, Shlok, Husain Zafar, Chintan Soni, and Kshitija Waghurdekar**	In this paper, we present an affective cross-platform music player, EMP, which recommends music based on the real-time mood of the user. EMP provides smart mood based music recommendation by incorporating the capabilities of emotion context reasoning within our adaptive music recommendation system.

Sr. No	Title	Author Name	Description
4.	Enriching Song Recommendation Through Facial Expression Using Deep Learning."	**Deore, Shalaka Prasad.**	The music recommendation systems are highly linked with the emotional response of the user as the majority of the music is based on the mood of the listener. A large number of researches have been performed for the detection of emotion through the use of a variety of different techniques.
5.	"Emotion-Aware Music Recommendations: A Transfer Learning Approach Using Facial Expressions."	**Annam, Sai Teja,Jyostna Devi Bodapati, and RajaSekhar Konda.**	The influence of music on mood and emotions has been widely studied, highlighting its potential for self-expression and personal delight. As technology continues to advance exponentially, manually selecting and analyzing music from the vast array of artists, songs, and listeners becomes impractical.

Block Diagram



Tools/Software,Languages used

Editor ：

- VS Code

GUI ： StreamLit

Libraries ：

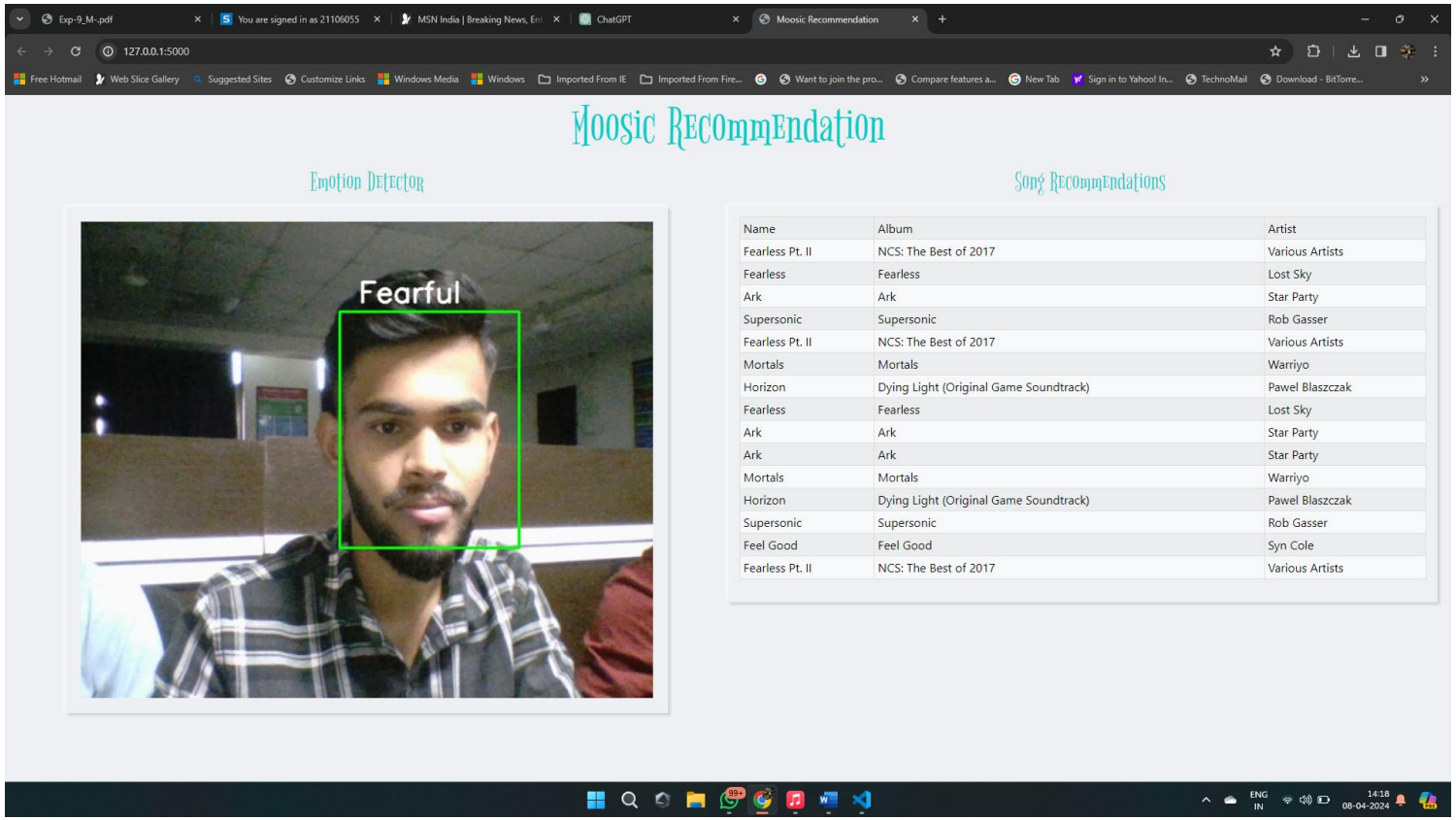
1) Pandas

- Numpy
- Pandas

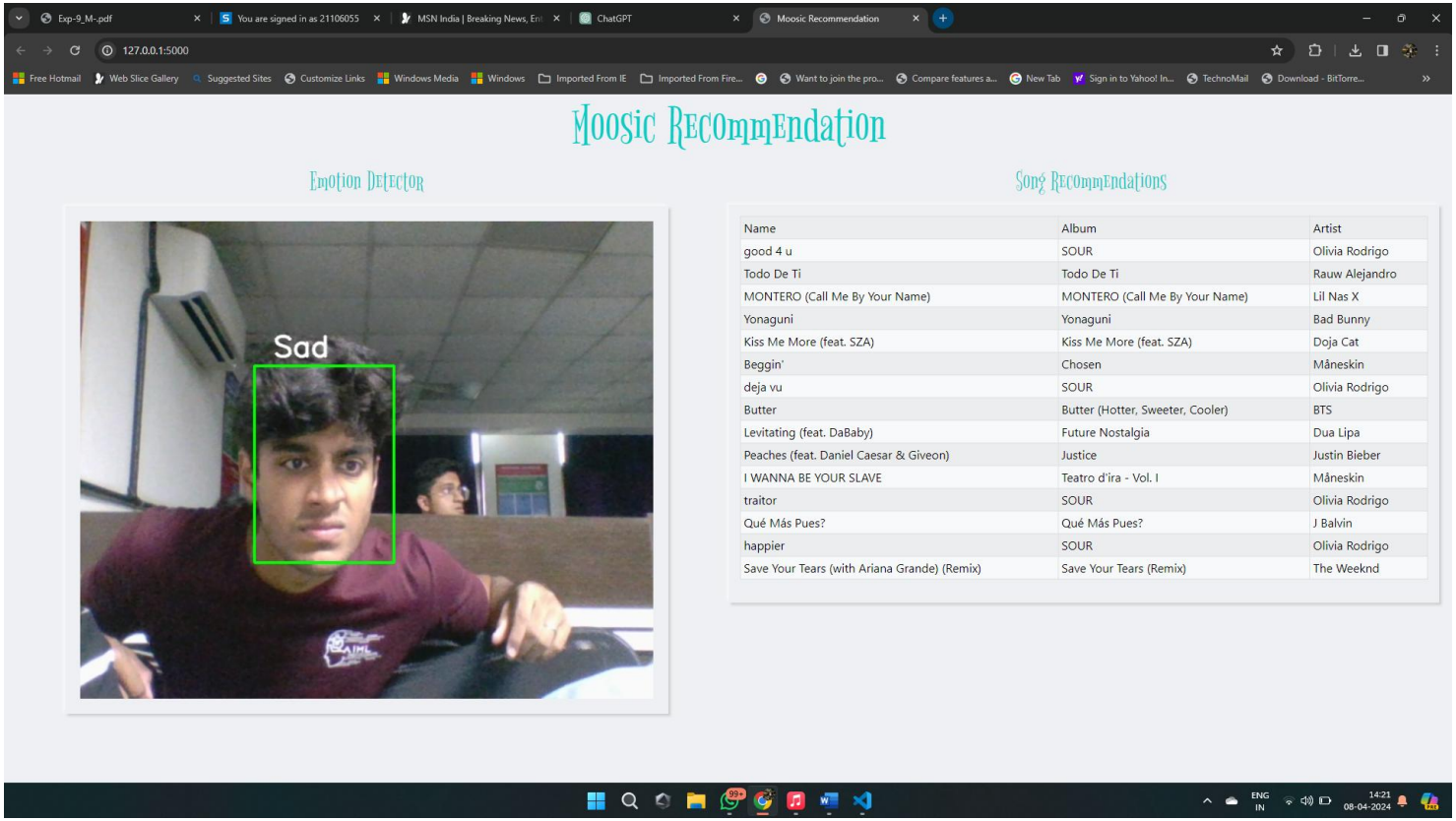
2) Machine Learning

- Sckit-Learn
- TensorFlow
- OpenCV

Implementation



Name	Album	Artist
Fearless Pt. II	NCS: The Best of 2017	Various Artists
Fearless	Fearless	Lost Sky
Ark	Ark	Star Party
Supersonic	Supersonic	Rob Gasser
Fearless Pt. II	NCS: The Best of 2017	Various Artists
Mortals	Mortals	Warriyo
Horizon	Dying Light (Original Game Soundtrack)	Pawel Blaszczak
Fearless	Fearless	Lost Sky
Ark	Ark	Star Party
Ark	Ark	Star Party
Mortals	Mortals	Warriyo
Horizon	Dying Light (Original Game Soundtrack)	Pawel Blaszczak
Supersonic	Supersonic	Rob Gasser
Feel Good	Feel Good	Syn Cole
Fearless Pt. II	NCS: The Best of 2017	Various Artists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Imported From Fire...
Want to join the pro...
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New Tab
Sign in to Yahoo! In...
TechnoMail
Download - BitTorre...
Moosic Recommendation
Emotion Detector
Sad
Song Recommendations
Name
Album
Artist
good 4 u
SOUR
Olivia Rodrigo
Todo De Ti
Todo De Ti
Rauw Alejandro
MONTERO (Call Me By Your Name)
MONTERO (Call Me By Your Name)
Lil Nas X
Yonaguni
Yonaguni
Bad Bunny
Kiss Me More (feat. SZA)
Kiss Me More (feat. SZA)
Doja Cat
Beggin'
Chosen
Måneskin
deja vu
SOUR
Olivia Rodrigo
Butter
Butter (Hotter, Sweeter, Cooler)
BTS
Levitating (feat. DaBaby)
Future Nostalgia
Dua Lipa
Peaches (feat. Daniel Caesar & Giveon)
Justice
Justin Bieber
I WANNA BE YOUR SLAVE
Teatro d'ira - Vol. I
Måneskin
traitor
SOUR
Olivia Rodrigo
Qué Más Pues?
Qué Más Pues?
J Balvin
happier
SOUR
Olivia Rodrigo
Save Your Tears (with Ariana Grande) (Remix)
Save Your Tears (Remix)
The Weeknd
ENG
IN
14:21
08-04-2024

Conclusion

- **Our project on Facial Emotion Detection for Personalized Song Recommendations represents a significant advancement in the field of music recommendation systems. By harnessing the power of facial emotion detection, we have developed a system that can understand and respond to users' emotional states in real time.**

References

[1] https://www.python.org/

[2] https://ieeexplore.ieee.org/abstract/document/1327208

[3] https://youtu.be/at19OmH2Bg4

Thank You...!!