

Aura Pulse: An AI-Powered System for Real-Time Emotional Support and Personalized Recommendations

Monika Nagar^{1*}, Bhanu Verma¹, Nensi Varshney², Prince Kumar², Shivang Rastogi², Vivek Chaudhary²

Abstract

Aura Pulse is a cutting-edge AI-powered platform developed to provide real-time emotional support, tackling the growing challenges of stress, anxiety, and burnout in today's fast-moving digital era. Utilizing advanced facial expression analysis, Aura Pulse interprets visual cues to create a comprehensive emotional profile of the user. This instant emotional evaluation enables the platform to deliver personalized suggestions aligned with the user's mood and mental state, promoting overall well-being and emotional awareness. One of the core features of Aura Pulse is music-based therapy, which suggests mood-specific music to uplift spirits, reduce stress, and create a calming atmosphere. Additionally, it offers comprehensive health tips, including mindfulness exercises, meditation techniques, and self-care strategies that promote mental resilience. The real-time analysis feature ensures continuous monitoring of emotional states, dynamically adapting its recommendations based on the user's shifting moods. This makes it an intelligent and responsive companion for mental health management. To maximize accessibility, Aura Pulse is designed for cross-platform compatibility, ensuring seamless use across web, mobile, and wearable devices. Whether a user is at home, at work, or on the go, they can access their emotional insights and receive tailored recommendations with ease. The platform also provides data-driven insights, tracking emotional trends and patterns over days, weeks, and months. This empowers users with valuable information about their emotional well-being, enabling them to identify triggers and take proactive steps toward mental health management. Integration with third-party apps, such as Spotify, Apple Health, and mental health resources, ensures a holistic and enriching experience. Through these integrations, users can seamlessly connect their emotional well-being with their daily routines, making mental health management more effortless and intuitive. Beyond these features, Aura Pulse also incorporates stress management tools, such as interactive breathing exercises and guided meditation sessions, to help users regain a sense of calm and balance. The emotion tracking dashboard visually represents fluctuations in emotional states, helping users understand their emotional patterns over time. This feature fosters self-awareness and encourages users to take informed steps toward improving their mental health. To cultivate a supportive and interactive space, Aura Pulse features a community engagement platform where users can share their experiences, seek guidance, and connect with others facing similar challenges. This sense of belonging promotes empathy, mutual understanding, and collective well-being, ensuring that emotional support remains both accessible and tailored to individual needs.

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Received Date: September 08, 2025

Accepted Date: September 10, 2025

Published Date: March 06, 2026

Citation: Monika Nagar, Bhanu Verma, Nensi Varshney, Prince Kumar, Shivang Rastogi, Vivek Chaudhary. Aura Pulse: An AI-Powered System for Real-Time Emotional Support and Personalized Recommendations. Journal of Advancements in Robotics. 2026; 13(1):18–25p.

Keywords: AI-driven platform, music-based therapy, stress management, emotion tracking

INTRODUCTION

Mental health challenges, including stress, anxiety, and depression, are increasing globally and affecting millions of people. According to the World Health Organization, over 300 million individuals suffer from depression, with numbers

steadily increasing. Traditional emotional support methods often lack personalization and immediate accessibility, making them less effective at addressing real-time emotional needs. Conventional mood assessment methods, such as self-reporting or text-based analyses, fail to capture the full spectrum of human emotions, often leading to inaccurate or delayed interventions. Many existing systems do not provide timely support or adapt to the user's unique emotional state. Aura Pulse addressed this gap by integrating advanced facial recognition technology to detect emotions in real-time. It delivers personalized music recommendations and mental health resources, creating a seamless user experience that enhances emotional well-being and self-awareness. The market for emotion recognition technology is rapidly expanding, with applications in entertainment, healthcare, and consumer engagement. Companies, such as Affectiva and IBM Watson, are developing emotion detection systems, primarily focusing on specific use cases, such as marketing analytics. However, Aura Pulse differentiates itself by combining emotion detection with actionable recommendations, providing a holistic and user-centric approach to emotional well-being rather than merely analyzing emotions for commercial purposes. Offering real-time emotion detection through facial recognition, personalized music recommendations, and access to mental health resources, Aura Pulse enhances user engagement and emotional intelligence while providing a non-invasive and accessible solution for mental health support.

Helping users adopt proactive mental health strategies. By fostering self-awareness and emotional intelligence, pulse empowers users to take control of their mental well-being, promoting a healthier and more balanced lifestyle in an increasingly fast-paced digital world.

This study explores the integration of AI-driven emotion recognition with intelligent systems, focusing on the challenges of real-time emotion detection in dynamic environments. This emphasizes the importance of robust machine learning algorithms to improve the accuracy and reliability of emotion-based applications, enabling seamless user experience in personalized mental health support. Aura Pulse presented an AI-powered music recommendation system based on facial emotion recognition. By analyzing facial expressions, the system identifies users' emotional states and recommends personalized music to enhance their mood and well-being. This study highlights the effectiveness of AI in creating emotionally adaptive entertainment experiences. Aura Pulse investigated the role of convolutional neural networks (CNNs) in facial expression recognition in music therapy applications. This demonstrates how deep learning techniques can accurately classify emotions and generate tailored music suggestions to support emotional well-being. This study underscores the importance of dataset diversity and model optimization for achieving reliable emotion recognition. Aura Pulse focused on region-specific music recommendations using CNN-based facial expression recognition. It examines how cultural preferences influence emotional responses to music, showing the adaptability of AI-driven systems in delivering personalized recommendations based on diverse user demographics.

LITERATURE SURVEY

Guo et al. (2024) examined the incorporation of emotion recognition into smart devices, emphasizing the difficulties presented by the ever-changing environments. This underscores the need for strong algorithms capable of real-time processing to guarantee precise and dependable emotion detection under diverse conditions [1].

Kiran et al. (2024) reported on the efficiency of AI-powered music recommendations based on emotions, attaining an 80% accuracy rate through facial recognition. This highlights the role of artificial intelligence in improving user experiences by delivering personalized music therapy tailored to detected emotional states [2].

Modran et al. (2023) employed CNNs to recognize facial expressions, resulting in successful music therapy outcomes. This highlights the essential role of machine learning in identifying emotions and its significance in mental health support through customized music recommendations [3].

Yampe et al. (2025) integrated microexpression detection with music recommendations and achieved an accuracy rate of 62.1%. It offers valuable insights into the challenges of merging multiple data sources for improved emotion analysis and emphasizes the technical difficulties of real-time emotion recognition systems [4].

Samuvel et al. (2020) utilized CNNs to provide recommendations for Bollywood music based on real-time facial expressions. This demonstrates the cultural flexibility of emotion-based systems, highlighting how AI-powered music therapy can accommodate diverse user preferences across various regions [5].

Bhaumik et al. (2021) examined the application of generative adversarial networks (GANs) to emotion-driven music recommendations. This method enhances the variety and relevance of song suggestions and improves the personalization and efficiency of AI-powered music therapy. Additionally, it explores how GANs enhance emotion classification accuracy by generating synthetic facial expression data to optimize the training models [6].

Florence et al. (2020) proposed a system capable of detecting user emotions with over 80% accuracy using real-time facial expression recognition. This study provides a strong foundation for real-world applications and demonstrates the feasibility of using AI-powered emotion detection for mental health support. Furthermore, this research examines the scalability of the system across different devices and explores its potential integration with wearable technology for continuous emotion monitoring [7].

Phaneendra et al. (2022), EMUSE (Emotion-based Music Suggestion Engine), is a music recommendation system that utilizes facial emotion recognition alongside the Spotify API to deliver tailored song suggestions. It features an intuitive interface where users can view their detected emotions along with recommended tracks, thereby enriching their listening experience. However, a key limitation is its exclusive dependence on facial expressions, which may miss deeper emotional nuances that influence the recommendation accuracy. Furthermore, constant monitoring of facial features raises concerns regarding user privacy and the feasibility of implementing such a system [8].

Athavle et al. (2021) employed CNNs to detect facial emotions and generate music recommendations accordingly. By leveraging advanced machine learning techniques, emotion analysis is enhanced, resulting in personalized song suggestions. However, the system struggles to accurately interpret subtle emotions, which may affect the precision of its recommendations. Additionally, ongoing facial monitoring raises privacy concerns, and the study does not provide comprehensive details of the evaluation methods used to measure the system's effectiveness [9].

Priyanka et al. (2023) investigated a music recommendation system that utilized CNNs trained on audio features extracted from songs to enhance emotion representation. By directly analyzing audio signals, the system strives to capture the emotional essence of music better. However, it depends on support vector machines (SVMs) for song recommendations, which may be less effective than methods such as collaborative filtering. Furthermore, the absence of detailed explanations of the CNN architecture and the specific audio features used restricts a thorough understanding of the system's capabilities [10].

Joshi et al. (2021) leveraged CNNs to process music using Mel-Frequency Cepstral Coefficients (MFCCs) for emotion-driven recommendations. By focusing on audio features, this study provides a distinct method for interpreting the emotional aspects of music. However, the study did not offer detailed information about the CNN architecture used and failed to elaborate on the recommendation approach, restricting a deeper understanding of its functionality and possible enhancements [11].

PROPOSED METHODOLOGY

The methodology of this study focuses on data collection, preprocessing, model implementation, deployment, and security considerations. For data collection, widely recognized facial emotion datasets,

such as FER2013, were utilized, containing thousands of labeled facial images representing diverse expressions and emotions. In the preprocessing phase, noise removal techniques, such as Gaussian filters for images, are applied to enhance data quality. Normalization ensures consistency across the dataset by adjusting the pixel values for uniformity. Additionally, facial images are standardized by resizing them to a uniform resolution of 48×48 pixels, reducing the computational complexity while preserving essential features, as shown in Figure 1.

CNNs are used for facial emotion recognition owing to their efficiency in image analysis. A deep CNN architecture incorporating convolutional, pooling, and fully connected layers is designed to ensure precise emotion detection. To improve the model performance and minimize overfitting, data augmentation methods, such as rotation, flipping, and zooming, are applied. Furthermore, transfer learning is employed by fine-tuning pre-trained models, such as VGG16 and ResNet, on facial emotion datasets, utilizing their learned features to enhance accuracy and efficiency.

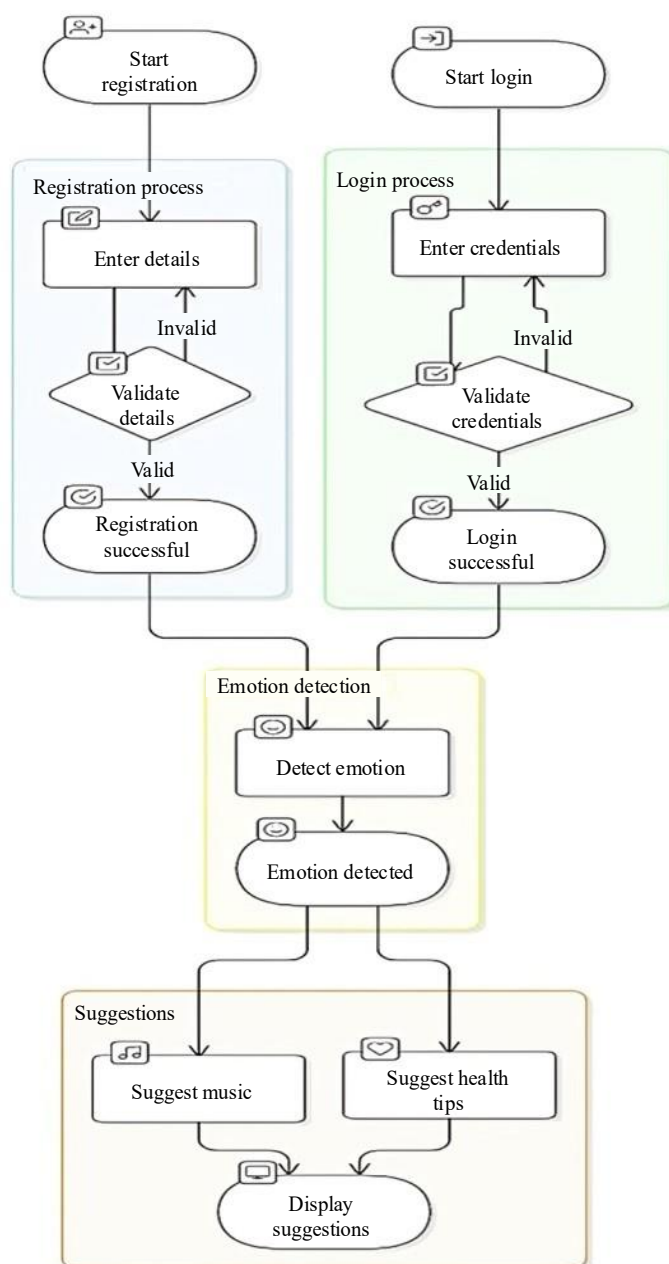


Figure 1. Flowchart of the model.

The system was designed as a web application developed using React.js to provide an interactive and responsive experience. Key features include real-time emotion detection, personalized music recommendations, and access to mental health resources. The web application was optimized for cross-device compatibility, ensuring accessibility from different screen sizes without compromising functionality.

Beta testing was conducted for this project to gather real-world user feedback and improve accuracy, usability, and overall user experience. Testers interact with web applications in various scenarios, helping to identify potential issues and areas for enhancement. Insights from beta testing were utilized to refine the emotion detection model, optimize recommendations, and ensure a seamless user experience before the final deployment.

WORKING MODULES

Login Module

The Aura Pulse login page features a simple and user-friendly design, allowing users to sign in using email and passwords or Google authentication. This ensures secure access while maintaining a clean and intuitive interface, as shown in Figure 2.

Registration/Account Creation Page

The Aura Pulse Registration page provides a seamless and user-friendly interface for account creation. Users can sign up using their email and password or opt for Google authentication for a quicker process, as shown in Figure 3.

Recommendation Based on Different Moods

The image is displayed in Figure 4, the user interface of Aura Pulse, a web-based mood detection system that uses facial recognition. The application identifies the user's mood in real time, as shown by a detected "neutral" emotion. It features a "Detect Mood" button and provides personalized recommendations, including "Vibe with a Playlist" for mood-based music suggestions and "Lifestyle Recommendation" for well-being tips. The interface is designed for a seamless user experience with a secure login/logout functionality.

The detected mood in this instance is "happy," influencing personalized recommendations, such as music playlists and lifestyle recommendations, shown in Figure 5.

The detected mood is "surprise," which influences the system's personalized recommendations, such as music playlists and lifestyle recommendations, shown in Figure 6.

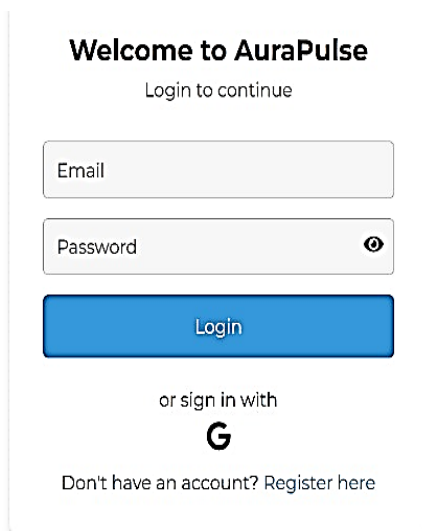
In this next case, the detected mood is "sad," allowing the system to provide tailored music playlists and lifestyle recommendations to enhance emotional well-being, as shown in Figure 7.

The Aura Pulse web application detects the user's facial expression and identifies the mood as "happy." Based on this mood, it recommends an upbeat and energetic playlist featuring Bollywood parties and celebratory songs. The interface allows the user to play songs directly and enhances their joyful state. This personalized recommendation system improves user experience by aligning music with emotions, as shown in Figure 8.

The Aura Pulse web application detects a user's happy mood using facial recognition and provides lifestyle recommendations to maintain positivity. The suggestions encourage the spread of joy, gratitude, and celebrating small achievements. This feature helps users reinforce their positive emotions and leads to a more fulfilling life, as shown in Figure 9.

CONCLUSION

In summary, Aura Pulse has shown great promise for improving users' emotional well-being through advanced real-time mood detection and personalized recommendations. Utilizing cutting-edge machine




Welcome to AuraPulse
Login to continue

Email

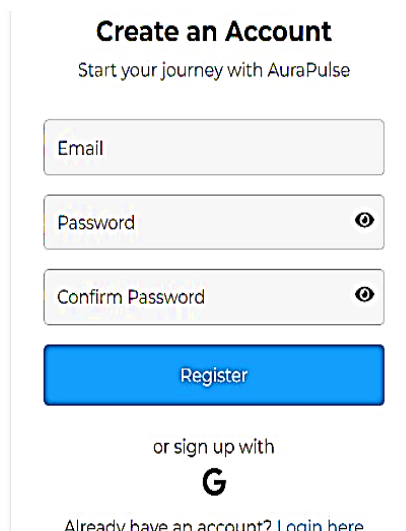
Password

[Login](#)

or sign in with 

Don't have an account? Register here

Figure 2. Login page.




Create an Account
Start your journey with AuraPulse

Email

Password

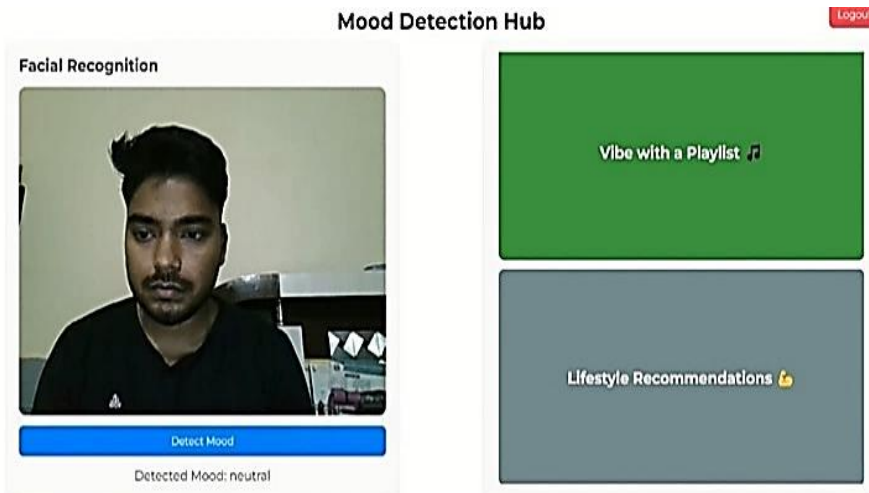
Confirm Password

[Register](#)

or sign up with 


Already have an account? Login here

Figure 3. Account creation page.



Mood Detection Hub [Logout](#)

Facial Recognition



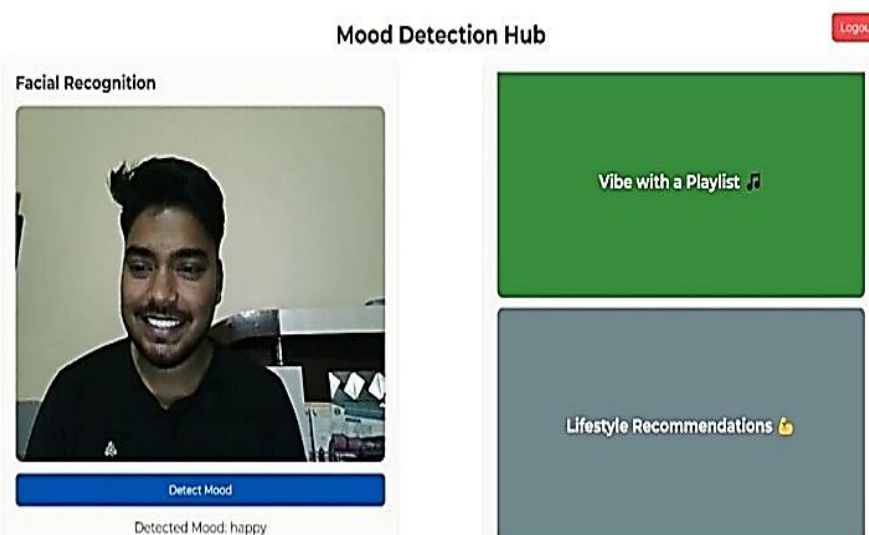
[Detect Mood](#)

Detected Mood: neutral

Vibe with a Playlist 🎵


Lifestyle Recommendations 🍷

Figure 4. Neutral mood.



Mood Detection Hub [Logout](#)

Facial Recognition



[Detect Mood](#)

Detected Mood: happy

Vibe with a Playlist 🎵

Lifestyle Recommendations 🍷

Figure 5. Happy mood.

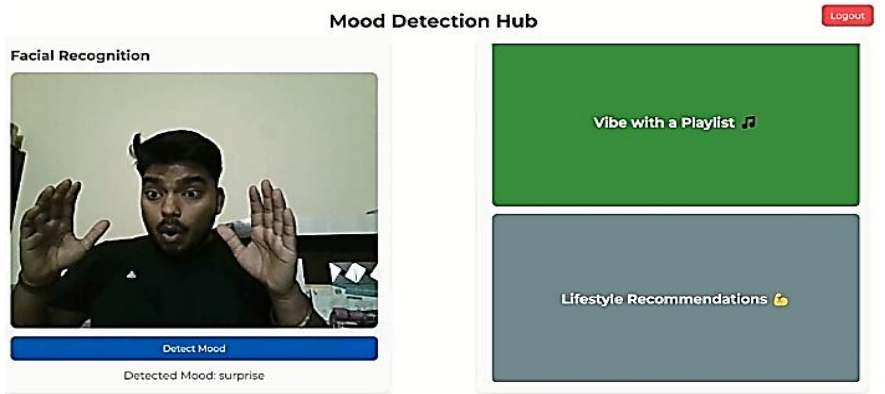


Figure 6. Surprise mood.

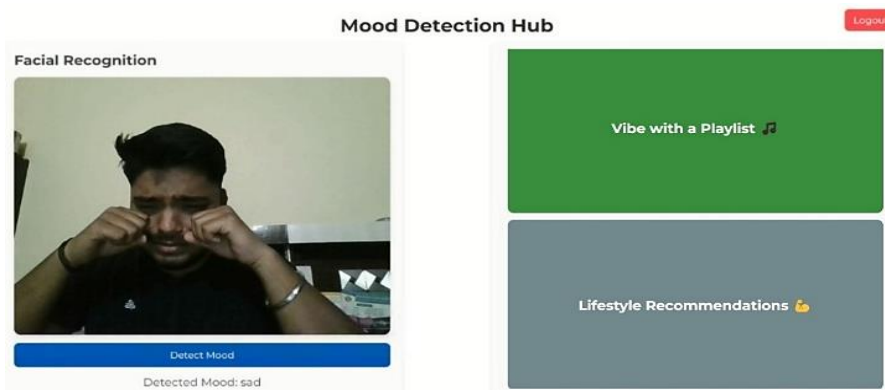


Figure 7. Sad mood.

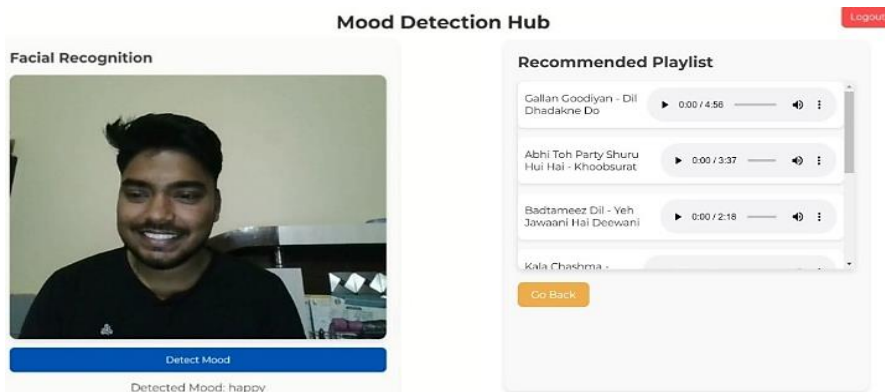


Figure 8. A playlist of songs for a happy mood.

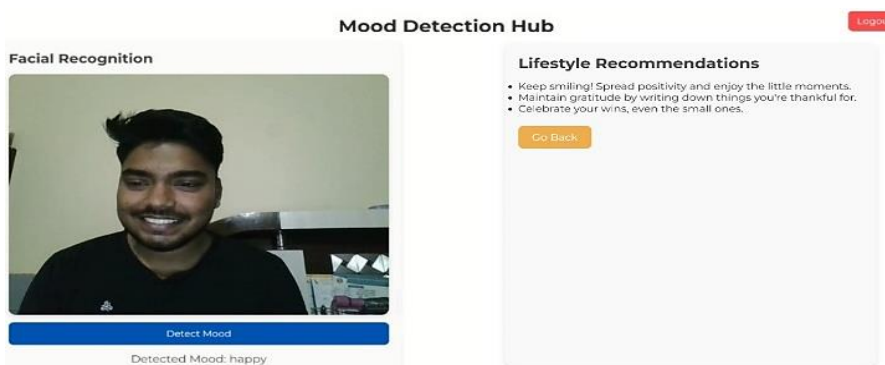


Figure 9. Lifestyle recommendations for a happy mood.

learning techniques, such as CNNs, the system accurately identifies emotions from facial expressions, enabling a customized experience that adapts to users' emotional states. The personalized music recommendation engine is highly effective, with users reporting greater engagement and satisfaction. Moreover, the integration of mental health support features underscores the system's comprehensive approach to well-being by providing essential resources and exercises for stress management and emotional regulation. Designed with accessibility and customization in mind, the intuitive interface received positive feedback, ensuring that Aura Pulse remains inclusive and easy to use for a diverse audience.

Future Scope

Future enhancements of the Aura Pulse will include voice analysis for emotion detection, improving accuracy, and personalization. Multimodal emotion recognition, integrating facial expressions, voice tones, and physiological signals, will provide a more comprehensive emotional assessment. Context-aware recommendations and social network integration will refine user experiences, whereas features, such as real-time feedback, mood tracking, and journaling, will enhance mental health support. Collaboration with mental health professionals will ensure accurate and reliable resources, positioning Aura Pulse as an advanced and intelligent emotional well-being companion. Additionally, AI-driven adaptive learning enables the system to refine recommendations based on user behavior over time. Integration with wearable devices can further enhance real-time emotion tracking and offer proactive intervention. Expanding language and cultural adaptability will make Aura Pulse more accessible to diverse global audiences.

REFERENCES

1. Guo R, Guo H, Wang L, Chen M, Yang D, Li B. Development and application of emotion recognition technology: a systematic literature review. *BMC Psychol.* 2024;12(1):95. doi:10.1186/s40359-024-01581-4.
2. Kiran BK, Shanthan P, Ram KS, Usha K. Emotion based music recommendation system using VGG16-CNN architecture. *Int J Res Appl Sci Eng Technol.* 2024;12(6):592–596. doi:10.22214/ijraset.2024.63181.
3. Modran HA, Chamunorwa T, Ursuțiu D, Samoilă C, Hedeșiu H. Using deep learning to recognize therapeutic effects of music based on emotions. *Sensors (Basel).* 2023;23(2):986. doi:10.3390/s23020986.
4. Yampe P, Boddawar C, Gangawane A, Khatal V, Choudhari T. Music recommendation system by emotion for multiple faces. *Grenze Int J Eng Technol.* 2025;11:1915–1919.
5. Samuvel DJ, Perumal B, Elangovan M. Music recommendation system based on facial emotion recognition. *3C Tecnol.* 2020;Special Issue 4:261–271. doi:10.17993/3ctecno.2020.specialissue4.261-271.
6. Bhaumik M, Attah PU, Javed F. Emotion integrated music recommendation system using generative adversarial networks. *SMU Data Sci Rev.* 2021;5(3):4. Available from: <https://scholar.smu.edu/datasciencereview/vol5/iss3/4>
7. Metilda Florence SM, Uma M. Emotional detection and music recommendation system based on user facial expression. *IOP Conf Ser Mater Sci Eng.* 2020;912(6):062007. doi:10.1088/1757-899X/912/6/062007.
8. Phaneendra A, Muduli M, Reddy SL, Veenasree R. EMUSE—An emotion based music recommendation system. *Int Res J Mod Eng Technol Sci.* 2022;4(5):4159–4163.
9. Athavle M, Mudale D, Shrivastav U, Gupta M. Music recommendation based on face emotion recognition. *J Inform Electr Electron Eng.* 2021;2(2):1–11. doi:10.54060/JIEEE/002.02.018.
10. Priyanka VT, Reddy YR, Vajja D, Ramesh G, Gomathy S. A novel emotion based music recommendation system using CNN. 2023 7th International Conference on Intelligent Computing and Control Systems (ICICCS), Madurai, India. 2023. p. 592–596. doi:10.1109/ICICCS56967.2023.10142330.
11. Joshi Sse. 2021 12th International Conference on Computing Communication and Networking Technologies (ICCCNT), Kharagpur, India. 2021. p. 1–6. doi:10.1109/ICCCNT51525.2021.9579813.