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Emotion Recognition Entertainer using Deep Learning

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Abstract: *The project suggests a system that uses deep learning and emotion identification techniques to provide users with recommendations for movies, songs, news, and quotes depending on their current emotional state. Using machine learning techniques, the system will examine a vast collection of music, movies, items of news, and quotes to recommend content that is appropriate for the user's emotional state. By improving user experience, making better content suggestions, and attending to their requirements, the initiative strives to achieve these goals. This initiative may help people better control their emotions and maintain their mental health. In order to assess the user's emotional state, the system will analyses their facial expressions or other inputs. It will then provide the user personalized recommendations for material that would either match or uplift their emotional condition.*

Keywords: Emotion Recognition, Facial Recognition, Speech Recognition, entertainment Recommender, Multimedia Recommender, Deep Learning, Convolutional Neural Networks.

I. INTRODUCTION

The project aims to develop a system that recommends movies, songs, news, and quotes to users based on their current emotional state, using emotion recognition techniques with deep learning. The system will analyze the user's facial expressions or other inputs to determine their emotional state and provide personalized recommendations for content that is likely to improve their mood or match their emotional state.

The system will use machine learning algorithms to analyze a vast database of movies, songs, news articles, and quotes, and suggest content that is suitable for the user's emotional state. By doing so, the system will enhance user experience, provide better content recommendations, and cater to their needs. This project is not only limited to entertainment purposes but also aims to assist people in managing their emotions and improve their mental health. Overall, this project has the potential to have a significant impact on people's lives by providing them with personalized recommendations based on their current emotional state.

The system will improve user experience, make better content suggestions, and meet their requirements by doing this. This initiative intends to help individuals better manage their emotions and maintain mental health, not just for entertainment purposes. Overall, by offering individuals personalized recommendations based on their present emotional state, this initiative has the potential to have a big influence on their lives.

We use Different algorithms to train different models like for detect emotion using voice and detect gender using voice we use Random Forest Classifier Algorithm for face recognition we use Convolutional Neural Network, etc.

II. LITERATURE SURVEY

"Affective Music Recommender System Based on Deep Learning" by X. Zhang et al. This paper proposes a music recommendation system based on deep learning that takes into account the emotional state of the user and recommends songs based on their emotional preference.

"Movie Recommendation System based on Emotion Analysis" by L. Yao et al. This paper proposes a movie recommendation system based on emotion analysis using deep learning techniques. The system predicts the user's emotional state and recommends movies based on their emotional preference.

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"Music Recommendation System based on Emotion Detection using Convolutional Neural Network" by S. M. H. Reza et al. This paper proposes a music recommendation system based on emotion detection using a CNN architecture. The system predicts the user's emotional state and recommends songs based on their emotional preference.
"Affective Movie Recommendation System Using Deep Learning" by J. Seo et al. This paper proposes a movie recommendation system based on deep learning that takes into account the emotional state of the user and recommends movies based on their emotional preference.
Overall, these studies demonstrate the potential of deep learning techniques for recommending movies and songs based on emotion recognition, which can enhance the user's experience by providing more personalized and emotionally resonant content recommendations.

III. SCOPE OF PROJECT

The goal of a project that uses deep learning to recognize emotions in users and make suggestions for movies, music, news, and quotations would be to create a system that can assess the user's emotional state and provide content recommendations in response to that analysis. The system would need to be able to interpret many data kinds, such as text, audio, and video, and use deep learning to analyze the emotional content of the data.
The project involves gathering and organizing a sizable dataset comprising music, videos, stories from the news, and statements that have been tagged with emotional labels like "happy," "sad," "angry," etc. A deep learning model, such as a convolutional neural network or recurrent neural network, would be trained using this dataset to identify emotions in the input data Additionally, the study would include assessing the usefulness of the recommendation system in terms of both the precision of emotion identification and the efficacy of content suggestions. In order to analyze the success of the deep learning model, this assessment would comprise gathering user input on the suggested material and using measures like accuracy and recall.
The development of a sophisticated system that combines various data types and deep learning methodologies would be required to provide users with a personalized and emotionally resonant content recommendation experience in the context of a project that recommends movies, songs, news, and quotes using emotion recognition.

IV. PROBLEM STATEMENT

The absence of customized and emotionally appealing suggestions for consumers is the issue that the project suggesting movies, music, news, and quotations using emotion detection and deep learning seeks to address. The majority of content recommendation systems now in use are focused on user behavior, such as previous searches or views, and do not consider the user's emotional state.
This may lead to recommendations for material that do not emotionally connect with the user, making the experience less engaging and pleasurable. For instance, a system that suggests action movies to a user who is depressed would not be as beneficial as one that suggests films more likely to elicit a positive emotional reaction.
The project intends to deliver more individualized and emotionally resonant content suggestions to consumers by using deep learning techniques to recognize emotions in the input material, such as videos, audio, and text, and merging this analysis with user input of their emotional state. Users will have a better, more enjoyable experience as a result, and this will eventually increase the efficiency of content recommendation algorithms.

V. SYSTEM

The user's face is treated as an input that was recorded by a camera. The face is the typical site of facial expression, which is the crucial data needed by the system to produce the output.
Providing Entertainment Source recommendations by using voice, emotions, and photos as an input.

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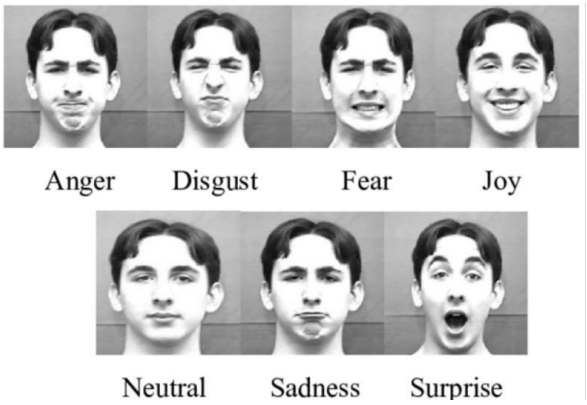

Figure 1: Different type of human expressions

VI. MODEL

6.1 Random Forest

Random forest and other supervised machine learning algorithms are commonly used in classification and regression problems. It builds decision trees from different samples, using their average for categorization and majority vote for regression.

One of the most important features of the Random Forest Algorithm is its capability to handle data sets with continuous variables, as in regression, and categorical variables, as in classification. It produces better results when dealing with classification problems.

6.2 Convolutional Neural Networks

Convolutional neural networks outperform other neural networks when given inputs such as images, voice, or audio, for example. The CNN becomes more complicated with each layer, detecting larger areas of the picture. Early layers emphasize basic elements like colors and borders. The bigger features or forms of the item are first seen when the visual data moves through the CNN layers, and eventually the desired object is recognized.

Feature	Models	Accuracy	Inference	Go/No-go
Emotions	Deep Learning	1.00	Overfitting	No-go
	Knn	0.77	Result not too accurate	No-go
	Random Forests	0.83	Almost correct predictions	Go
Gender	Logistic Regression	0.98	Overfitting	No-go
	Deep Learning	0.99	Overfitting	No-go
	Random Forests	0.97	Almost accurate predictions	Go

Figure 2: Model Accuracy Chart

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VII. ARCHITECTURAL DIAGRAM

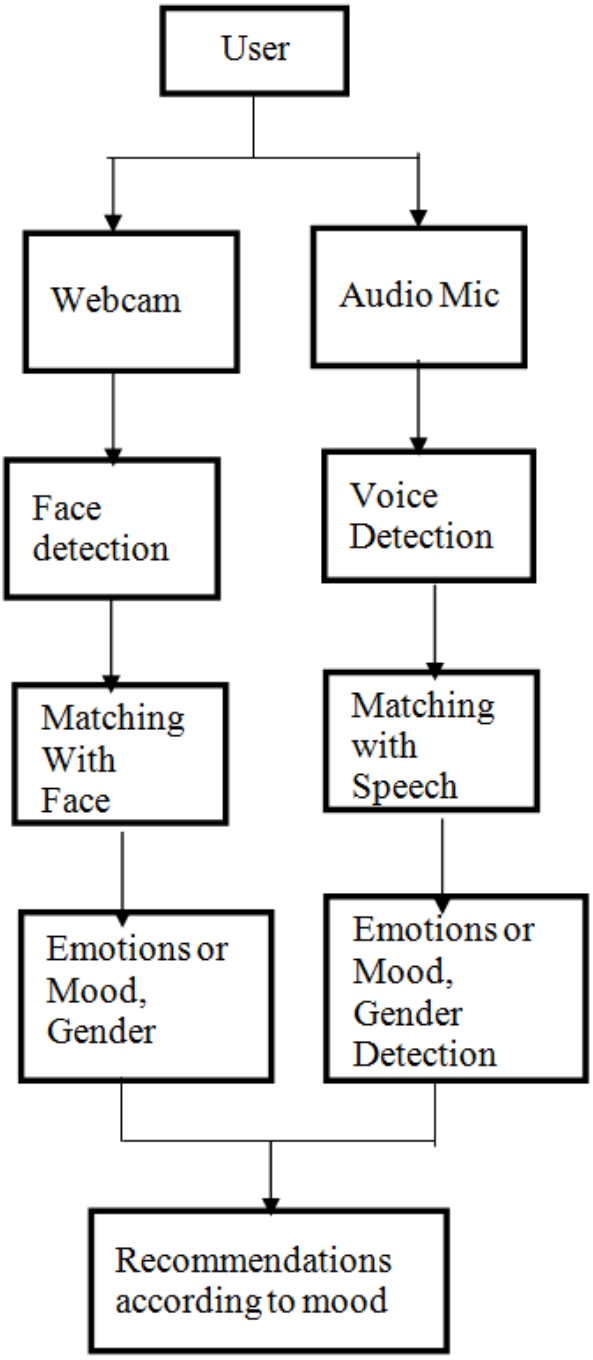

Figure 3: Architectural Diagram

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VIII. DATA FLOW DIAGRAM DFD LEVEL 0

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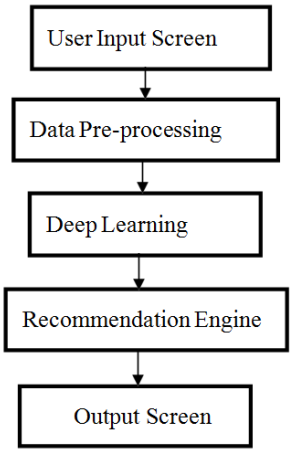

Figure 4: 0 Level Data Flow Diagram

DFD LEVEL 1

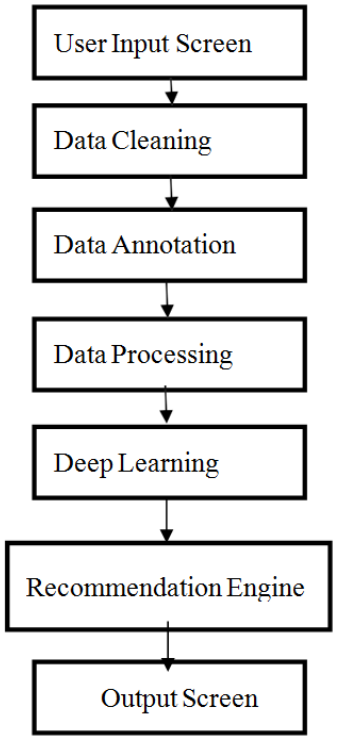

Figure 5: 1 Level Data Flow Diagram

IX. PROCESSES

9.1 Face Detection

make something different During the categorization process, a data collection is divided into classes. This approach will be used by this system to categories the various data sets according to their emotional content. We need a lot of data since the classifier will get more accurate as more datasets are used to train it. These datasets can be created by you or downloaded from the internet. It is necessary to identify each subdirectory with the name of the emotion to which it is linked. We are utilizing supervised learning in this scenario since the training dataset includes labels associated with it. The labels associated with the testing dataset are produced as a result of comparing the training dataset to the testing dataset using algorithms (in this example, classification).

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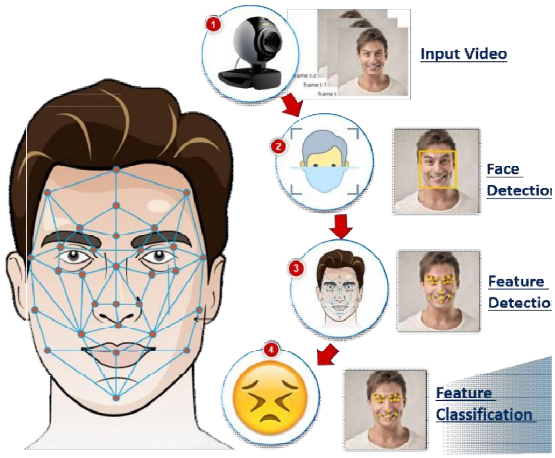

Figure 6: Face Detection

9.2 Speech Detection

Convolutional Neural Networks (CNN) are used as sophisticated deep neural networks to categories each word in our data set into many categories. With a voice sample, the suggested deep neural network produced a word classification accuracy score of 97.06%. Our data is trained and tested using CNN. The voice dataset is essentially split into two sections, one for males and one for females, making it possible to determine a user's gender from their speech.

We are utilizing supervised learning in this scenario since the training dataset includes labels associated with it. The labels associated with the testing dataset are produced as a result of comparing the training dataset to the testing dataset using algorithms (in this example, classification).

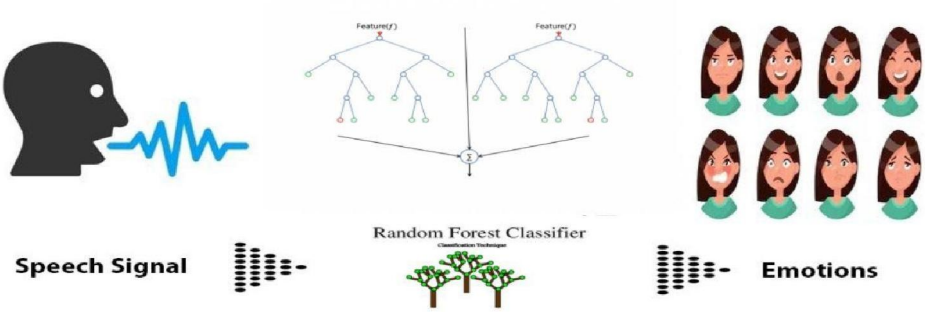

Figure 7: Speech Detection

9.3 Emotion Detection

Now that we have a dataset of faces labelled with various emotions including happiness, rage, and sadness. The dataset is now being transformed into vectors using the VGG- 16 (16-layer convolutional Neural Network), a Convolution Neural Network (CNN) for picture categorization.

The classification model is based on logistic regression since it has the greatest accuracy and very low error rates. This will classify the sample image into the appropriate category, in this case, Emotions.

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X. RESULTS

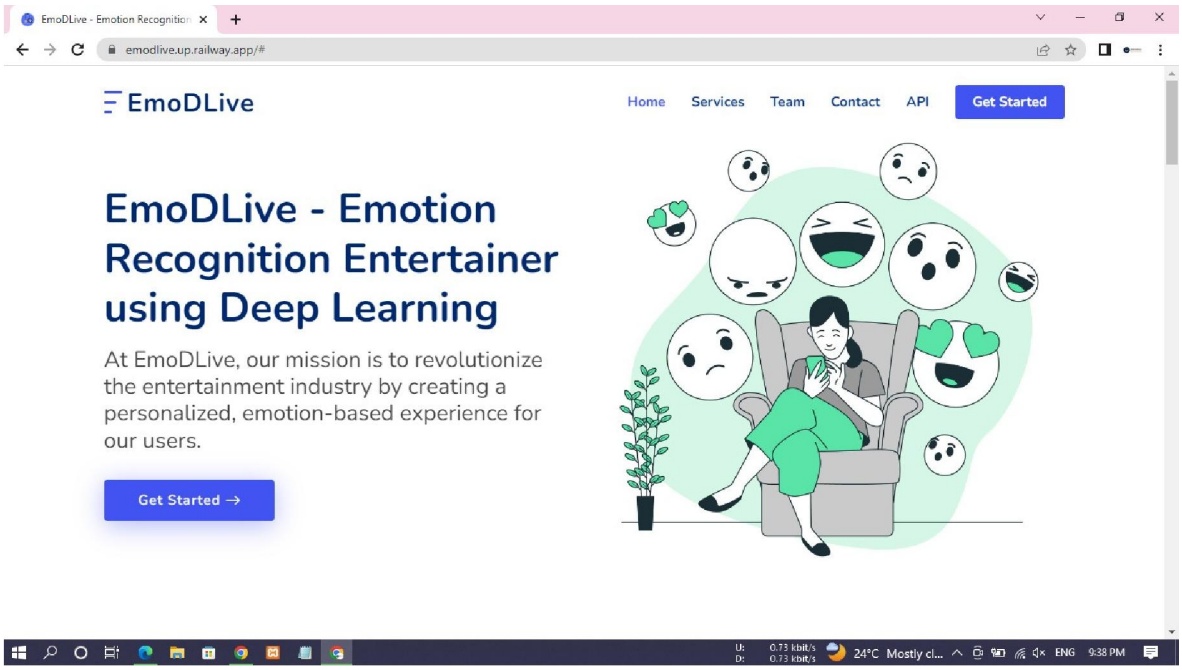

Figure 8: Home Detection

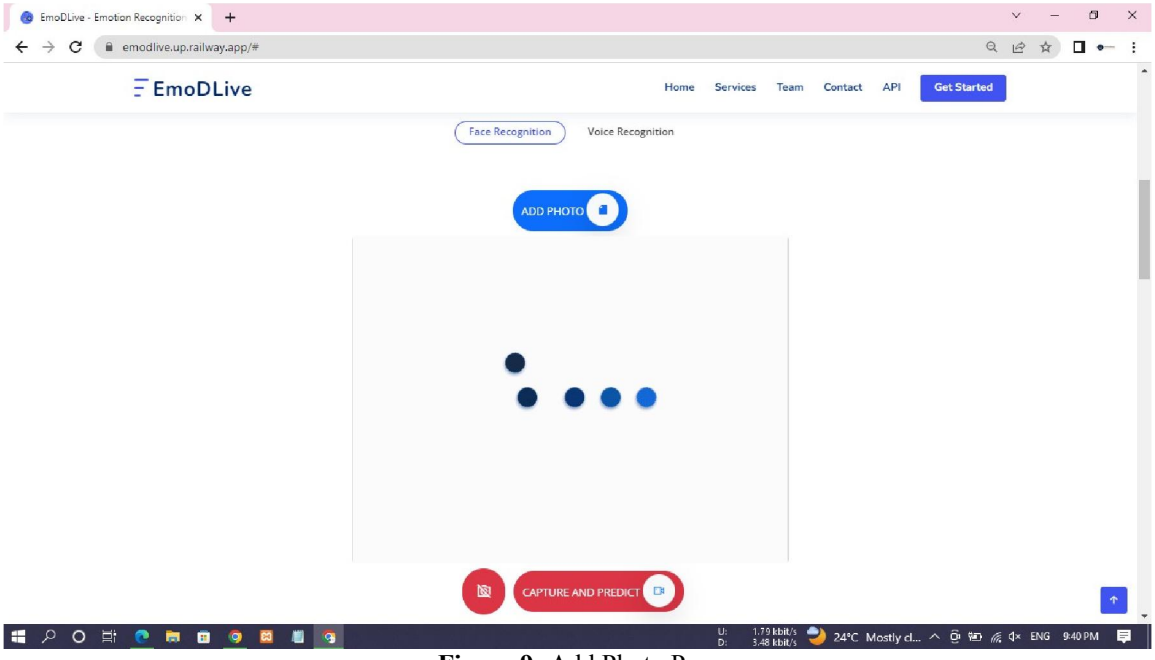

Figure 9: Add Photo Page

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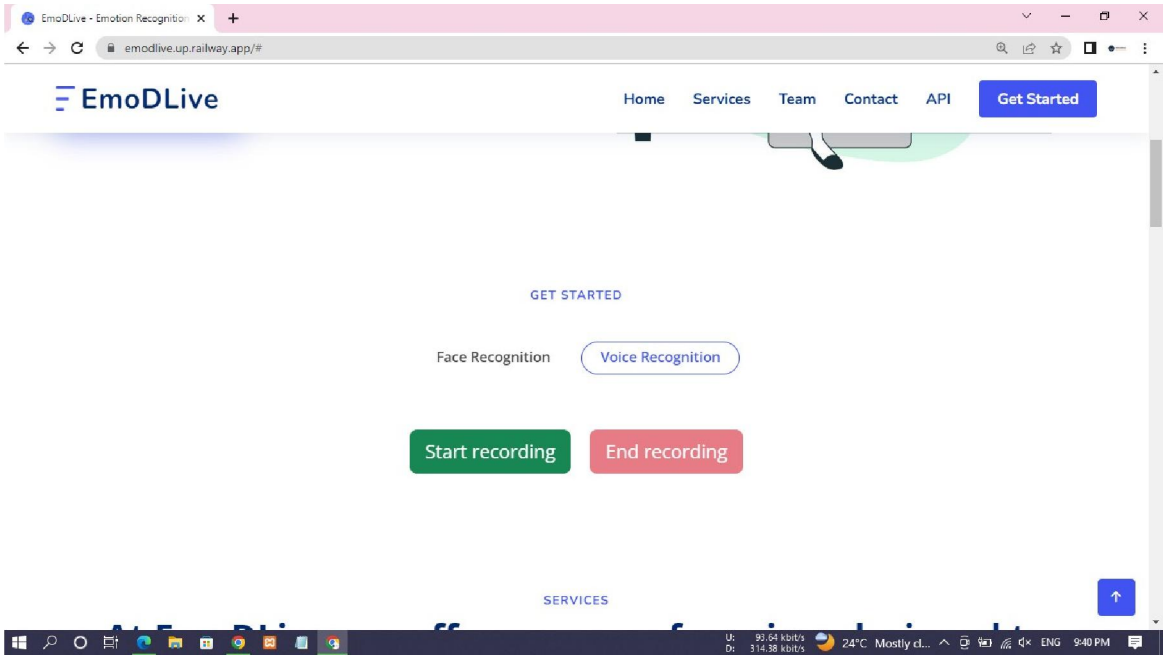

Figure 10: Recognition Page

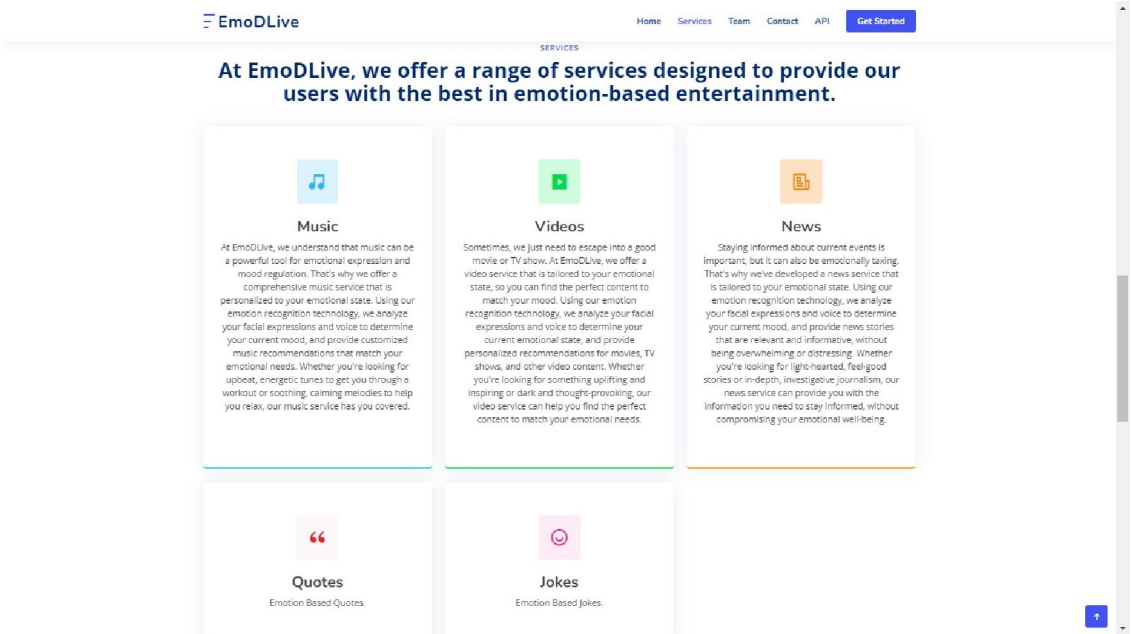

Figure 11: Services Page

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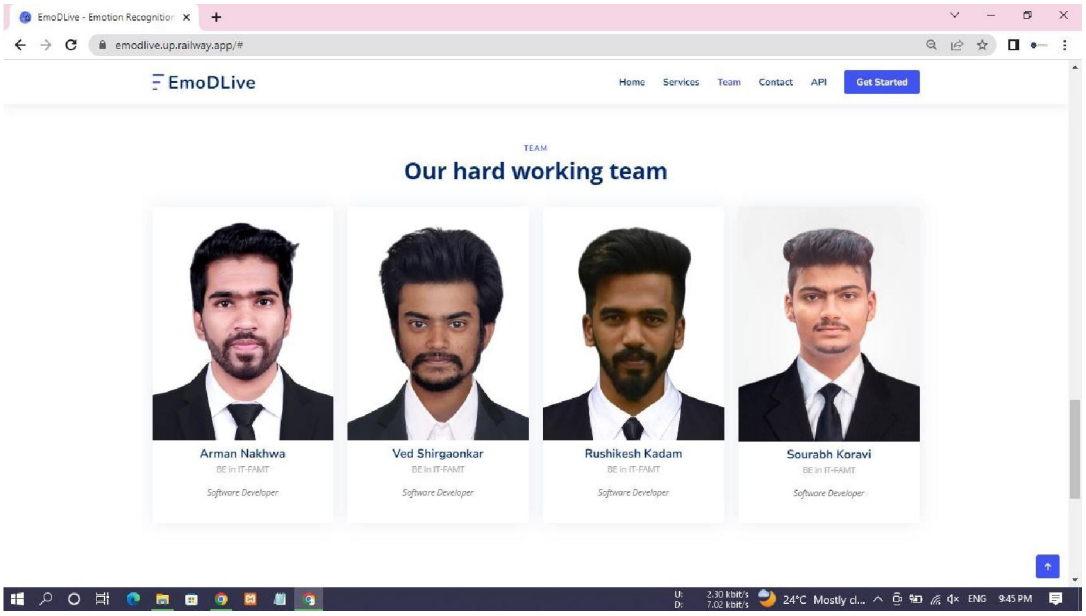

Figure 12: Team Members Page

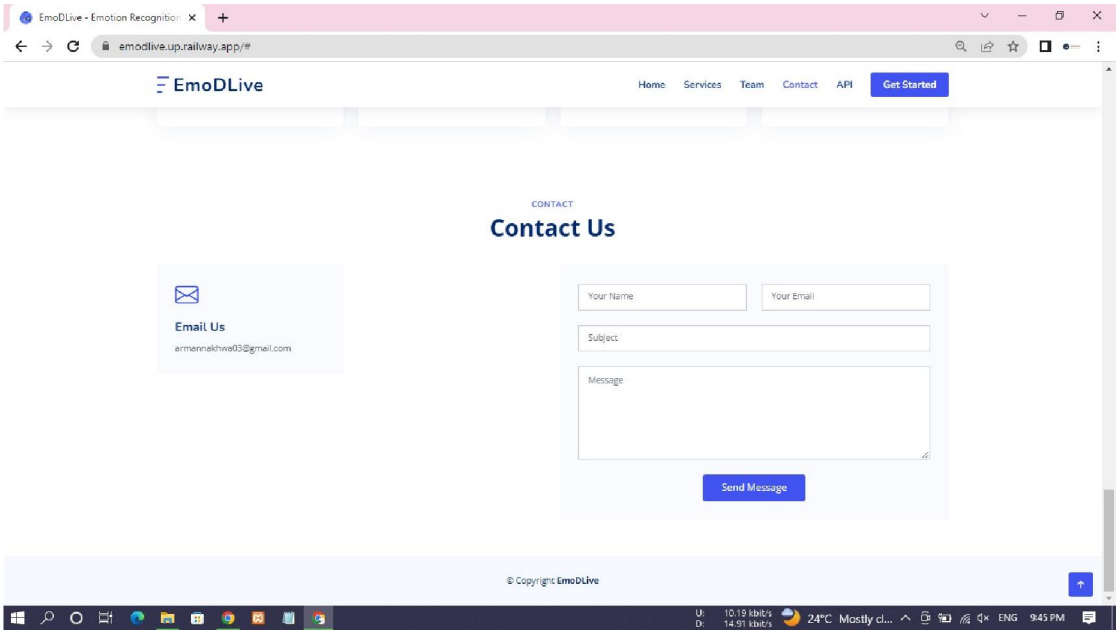

Figure 13: Contact Us Page

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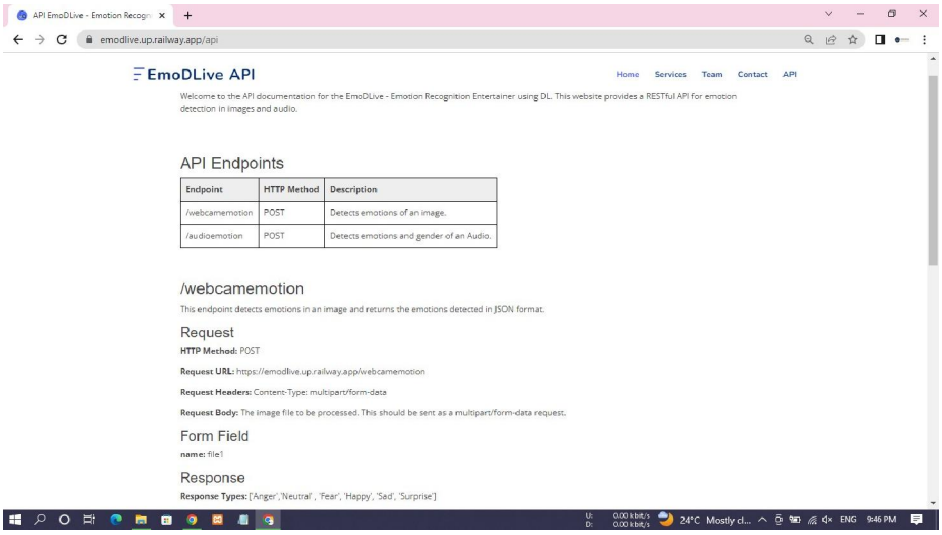

Figure 14: API Page

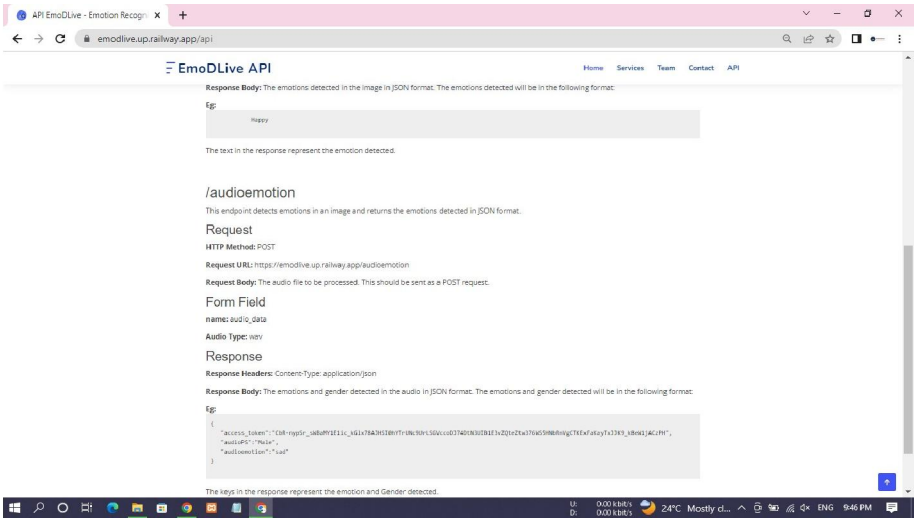

Figure 15: API Page

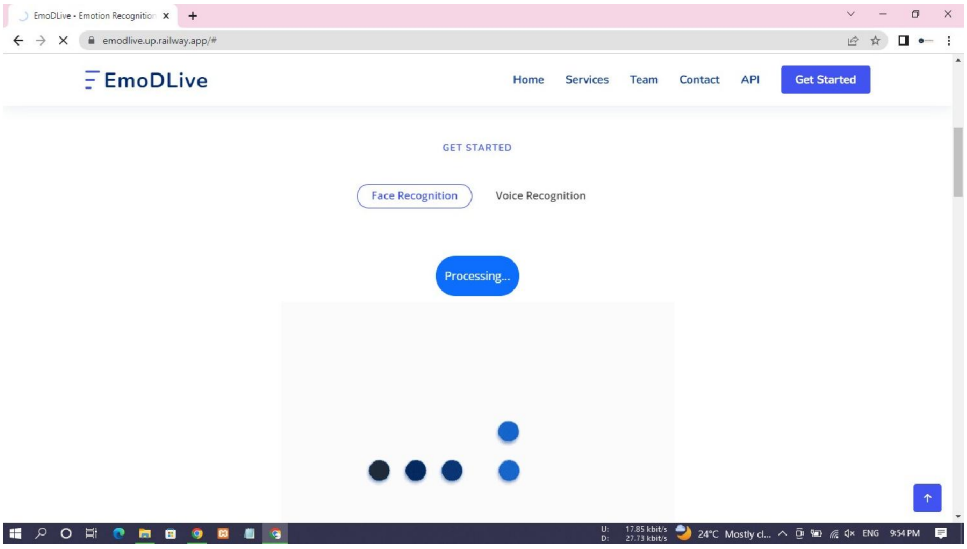

Figure 16: Recognition Page

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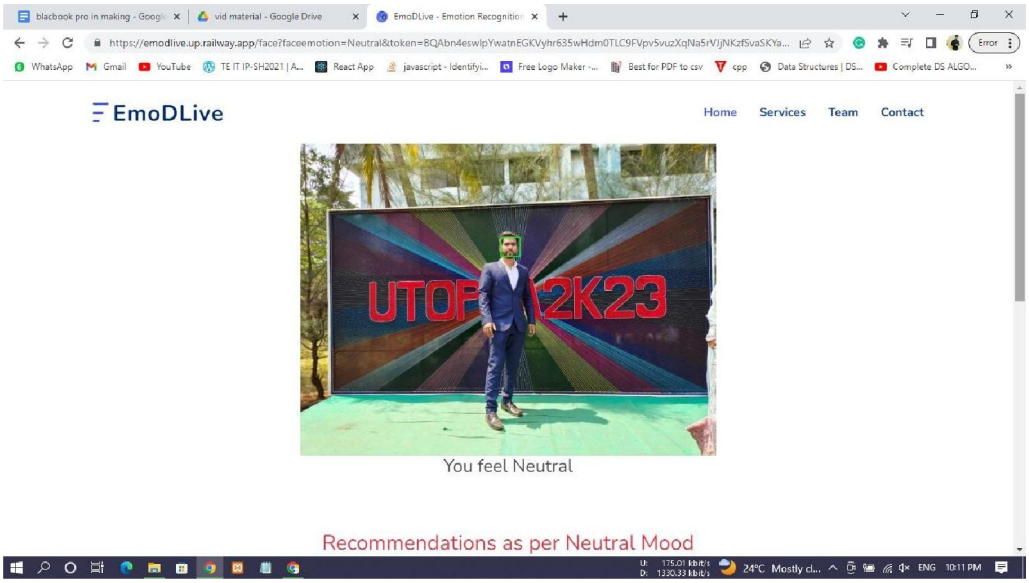

Figure 17: Mood Detection Page

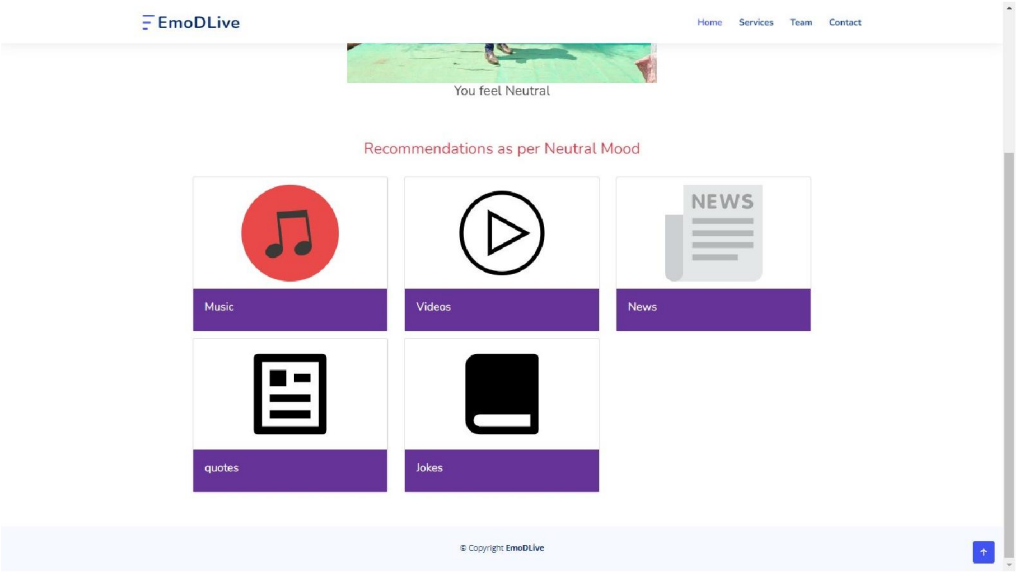

Figure 18: Recommendation Page

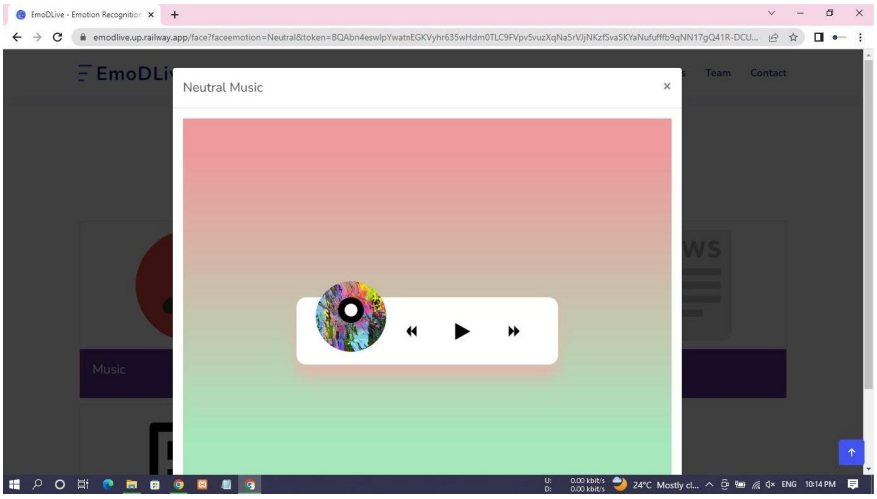

Figure 19: Music Player Page

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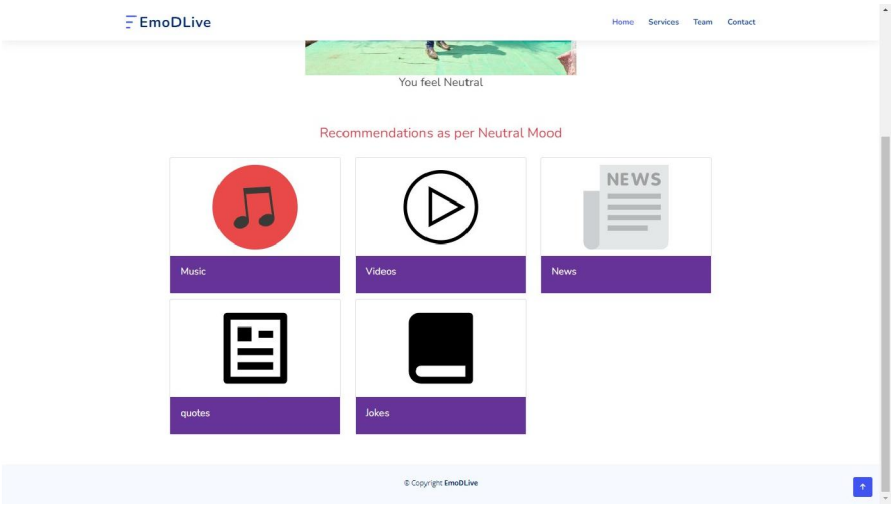

Figure 18: Recommendation Page

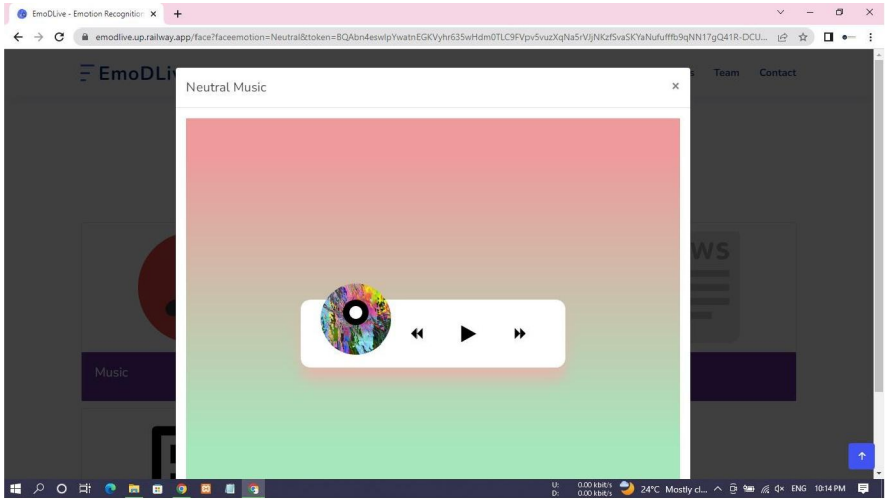

Figure 19: Music Player Page

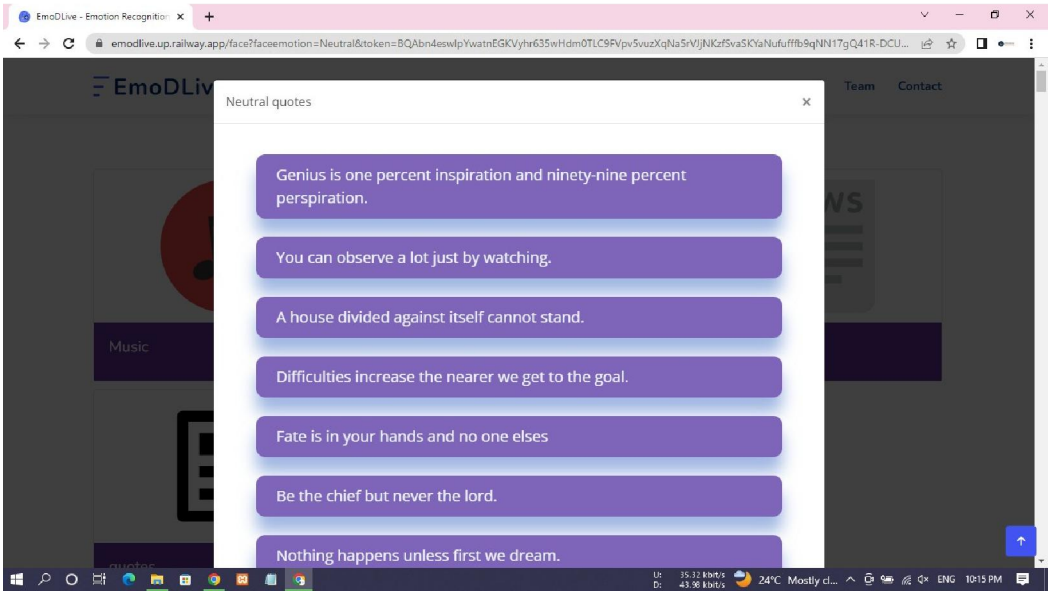

Figure 22: Quotes Recommendation page

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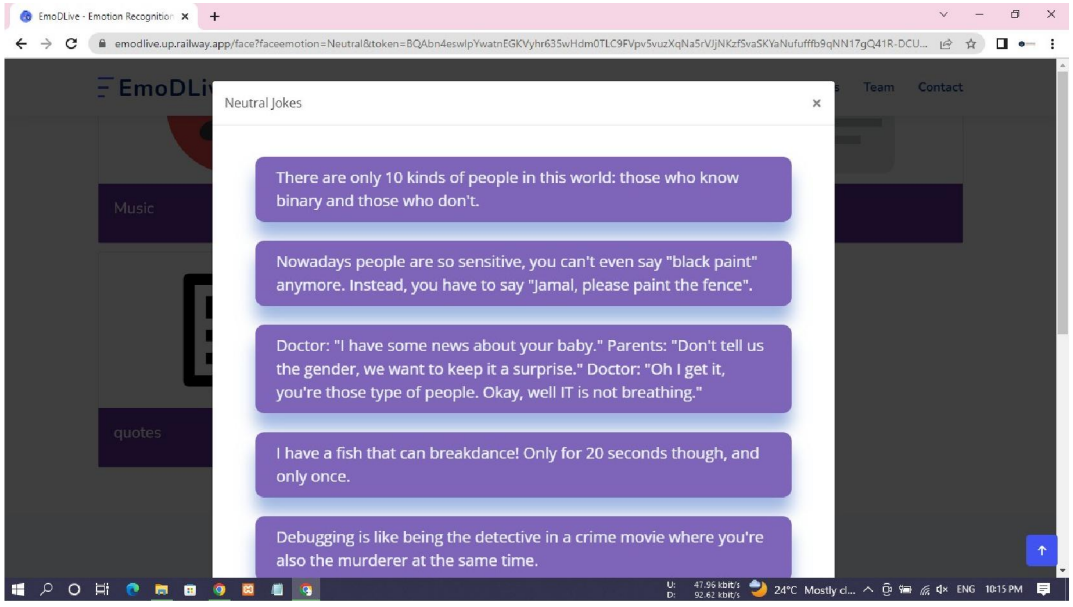

Figure 23: Jokes Recommendation page

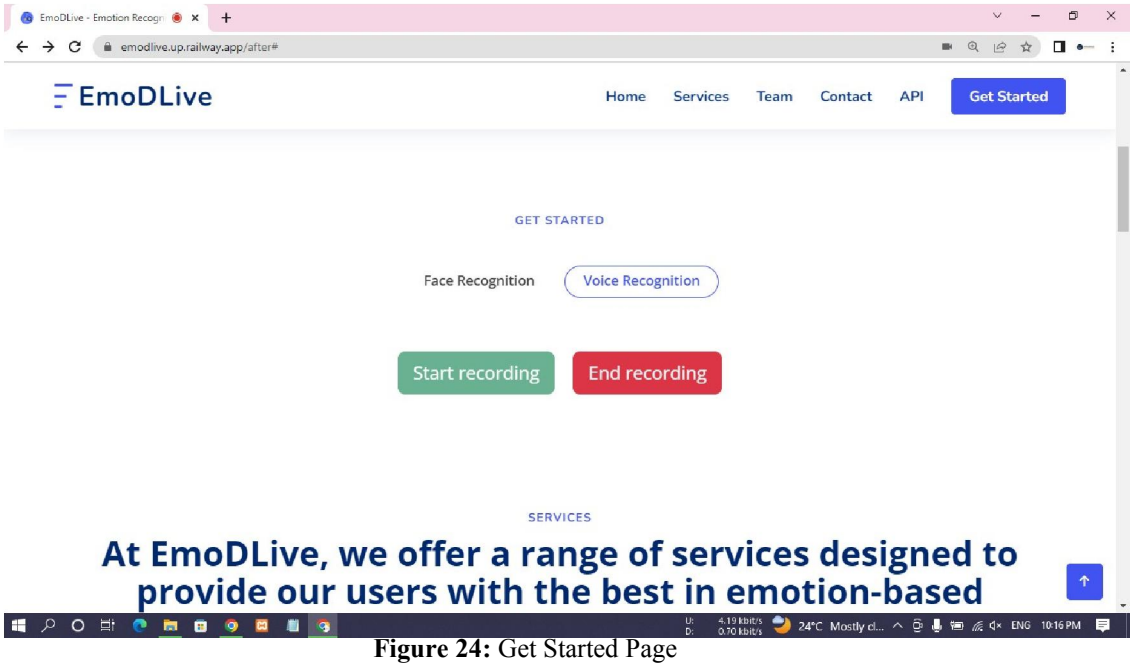

Figure 24: Get Started Page

XI. FUTURE ASPECTS

The suggested idea has a number of potential directions for further development. Here are some recommendations: Expansion of Content Categories: For the present project, we prioritized suggesting videos, music, articles, and quotations. The technology may be developed in the future to suggest other kinds of material, like novels, TV series, podcasts, and more. Integration with social media: To analyses a user's social media activity and offer tailored suggestions depending on their emotional state, the system may be connected with social media platforms.

Facial expressions were employed as a multimodal input in the current experiment to ascertain the user's emotional condition. The system can be enhanced in the future to incorporate additional input modalities like text and physiological signals.

Collaborative Filtering: By integrating collaborative filtering techniques, the system may be improved to suggest material based on the user's prior interactions with the system and other users who are experiencing similar emotional

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states.

User Feedback: To improve the system's suggestions and user experience, user feedback can be added.

XI. CONCLUSION

In conclusion, there is a lot of potential for the proposed project to enhance user experience and meet people's emotional needs by recommending movies, songs, news, and quotations utilizing emotion identification techniques with deep learning. In today's world, when more and more data is collected every day, the project addresses the urgent need for personalized content recommendations based on the user's emotional state. The initiative wants to provide customers personalized suggestions that fit their emotional state by utilizing the power of deep learning and machine learning algorithms in analyzing huge libraries of movies, songs, news, and quotes. By recommending material that can have a good influence on people's emotional well-being, this study also has the potential to help individuals manage their emotions and improve their mental health.

By recommending material that can have a positive impact on people's emotional states, this research also has the potential to help individuals better manage their emotions and improve their mental health. Overall, by offering individuals personalized recommendations based on their present emotional state, the initiative has the potential to significantly alter people's lives.

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