

CHATBOT WITH FACIAL RECOGNITION BY USING AI

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ABSTRACT

Creating a concept for a facial recognition chatbot is the main objective of the project. The work of chatbots in a variety of fields, such as marketing, education, healthcare, entertainment, has grown significantly in recent years. A chatbot is a piece of software that performs text or text-to-speech internet chats in place of face-to-face contact. Chatbots and other dialog systems are utilized for a number of purposes, including information gathering, request routing, and customer assistance. Some chatbot solutions look for generic keywords and respond with frequently used phrases that are pulled from a related library, while others utilize sophisticated AI, natural language processing, and intricate word categorization techniques. Here, we have added additional features including facial and language recognition. A facial recognition system is a technological device that uses a database of faces and digital images or video frames to identify a person's face. This kind of equipment locates and quantifies face features from a picture, usually to confirm users' identities through ID verification services.

I. INTRODUCTION

Technology is a major factor in both daily tasks and the industry. It is utilized differently throughout the world and a multitude of purposes. Artificial Intelligence has been the talk of the town lately. Artificial Intelligence mimics human cognitive abilities. Artificial intelligence (AI) chatbots are replacing human answer with software that is more accurate and closely resembles a human rather than facilitating face-to-face communication, conducts online

text or text-to-speech chats. Dialog systems employ chatbots for a number of functions, such information collecting, request routing, and customer support.

It also employs artificial intelligence methods to improve the program's dependability and interactivity, such as NLP. Due to the curfew, which has made it very difficult for academics to attend the campus given the current state of the epidemic academics at the university now have limited access to information. Hybrid Model: By relying on a database and an AI algorithm to cooperate, a hybrid strategy combines AI chatbot to prepare smarter and additional predictable in its behavior. AI chatbot to improve its intelligence and predictability of behavior.

A chatbot can be interacted with in two ways: a. words: The chatbot analyses words input and compares it with pre-prepared information, known as classified aims, in order to control the discussion. The end user speech associated these aims.

While some chatbot solutions make use of natural language processors, complex AI, and elaborate word categorization algorithms, others just search for generic keywords and produce responses using commonly used phrases that are pulled from a library.

With the help of facial recognition technology, an AI chatbot can recognize a variety of emotions, including fear, joy, neutrality, and rage. This AI occasionally responds to questions from users and helps them avoid loneliness. Artificial Intelligence and machine learning are its

responses. There are now a lot of interactive dialog systems available for real-time involvement and conversation. It would be challenging to determine the users' emotions when they are communicating, though. Such a system is required in order to take preventative action ahead of time for people experiencing emotions such as depression, rage, grief, etc.

Conversations between humans and machines aim to eliminate human-to-human interaction. One significant contributing element is our expectation that computers will be able to comprehend and share our feelings in response to our understanding of their function and emotions. Nowadays, practically all colleges and universities use psychological consultation facilities for training before entering the field.

One of the main areas of study in facial recognition is the display of human emotion on the face, which has practical applications outside of the lab. With the help of this projection, a deep learning description is built to categorize a given footage of a person face reaction into one of the seven fundamental human reaction. Preprocessing the picture data, augmenting the current tiny dataset, testing before to model training, training the model, and prediction with assessment are the tasks included in this project. The outcome will be shown visually in a manner akin to the figure below. The human face is a crucial component of communication. Emotions on the face might convey their emotions. The Face Expression Approach [2] comprises three primary stages: facial feature extraction, which represents the facial expressions, classification, which categorizes the features extracted in the appropriate expressions, and face recognition, which identifies the face in an image for additional processing. The general stage of emotion recognition is depicted in Figure 1 below. The total system can be divided into three key phases based on the figure. The initial step is face identification, which involves first identifying the face and then extracting its most notable features.

SYSTEM OVERVIEW 1.1

In order to recognize emotions, photos must first be processed in order to identify faces and then extract facial features. There are three key steps in facial expression recognition process. Initially, a face picture is obtained. Pre-processing and Face Detection. The method of removing the facial region from the background is known as face detection. Its meaning is to ascertain the face's location within the picture. This step is necessary due of the disparate scales of the photos. Tracking an input image with a complicated background and a range of lighting

conditions can likewise be highly challenging. When the lighting conditions of the test image differ from those of the training images, face expression recognition usually fails. Pre-processing is necessary since the facial point can be incorrectly recognized. B. Classification And Feature Extraction

The features—wrinkles, bulges, forehead, areas around the mouth and eyes—describe how the texture of the face changes in response to specific actions. The primary types of techniques that are available are Fisher's Linear Discriminator [5], Principal Component Analysis [3], and Local Binary Pattern (LBP) [4]. Following their extraction from the facial region, the set of features is used in the classification stage. The face expression is described by the collection of features. Since classification necessitates supervised training, labelled data should make up the training set. After being trained, the classifier can identify incoming images by classifying them accordingly. A standard classifier's algorithm can be either supervised or unsupervised.

II . LITERATURE SURVEY

[1] Marcus Smith¹ · Seumas Miller^{2,3,4} ethical The application of biometric facial recognition technology

Law enforcement employs closed-circuit television and images to identify unidentified suspects using biometric face recognition, an artificial intelligence program that evaluates facial attributes automatically. It has a huge potential for criminal solving, and as artificial intelligence advances, so do its capabilities. However, there are also significant ethical and privacy implications that necessitate legislation and regulation.

This article examines the evolution of biometric facial recognition technology, current applications, emerging legal frameworks, and moral implications of the issues that arise. Ethical concerns are used to address potential conflicts between security, personal privacy and autonomy, and democratic duty that may arise from modern information technology. These are helpful in offering assistance.

[2].Taina Bucher, "Facing AI: conceptualizing 'face communication' as the face recognition systems' mode of operation"

This article makes the case that facial recognition should be viewed as the mode of operation for face

communication. A growing number of applications and technologies are employing face recognition to convey information about an individual's identity and personality. Examples include apps that purport to evaluate a person's reliability, hiring software that evaluates applicants' suitability for a position, and banks that want to replace debit cards with iris scanning. Faces are more valuable and can convey messages. Therefore, it is even more crucial to understand how their ability for communication is realized in modern machine culture. The paper poses the question of how we could conceptualize faces' communicative abilities in AI applications and how their use in modern biometric systems might help us rethink what communication is. In the era of algorithmic

[3] Shivam Singh , S. Graceline Jasmine **Face Recognition System**

In the current era, face recognition stands out as a prominent technology in computer vision, addressing challenges such as illumination, pose, and facial expressions. This complex task involves tracking target objects in live video images captured by a camera. Essentially, it's a system designed to automatically identify individuals from still images or video frames. In our proposed automated face recognition system, we employ algorithms like KLT for feature tracking, Viola-Jones for face detection using Haar cascade classifier, and PCA for feature selection. This model continuously detects and recognizes human faces in each frame, contributing to a robust and efficient face recognition application.

[4].A.V. Amith Sai Emotion Detection and Therapy System using Chatbot

Understanding and leveraging human emotions is crucial in our technologically immersed society. The integration of emotional intelligence in computers enhances human-computer interaction, addressing concerns such as privacy and time constraints in seeking support. This initiative strives to empower individuals by allowing a computer to comprehend and respond to their emotional states, providing support conveniently and at their own pace, thereby contributing to increased comfort in human-computer encounters.

[5]. Bi-directional Recurrent Neural NetworkBased Intelligent Chatbot Model to Improve Social Media Emotion Detection: M. Balaji1, Dr. N. Yuvaraj2

A Chatbot akin to a digital assistant, possesses the capacity for pretraining or self-learning. Its role involves understanding user queries and engaging in natural language conversations. While current Chatbots facilitate

communication, they often fall short in improvising information and may deviate from the topic. The proposed bot seeks to address these limitations by identifying users' emotional states, leveraging Bi-directional Recurrent Neural Network and TensorFlow functions. This innovation expands the application of chatbots across diverse fields, including e-learning, e-government, and various web-based models.

III . AIM AND SCOPE OF PRESENT INVESTIGATION

A chatbot that uses facial recognition technology seeks to give users a more sophisticated and tailored experience. In recent years, chatbots have gained popularity as an automated means of customer support and round-the-clock assistance. But these chatbots frequently lack the human touch that real customer care agents can offer. By enabling the chatbot to identify and react to specific users, face recognition technology can improve its capacity to offer individualized assistance.

There are various possible advantages of incorporating face recognition technology into a chatbot system. For instance, enabling the chatbot to adjust its responses in accordance with the user's emotions and facial expressions might increase the accuracy of the chatbot's replies. Through face recognition, the chatbot can identify when a user is upset or annoyed and provide more individualized help or solutions. This may result in a happier user experience and higher levels of chatbot system satisfaction. Enhancing the security of a chatbot system is another advantage that could arise from incorporating face recognition technology.

The chatbot can guarantee that only authorized users have access to critical information by employing facial recognition technology to authenticate users. However, using face recognition technology in a chatbot system comes with a number of potential drawbacks and ethical issues. One issue is the technology's accuracy, especially when it comes to differentiating between people of different genders or nationalities. If the technology is not thoroughly validated for accuracy and trained on a variety of datasets, there is a risk of prejudice and discrimination.

The possible privacy violation that may result from the application of facial recognition technology is another issue.

If users' faces are being scanned and analyzed without their permission, they could feel violated or uncomfortable. Additionally, there's a chance that the technology will be used to track people secretly or for surveillance.

Furthermore, the technology needs to be continuously tested and assessed for accuracy and dependability. This can be achieved by employing varied datasets that represent a wide range of genders and ethnicities, as well as by thorough testing. The system needs to be thoroughly examined and any bias or errors fixed before it is made available to users. To sum up, the purpose of a chatbot that utilizes facial recognition technology is to offer a more customized and safe user experience while simultaneously taking into account the possible drawbacks and moral dilemmas related to its application. Chatbot systems can offer a more sophisticated and user-friendly experience by carefully considering privacy and security throughout system design, as well as by testing and assessing the correctness and dependability of the technology. Examining the possible advantages and disadvantages of incorporating face recognition technology into a chatbot system could be the goal of a study on chatbots with facial recognition capabilities. Assessing the efficiency and precision of the employed facial recognition technology as well as how it affects the user experience may potentially be a goal of the inquiry.

The investigation's purview may encompass the following areas: 1. Examining the literature on face recognition and chatbots to determine the advantages and disadvantages of merging these technologies.

Determining which facial recognition technology is available and whether it can be integrated into a chatbot system.

constructing and evaluating a chatbot that incorporates facial recognition technologies in order to evaluate its precision and efficacy. Using user surveys or interviews to assess how well the chatbot with integrated face recognition technology works for users. Evaluating the moral ramifications of facial recognition technology use in chatbots, including privacy issues and bias. All things considered, the study may aid in the creation of more sophisticated and approachable chatbots that take advantage of face recognition technology's advantages while resolving any potential drawbacks and moral dilemmas surrounding their application. Variations in Mathematical Models

Because the conventional method typically employs linear transformation to carry out classification, they are known as linear classifiers. In contrast, Deep Learning descriptions typically combine direct transformation with unpredictable functions in order to find changes in the classification process. The Structure at a Deeper Level: Typically, the conventional method only applies one layer of processing; applies one set of weights. On the other hand, during the classification process, deep learning description carry out multiple layers of operations.

IV .PROPOSED SYSTEM

* Our suggested solution includes a chatbot with facial recognition capabilities that can identify a person's face from a still image or a video clip and respond to their expressions.

*A type of biometric software known as facial recognition plot a humans facial expressions carefully and fixes details as faceprint.

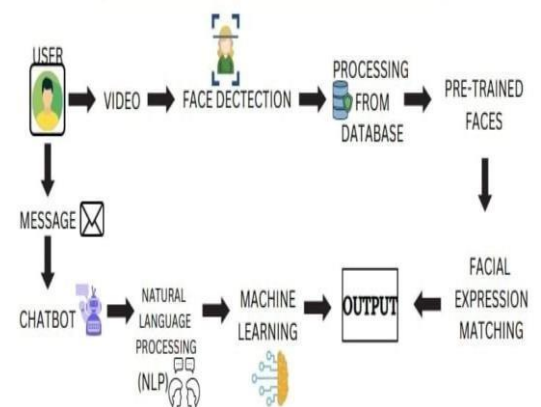
*The program compares a live footage to recorded faceprint utilize "deep learning " description to confirm person's identification.

V . WORKING

NLP stands for natural language processing. The natural language processing scope of (AI) is concerned with the study of language's interaction with computers. The aim of natural language processing is to allow machines to realize, explain, and produce human language. It comprises using computer methods to generate, manipulate, and analyze natural language data.

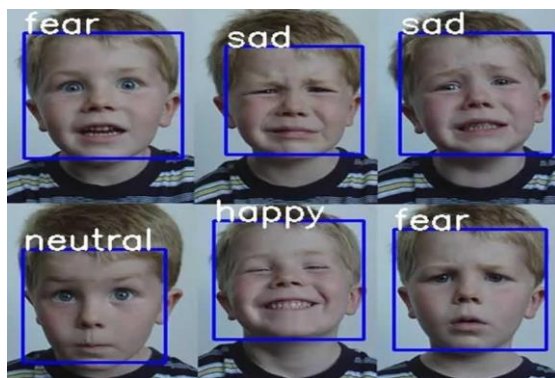
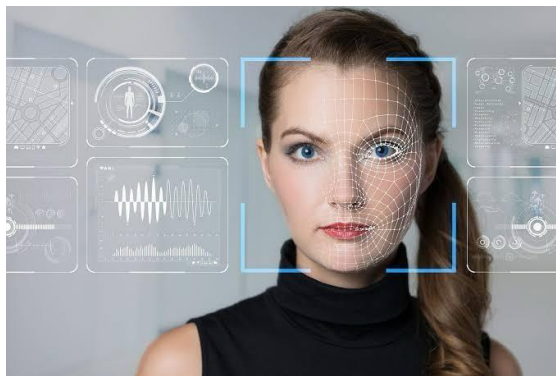
Due to advancements in machine learning and huge data processing, NLP has expanded dramatically in modern years. Natural language processing has many real-world uses, such as question-answering systems, speech recognition, machine translation, and sentiment analysis.

Along with search engines, NLP is utilized in social media research and by virtual assistants such as Siri and Alexa. The ambiguity present in natural language is one of the main NLP problems.



The complexity of human language is another problem for NLP practitioners. Metaphor, irony, sarcasm, and other figurative language used by humans can be challenging for computers to understand. Researchers in natural language processing (NLP) are trying to create algorithms that can recognize these subtleties in language and interpret it correctly. previous conversations and offer more personalized assistance.

VI .DATA SET



VII .CONCLUSION

In conclusion, the way users engage with these AI-powered products has changed as a result of the incorporation of facial recognition technology into chatbots. By offering a more individualized and effective experience, chatbots equipped with facial recognition technology can help organizations increase customer happiness and loyalty. Furthermore, businesses that need safe communication channels may find these chatbots appealing due to the additional protection that facial recognition technology offers.

We may anticipate additional creative applications for face-recognition chatbots as technology develops, such as in the entertainment and educational sectors and as virtual friends. The framework review for facial expression recognition has been emphasized in this research. This provides an overview of the literature on the many methods used in facial expression recognition. The recognition rate is used to gauge the effectiveness of these strategies. PCA performs best and has the highest recognition rate.

The model are bound to instruct and evaluated in border lay of details in the future in order to improve its accuracy in recognizing wild emotions in addition to fitting the training dataset and lab condition photos. Furthermore, the model is anticipated to provide real-world applications in education to enhance student learning and classroom interactions.

VIII .REFERENCES

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