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SURVEY ON MOOD DETECTION EMPLOYING IMAGE PROCESSING AND CHATBOT ADOPTING ARTIFICIAL INTELLIGENCE

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ABSTRACT

Unique - Social signal holds a specific thing that imitates an especially fascinating job with regards to general life application. It very well may be effortlessly perceived utilizing picture handling. Let us consider a case of a driver's signal who is right now driving the vehicle and it will hush up helpful if there should be an occurrence of alarming him when he is feeling sluggish. We can recognize singular reasonable developments through consenting to the changing of eyes, nose, eyebrows, gills which may broaden by period. The proposed framework is presented for perceiving looks by concentrating on the human face. There were two executions the methodology depends on that is face identification classifier and finding and coordinating of a straightforward token. There is one more methodology we have adjusted for example chatbot which is assembled utilizing Artificial Intelligence. Utilizing the visiting application framework lets the client talk with the bot and this prompts recognizing the clients' state of mind dependent on content or discourse utilizing content handling. Considering the two methodologies the framework will have the option to give jokes, tunes, and connections to pages by perceiving the clients' reactions

KEYWORDS: Artificial Intelligence, Chatbot, Data Mining, picture handling, Text Processing.

I. INTRODUCTION

The Facial expression recognition depends upon the mood detection process. It is a research problem that involves spanning fields and disciplines. There was numerous practical application which deals with facial expression recognition such as security monitoring, access control, and surveillance system. The behaviors corresponding to human face are used for various functions, which include Speech illustration, Emblematic Gestures, and others.

In the case of Speech illustration, being inquisitive humans often raise their brows and lower it with lowering the voices. The doubtful look is produced in the Emblematic Gestures phase, the human raises the upper lip by pushing the lower lip up. Whenever the line occurs over the forehead then it goes with the stress mood often. The changes in eyes can also let the system to recognize the mood of tiredness in users.

This statement resolution first from ever taking a single facial picture via web camera including mood detection will be achieved. Inherent emotional meaning is nothing but the mood of a person. The human dialogue may also play a significant role in the detection of mood. The approach will deal with an artificial intelligence algorithm using which chatbot is built. Here in this phase, the chatting will be done between human and bot and which doesn't let the user understand that is talking to a bot. With the help of chatting applications, the system will get the users' responses in the form of text or gestures. The system will detect the mood by recognizing the text or gestures using text processing and data mining.

Our application will not only detect the users' mood but also provide the relevant data from the database for boosting the mood of the user. For example, the system will automatically fetch the songs or jokes from the database and send it to the users' window terminal if the user is in a sad mood. And also the system will able to provide some links to web pages of motivational speech. The data provided by the system will boost the mood which makes the user work efficiently and leads to enhancement in performance.

II. LITERATURE SURVEY

The atmosphere of the music describes the intrinsic emotional meaning of a musical clip. It is useful for musical understanding, musical research, and some music-related applications. In this paper, we present a hierarchical structure to automate the task of detecting mood based on acoustic musical data, following some psychological theories of music in Western cultures. Three sets of characteristics, intensity, timbre, and rhythm are extracted to represent the characteristics of a music clip. On particular another hand, some mood tracking method exists further impersonated toward a whole part of the music. Experimental evaluations indicate that the proposed algorithms produce satisfactory results. [1]

The human face plays a prodigious role in the automatic recognition of emotions in the field of human emotion identification and human-computer interaction for real applications such as driver status monitoring, personalized learning, health monitoring, etc. However, they are not considered dynamic characteristics independent of the subject, so they are not robust enough for the task of recognizing real life with the variation of the subject (human face), the movement of the head, and the change of illumination. In this article, we tried to design an automated framework for detecting emotions using facial expression. For human-computer interaction, the facial expression is a platform for non-verbal communication. Emotions are changing events that are evoked as a result of the driving force. Thus, in the application of real life, the detection of emotions is a very demanding task. The facial expression recognition system requires the overcoming of the human face that has multiple variabilities, such as color, orientation, expression, posture, and consistency, etc. In our framework, we take the live broadcast frame and process it using Gabor feature extraction and the neural network. To detect emotions, the extraction of facial attributes is used through the analysis of the main components and a grouping of different facial expressions with their respective emotions. Finally, to determine the facial expression separately, the vector of the processed features is channeled through the classifications of already learned patterns.[2]

The recognition of emotions plays a very important role in recent days to improve both the openness and effectiveness of human-computer interaction. Emotions include the interpretation, perception, and response of feelings related to the experience of each particular situation. The recognition of emotions is the task of recognizing the emotional state of a person as angry, sad, happy, neutral, etc. The recognition of emotions consists of the classification of emotions from different approaches such as the word, the text, the face, and the pose of the body of the person. The applications of the recognition of emotions are monitoring, law, entertainment, e-learning, medicine, and many others. In the proposed system, the chat robot is built using an artificial intelligence algorithm. The bot speaks to you as a real person, with funny answers that do not make the user understand that he's talking to a robot. In this paper, we present a new approach for creating desktop applications for chatbots using text and gestures. Our application does not recognize only text or keywords but also recognizes the mood of a user through the camera. For example, if the user feels sad, the system will automatically search for a joke from the database and send it to the user in the window terminal. The system can conduct a conversation via the chat application. The system can send some links, Web pages, or information recognizing the user's response. For this whole system, we are using technologies like Machine learning, AI, and Data mining.[3]

In the field of image processing, it is very interesting to recognize the human gesture for the applications of life in general. For example, it is very useful to observe the gesture of a driver when the person is driving and warning the person when he is sleepy. We can identify human gestures by observing the different movements of eyes, mouth, nose, and hands. In this proposed system focuses on the human face to recognize the expression. Many techniques are available to recognize the face. This system presents a simple architecture for recognizing human facial expression. The approach is based on a classifier for detecting faces and searching and matching simple symbols. This approach can be very easily adapted to the system in real-time. The system briefly describes the image capture patterns from the webcam, face detection, image processing to recognize gestures, and some results.[4]

This article presents an intelligent word processing technique to identify the emotion it contains in text data. Users share their opinions and opinions in the form of comments on various online marketing websites for different products. Detection of emotions in these customer reviews for different products in one of the most demanding activities. In this paper, we have proposed an efficient technique for detecting emotions in customer reviews for different products. [5]

A mental and physiological state associated with a wide variety of feelings, thoughts, and behaviors is nothing but an emotion. Emotions are subjective experiences or experiences from an individual point of view. The sentiment remains frequently correlated including mood, temperament, personality, and disposition. Therefore, this paper discusses the method for detecting human emotions based on acoustic characteristics such as tone, energy, etc. The proposed system uses the traditional MFCC approach and then uses the nearest adjacent algorithm for classification. Emotions have been classified separately for men and women based on the fact that male and female voices have a completely different range, so MFCC varies considerably for both.[6]

III. EXISTING SYSTEM

In this paper, the author presents a mood-sensing approach for classical music from acoustic data. Thayer's humor model is adopted for the taxonomy of Humor and three sets of actual characteristics are extracted directly from the acoustic data that represent intensity, timbre, and rhythm, respectively. A hierarchical framework is used in a music clip. To detect mood in a complete piece of music, a segmentation scheme is presented to monitor mood. This algorithm achieves a satisfactory precision in experimental evaluations.[1]

In the document, the feature extraction method is SIFT characteristics. In SIFT functions they are effective for describing the finer edges and appearance characteristics. Because of deformations corresponding to facial expressions are mainly in the form of lines and wrinkles. The classification method provided in this document is neural networks. In the artificial neural networks are more suitable to face the problem of the recognition of emotions from the units of action, since these techniques emulate processes of solving unconscious human problems.[2]

If the user feels sad, the system will automatically search for a joke from the database and send it to the user in the window terminal. The system can perform a conversion using the chat application. The system can send some links, Web pages, or information recognizing the user's response. It will help reduce the level of stress in the mind. It is also compatible with stress management.[3]

To recognize and classify human emotions while maintaining these standards the standard facial coding system has been used for many years. In the implemented work, we use these concepts more efficiently with the help of skin mapping, pattern matching, and local features of the human face to obtain the accurate result possible. The system can work accurately with the addition of the database where it is possible to recognize the number of humans and irrespective emotions.[4]

Emotion detection is considered a very important area of research in the field of emotional computing in recent years, as most researchers are working to recognize gestural, facial, and audio emulations. For interactions with the human-computer, the recognition of emulations plays a very important role, while the detection of the emotions of the text receives less attention. In this paper, were view existing emotion detection and analyze limits to improve detection capabilities. [5]

IV. HAAR CASCADE ALGORITHM

Detection of objects using cascade classifiers based on Haar features is an effective method of object detection proposed by Paul Viola and Michael Jones in his document "Rapid detection of objects using a cascade of simplified features" in 2001. It is a Learning Approach automatic in which the cascade function is trained by many positive and negative images. That signifies formerly utilized to recognize something into other pictures.

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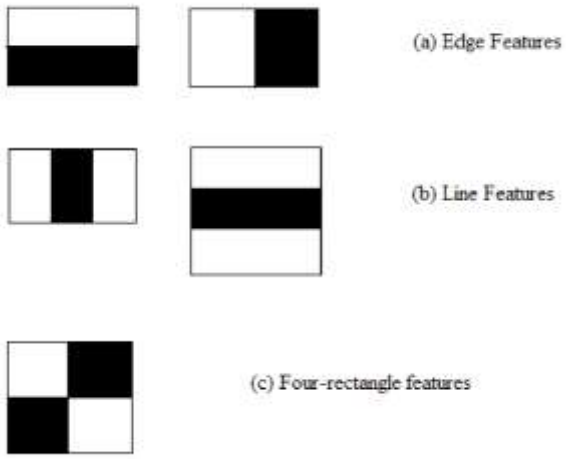

Fig-1: Considered Features during Face Detection

Here we will work with face detection. Initially, the algorithm requires many positive images (face images) and negative images (faceless images) to train the classifier. So there is a need to extract the features from it. For this, the characteristics of haar are used. They are like our convolutional kernel. Each feature is a unique value that is obtained by subtracting the sum of the pixels in the white rectangle from the sum of the pixels in the black rectangle.

Now all the possible sizes and positions of each kernel are used to calculate many features. For each feature calculation, we have to find the sum of the pixels in the black and white rectangles. To solve this, integral images are introduced. It simplifies the calculation of the sum of the pixels, how large the number of pixels can be, to an operation that involves only four pixels.

For selecting the best feature we will consider Adaboost, in which every one of the features in all the training images will be applied. For each function, find the best threshold that categorizes the positive and negative sides. But of course, there will be no errors or classification errors. Select functions with a minimum error rate, which means that they are the features that classify facial images that are not expensive. Each image has the same weight at the beginning. After each classification, the weights of the images' miss ratings are increased. A trope of error then, the same process is repeated. New ones are calculated. New weights are used the process continues until the required accuracy or error rate is reached or is the required number of characteristics.

The weighted sum of these weak classifiers will be the final classifier. If it is alone then it is called weak as it can't classify the image, but together with others forms a strong classifier. Even 200 features provide detection with 95% accuracy. They had around 6000 features at their final setup.

So now consider an image. Take each 24x24 window and apply 6000 features to it. Check if it is a face or not. In an image, most of the image regions may be non-face regions. So it will be better to have a simple method to check if a window is not a face region. Discard it, if it is not, in a single shot. Don't process it again. Instead, let us see where there a face can exist. This way, to check a possible face region, we can find more time.

For this, the concept of Cascade of Classifiers is introduced. Here we group the features into different stages of classifiers and apply one-by-one. If one window displeases this initial step, reject this. We don't consider remaining features on it. Apply the second stage of features, if it passes and continues the process. This window which relinquishes every platform holds one face area. So this is how Viola-Jones face detection works.

V. PROPOSED SYSTEM

The algorithm and technologies which were used in the proposed system will be Haar cascade algorithm and artificial intelligence. The mood will be detected on a facial expression basis by image processing using a haar

cascade algorithm. The system will also be able to detect the mood by considering the text exchange during the chatting of humans with chatbots.

The image processing for mood detection is done on the image captured via webcam using an algorithm named Haar cascade algorithm. The algorithm traces the whole face covered in a captured image and detects the expression. There were several positive and negative images considered and feature selection is held along with the preparation of classifier using Ad boost and integral images.

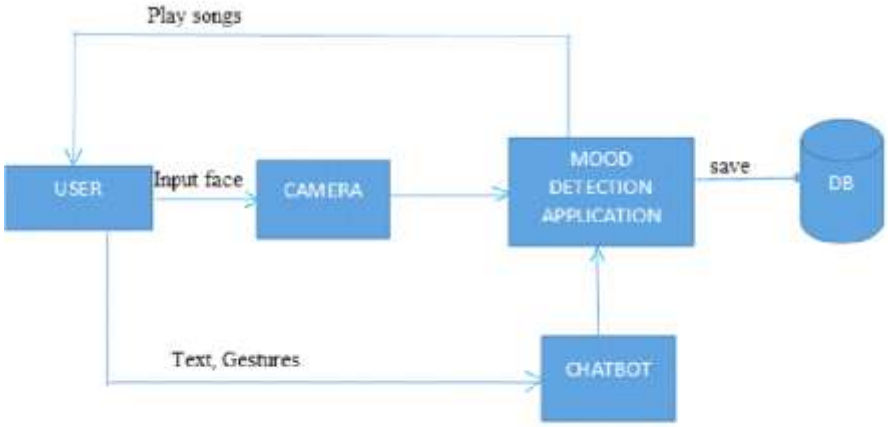

Fig-2: Block diagram of proposed system

The proposed system will introduce chatbot which is nothing but a computer program. The conversation via auditory or textual methods is conducted by this computer program which nothing other than a chatbot. The bot chats with a person in such a way that it never makes a person understand that it's actually the computer with whom he is chatting.

There will be an automatic interface for jokes and songs as per the users' mood. The system will able to detect stress and on detecting the stress some inspirational quotes will pop on the screen. And also the system will able to provide some links to web pages of motivational speech. The data provided by the system will boost the mood which makes the user work efficiently and leads to enhancement in performance.

VI. EXPECTED OUTCOME

The performance of employees working in MNCs can be monitored using the proposed system. The system will let the Company's HR monitor the particular employee's mood and on that basis able to decides its performance. The proposed system can be very useful in generating pie charts, bar graphs, etc upon employee analysis results. The mood will obviously affect the work in positive as well as the negative manner and changes in work can be specified with the help of employee analysis results. Using the proposed system the user and admin system for control can also be developed.

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