International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 07 Issue: 04 | Apr 2020 www.irjet.net p-ISSN: 2395-0072

Automatic Emotion Recognition using Facial Expression: An Overview

Abhishek Kumar Giri[1], Aayush Sharma[2], Abhijeet Shukla[3], Prof. Divya Rsatogi[4]

[1,2,3,4]*Computer Science and Engineering ABES Institute of Technology, Ghaziabad, India*

Abstract - *The purpose of this article is to address your needs, Expression recognition application. Between words & Non-verbal communication expressions a who play an important role that is express the human point of view or fulfillment and spirit status. This The article contains an introduction to face recognition Popular people systems, applications and comparative studies How to automatically recognize facial expressions and phases Expression recognition system.*

***Key Words*: Emotion Recognition, Face Detection, Facial Expression, Image Processing, Human Machine Interface.**

1. INTRODUCTION

The emotional side has a great influence on social intelligence. Understanding communication, making decisions, it also helps to understand human behaviours. Emotions play an important role in communication. Emotion Recognition is performed in different ways .Verbal communication & Facial expression, action, body posture, gesture, Non -verbal communication. goodbye 7% effect of message only message 38% for language and audio parts as a whole, 55% effect The speaker's message is represented by facial expressions. Because of this, real-time automatic facial expressions play an important role in man and machine Interaction. Face analysis Representations play a fundamental role in applications Based on emotion recognition like human computer interactions, social robots, animations, alerts, Monitor patient pain.

2. Classification of facial expressions and this function:

Facial expressions are an important mechanism for describing people Emotion. Human changes from the beginning to the end of the day Many emotions, it is their mental or Physical situation. Even though are full different emotions, modern psychology identifies six important individuals' expressions though people: **happiness, fear, surprise, sadness, surprise and anger** as a universal emotion. Facial muscles Movements help identify human emotions. Basic facial eyebrow, mouth, nose and eye characteristics.

Table -1: Universal recognition of emotions

Universal Emotion Identification		
Emotion	**Definition**	**Motion of Facial part**
Anger	Anger is one of the most dangerous emotions. Secondary anger emotions Annulment, Annoyance, Frustration, Hate.	Eyebrow down Open your eyes, close your teeth Lips are compressed, top and Tighten the lower eyelid.
Happiness	Happiness is the most coveted expression of Man emotions like Cheerfulness, pride, hope, joy and toil.	C Open your eyes and the end of your mouth Up, open mouth, lips Tightening angle, cheek Wrinkles Around the eyes.
Sadness	Sadness is the opposite feeling Happiness it is Suffering, pain, despair, pity and despair.	Outside forehead Inside corner Raised eyebrows, mouth Edge down.
Surprise	This feeling comes at an unexpected time. Things happen.	Frown open your eyes Open your mouth and chin threw it.

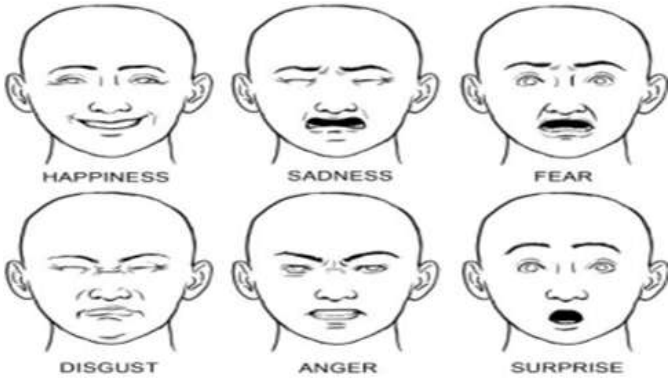

Fig -1: Six basic facial expressions

Background Analysis

People can recognize emotions without much delay. And the effort, but the recognition of facial expressions by the machine a big problem. Some important facial recognition the technique is as follows:

Table -2: Compare research

Universal Emotion Identification				
Name	**Technology**	**Database**	**Performance (%)**	**Please pay attention**
Statistics for a moment main express analysis.	**Feature Extraction:** Zernike moment **Category:** Naïve Bayesian classifier.	Jaffa (Japan Female Face Representation) Database 60 % for experiments.	Average accuracy Six Emotion is 81.66% in time less than 2 second.	Emotion accuracy display image best ratio happiness the lowest ratio bummer.
Facial Express Auto lighting correction.	Expression above facing all definition with action.	Single and multifaceted photo.	60% rate multifaceted photo.	Lighting on the image to play an important role.

/.Name	**Technology**	**Database**	**Performances (%)**	**Please pay attention**
Emotion recognition social robot.	Hybrid method use for embodiment emotion recognition.	Multi media group database to use more than 50 frontal lobe of man database.	82% Performance By reaching Knowledge network classifier.	3D Model number Face image Is used classifier.

4. Comprehensive face recognition System

Facial expression recognition system is called a face recognition system. Use image processing recognizes facial expressions. Image processing converts the image to digital form and then performs some operations to extract useful information with photo.

Facial expression recognition system includes next steps:

4.1 Image acquisition

Recognition of emotion on 2D gray scale face image Color images can also be used to recognize face images, Used for image capture cameras, mobile phones or other electronic device.

4.2 Preliminary processing

Pretreatment plays an important role throughout the process. In the preprocessing step, the quality of the input image can be improved. Identify the data you need by removing noise and smoothing Photo.

4.3 Feature Extraction

Function extraction can be considered the "interesting" part photo, shape, movement, color, Face image texture. Meaningful extraction Information table image Compare with original image Feature extraction greatly reduces information.

4.4 Classification

Recognize and classify facial images group them according to specific classes and help them Skillful recognition. Classification is a complex process. Because it can be affected by many factor. Classification this stage is also called the function selection stage. Extract information and group based on specific information Options.

5. Areas of use

With the rapid development of technology needs create smart systems that people understand Attachment. Face recognition is an active area Research in several applications for sure important applications.

i) Alarm system in driving.
ii) Social system for recognizing the emotions of a robot.
iii) Medical practice.
iv) Music changes with mood.

v) Interactive TV applications enable customers to Actively provide feedback on TV programs.
vi) Psychological state recognition.

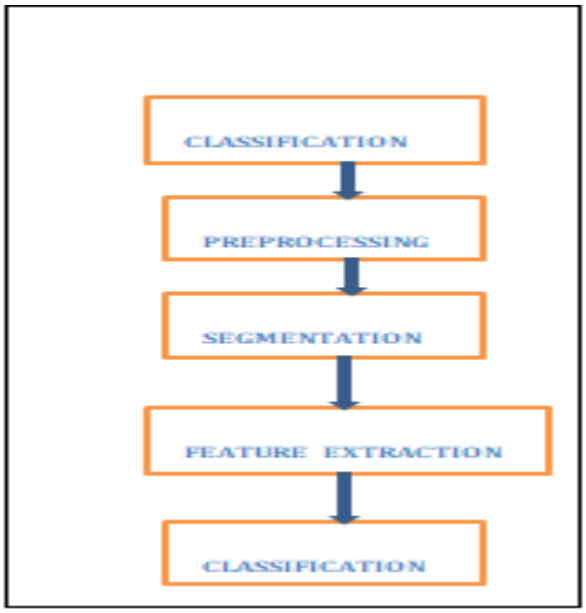

Fig -2 Facial expression recognition system

6. CONCLUSIONS

Over the past two decades in academia, we have made great efforts learn more about academia, industry, and government. Rate authenticity, cheating, reputation in interpersonal communication. I work hard Used to capture the mood of someone's facial expressions for brain activity and through the face the face has the largest senses. So the activity of the human face will be considered. The aim of this work is to Technology, Applications, and Technology Overview Problems of an automatic emotion recognition system.

REFERENCES

[1] A.Mehrabian,"Communication without Words" Psychology Today, Vol.2, no.4, pp. 53- 56, 1968.

[2] Ekman P, Friesen WV. Constants across cultures in the face and emotion Journal of personality and social psychology 1971; 17:124

[3] Bharati A.Dixit and Dr. A.N.Gaikwad "Statistical Moments Based Facial Expression Analysis" IEEE International Advance Computing Conference (IACC), 2015

[4] S.Ashok Kumar and K.K.Thyaghrajan "Facial Expression Recognition with Auto-Illumination Correction" International Conference on Green Computing, Communication and Conservation of Energy (ICGCE), 2013

[5] Mateusz Zarkowski "Identification-driven Emotion Recognition System for a Social Robot" IEEE, 2013

[6] Shuai Liu and Wansen Wang "The application study of learner's face detection and location in the teaching network system based on emotion recognition" IEEE, 2010

[7] Kwang Ho An and Myung Jin Chung "Cognitive Face Analysis System for Future Interactive TV"IEEE, 2009

[8] Ahmad R. Naghsh-Nilchi and Mohammad Roshanzamir "An Efficient Algorithm for Motion Detection Based Facial Expression Recognition using Optical Flow" International Scholarly and Scientific Research and Innovation, 2008

[9] Balwant Singh, Sunil Kumar, Paurush Bhulania "Lecture Attendance System with Face Recognition and Image Processing". International Journal of Advance Research in Science and Engineering IJARSE.Vol. No.2, Issue No.3, March, 2013.

[10] C. Kotropoulos and I. Pitas, "Rule-based face detection in frontal views," Proc. Int'l Conf. Acoustics, Speech and Signal Processing, vol. 4, pp. 2537-2540, 1997.