

# EMOTION RECOGNITION SYSTEM USING OPEN CV AND BLUE EYES TECHNOLOGY

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## ABSTRACT

We cannot measure the world of science in terms of progress and fact of development. That thing no reached to the technology called as "Blue eyes technology" which is capable to recognize and control human emotions as well as feelings with help of gadgets. The elements eyes, fingers, speech are the body parts which helps to sense the emotions of humans. The paper is going to implement a new technology known as Emotion capturing world of blue eyes technology which recognize human emotions (sad, happy, surprised) using image processing techniques by extracting eye portion from the captured image which is then matched with stored images of database. After recognizing mood the songs will be played to make human emotion level normal.

**Keywords** - blue eyes, emotions, images, image processing, sense.

## I. INTRODUCTION

Blue in which term refer to Bluetooth, which makes possible robust wireless communication and the Eyes which refer to the eye movement which helps us to get a lots of exciting and useful information. The basic motivation behind this technology is giving power to computer like human. Consider that you are in a environment where humans coordinates with computer system. You are in front of your computer system that can listen, speak, or even interact with you. It is able collect information about you and coordinate with you in the way of special types of recognition like facial recognition, speech recognition, etc. It is also able to learn your emotions with help of simply touch of the mouse. It verifies you, feels your handlings, and starts coordinating with you. suppose You said the computer system to call to your girlfriend at his home. It recognize that situation through the mouse, dials your girlfriend at his home, and create a connection. cognition of human rely majorly on the capability to perceive, interpret, and integrate audio-visuals and recognizing information. By adding extremely well perceptual capabilities to the computer systems enables computer systems to do work with human as partners. Researchers wants to add more abilities to computer systems that will help them to behave like human beings, capture human presence, talk, listen, or even predict their emotions[4]. The BLUE EYES technology targets at building computational machines that have perceptual and sensational capability like of humans. It uses sensing technique which is non-obtrusive, using most developed video cameras and microphones which are able to recognize user's actions through the way of imparted sensory capabilities. The system can able to know what a user actually require, where he is looking at, and even able to recognize states of users likewise physical or emotional. From the physiological information, the state of emotion which may be determine which is related to the work the use is doing on the computer system. The scope of the project is to have the computer system that is able to adopt the user in order to generate a best working situation in which the user would be most productive

## II. MATERIAL

### 1. Open CV:-

Open CV is released under a BSD license and hence it's free for both academic and commercial use. It has C++, C, Python and Java interfaces and supports Windows, Linux, Mac OS, iOS and Android. OpenCV was designed for computational efficiency and with a strong focus on real-time applications. Written in optimized C/C++, the library can take advantage of multi-core processing. Enabled with OpenCL, it can take advantage of the hardware acceleration of the underlying heterogeneous compute platform. Adopted all around the world, OpenCV has more than 47 thousand people of user community and estimated number of downloads exceeding 9 million. Usage ranges from interactive art, to mines inspection, stitching maps on the web or through advanced robotics.

### 2. Blue eyes technology:-

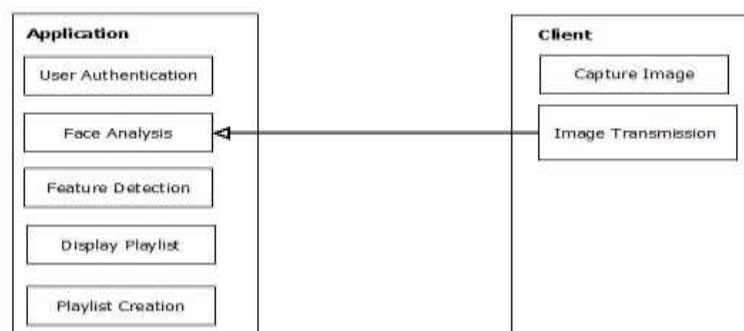
Human beings interact with each other to share their thoughts and knowledge. But is it possible to interact with a computer which can interact with us as we interact with each other? Say, a fine morning you walk on to your computer room and switch on your computer, and then it tells you "Hey friend, good morning you seem to be in a bad mood today!!". And then it opens your mail box and shows you some of the mails and tries to cheer you. This is possible by what is known as BLUE EYES technology. Blue in which term refer to Bluetooth, which makes possible robust wireless communication and the Eyes which refer to the eye movement which helps us to get a lots of exciting and useful information. The basic motivation behind this technology is giving power to computer like human. Consider that you are in a environment where humans coordinates with computer system. You are in front of your computer system that can listen, speak, or even interact with you. It is able to collect information about you and coordinate with you in the way of special types of recognition like facial recognition, speech recognition, etc. It is also able to learn your emotions with help of simply touch of the mouse. It verifies you, feels your handlings, and starts coordinating with you .suppose you said the computer system to call to your girlfriend at his home. It recognize that situation through the mouse, dials your girlfriend at his home, and create a connection. Cognition of human rely majorly on the capability to perceive, interpret, and integrate audio-visuals and recognizing information. By adding extremely well perceptual capabilities to the computer systems enables computer systems to do work with human as partners.

### 3. Emotion Recognition:-

In our project we are implemented the mood detection. Capturing the image of face by camera and processing on it. Algorithm used in program help to detect the mood of the user. We compare the captured image which have various mood like happy, angry, stress, sad, normal etc.

We are using open cv library which stores the default mood to compare with the users face image. According to mood of user song is played. There are different playlist are created for different mood. Every mood has its own separate playlist.

**System Architecture :-**



**Fig. 1: System Architecture**

### III. METHODOLOGY

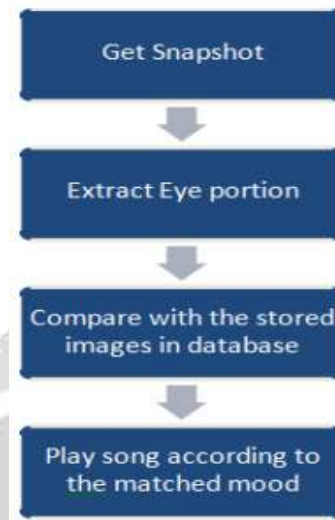


Fig. 2 Flow of system

**Methodology Includes following steps:**

**Step1: Get Snapshot:**

A video stream will start and when a person set focus on face and press "Enter" then it will take a snapshot. Immediately return single image frame, frame, from the video input object obj. The frame of data returned is independent of the video input object Frames per Trigger property and has no effect on the value of the Frames Available or Frames Acquired property.

**Step 2<sup>nd</sup>: Extract Eye Portion:**

**1. Detection of Face Parts:**

a. Input parameters

Detector: the detection object built by build Detector Image data which should be uint8

Thick (optional): thickness of bounding box.

b. Output parameters

It creates bounding box for face, eye, left eye, right eye, mouth and nose, image with found face are shown inboxes and these faces are stored as cell array build Detector build face parts detector object with threshold values for parts

**2. Shape Recognition and Edge Detection:**

a. After getting the eye part we match it with the existing images by classifying it according to structure of eye and its texture we call it Shapes Classifier.

b. Separates the eye part only from the box boundaries of face.

c. Convert image from RGB to gray.

d. Threshold the image Convert the image to black and white in order to prepare for boundary tracing using boundaries.

e. Invert the Binary Image

f. Find the boundaries Concentrate only on the exterior boundaries. Option 'no-holes' will accelerate the processing by preventing b w boundaries from searching for inner contours.

g. Determine Shapes properties.

h. Classify Shapes according to properties Wrinkles, flat, swelled, etc

**Step 3<sup>rd</sup>: Comparison with stored Images in data base:**

The shape classifier will then match the captured image with the data entries in our database which in then converted to gray scale; the idea is to create a function which will return the difference in range [0, 1] between two postures. This means, we want to compare only a posture and on this basis the emotion of person for given two images (a grey region). For example, if we pass 4 to my function, the result will be 0 (because postures or emotions are not same and the result will be 1 if same).

**Step 4th: Play song according to matched mood**

The generated script take a list of sound files and create a database of these sounds according to the emotion detection defined in database for each song, and then subsequently take one or more audio files according to matched emotion of previously- created image database and plays it. List of sound files is analyzed and written to a single database file. Various sound file formats are supported, including wav, mp3 and aac. Our database files are encoded with.wav extension. The sound file in database can then be saved as a wav file using the WAVWRITE function and later can be loaded using the WAVREAD function. The played sound returns the sample rate (Fs) in Hertz and the number of bits per sample(nbites) used to encode the data in the file.

**IV. RESULTS AND TABLES**

Step 1:- Login into system.

Step 2:- Capture the image.

[1] Select attributes like select camera(external or internal),set the resolution.

Step 3:- Extract the various portion of face.

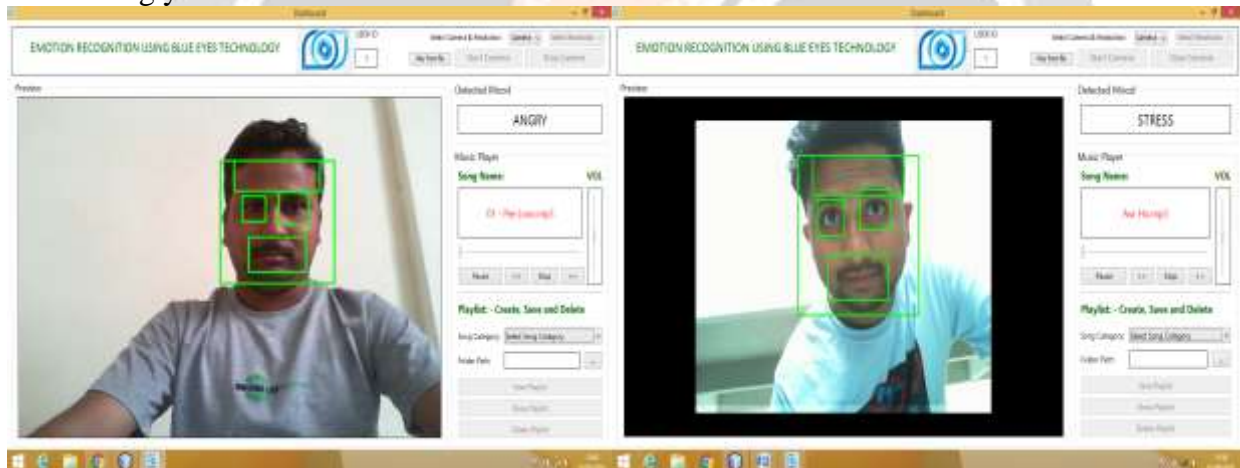
Step 4:-Compare image with stored database.

Step 5:-Detect the mood.

Step 6:-Play the song accordingly

Angry mood

Stress mood



## V. CONCLUSION

The technology proposes two key results of emotional sensory world. First, observation reveals the fact that different eye colors and their intensity results in change in emotions. It changes without giving any information on shape and actual detected emotion. It is used to successfully recognize four different emotions of eyes. This developed methodology can be extended to other activities. Secondly results were achieved for converging in good emotions using a mixture of features, shapes, colors based on eye points. After this successful capturing of eye spots, it will help to tell about the mood of a person and also helps to cheer up by playing songs or other sources. The motive of this research proves to be a source of economic development over all.

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## VII. REFERENCES

- [1].S.Madhumitha,Slide Share, Blue Eyes Technology, March 2013,<[www.slideshare.net/Colloquium/blue-eyes-technology](http://www.slideshare.net/Colloquium/blue-eyes-technology)>.
- [2].Texture Based Expression Modeling for a Virtual Talking Head,Daniel Hoglind ,Master of Science Thesis Stockholm Sweden 2006,<[www.cse.kth.se](http://www.cse.kth.se)>.
- [3].Psychologist World, Eye Reading Language (Body Language),July2013,<[www.psychologistworld.com/body\\_Language\\_eyes.php](http://www.psychologistworld.com/body_Language_eyes.php)>.
- [4].Fu Zhizhong, Lu Lingqiao,Xian Haiying Xuju, "Human Computer International Research And Realization Based On Leg Movement Analysis", Apperceiving Computer And Intelligence Analysis (ICACIA),2010 International Conference.
- [5]. Renu Nagpal, Pooja Nagpal,Sumeet Kaur, "Hybrid Technique for Human Face Emotion Detection", International Journal of Advanced Computer Science And Applications Vol.1 No6,December 2010