

# Blue Eyes Technology

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**Abstract**— 21st century is an era of speed and smartness, but due to this several problems has been evolved one of them is that emotional quotient getting overshadowed. In this paper, **BLUE EYES TECHNOLOGY** aims allow people to interact with computers in a more natural manner. In this technology **BLUE** stands for bluetooth, which enables reliable wireless communication and **EYES** related to the movement of the eye that enables us to see lot of interesting and important information. Its objective at creating computational machines that have perceptual and sensory ability. In this technology actions and emotions can be identified using camcorder. The technologies used for this are Manual and Gaze Input Cascaded, Artificial Intelligent Speech Recognition, Simple User Interest Tracker, the eye movement sensor. Its main applications are Automobile industry, Video games, Medical diagnosis, Lie-detector tests. It is an emerging technology and in future it is expected to reduce the gap between electronic and physical world.

**Keywords**— Blue eyes, Emotions, Images, Magic Pointing, Image processing, Emotional Mouse, Sense.

## INTRODUCTION

Assume yourself in a world where humans communicate with computers. You are sitting in front of your personal computer that can hear, speech, or even scream aloud. It has the power to gather information about you and communicate with you through special techniques like eye movement sensor, facial identification, speech identification, etc. It can even understand your emotions at the touch of the mouse. It verify your identity, feels your presents, and starts interacting with you. You asks the computer to dial, your friend at his office. It realizes the urgency of the situation through the mouse, dials your friend at his office, and establishes a connection.

The **BLUE EYES** technology aims at creating computational machines that have affective and sensory perform like those of human beings. It uses non-obtrusive sensing method, employing most modern video camcorder to identify the users actions through the use of imparted sensory abilities. The machine can understand what a user wants, where he is looking at, and even realize his physical or emotional state.

## TECHNIQUES OF BLUE EYES TECHHNOLOGY

**Emotional Mouse** :- It obtains physiological data and emotional state such as pulse, pressure, skin temperature, heart rate, etc through the touch of user on mouse where different sensors (such as pressure sensor, heart rate sensor, GSR sensor, temperature sensor) are deployed inside it. Then it determines the personality of the user.

**Manual And Gage Input Cascading (Magic Pointing)** :- A webcam is used to quickly determine the glints and pupils of the user under variable and real lightning conditions and wrap the cursor to every new object user looks at. Then user get control of the target by hand near the target or ignores it and search for next one.

**Artificial Intelligent Speech Identification** :- The user talk to the computer through microphone and that talk get filtered and saved in Random Access Memory. The input words are scanned and matched against the internally stored words. Pattern matching is designed to look for the best fit because of variations in loudness, pitch, frequency difference, time gap, etc. The identification causes some action to be taken.

**Simple User Interest Tracker (SUITOR)**:- Blue eye enabled suitor become active when the user build an eye contact and regularly detect users area of interest and starts searching it. **E.g.:** If you are reading title, pops up the story in the browser window.

## EMOTION SENSORY WORLD

Human emotion is a visible proof of effective state, personality, emotional state and cognitive activity. There has been a lot of work done on blue eyes technology. This paper presents number of techniques proposed to identify emotional state of a person. According

to Ekman, the neuro-part of the theory mention the partly innate and biological program, called a facial affect program, which specifies the relationships between various movements of the facial muscles and particular emotions (happiness, sadness, anger, surprise). According to Ekman findings during:

**Happiness :-** the eyes are relaxed ;

**Anger :-**The forehead are pulled down and inward; no sclera is shown in the eyes;

**Sadness :-** The brows are drawn together with the inner corners raised and the outer corners lowered ; the eyes are glazed;

**Surprise :-**The eyebrows are raised and curved.

In this paper a new technique Emotion Sensory World of blue eyes technology have been deals with the detection of emotions of human through the texture of eye because eyes are window to the soul that they can tell much about person internal state just by gazing into them, a camera will capture the image of a person and focuses on the eye area by using texture filtering algorithm which is then compared with the list of images place in data base .The correct image that identifies the emotion of a person is shown on the window, after detecting the emotion a song is played in order to normalize the mood of person.

## METHODOLOGY

The methodology of Blue Eyes Technology is as follows:

### Step 1: 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 returns one single image frame, from the video input object . The frame of data returned is independent of the video input object Frames Per Trigger property and has no impact on the value of the Frames Available or Frames Acquired property. The object must be a one-by-one video input object. Frame is returned as an H-by-W-by-B matrix where H- Image height, as specified in the ROI Position property W- Image width, as specified in the ROI Position property B- Number of bands associated with obj, as specified in the Number of Bands.

### Step 2: Extract Eye Portion

#### 1. Detection of Face Parts:

##### (a) Input parameters:

Detector: The detection object built by build Detector.  
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 and these faces are stored as cell array buildDetector 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 colorless, in order to prepare for boundary tracing using bw boundaries.
- (e) Invert the Binary Image.
- (f) Find the boundaries Concentrate only on the outside boundaries. Option 'noholes' will accelerate the processing by preventing bw boundaries from searching for inner contours.
- (g) Determine Shapes properties.
- (h) Classify Shapes according to properties Wrinkles, flat, swelled, etc.

### Step 3: Comparison with stored Images in data base

The shape classifier will then match the captured image with the data entries in our database which is then converted to gray scale; the idea is to create a function which will return the distinctness 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).

There are 25 images in database used for training. To create a database: open "create\_db.m", and load the image. It will detect eyes and store left eye and Right Eye in Database and save this entry in "Database.dat".

```
database {x,y}
x=entry /serial no,
y=1 Left Eye
y=2 Right Eye
y=3 name of Mood
```

For multiple entries to store in database we can change with coding:

```
%load ('database.dat','-mat');
%entries=size (database, 1);
and change: database{1,1}=a;
with database{entries+1,1}=a;
then it will add a new entry each time and save all entries in database.
database {1,2}=b;
with database{entries+1,2}=b;
database {1,3}='a';
with database{entries+1,3}='a';
```

It has been computed the correlation coefficient by flattening the matrix into a vector; the obtained results were around 0.987, indicating a close match. If essential we could have measured scaling and regular change to better align the images but it was not needed here.

### Step 4: 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 (n bits) used to encode the data in the file.

## APPLICATION AREAS OF BLUE EYES TECHNOLOGY

1. Users emotions can be beneficial in marketing intelligence for banks and retailers.
2. Blue Eyes is related to measure the pulse of the human while operating the system. It is useful in Medical diagnosis.
3. Blue Eyes can be used in education programs, enable computers to observe students emotional state (frustration, excitement, and so on) and adjust information delivery accordingly.
4. It can be used as an adjunct in liedetector tests and in security systems that attempt to identify people by their faces.
5. A car equipped with an affective computing system could identify when a driver is feeling sleepy and advise her to pull over, or it might sense when a stressed-out motorist is about to explode and warn him to slow down and cool off.

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## CONCLUSION

The paper present two results of emotional sensory world. First, observation reveals the fact that different eye colors and their results in change in emotions. It changes without giving any information on shape and actual detected emotion. It is used to favorably recognize four different emotions of eyes. This developed methodology can be widespread to other activities. Second result were achieved for converging in good emotions using a mixture of features, shapes, colors based on eye points. After this favorable capturing of eye spots, it will help to tell about the state 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 growth over all.

## FUTURE WORK

This study work can be extended to home appliances where it can perform various tasks within home premises through blue eye technology. Further as a world is digitizing and we are moving towards robotic world, several human activities can be shrunk with emotion sensory world tool. The tool or system is fitted in robot with eye emotions which detects what is the demand and the action can be taken by robot accordingly.

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