

**Blue Eyes the Future Technology**

**Ekta Agrawal\*, Rakesh Patel, Preeti Patel**

\*Student, B.E.(IT), Kirodimal Institute of Technology, Raigarh(C.G.), India

Lecturer, Department of Information Technology, Kirodimal Institute of Technology Raigarh(C.G.), India  
Kirodimal Institute of Technology, Raigarh(C.G.), India

**Abstract**

Is it possible to create a computer, which can interact with us as we interact each other? For example imagine in 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 a bad mood today. And then it opens your mail box and shows you some of the mails and tries to cheer you. It seems to be a fiction, but it will be the life lead by "BLUE EYES" in the very near future. The basic idea behind this technology is to give the computer the human power. We all have some perceptual abilities. That is we can understand each other's feelings. For example we can understand ones emotional state by analyzing his facial expression. If we add these perceptual abilities of human to computers would enable computers to work together with human beings as intimate partners. The "BLUE EYES" technology aims at creating computational machines that have perceptual and sensory ability like those of human beings.

**Keywords:** neural network simulation.

**Introduction**

Imagine yourself in a world where humans interact with computers. You are sitting in front of your personal computer that can listen, talk, or even scream aloud. It has the ability to gather information about you and interact with you through special techniques like facial recognition, speech recognition, etc. It can even understand your emotions at the touch of the mouse. It verifies your identity, feels your presence, and starts interacting with you. You ask the computer to dial to your home urgently. It realizes the urgency of the situation through the mouse, dials your mother at home, and establishes a connection. The "BLUE EYES" technology aims at creating computational machines that have perceptual and sensory ability like those of human beings. How can we make computers "see" and "feel"? Blue Eyes uses sensing technology to identify a user's actions and to extract key information. Blue eyes system monitors the status of the operator's visual attention through measurement of saccadic activity. The system checks parameters like heart beat rate and Blood oxygenation against abnormal and triggers user defined alarms. It can even understand your emotions at the touch of the mouse. It verifies your identity, feels your presents, and starts interacting with you. You asks the computer to dial to 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.



*Fig:- BLUE EYE*

**How can we make computers "see" and "feel" ?**

Blue eyes uses sensing technology to identify a user's actions and to extract key information.

Information is then analyzed to determine the user's physical, emotional, or informational state

### Peacock Feathers and BLUE EYE

In nature , individuals with the best train go on to have more children than those without those train. The children who end up with these trains then go on to have more children and so on. After a while, more people have these trains.

This is one of the major ways that certain gene versions like blue eyes can spread through a population. Blue Eye people have more kids and their blue eyed kids have more kids. As blue eyes spread, so does the gene.



### What is blue eyes technology?

Aims at creating computational machines that have perceptual and sensory ability. Use camera and microphone to identify user actions and emotions Blue Eyes – Bluetooth technology and the movements of the eyes. Bluetooth provides reliable wireless communication. As the eye movements enable us to obtain a lot of Interesting and important

information. This required designing a Personal Area Network linking all the operators and the Supervising system. For example, a Blue Eyes-enabled television could become active when the user makes eye contact, at point the user could then tell the television to "turn on".



### Why blueeyes?

Human error is still one of the most frequent causes of all artificial disasters. Today human contribution to the overall performance of the system is left unsupervised. Since the system is made to perform automatically, an operator becomes a passive observer of the supervised system, which causes drop to awareness. It therefore is crucial to assure that the operator's conscious brain is involved in an active system which will supervise over the whole work time period. It is possible to measure indirectly the level of the operator's conscious brain involvement using eye movement analysis. In large control rooms, wiring the operator to the central system is a serious limitation of his mobility and disables his operation. The wireless link between the sensors worn by the operator and the supervising system offers new way to system overall reliability and safety.

- To built a machine that can understand your emotions
- A pc that can listen, talk or scream
- Verify your identity, feels your presence and interact with you.

### What is BlueEyes and what not?

BlueEyes system provides technical means for monitoring and recording human-operator's physiological condition. The key features of the system are:

- Visual attention monitoring (eye motility analysis)
- Physiological condition monitoring (pulse rate, blood oxygenation)
- Operator's position detection (standing, lying)
- Wireless data acquisition using Bluetooth technology
- Real-time user-defined alarm triggering

Doesn't predict nor interfere with operator's thoughts. Cannot force directly the operator to work.

### Technologies used

- a) Emotion Mouse
- b) Manual And Gaze Input Cascaded (MAGIC)
- c) Artificial Intelligent Speech Recognition
- d) Simple User Interest Tracker (SUITOR)
- e) The eye movement Sensor

### Types of emotion sensors

#### 1. For Hand:

- Emotion Mouse
- Sentic Mouse

#### 2. For Eyes:

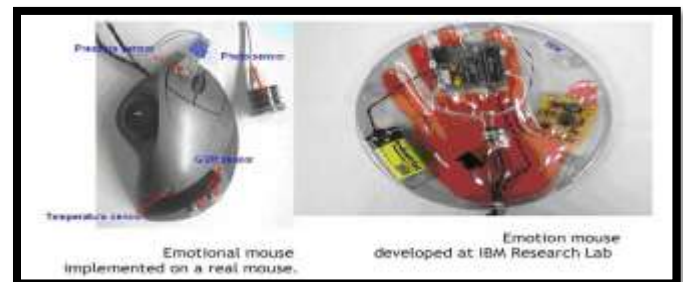
- Expression Glasses
- Magic Pointing
- Eye Tracking

#### 3. For Voice:

- Artificial Intelligence Speech Recognition

#### • EMOTION MOUSE:-

Rosalind Picard (1997) describes why emotions are important to the computing community. There are two aspects of affective computing: giving the computer the ability to detect emotions and giving the computer the ability to express emotions. Not only are emotions crucial for rational decision making as Picard describes, but emotion detection is an important step to an adaptive computer system. Adaptive, smart computer system has been driving our efforts to detect a person's emotional state. An important element of incorporating emotion into computing is for productivity for a computer user. A study (Dryer & Horowitz, 1997) has shown that people with personalities that are similar or complement each other collaborate well.



#### • Sentic Mouse

It is a modified computer mouse that includes a directional pressure sensor for aiding in recognition of emotional valence (liking/attraction vs. disliking/avoidance).



*Fig:-SENTIC MOUSE*

**Expression glasses**

A wearable device which allows any viewer to visualize the confusion and interest levels of the wearer. Other recent developments in related technology are the attempt to learn the needs of the user just by following the interaction between the

user and the computer in order to know what he/she is interested in at any given moment. For example, by remembering the type of websites that the user links to according to the mood and time of the day, the computer could search on related sites and suggest the results the user.

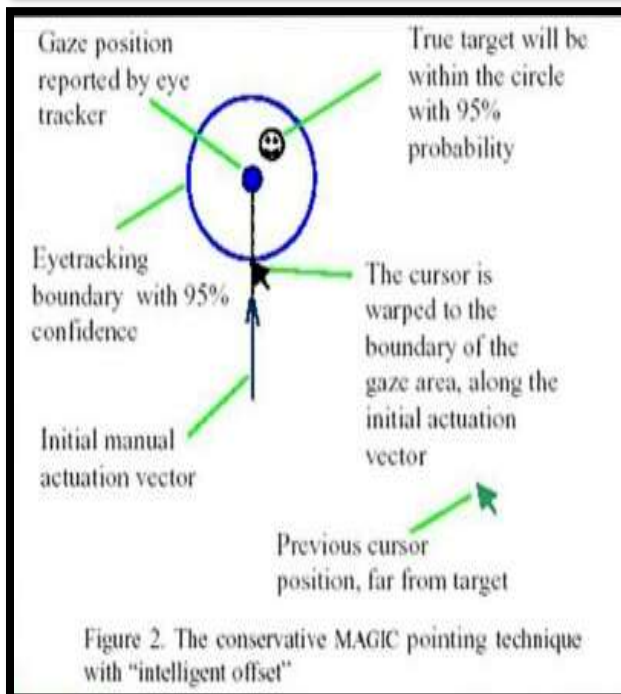
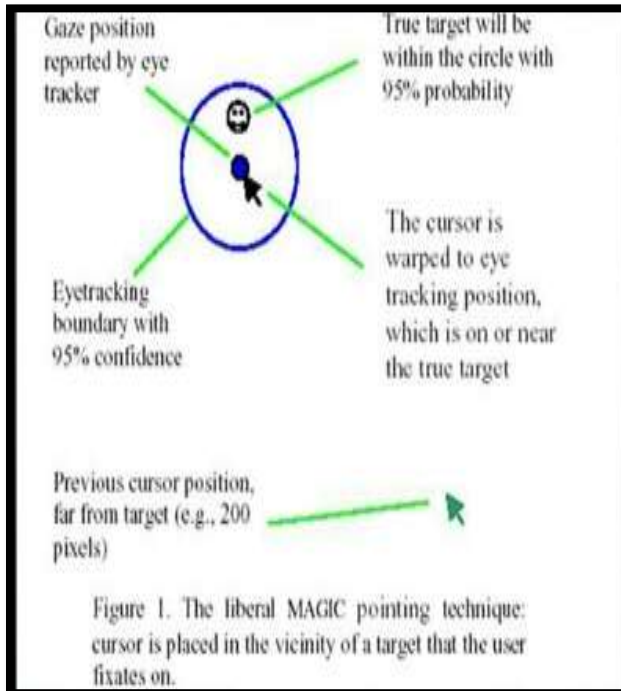


*Fig:- Expression Glasses*

**Magic pointing**

- Such an approach, pointing appears to the user to be a menu task, used for fine manipulation and selection
- Reduce the cursor movement needed for target selection Click on the target with a regular manual input device.
- Improvement over the traditional eye gaze system
- Reduce physical effort and fatigue, greater accuracy an naturalness and faster speed than traditional eye gaze system
- Two magic pointing technique

- Liberal
- conservative



measuring eye positions and eye movement. Eye trackers are used in research on the visual system in psychology, in cognitive linguistics and in product design. There are a number of methods for measuring eye movement. The most popular variant uses video images from which the eye position is extracted. Other methods use search coils or are based on the electrooculogram.



Fig:- A three camera eye tracking setup

#### Artificial Intelligent Speech Recognition

- Input word are scanned and matched against stored words
- Identification causes some action to be taken
- User speaks to the computer through microphone
- Filtered and fed to ADC and then stored in RAM
- Binary representation become standard, against which future are compared

#### Application of artificial intelligent speech recognition

- To control weapons by voice commands
- Pilot give commands to computers by speaking into microphones
- Can be connected to word processors and instead of writing, simply dictate to them.

#### Blue eyes enabled devices:-

- ❖ POD-Technology used in cars
- ❖ PONG- A Robot

#### Eye tracking

Is the process of measuring either the point of gaze (where one is looking) or the motion of an eye relative to the head. An **eye tracker** is a device for



Fig:- Technology used in cars

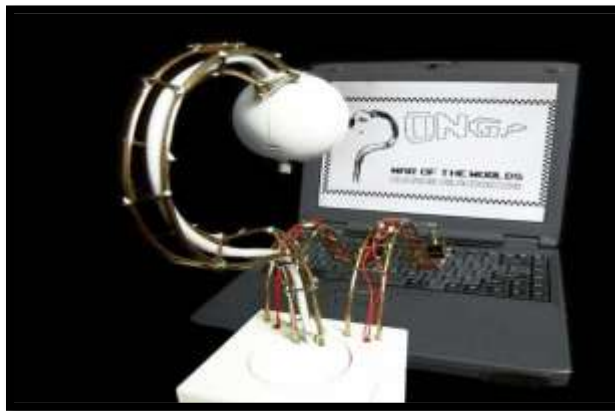


Fig:- A Robot

#### Benefits of BLUE EYE

- Prevention from dangerous incidents
- Minimization of
  - Ecological consequences
  - Financial loss
- A threat to a human life
- The reconstruction of the course of operator's work

#### Applications

- In retailing record and interpret customer movements
- In automobile industry
- In video games
  - To create "Face Responsive Display" and "Perceptive Environment" Generic control rooms
- Power station
- Flight control centres
- Operating theatres

#### Limitations and future aspects

The prototype has several limitations, which are not the result of the project deficiency but are rather

caused by the constraints imposed by the Project Kit and small budget. The unique feature of system relies on the possibility of monitoring the operator's higher brain functions involved in the acquisition of the information from the visual environment. The new possibilities can cover such areas as industry, transportation (by air, by road and by sea), military command centers or operating theaters (anaesthesiologists). It is intended that the system in its commercial release will help avoid potential threats resulting from human errors, such as weariness, oversight, tiredness

#### Conclusion

The nineties witnessed quantum leaps interface designing for improved man machine interactions. The BLUE EYES technology ensures a convenient way of simplifying the life by providing more delicate and user friendly facilities in computing devices. Now that we have proven the method, the next step is to improve the hardware. Instead of using cumbersome modules to gather information about the user, it will be better to use smaller and less intrusive units. The day is not far when this technology will push its way into your house hold, making you more lazy. It may even reach your hand held mobile device. Any way this is only a technological forecast.

- In the near future ,ordinary household devices- such as television , refrigerators ,ovens may be able to do their jobs when we look at them and speak to them.
- Future applications of blue eye technology is limitless

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