what is blue eyes?

• aims on creating computational machines that have perceptual and sensory ability like those of human beings.

• interactive computer.

• computer acts as partner (and friend) to the user.

• realize his physical or emotional states.
how is that possible?

employing non-obtrusive sensing method, employing most modern video cameras and microphones to identify the users actions through the use of imparted sensory ability.
Why the name?

bluetooth

eye movement
Why the name?

bluetooth

eyemovement
contents

• System Overview
• Emotion computing
  Emotion mouse
  E-motion
• Eye tracker
• Magic pointing
• Speech recognition
• Suitor
SYSTEM OVERVIEW

System overview

Data Acquisition Unit
- Atmel 89C52 microcontroller
- Jazz Multisensor

Central System Unit
- Bluetooth
- Visualization Module
- Data Analysis
- Data Logger
emotion computing

Something about computing the emotions
emotion mouse

- pressure
- galvanic skin response
- skin temperature
- heart beat
Physiological signals for Emotional mouse

- Pressure
- Temperature
- GSR
- Heart rate

Scan Rate: 100.00
Scan backlog: 0
Error: No LabJacks found

File Name:
- C:\My documents\processed_data.txt
- C:\My documents\raw_data.txt

Heart rate: 100.1
e-motion

facial expression recognizing

face detection
head position

facial data extraction
features
appearance

expression recognition
frame
sequence
detection
geometric facial data extraction

- state of eyebrow
- state of eyes
- state of furrows
- state of cheek
- state of lips
basic emotion-specified facial expression

1. disgust
2. fear
3. joy
4. surprise
5. sadness
6. anger
Blue Eyes

Working

Emotion

Mouse

Pulse

GSR

Body Heat

Heartbeat

Anger

Fear

Sadness

Disgust

Happiness

Arsenal
eye tracker

a device which tracks the movement of eye
IBM Almaden eye tracker
eye ball
reflected beam
on axis IR
off-axis IR

reflected beam

eye ball
dual light source gaze tracking
magic pointing
manual and gaze input cascaded pointing
liberal magic pointing

gaze position reported by eye tracker

eye tracking boundary with 95% confidence

cursor is warped to eye tracking position or nearby the true target

previous cursor position
conservative magic pointing

gaze position reported by eye tracker

eye tracking boundary with 95% confidence

cursor is warped to Boundary of gaze area

previous cursor position
speech recognition

inputting sound signals
data extraction

filtering

analog to digital converting

comparison
working

Blue Eyes

filter 1
filter 2
filter 3
filter n

ADC

templates

Arsenal
suitor

[Simple user interest tracker]

Automatically detect users area of interest and start searching it.
IBM Almaden Research Center

Creating computers that know how you feel

**BlueEyes**

Animal survival depends on highly developed sensory abilities. Likewise, human cognition depends on highly developed abilities to perceive, integrate, and interpret visual, auditory, and touch information. Without a doubt, computers would be much more powerful if they had even a small fraction of the perceptual ability of animals or humans. Adding such perceptual abilities to computers would enable computers and humans to work together more as partners. Toward this end, the BlueEyes project aims at creating computational devices with the sort of perceptual abilities that people take for granted.
advantages

- reduce fatigue
- practical accuracy
- speed
conclusion

- ensures a convenient way of simplifying life by providing more interactive and user-friendly facilities in computing devices.

- reduce differences between man and the machine (computer)
reference

ibm.com
wikepedia.com
QUESTIONS