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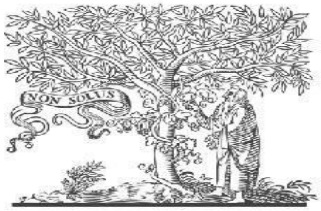

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Title **REVIEW PAPER ON BLUE EYES TECHNOLOGY**

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REVIEW PAPER ON BLUE EYES TECHNOLOGY

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Abstract:
Human brain can recognize other humans feeling by looking their faces or by their touch, that done by the computer as same but it is difficult to think. But in modern world the technology reached to that concept is called as Natural Language Processing**.** The technology which can make a computer understand the emotional level of human being and that technology is called 'Blue Eyes Technology'. There are various ways and devices through which a system can understand human feelings. Among all devices, face detection is a very powerful tool for human to interact with the computer by using that tool, this tool read the face of human being which people understand each through their expression. There are various type of the face detection technique and this paper presents similar idea of these technique. And different devices used in gathering human information for examine their emotional level.

KEYWORDS:

1. Blue eyes
2. Emotional mouse
3. Expression glass
4. DAU
5. LED
6. Visualization.

1. Introduction:

Imagine living in the society where people can communicate with computers. It has the capacity to learn information about you and communicate with using specialized methods like speech recognition and facial recognition. Even your feelings can be understood by it with just a click of the mouse. It confirms your identification, touches your gifts and begins communicates with you. The capacity to perceive, analyse and integrate auto-visuals and sensory information is what drives human intellect.

Fig. No.: 1 BLUE EYE

2. LITERATURE REVIEW:

The basic idea behind blue eye technology is that consumers can access all entertainment options through touch and sensation. The output includes all of the real-world apps that are used in day-to-day living, as well as several game and commercial elements. [4] The concepts in sensing the blue eyes technology were represented in a general framework by Santosh K. Gaikwad and Bharti W. Gawali since those eyes are thought to be crucial for connecting humans to computers. [8] Reddy's presentation outlined the benefits and drawbacks of artificial intelligence as well as practical applications. Paper [2] Priya R. Baghe, with blue eyes Technology entails the development of several.

NEEDS:

- To develop technology that can comprehend your emotions.
- A computer that can talk, listen or yell.
- Verify your identity, acknowledge your presence, and engage in conversation with you.

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- Such perceptual capabilities would make it possible for computers and people to cooperate more closely.

SYSTEM OVERVIEWS:

The Blue Eye System measures saccadic activity to keep track of the operator's visual attention level. The technology detects anomalies in metrics like heart rate and blood oxygenation and sets off users-defined alarms.

The system consists of:

Fig. No.2: Data Acquisition Unit

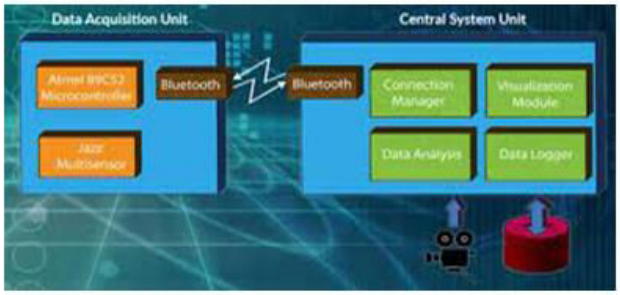

Fig. No.2: Block diagram of Blue Eye Technology

Central System Unit (CPU) ->Data Acquisition Unit (DAU) with the user of Bluetooth technology, a personal area network connecting the operations and the main system can be established.

DAU:

The Data Acquisition Unit is made of number of hardware units.

System Core:

Atmel 89C52 microprocessor Bluetooth module (based on ROK101008)-HD44780-24C16-12C EEPROM on a disposable ID card, tiny LCD display 13-bit PCM codec mc145483-Jazz Beeper and LED indicators, 6AA batteries and a voltage level monitor are all of the multisensory interface.

DATA ACQUISATION UNIT (DAU) FEATURES:

In Blue Eye Technology, Bluetooth modules like to the Android device DAU enable a wireless connection between a Central system unit and user who have sensors. This device contains a buzzer, LCD panel screen and five keyboards for use interaction, as well as a device to alert the operator in case of emergency. For two step verification or authentication purposes, the entire operator uses 4-digit codes, screen codes or ID cards. Through the use of headphones or headsets connected to the data acquisition unit with a mini jack socket, the audio process from the operators is transmitted. DAU is mad up of a variety of hardware, including a buzzer. [8]

Low power usage, battery-powered and lightweight. It is incredibly simple to operate and doesn't interface with the operator's task. Identification cards for operator approval. The hardware PCM codec use for voice transmission.

The Data Acquisition Unit includes several hardware modules:

Atmel 89C52 microcontroller – system core

Bluetooth module (based on ROK101008)

HD44780 – small LCD display

24C16 – I2C EEPROM (on a removable ID card)

MC145483 13bit PCM codec

Jazz Multisensor interface

COMPONANTS OF CSU:

CONNECTION MANAGER's primary function is to carry out Bluetooth low-level communication.

The row sensor data is analyses by the data ANALYSIS MODULE. The logger offers storage space for the tracked data.

The supervisor's user interface is provided by the VISUALIZATION MODEL.

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CSU FEATURE:

They were employed for connection management, data processing, data recording, access verification and system maintenance.

3. THE SOFTWARE

The primary responsibility of Blue Eye System software is to take care of the physical health
Of working operators. To show an example reaction on the condition of operator, the software performs real-time physiological data analysis, real-time incoming data buffering and real-time alert triggering.
A number of useful modules The Blue Eyes program, which is part of the system core, makes it easier for data to move between system modules. For example, it can move row data from the Connection Manager to data analysers and processed data from data analysers to GUI controls and other data analysers.
The supervisors have access to a user interface thanks to the visualization module. This software enables the working operator to watch a preview of the chosen video source and the associated sound stream. Every time an alarm message arrives, the supervisor is immediately notified. The Visualization module can be configured to operate in an offline mode in which the database is used to retrieve all of data. The manager retraces the part of the chosen information.

Computes may become intimate partners with humans if they were endowed with remarkable perceptual talents. Researchers are working to give computers new features that will enable them to interact with people like people do, detect human gestures, speak, listen and even infer emotions. It aspires to build computational devices with sensory and perceptive abilities similar to those of humans. It employs a non-intrusive sensing technique that makes use of the majority of contemporary video cameras and microphones to track the user's movements using sensory abilities that have been given to them. The device is capable of comprehending a user's desires, the location of his gaze and even his emotional and physical states. The goal of the Blue Eyes technology is to develop computational robots with sensory and perceptive abilities similar to those of humans.
It uses a discrete sensing technique, utilizing the majority of contemporary video camaras and microphones, to track the user's movements using their newly acquired sensory abilities. The device is capable of comprehending a user's desires, the location of his gaze, and even his emotional and physical states. By the authority of BLUE EYES Blue in this context refers to both eyes and Bluetooth, which allows for wireless communication and allows us to get a wealth of intriguing information through eye movement.

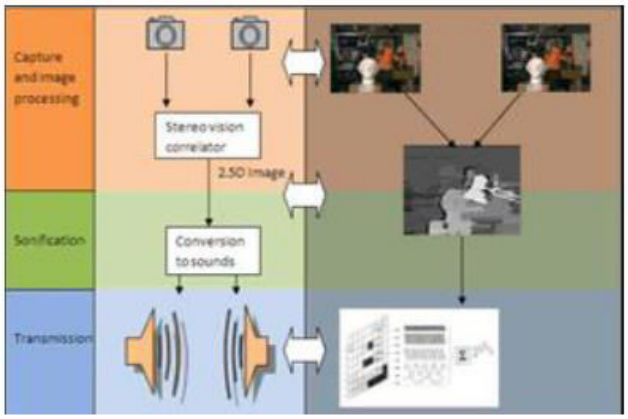

Fig. No.3: Software Analysis Diagram

The operator's job is to monitor all the physiological metrics, alarms, video and audio data that have been recorded. Physiological data is presented using a set of specialized GUI controls.

4. EMOTION COMPUTING

Rosalind Picard (1997) explains the significance of emotions to the computing community. Affective computing includes two components: the capacity to recognize emotions and the capacity to communicate feelings. An essential first step in creating an adaptable computer system is emotion recognition.

A computer system that can adapt and learn is used to recognised an individual's emotional state. People that have complementary or similar personalities work effectively together, according to research (Dryer & Horowitz, 1997). He has demonstrated that users perceive their computer to have a personality. It is crucial to create computers that function properly with their users.

- **THEORY:**

Paul Ekman's research on facial expressions has demonstrated a correlation between a person's emotional state and their physiological data. The

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Ekman facial action Coding System is described in a selection of papers by Ekman and other on tracking facial behaviour (Ekman and Rosenberg, 1997). One of the Ekman's experiments involve participants being attached to equipment to capture data including blood pressure, temperature, somatic movement, pulse and galvanic skin response (GSR). The participants were told to imitate the six primary emotions by making facial expression that went along with them.

- **RESULTS:**

He lists the Six fundamental emotions that include anger, fear, sadness, joy and surprise. Using this research, Dryer (1993) came with Fig. 3: Feeling mouse on objectives of human computer interaction (HCI) is an active intelligent computer system This kind of the project might incorporate gesture recognition, facial recognition, eye tracking and speech recognition. Another non-intrusive method of learning more about someone is to touch them. People collect, store and alter data using computers.

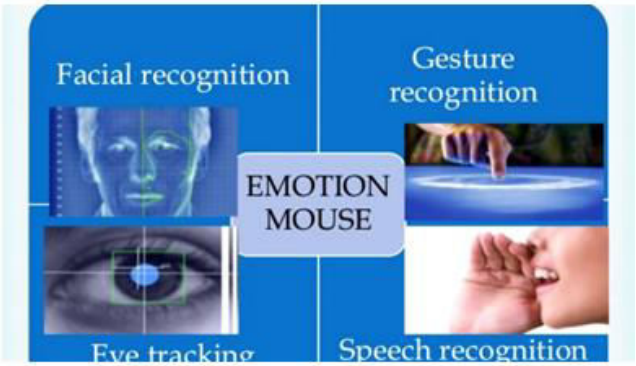

Fig. No. 4: Emotion Mouse

To begin building intelligent computers, the computer must begin learning about the user. The mouse is one of the suggested methods for gathering user information through touch via a computer input device. The physiological information collected from the user can be used to determine an emotional state. The task the person is performing on the computer at the time and their emotional state are connected. A user model will be created in order to develop an understanding of the user's personality over time. The goal of the project is to make the user's workspace better so that they can work more productively by having the compute adapt to them. The task the person is performing on the computer at the time is connected to their emotional state. A user model will be developed to help determine the user's personality over time. By letting the computer adapt to the user, the project's goal is to improve working conditions and improve productivity.

The outcome demonstrates the soundness of the theory underlying the operation of the emotion mouse. To correlate the physiological parameters, a correlation model is employee. To create the correlation model, a calibration procedure is used. Based on statistical analysis of calibration signal produce by the user who had emotion that were measured or known at the time of calibration process with a baseline attribute-to-emotion correlation is understood.

5. EMOTION SENSORS:

Types of Emotion Sensors for Hand:

a) Emotion Mouse
b) Sentic Mouse

Types of Emotion Sensors for Eyes:

a) Expression Glasses
b) Magic Pointing
c) Eyes Tracking

Types of Emotion Sensors for Voice:

a) Artificial Intelligence Speech Recognition

Emotion Sensors for Hand:

a) Emotion Mouse:

Fig. No. 5: Emotional Mouse

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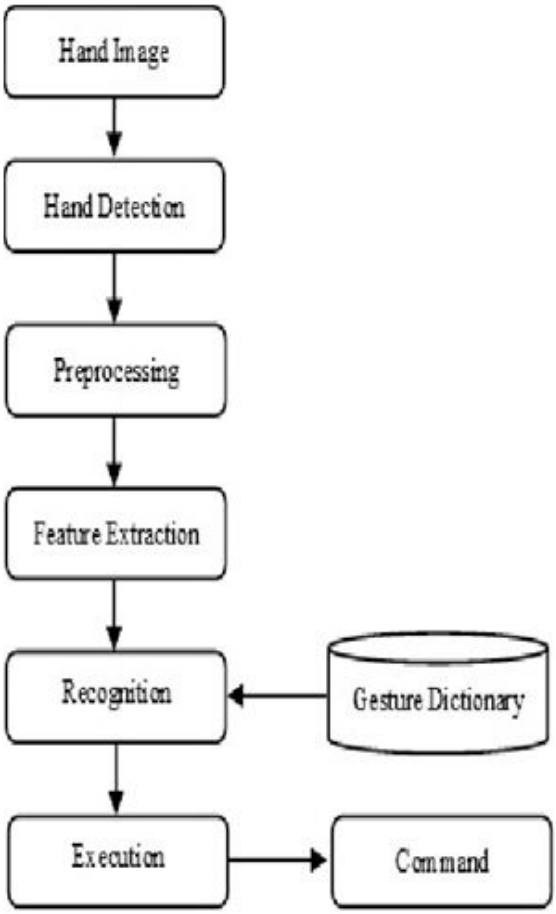
The outcomes demonstrate the soundness of the theory underlying the operation of the Emotion mouse. To correlate the physiological parameters, a correlation model is employed. To create a correlate model, a calibration procedure is used. Based on statistical analysis of calibration signals produced is used. Based on statistical analysis of calibration signals produced by users who had emotions that were measured or known at the time of calibration, the calibration, the calibration process with a baseline attribute-to-emotion correlation is understood. The outcomes demonstrate the soundness of the theory underlying the operation. The task the person is completing on the computer at the time and their emotional state are connected. A user model will be created in order to develop an understanding of the personality of the user over time. The goal of the project is to make a better working environment where the user is more productive by having the computer adapt to the user.

b) Sentic Mouse:

The experimental works of Peter J. Lang, Ward Winton, Lois Putnam, Robert Kraus and Dr. Manfred Clynes served as inspiration for the Sentic Mouse. This serves as the foundation for creating a tool for measuring individual's emotional valence response.
The term emotional evaluation of a stimulus, whether it is positive (related with pleasure, linking and attraction) or (negative associate with discomfort, dislike and avoidance or aversion). Through this experiment, emotions can be given quantitative values in order for the create a predictive model for the emotional theory.

Subjects were asked to-rate their emotional response after being shown a sequence of photos by peter J. Lang and other researchers. Ward Winton, Lois Putnam and Robert are assigning the subject's skin conductance and heart rate as the part of experiment. Dr. Manfred Clynes conducted a series of sentic tests in which information is being acquired from each vertical and horizontal component of finger pressure in order to identify different emotional states using physiological indicators. Among the measurements employed are GSR, heart rate, skin temperature and

Fig. No. 6: Sentic Mouse



Flowchart 1: Hand gesture recognition system

General Somatic Activity (GSA). Basicaly there are two types of the data analysis. The initial analysis performed to establish the dimensionality of the data is Multidimensional Scaling (MDS) approach.

These study major objective is to measure human emotion theory predictive model.

These three models of computer-human interaction were approved for use by the Affective Computing research group. An experiment that incorporated all three emotion investigations was conducted utilizing a computer to provide the human participant the affective stimuli. And regular computer

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mouse with a pressure sensor was used in Dr. Clyne's research to gather sensory data. The various other bio sensors, such as GSR and EKG, were also tracked and connected while the individuals watched Lang's emotional picture database, IAPS.

The work of Winton, Putnam and Krauss has been overlooked.

Sensitive data, heart rate and self-evaluation are the three measurements that were compared to one another and to theoretically anticipated findings in order to determine the subject's emotional valence for each slide. The earliest stages of analysis findings suggest that the sentic mouse should record valence data.

- Eye

a) Expression Glass:

Fig. No. 7: Expression Glass

Expression Glass is an application-based wearable device that offers an alternative to general-purpose machine vision face recognition systems. All facial muscle movements are detected by these expression glasses, which use pattern recognition to recognize significant expressions like curiosity or bewilderment. These glasses have a prototype that has been constructed and tested. The employment of covert piezoelectric sensors in a visor extension to a pair of glasses is supplying the attributes of compactness, user control and anonymity. For unskilled users, these glasses provide an accuracy of 94% when identifying an expression. Identify the expression of bewilderment or curiosity with 75% accuracy. Significant improvement is being made with continued uses, it seems potential to go beyond these figures.

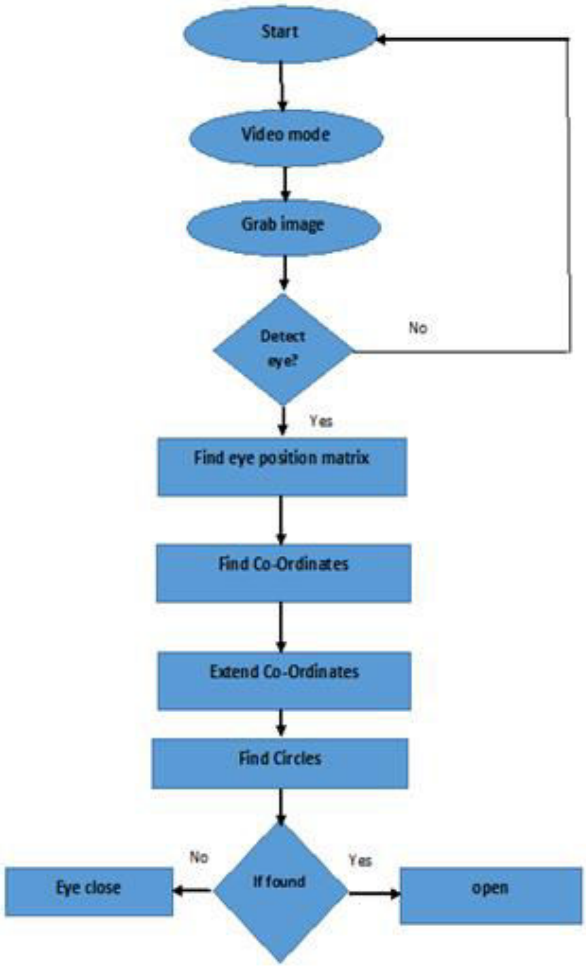
b) **Magic point:**

It reduces the cursor movement needed for target selection. You can use a standard manual input device to click on the target.

Two magic pointing technique are:

Warping the cursor to each new thing the user looks at is a liberal approach.

Conservation Approach – Does not warp the cursor target until the manual input device has been actuated.



Flowchart 2: Eye detecting

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6. ARTIFICIAL INTELLINGENT SPEECH RECOGNIZATION:

You state your name, the extension number, and the name of the person you want to reach. The connection is made fast if the person being phoned accepts the call. Artificial intelligence enables the adoption of an automatic call-handling system without the need for a telephone operator.

Words entered are scanned and compared to words already stored inside. When someone is identified, a certain action is triggered and the user speaks into the computer's microphone. Filtering, feeding the ADC and storing the data in RAM.

- **The Technology:**

In essence, artificial intelligence (AI) is based on two concepts. The first is that it includes research on human thought processes. The second is that it incorporates mechanical representations of such processes (such as computers and robots). The behaviour of a machine that performs tasks just like human intellect is known as artificial intelligence (AI). AI gave computers intelligence, making them more practical and affordable than natural intelligence. One artificial intelligence technique for enabling communication with a computer in a human language like English is natural language processing (NLP). The action is started by the NLP software after reading the input. The input words are scanned and matched against internally stored lists of recognized terms. An action is started when a key word is recognized. In this approach, a user can interact with a computer. In his or her native language without the need for special commands or computer languages, negating the requirement to build software application in such languages.

7. BENIFITES OF THE BLUE EYES TECHNOLOGY

The Blue Eyes System offers technological tools for observing and documenting the physiological state of human operators.

1. Monitoring of visual attention (eye movement examination).
2. Monitoring of physiological parameters (pulse rate, blood oxygenation) and identification of the operator's position (standing, lying).

3. The operator's voice, physiological information and a general picture of the control room recording and playback of recorded data.

Every working area requiring constant operator attention can use the Blue Eyes system:

1. In control rooms of power plants
2. Air control systems
3. Driver with experience

8. APLLICATION:

Fig. No. 8: Application of Blue Eye Technology

1. The ability to perform numerous tasks at once is one of the face recognition system's key benefits. Such that the user can focus on observation and manual labour while maintaining voice input command control over machinery. One such important area where voice processing is used in military operations. One illustration is the voice control of weaponry. Pilots may communicate with the computers by speaking into their microphones using effective voice recognition technology, eliminating the need for them to use their hands.

2. A radiologist analysing hundreds of x-rays, ultrasonograms, and CT scans when concurrently dictating conclusions to a speech recognition system coupled to word processors is a further excellent example. The radiologist is able to concentrate on the images rather than typing down the text.

3. Voice recognition on computer might be utilized for bookings at hotels and airlines. The only things a user needs to do are describe his demands, make or cancel a reservation or ask questions regarding the timetable.

4. Offer safeguards against risky situations.

5. Caused a decline in ecological effects, financial loss and a hazard the human life.

6. The blue Eye system offers technical tools for tracking and documenting the human operator's physiological state. The system's main attributes are:

7. Eye movement analysis for visual attention monitoring.

8. Monitoring of physiological conditions (pulse rate, blood oxygenation)

9. Detecting the operator's posture (lying, standing).

10. Wireless data acquisition via Bluetooth technology.
11. Instantaneous user-defined alarm triggering.

12. The recording of the control room's general picture, the operator's voice and physiological information.

9. THE SIMPLE USER INTEREST TRACKER (SUITOR):

The computer would become more powerful than any living thing on earth if it were to acquire perceptual and sensory capacities. It's necessary to develop a close contact between humans and computers. And a ground-breaking method in this direction is the Simple User Interest Tracker (SUITOR). The SUITOR offers the option of retrieving the more information more information at this desktop by watching

Web page while exploring the internet. The SUITOR can pinpoint his area of interest with greater accurately by watching where the user's eyes fixate on the computer screen.

10. CONCLUSION:

The Blue Eyes Technology enhances the computer's intelligence and smart to the point where it acts as a human being. Through the use of more opulent and user-friendly service in a computer device, it makes life for humans easier. The method has been shown thus far; next step is to upgrade the hardware. Therefore, make computing device's features more dedicate and user-friendly. There is less of a separation between the actual and digital worlds. Implicit commands can be used to operate computer instead of explicit commands.

11. FUTURE ENHANCEMENT:

Researchers at IBM are addressing the challenging task of creating intelligent devices. The "gaze-tracking" technology operates your mouse by using MAGIC (Manual Acquisition with Gaze-initiated Cursor), which track the movement of eyes. The pointer moves with you as you gaze around the screen thanks to magic. Future Blue Eye technology make it simple for us to gauge our humour and can quickly check our fitness levels. This technology can be used in conjunction with GPS to track the route that our cars take. The technology aids in person detection as well respecting the meteorological circumstances. With the use of our vision, we can apply the technology to household electrical appliances as well. The distance between people and electronic devices will be drastically reduced. We can utilize it for security and military controls. Armed force can prevent terrorist from crossing borders and entering distant areas by using biometrics detected in surveillance cameras. The security camera for this technology needs to be connected to the detecting sensors in order to supply us with advance development plans. For the sake of our home's security, we can prevent visitors from visiting our private areas. The police will be contacted when a stranger is detected by the security camera (due to mismatch in biometrics), and international Journal of Engineering Research & Technology (IJERT) http://www.ijert.org ISSN: 2278-0181 IJERTV9IS030048 will also be contacted. The Creative commons Attribution 4.0 International License governs the use of this work. Web site: www.ijert.org We receive an alarm from Vol. 9 Issue 03, March-2020 356, which sounds. The methods allow us to collaborate with another while connected to a computer. It is applicable to the medical profession, where it can be used to counsel patient after detecting their physiological mood.

We can lock and unlock our information on real-time devices by moving our eyes. With this technology, there is no end to the number of exciting innovations that may be found in daily life.

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