BLUE BRAIN TECHNOLOGY

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Abstract:

Blue brain-the name of the world's first virtual brain. This means a machine that can function as human brain. Today scientists are in research to create an artificial brain that can think, response, take decision, and keep anything in the memory.

The main aim is to upload human brain into machine. Here, after the death of man the body will not be present but the virtual brain will act as a man.

The main point is even after the deadth of person we are not going to lose his/her knowledge,intelligence,personalities that can be used for the development of human society.just imagine if we still have that grt personalities like Edward Jenner brain virtually we would not be starving here still for many things,in that the present one which is vaccine.our human brain is very complex than any other circulatory.so now the question arises like "Is it possible practically to create a human brain"?and the answer is "yes".Because there is nothing called no when humans start doing it.Here,when man doesn't have any computer it might be a big question for the above experiment but today it is possible due to technology."IBM" is now in research to create virtual brain called blue brain.If possible,this would be the first virtual brain of the world.But here we need to think technically and note that we need not know how brain functions only the content and media needs to be transferred.

Keywords: Blue brain, virtual brain, vaccine, circulatory.

Introduction:

**The man is called intelligent because of brain where the body is destroyed after deadth.*

** In future, our brains are going to be attacked by the blue brain!! Yeah that's right, but there is nothing to be worried, as it is going to be really useful for us.*

**There are three main steps 2to build the virtual brain are data acquisition, simulation and visualization of results.*

** The human brain is a complex system consisting of recursive connectors. It is more complex than any circuitry in the world.*

**The human brain is a multi-level system with 100 billion neurons (nerve cells) and 100 trillion synapses.*

**A neuron is a cell designed to transmit information to other nerve cells, muscle,*

or gland cells whereas synapses help neurons to communicate with each other.

The world of technology has expanded in areas like humanoid robots, computing, virtual reality, wearable devices, Artificial Intelligence, Digital jewellery, Blue Eyes Technology, Brain Gate Technology and so much more at a rapid rate. A full human brain simulation (100 billion neurons) is planned to be completed by 2023 if everything goes well.

**Human society would always need such intelligence and such an intelligent brain. But the intelligence is lost along with the person after death. Virtual brain is a solution to it. The brain and its intelligence can be alive even after death.*

***MOTIVATIONS BEHIND BLUE BRAIN**: Four broad motivations behind the Blue Brain Project are:*

- *Brain disease treatments*
- *Scientific curiosity about consciousness and the human mind*
- *Integration of all neuroscientific research results worldwide*
- *Progress towards building thinking machines (bottom up approach)*

One in four people will suffer from one of around 560 brain diseases during their lifetime.

Therefore, it is important to have a good strategy for understanding these diseases and finding suitable treatments.

The living brain is very difficult to study.

**Both from a technical perspective, and a moral one. A virtual model, however, makes direct observations possible. Experiments on models are also more efficient and limit the need for laboratory animals.*

Why we need virtual brain??

->to upload contents of natural brain into it.

->to keep the intelligence, knowledge and skill of any person forever

->to remember things without effort

Some people have this excellence, so that they can imagine up to such an extent where others can't even reach. The world is always in need of such brainpower and a clever brain. After death the intelligence is lost along with the body hence the elucidation to it is virtual brain. This helps in preserving the brain and intelligence even after the death. Teething troubles are often faced in remembering things such as person's names, the spellings of words, birth dates, appropriate grammar, history, evidences etc...In the tiring life everyone want to be hassle-free. Can't we exploit any contraption to assist for all these?,

Functions of human brain:.

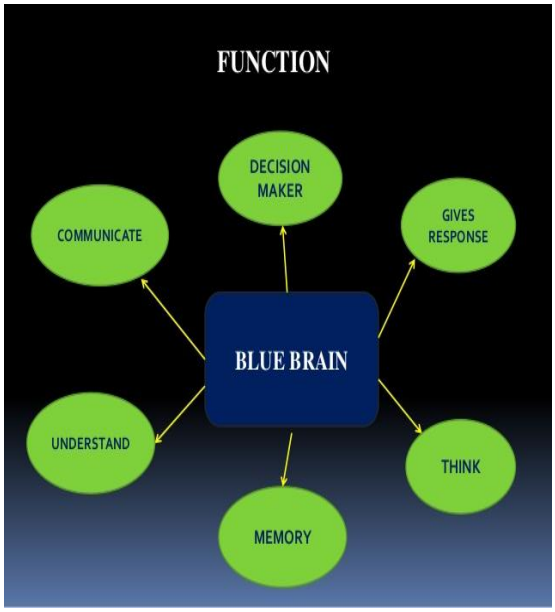
Data of 100 years can be gathered, stored and tested.

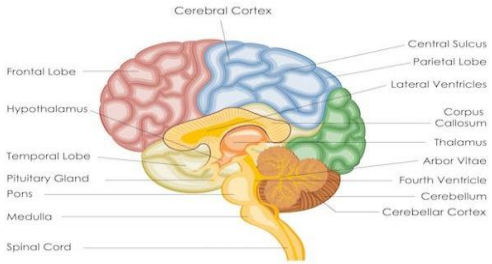
ii. Cracking of Neural code.

iii. Process of Neocortical information can be easily understood.

iv. Complete brain simulations.

v. Brain function molecular modeling.





BRAIN

WORKING OF NATURAL BRAIN:

Human Brain Human brain is the directive centre for the nervous system. It receives input from the sensory organs and generates output to the muscles. The human brain weighs about 3.3 lbs and constitutes 2 percent of the human's total body weight.

The human brain consists of three major divisions: 1. Cerebrum 2. Brainstem 3. Cerebellum Functioning of Brain:

Sensory Input: When the eyes see something or hands touch something, the sensory cells also called as neurons, sends a message to the brain. The action of getting information from our environment is called sensory input.

Integration: Integration is the interpretation or the process of combining information from various sources. The nervous system combines the information from the different senses like vision, touch, hearing, etc. It is very important for the ability of brain to extract and organize the information about the surrounding environment.

Motor Output: Motor output that involved in the process of activating muscles. Motor system processing and interpreting the sensory input and deciding what should be done at each and every time.

***Now there is no question how the virtual brain will work. But the question is how the human brain will be uploaded. This is possible due to the fast-growing technology

Main steps to build virtual brain:

Data acquisition:

Data acquisition involves taking brain slices, placing them under a microscope, and measuring the shape and electrical activity of individual neurons.

This is how the different types of neuron are studied. These observations are translated into mathematical algorithms which describe the form, function, and positioning of neurons.

Simulation*: The simulation step involves synthesising virtual cells using the algorithms that were found to describe real neurons. The algorithms and parameters are adjusted for the age, species, and disease stage of the animal being simulated.*

Every single protein is simulated, and there are about a billion of these in one cell. First a network skeleton is built from all the different kinds of synthesised neurons. Then the cells are connected together according to the rules that have been found experimentally.

The simulations reproduce observations that are seen in living neurons. Emergent properties are seen that require larger and larger networks. The plan is to build a generalised simulation tool, one that makes it easy to build circuits. The ultimate aim is to be able to understand and reproduce human consciousness.

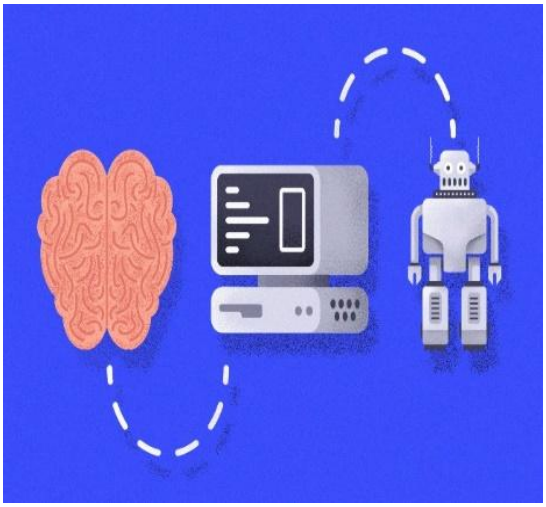
Visualisation of results: *Neuron is the primary application used by the BBP for visualisation of neural simulations. The software was developed internally by the BBP team. It is written in C++ and OpenGL. Neuron is ad-hoc software written specifically for neural simulations, i.e. it is not generalisable to other types of simulation.*

Neuron takes the output from Hodgkin-Huxley simulations in NEURON and renders them in 3D. This allows researchers to watch as activation potentials propagate through a neuron and between neurons. The animations can be stopped, started and zoomed, thus letting researchers interact with the model.

Uploading human brain:

Its basic functionality is it will monitor activities of neuron and scans the structure of brain. It defines the data using sensory technology

1.uploading by using small robots



2.these robots are small enough to travel throughout our circulatory system

3.they will travel into spine and brain and able to monitor the activity

4.provide an interface with computer that is as close as our mind

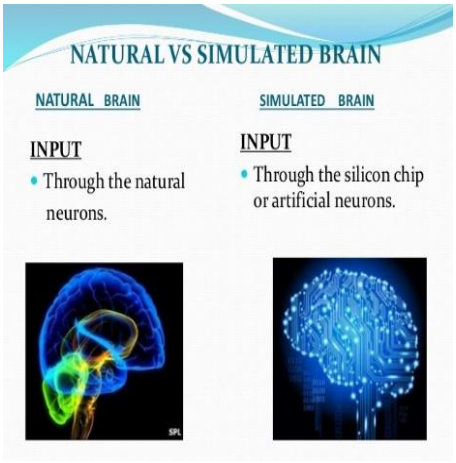
5.this info when entered into computer could then continue to function as us

6.thus the data stored in the entire brain will be uploaded into the computer

h/s requirements:

**super computer*

**memory with large space storing capacity*



**processor with a very large processing power*

**high width network*

**program to convert electric impulses from brain to input signal which is to be received by a computer*

NATURAL BRAIN vs SIMULATED BRAIN*:* The inputs are given through the neurons.

1.The inputs are given through the silicon chip or artificial neurons in simulated brain.

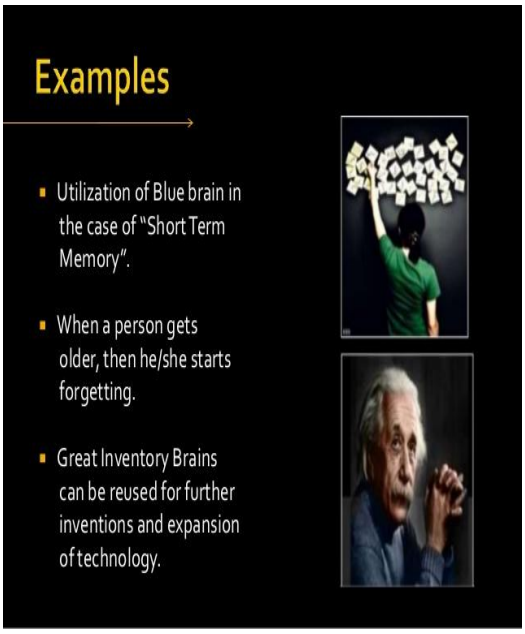
2.Interpretation by various states of neurons in the brain. By a set of bits in the specified set of register. Output through the natural neuron.

3.Output through the silicon chip. Processing through arithmetic and logical calculations in simulated brain.

4.Processing through arithmetic, logic calculation and artificial intelligence. State of neuron has permanent memory.

Through secondary memory in simulated brain.

Examples of blue brain technology:



applications of blue brain:

1.**A fresh implement for drug discovery for brain**

Disorders:

A tangible establishment to discover the cellular and synaptic bases of a wide variety of neurological and psychiatric diseases depends upon understanding the flow of different elements and pathways of the neocortical column.

2.**Encoding neural code.**

The neural code is nothing but the object that is built by the

human body using electrical impulses. The neuron is the

basic cell of brain; similarly the neocortical column is the

base reason of computing the neocortex.

BARRIERS IN BUILDING OF BLUE BRAIN:

Currently, there is some barrier in the neuron connectivity with artificial neuron.

To solve this barrier, it will take more than four years. Once it is established then we require five or more years to complete Blue Brain project.

By Adapting methodology of nanobots, there will be decrease in development time and lead to better performance.

Advantages:

.∗ Remember things without any effort.

∗ The knowledge, intelligence, personalities, feelings of a person will not be lost even after the death.

∗ It provides an ability to take decision without the presence of a person

∗ Through the electric impulse from the brain of the animal their activities can be easily understood. ∗ It is very useful for

deaf and also allows them to hear via direct nerve stimulation

Disadvantages ** People become dependent upon the computer.*

** Others may use technical tricks and intelligence against us.*

** Computer virus will result in critical threat.*

Conclusion:

**We lose the knowledge of a brain when the body is destroyed after the death. Here blue brain comes in picture.*

**Certain super brains like Bill Gates and Stephen Hawking could be interfaced with computers to make a super computer.*

**Blue brain is an innovative upcoming technology which is an attempt to reverse engineer the human brain and recreate it at the cellular level inside a computer simulation.*

** Blue brain is novel tool for brain disorders. It will be useful to store the intelligent person's brain and use its IQ in research even after his/her death. It can be solution for short term memory and volatile memory at old age.*

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