International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 05 Issue: 05 | May-2018 www.irjet.net p-ISSN: 2395-0072

The Blue Brain
The Survey of Paper Blue Brain

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Abstract - *The name of the first artificial brain. It means that machine can perform a function as human brain. . The aim is that examine human brain into machine. that way human will think, take decision do not take any effort. when destroy the body, the knowledgeable person destroy all intelligence. artificial brain will be act as man society. No one has ever understood the complexity of human brain. It is difficult than any circuitry in the world. So, question may rays "Is it really possible to create a human brain?" The answer is "Yes". Because whatever person has created today always he has followed the nature. When man does not have any device called computer, it was a big question to all human society .But today it is possible due to the vast technology. Technology is growing faster than others . IBM is now in research to create a artificial brain. It is called "Blue brain.*

Key Words: 1.Neurons 2.Sensory System 3.Supercomputers 4.RTNeuron 5.Neuroscience 6.Microscopy 7.Brain Modeling.

1. INTRODUCTION

[1] It is very complex to understand of human brain which Is he most difficult circuit than other. Now a day it is possible to create a virtual brain. The project named is Blue Brain it is under process of uploading a human brain on computer which resides on Super Computer. The project was founded in 2005, started by scientist Henry Markram at EPFL in Lausanne Switzerland. Human brain is considered as the biggest gift God has given to this world. Man is known to be the most intelligent animal because of his abilities that his brain gives him. The human brain converts the information transmitted by the impulses enabling a person to respond. The death of a person brings in the loss of his knowledge as his body gets destroyed. The same knowledge could have been used for further development of the society. What could have been the face of the earth today if we could still communicate with great scientists who contributed everything they could for a better society? Enter Blue Brain..

1.1 HISTORY OF VIRTUAL BRAIN

[2]The main aim of the project was founded in May 2005 by Brain and Mind Institute in Ecole Poly technique Federal de Lausanne, Switzerland. Its aim is to create a artificial brain's architecture and functioning principles. The project is headed by Henry Markam, the director of the institution Swizerland. they are using the Blue Gene super computer developed by IBM and Michael Hines, neuron software is running on super computer. [3]The simulation does not involve the virtuall neural network but biologically realistic model of neurons. Human brain is considered as the biggest gift God has given to this world. Man is known to be the most intelligent animal because of his abilities that his brain gives him. The human brain converts the information transmitted by the impulses enabling a person to respond. The death of a person brings in the loss of his knowledge as his body gets destroyed. The same knowledge could have been used for further development of the society. What could have been the face of the earth today if we could still communicate with great scientists who contributed everything they could for a better society? Enter Blue Brain.

1.2.WHAT IS VIRTUAL BRAIN?

[3]Virtual Brain is the name of the super computer or bluel brain developed by IBM. If possible, it would be the world's first artificial brain. Within 30 years we would be able to upload our intelligence and brain into the super computer. The intelligence we can use this knowledge for the development of next generation of human even after the death of the man .It can take decisions absence the of person . on the past experiences of the person and apply it to the similar situation occurring in the present. [3] the help of artificial brain we can scan our brain into a computer. this interface the data stored in the natural brain can be up loaded into the super computer. Different process and structure of our central nervous system can also be studied.

1.3 . NEED OF VIRTUAL BRAIN

[4]Intelligent is the different quality through which all of us from other. It is the inborn quality. There are some person having a very high standard level of knowledge and intelligency. Sometimes they can think upto such extent knowledge that other's cannot reach. Examples are Einstine, Newton etc. But after the death the knowledge is lost. The solution to this is the artificial Brain. it can be preserve after death. We all suffer from a problem of remembering past knowledge history and important days etc. This all can be done by artificial brain or blue brain.

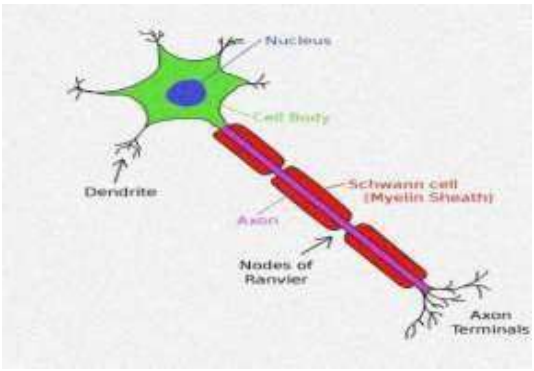

Fig. nuron model

1.4SEVERAL AIM OF PROJECT NEUROCORTICAL COLUMN MODEL

The first phase complet in December2006, it was the simulation of the rat neocortical columns which are the small function units of neocortex the size of nanobots is about 2mm long , and diameter 0.5mm and contains 60,000 thousand neurons in humans but rat neocortical column contain 10,000 thousand neurons.

1.5 BRAIN SIMULATION

[7]The project headed Henry Markam at TED conference say that, "It is not impossible to make the human brain and we will do it in 10 year". He said that if we would be able to implement it correct, then it would be able to speak and have the intelligence ,knowledge similar to person In that way the artificial nervous system can be created. The scientist have created artificial neurons put another material them with the silicon chip. It have also test these neurons can receive the input from the sensory cells.

PROGRESS

[3]The first phase completed in November 2007. single cellular model was developed in 2005. The neuro cortical column was 10,000 thousands cells developed by 2008. The 100 columns was create in 2011 human brain developing stage to exist on 2023 which will be equal to 1000 rat brains. The machine manufacturing can be divided by three complex steps of data collection, simulation, scan and uploading and visualization of output. The crux of the whole process is the manner in which natural brain of a man may be scan into a computer using both techniques. The best approach is the use of very small robots called nanobots. It record the current state of the human brain which when entered into a computer would simulate the functions of a real brain.

2. FUNCTIONING OF VIRTUAL BRAIN

Firstly, it becames important to understand how the human brain can be scaned on a computer. The human ability to feel, interpret and interfaces even see is controlled, in computer like mathematical calculations, by the magical nervous system. Yes, the nervous system is like magic of brain because we can't see it, but its working through the electric impulses or signals through person of body. the world's most "intricately organized" electron mechanisms is the nervous system of person. engineers have come nearest for making circuit boards and computers as delicate and precisely as the nervous system. To understand this system, the three simple functions are that sensory input, integration, motor output.

[8]Raymond Kurgweil and some technical scientist published the paper this topic and provided that the use of small robots or nano bots .There are very small space to travel our circulatory system. They would be able to control the function of the nervous system. They will be provide the interface with computer. By uploading human brain it will provide the specific information of the connections of neurons. They would record the current state of brain. All these information when entered into computer, it will work as us. It will required the super computer with large space and processing power

Fig. blue brain nano boats

3. SIMULATION OF DATA:

There are 2 aspects of simulation-

1. Speed of simulation

2. Simulation Workflow

3.1 Simulation of Speed: The simulation of speed is 1 neocortical column is two hundred times slower than the real brain.

BBP-SDK

The software uses C, C++, FORTAN and it is an open source software. It was developed in 1990's by Moore and Hines. The Blue Brain Project SDK in a C++ clothed Java and Python.

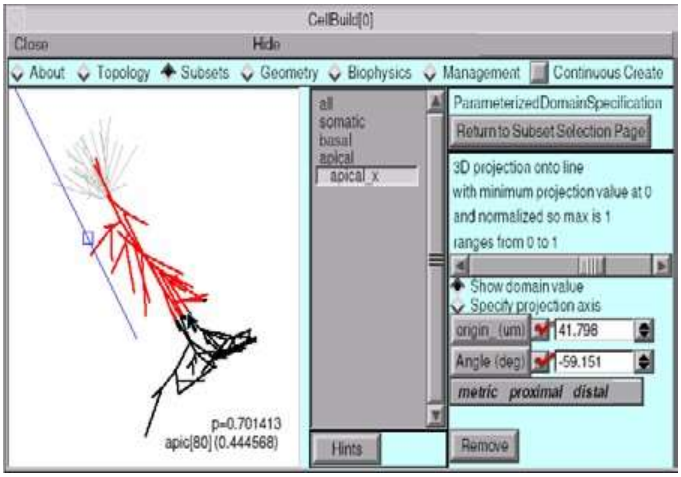

Fig. NEURON window

4. VISUALIZATION OF RT NEURON

RT Neuron is used for the visualization of the neural simulations. This software is written in C++ and OpenGL. It is written nuron simulations. We can gives the output in 3D format

4.1Work flow of Neuron in system

[1]In the first initial stage of data acquisition, different types of neurons are studied and catalogued. The microscopic brain slicing to measure the shape and electrical function of individual neurons .second process of simulation step involves synthesizing virtual cells. The algorithms and parameters used to explain the real neurons are altered to suit the age, species, and disease stage requirements of the animal being simulated. Simulation can be subdivided into the steps – In Modeling every single protein, constructing a network skeleton from all the different kinds of simulated neurons, of system and connecting the cells together ass per experimental rules and finally got the functionalized neuron simulation to life.

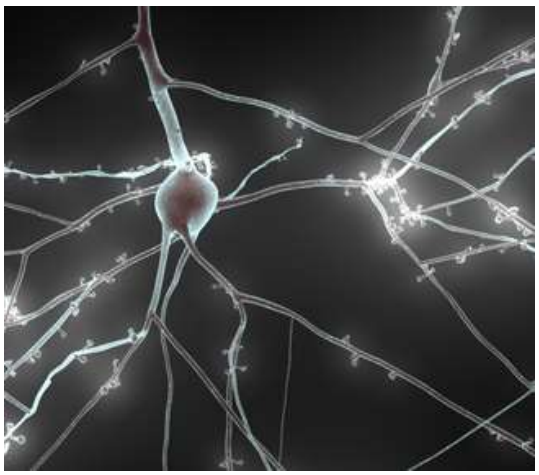

Fig. Neuron visualization

5. HARDWARE/SOFTWARE/ COMPUTER

USED Blue Gene/P specifications:

1. 4,098 quad-core of nodes.
2. Every core is a PowerPC of 4.5, 8.5 GHz
3. It consists of more than 6*1013flops
4. 16 terabytes memory
5. 1 Peta Byte of disk space.
6. Operating system used is Linux SuSE

SLES 10

The machine given as marked as 99th fastest supercomputer in the whole world .

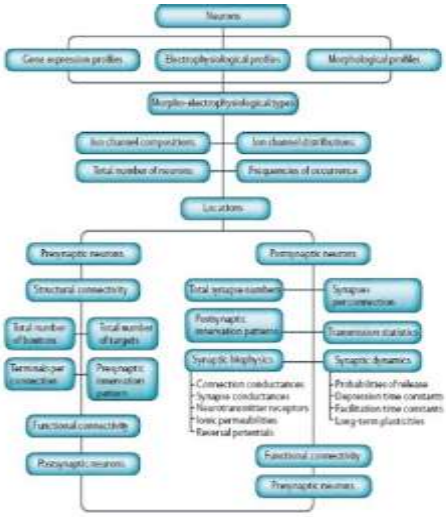

Fig. Elementary neural microcircuit

5.1. MERITS

1. It can be remembered without any effort .

2. The function and thinking of different animals can be understood by interpretation of electric impulse or signals from their brain.

3. The person after the death of his/her intelligence can be used for development or create of the human society and The activity of different animals can be understood.

5.2.DEMERITS

1. Human will be dependent on machines.

2. The Super computers used a large power as much as 1MU

3. The blue brain can be misused when the neural schema of a particular person is hacked.

5.3. APPLICATIONS

1. Tested Data of 100 years .
2. Neural Code can be cracked.
3. Information Process or activity of Neocortical can be understood.
4. Whole brain simulation can be study.
5. A drug for the Brain Disorders.
6. A global facility are there.

6. CONCLUSION

The Blue Brain Project is that we will able to transfer ourselves into computer. The human brain and reform it at molecular level inside a computer simulation. They are simply require future time of technology to increases. The combination of biological and digital technologies would provide an impetus for the overall growth and development. However, it would be more feasible if this technology is exclusively developed for the treatment of chronic and cognitive neurological disorders as it would truly prove to be magic in that field of medicine. And other positive outcomes of the BBP can also be seen as also solve a lot of societal issues. The Blue Brain project would work wonders or precisely for the human society in the near future.

7. ACKNOWLEDGMENT

We would like to thank to the contribution of all the people who have helped me in /writing and completing this paper. We would also like to thank my family who supported me in the course of writing this paper.

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