**Abstract for Technical Paper Presentation**

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**PAPER PRESENTATION**

**TITLE**-

Human machine interface

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**ABRACT**

A brain to computer interface (BCI), sometimes called a direct neural interface or a brain machine interface, is a direct communication pathway between a brain and an external device

Our brains are filled with neurons.

Every time we think, move, feel or remember something, our neurons are at work.

The easiest and least invasive method is a set of electrodes-a device known as an electroencephalograph (EEG) -attached to the scalp.

The electrodes can read brain signals.

**BRAIN TO BRAIN INTERFACE**

* **DEFINITION**

A brain–computer interface (BCI), sometimes called a direct neural interface or a brain–machine interface, is a direct communication pathway between a brain and an external device

**Objective of BCI**

* The goal of the Brain-Computer Interface is to develop a fast and reliable connection between the brain of a severely disabled person and a personal computer .
* The ‘Brain Gate device can provide paralysed or motor-impaired patients a mode of communication through the translation of thought into direct computer control.

**TYPES of Interface**

**Invasive Brain Computer Interfaces**

-implanted directly into the brain and has the highest quality signals.

-provide functionality to paralyzed people.

**Partially Invasive Brain Computer Interfaces**

-Implanted inside the skull but outside the brain.

**Non Invasive Brain Computer Interfaces**

-Gives a patient the ability to move muscle implants and restore partial movement

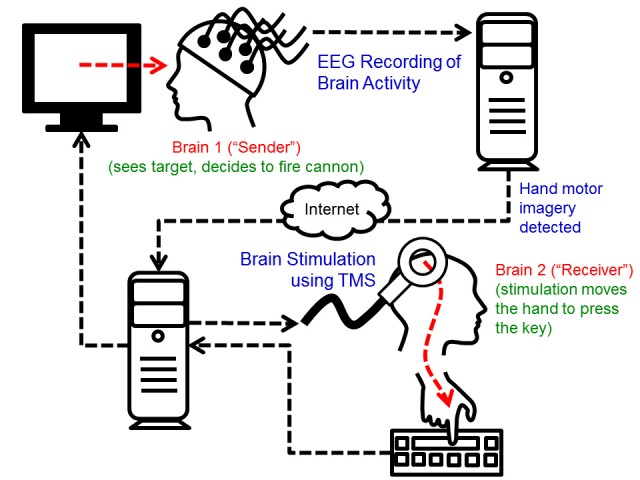
**What are Electrodes?**

The easiest and least invasive method is a set of electrodes -- a device known as an electroencephalograph (EEG) -- attached to the scalp.

The electrodes can read brain signals.

The electrodes measure minute differences in the voltage between neurons. The signal is then amplified and filtered. In current BCI systems, it is then interpreted by a computer program.

**Brain to Brain interface**



**ELECTRIC BRAIN**

Our brains are filled with neurons.

Every time we think, move, feel or remember something, our neurons are at work.

That work is carried out by small electric signals that zip from neuron to neuron as fast as 250 mph.

**WORKING**

The technologies used by the researchers for recording and stimulating the brain are both well-known. Electroencephalography, or EEG, is routinely used by clinicians and researchers to record brain activity noninvasively from the scalp.

BCIs will help creating a direct communication pathway between a human or animal brain and any external devices like computers.

BCI has increased the possibility of treatment of disabilities related to nervous system along with the old technique of Neuroprosthetics.

**ADVANTAGES**

BCIs will help creating a Direct communication pathway between a human or animal brain and any external devices like computers.

BCI has increased the possibility of treatment of disabilities related to nervous system along with the old technique of Neuroprosthetics.

Techniques like EEG, MEG and neurochips have come into discussions since the BCI application have started developing.

This has provided a new work area for scientists and researchers around the world.

**APPLICATIONS**

Criminal investigation.

Home control appliances.

Automation airplane control.

Easy communication between disabilities

**DRAWBACKS**

The brain is incredibly complex.

The signal is weak and prone to interference.

The equipment is less than portable.

HMI's are machine specific.

Cannot read complex thoughts.

This technology cannot be used without the consent of the person.

There is no way to decide who is better than the other.

Man power reduces to great extent.

**Future scope**

Brainwaves are low frequency bands which slightly differ from thought to thought and its these differences that are detected by an EEG device which works as a transducer.

We have to think of some device that detects these waves and based on its artificial intelligence should do the task based on the thoughts.so it can be used for criminal investigation

It could be used by someone on the ground to help a flight attendant or passenger land an airplane if the pilot becomes incapacitated.

Person with disabilities could communicate easily.

**Conclusion**

The results of BCI are spectacular and almost unbelievable.

BCI can help paralyzed people to move by controlling their own electric wheelchairs, to communicate by using e-mail and Internet-based phone systems, and to be independent by controlling items such as televisions and electrical appliances.

Conclusively, BCI has proved to be a boon for paralyzed patients .

**Reference**

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