



E - journal

Issue II feb 2009 www.vector.weebly.com

When time gets tough, tougher gets going. What this recess can do, is yet to come, but what it has done can be clearly seen, but still incomprehensible.

One can clearly see the increased number of 'but's in the sentences, though it may not be the actual effect of recess.

"Engineers are graduating but they won't get a job in this recess. The time of campus has arrived but the management is sitting idle. One may be formally placed but what about the call-letter? College will provide you adequate funds but the management has to be satisfied with u people. The concept of e-journal is good but it is by EC. They re-launched the e-journal but they would end up with the same fate again." Everywhere we have been 'but'ing.

The fact is that 'but' feels bad -often, if not always - 'and' feels good. And when it comes to our loved ones, feeling good is definitely the way to go. When they feel good about themselves and what they are doing, they do more of it, building their self-confidence, their judgment and their harmonious connections to others.

So it would come out to be- "Students are graduating and they would have to work hard to find a good job. Time of campus has arrived and management is looking forward for what is best for students. Get placed and keep your eye open for a good opportunity. Come up with a good proposal and college will help your funds. The concept of e-journal is ventilating and everybody is ready to work for it. They re-launched the e-journal and we are expecting the next issue soon."

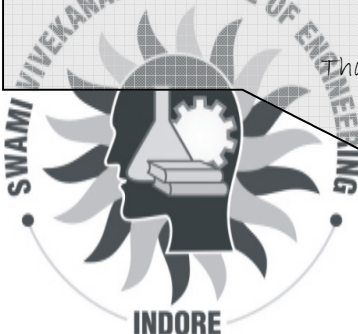
It is our own mental attitude which makes the world what it is for us. Our thought make things beautiful, our thoughts make things ugly. The whole world is in our own minds. We must learn to see things in the proper light. Keeping this in mind, we have tried to throw light on various aspects of life such as social issues like Indian economy, recession and satyam fraud; technical topics such as robots, bionic eye; funny and satirical articles; carrier-oriented articles on GRE & TOEFL; few personal experiences and some facts and figures.

Never mind if your contribution is only a mite , your help only a little , blades of grass united into a rope will hold in confinement the maddest of the elephants. We owe our gratitude to every person associated to this magazine for their hard work, sincerity, determination and skills. The success of this magazine would largely be determined by our commitment and the support given to us by the college management, our teachers and of course all our colleagues.

Due to exam schedule of RGPV, we got late and we recover ourselves here with a fresh issue for February, because a saying says- "better late than never".

Readers' views are most welcome.

Thanking you



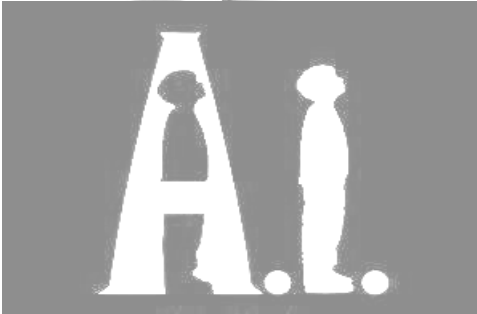
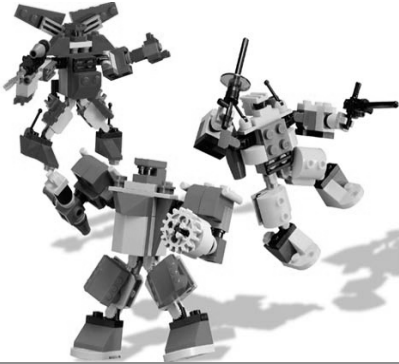
- Editors' Club.



Knowledge

"The mind,
once enriched
by a new idea,
never regains its
original dimensions."

INDEX



accenture
High performance. Delivered.

1. ROBOWAR....

**2. EINSTEIN'S BIG
BLUNDER**

3. BIONIC EYE...

**4. FUNNY TRANSLA -
TIONS...**

**5. ARTIFICIAL INTEL-
LIGENCE**

**8. TOUCH
SCREEN**

10. VoIP

13. RADAR

**15. DEATH OF
INTERNET**

**16. GLOBAL
MELTDOWN**

18. SATYAM FRAUD

**20. TECHNOLOGY IN RE-
CESSION**

22. ACCENTURE

23. GRE

**25. SINDBAD THE SAILOR
-II**

26. NO SMOKING



ROBOWAR

- Science can be so unpredictable

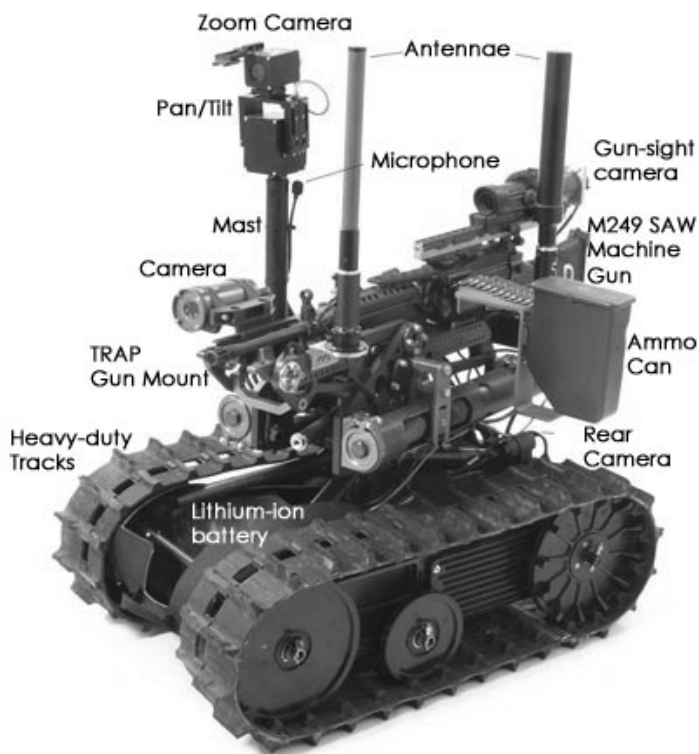
It sounds like science fiction, but it is fact. Robots will be the armies of the future in a case of science fact catching up to fiction. The coming generation of “war-robots” will be immensely more sophisticated, and their development raises troubling new questions about how we wage war and they are changing the experience of war itself. This is leading some of the first generation of soldiers working with robots to worry that war waged by remote control will come to seem too easy, too tempting.

The sort of recalibration of thinking about war is starting to happen as a result of robotics today. On the civilian side, experts such as Microsoft’s Bill Gates describe robotics as being close to where computers were in the early 1980s—still rare, but poised for a breakout. On the military side, unmanned systems are rapidly coming into use in almost every realm of war, moving more and more soldiers out of danger, and allowing their enemies to be targeted with increasing precision.



P. W. Singer, director of the 21st Century Defense Initiative at the Brookings Institution, warned that while using robots for battle saves lives of military personnel, the move has the potential to exacerbate warfare by having heartless machines do the dirty

The shown diagram shows how well configured a robo-soldier will be. Its rotatory camera will give the situation of all sides. The controller after getting a view will decide what action to take. Robo soldier can move and rotate to sight its victim and do the fruitful for its master. Even if the bullets in the gun are finished they will be reloaded by extra ammunition in ammunition box.



Will these soldiers have emotions?

Robotics designer David Hanson offered hope when it comes to making robots a little more human. Hanson builds robots that have synthetic flesh faces and read people’s expressions in order to copy expressions. “The goal here is not just to achieve sentience, but empathy,” Hanson said. “As machines are more capable of killing, implanting empathy could be the seeds of hope for our future.” Hanson demonstrated a lifelike robotic bust of late genius Albert Einstein that makes eye contact and mimics people’s expressions.

Einstein's Big Blunder

Dont believe!!! Read On

Robots also record everything they see with built-in cameras, generating digital video that routinely gets posted online at YouTube in graphic clips that soldiers refer to as "warporn" Whatever may be the future but it will turn war into entertainment, sometimes set to music,"

The United States is ahead in military robots, but in technology there is no such thing as a permanent advantage as Russia, China, Pakistan and Iran are also working on military robots."

The US Army already recruits soldiers using a custom war videogame and some real-world weapon controls copy designs of controllers for popular videogame consoles. Attack drones and bomb-handling robots are already common in battle zones.

Robots not only have no compassion or mercy, they insulate living soldiers from horrors that humans might be moved to avoid.

But the diplomatic issues of robotics are even more complex. How do 20th-century international laws of war apportion accountability with our 21st-century technologies? Who is held to task when a machine mistakenly hits the wrong target? The commander, the programmer, the inventor?

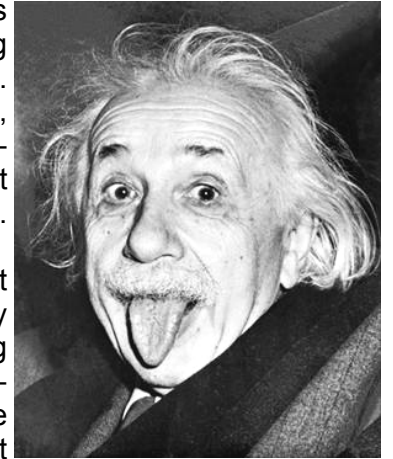
Our wars remain driven by human failings, and even the most sophisticated fighting machines aren't going to replace humans any time soon. But that doesn't mean we will be able to avoid the science-reality of technology such as warrior-robots or the science-fiction-like dilemmas that will bring to our battlefields. The future is upon us.

100 years ago, Albert Einstein published three papers that rocked the world. These papers proved the existence of the atom, introduced the theory of relativity, and described quantum mechanics.

Pretty good debut for a 26 year old scientist, huh?

His equations for relativity indicated that the universe was expanding. This bothered him, because if it was expanding, it must have had a beginning and a beginner. Since neither of these appealed to him, Einstein introduced a 'fudge factor' that ensured a 'steady state' universe, one that had no beginning or end.

But in 1929, Edwin Hubble showed that the furthest galaxies were fleeing away from each other, just as the Big Bang model predicted. So in 1931, Einstein embraced what would later be known as the Big Bang theory, saying, "This is the most beautiful and satisfactory explanation of creation to which I have ever listened." He referred to the 'fudge factor' to achieve a steady-state universe as the biggest blunder of his career.



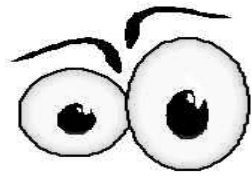
Einstein's theories have been thoroughly proved and verified by experiments and measurements. But there's an even more important implication of Einstein's discovery. Not only does the universe have a beginning, but time itself, our own dimension of cause and effect, began with the Big Bang.

That's right -- time itself does not exist before then. The very line of time begins with that creation event. Matter, energy, time and space were created in an instant by an intelligence outside of space and time.

About this intelligence, Albert Einstein wrote in his book "The World As I See It" that the harmony of natural law "Reveals an intelligence of such superiority that, compared with it, all the systematic thinking and acting of human beings is an utterly insignificant reflection."

He went on to write, "Everyone who is seriously involved in the pursuit of science becomes convinced that a spirit is manifest in the laws of the Universe-- a spirit vastly superior to that of man, and one in the face of which we with our modest powers must feel humble."

Pretty significant statement, wouldn't you say?



BIONIC EYE

-Now an eye for an eye won't make the whole world blind!!!

A visual prosthesis or **bionic eye** is a form of neural prosthesis intended to partially restore lost vision or amplify existing vision. It usually takes the form of an externally-worn camera that is attached to a stimulator on the retina, optic nerve, or in the visual cortex, in order to produce perceptions in the visual cortex.

These experimental visual devices are modeled on the **cochlear implant** or **bionic ear** devices, a type of neural prosthesis in use since the mid 1980s. These are an externally-worn microphone and processor that is attached to a stimulator in the cochlea, auditory nerve, in order to produce sound perception in the auditory cortex.



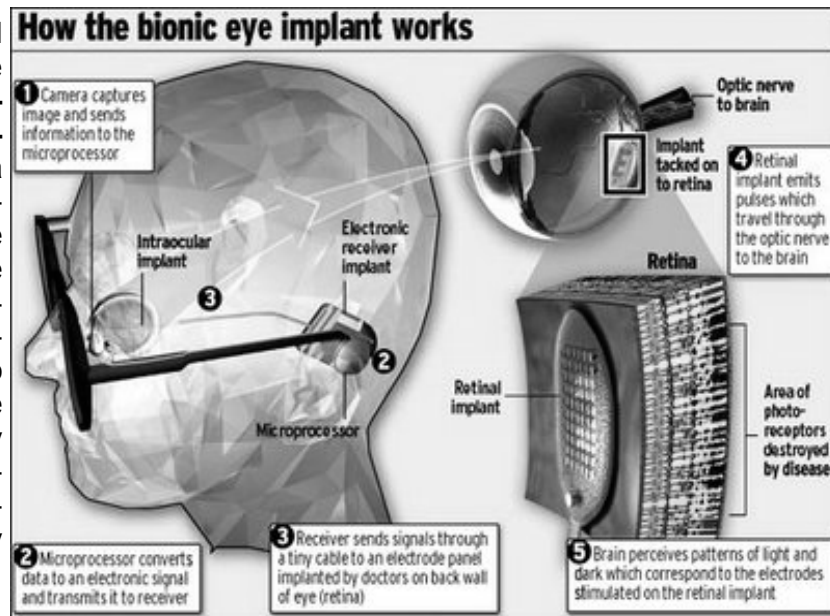
Biological considerations

The ability to give sight to a blind person via a bionic eye depends on the circumstances surrounding the loss of sight. For retinal prostheses, which are the most prevalent visual prosthetic under development (due to ease of access to the retina among other considerations), vision loss due to degeneration of photoreceptors (retinitis pigmentosa, choroideremia, geographic atrophy macular degeneration) is the best candidate for treatment. Candidates for visual prosthetic implants find the procedure most successful if the optic nerve was developed prior to the onset of blindness. Persons born with blindness may lack a fully developed optical nerve, which typically develops prior to birth.



Camera of bionic eye

A digital camera closely modeled on the human eye has been invented in what scientists are calling a revolutionary step towards the creation of computerized bionic sensors that can be attached to the body. The camera's unique technology is its curved light-



sensitive surface that was inspired by the human eye's hemispherical retina that collects light at the back of the eyeball and transmits electrical signals to the brain.

Conventional cameras use flat surfaces to detect light but for them to work properly it is necessary to use complex lenses to ensure that light falling at the edges of the surface is

not distorted due to it falling outside the focal plane of the lens. Professor John Rogers at the University of Illinois in Champaign said that being able to build a light detector on the curved surface of an artificial eyeball provides a much broader field of view, a more uniform illumination and fewer aberrations than a flat digital camera with similar lenses.

"Hemispherical detector arrays are also much better suited for use as retinal implants than flat detectors. The ability to wrap high-quality silicon devices onto complex surfaces and biological tissues adds very interesting and powerful capabilities to electronic and optoelectronic device design, with many new application possibilities," Professor Rogers said.

Funny translations

"This approach allows us to put electronics in places where we couldn't before. We can now, for the first time, move device design beyond the flatland constraints of conventional wafer-based systems," he said.

"We believe some of the most compelling areas of future application involve the intimate, conformal integration of electronics with the human body in ways that are inconceivable using established technology," Professor Rogers said. The light detectors of the device are based on standard sensors for digital cameras but are mounted on a layered material that can be flexed into a curved, hemispherical shape without putting stress on the detectors.

"The work opens new possibilities for advanced camera design. It also foreshadows artificial retinas for bionic eyes similar in concept to those in the movie *The Terminator* and other popular science fiction," said a spokesman for the University of Illinois.

"The advantages of curved, detector-surface imaging have been understood by optics designers for a long time, and by biologists for an even longer time," said Professor Yonggang Huang of Northwestern University in Evanston, Illinois, who collaborated on the project.

Professor	Translation
If you follow these few simple rules, you'll do fine in the course.	If you don't need any sleep, you'll do fine in the course.
The gist of what the author is saying is what's most important.	I don't understand the details either.
Various authorities agree that...	My hunch is that...
The answer to your question is beyond the scope of this class.	I don't know.
You'll have to see me during my office hours for a thorough answer to your question.	I don't know.
In order to answer to your question, you must recognize that there are several disparate points of view.	I really don't know.
Today we are going to discuss a most important topic.	Today we are going to discuss my dissertation.
Unfortunately, we haven't the time to consider all of the people who made contributions to this field.	I disagree with what roughly half of the people in this field have said.
We can continue this discussion outside of class.	1. I'm tired of this - let's quit. 2. You're winning the argument - let's quit.
Today we'll let a member of the class lead the discussion. It will be a good educational experience.	I stayed out too late last night and didn't have time to prepare a lecture.
Any questions?	I'm ready to let you go.
The implications of this study are clear.	I don't know what it means either, but there'll be a question about it on the test.
The test will be 50-questions multiple choice.	The test will be 60-questions multiple guess, plus three short-answer questions (1000 words or more) and no one will score above 55%.
The test scores were generally good.	Some of you managed a C+.
The test scores were a little below my expectations.	Where was the party last night?
Some of you could have done better.	Everyone flunked.
Before we begin the lecture for today, are there any questions about previous material?	Has anyone opened the book yet?
According to my sources...	According to the guy who taught this class last year...
It's been very rewarding to teach this class.	I hope they find someone else to teach it next year.

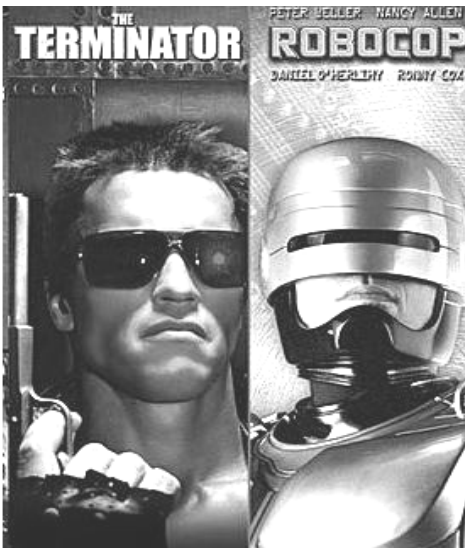


Artificial Intelligence-Recreating the capabilities of human mind

- if a machine can be created that has intelligence, could it also feel?

"If a machine acts as intelligently as a human being, then it is as intelligent as a human being." These are the words by Alan Turing which formed the basis of the Turing test. These are the words by Alan Turing which formed the basis of the Turing test. Now getting on with the term Artificial Intelligence. The science of artificial intelligence is less than sixty years old, which is young for a branch of science, yet AI has advanced phenomenally since the early days of moth-ridden vacuum tubes.

The future of AI is hard to predict, but no one questions that it will be more available and more abundant and present in people's lives. Some experts anticipate that in the future AI hardware will become smaller, AI will become an essential element of caring for the elderly, and it will include a blending of the best of both human and mechanical intelligences.



The direction of all electronics and technology continues to be toward ever smaller and more portable products. The first generation of computers, giants that filled entire rooms with whirring gears and fans, gave way to desktop versions run by transistors. The technology shrank dramatically with the invention of silicon chips. Laptops have been miniaturized to handheld computers, and cell phones are half the size they were just five years ago. That trend is reflected in AI also.

A cutting-edge artificial intelligence technology being perfected at the University of California at Berkeley works on an incredibly small scale. What is smart dust all about? "Smart dust" is a network of wireless micro-electromechanical sensors the size of dust particles imagine **grains of sand** with a brain that could monitor everything from temperature, light, vibration, and movement to radiation and toxic chemicals. The particles of smart dust, called motes (a very small particle), could be as small as **one cubic millimeter**, which would fit on the tip of a ballpoint pen. At present, prototype **smart dust motes** are about the size of a pager and run on AA batteries. But these sensors have infinite possibilities. Scientists hope that these mini-sensors can be sprinkled throughout a large area like tiny dust motes floating in the air.

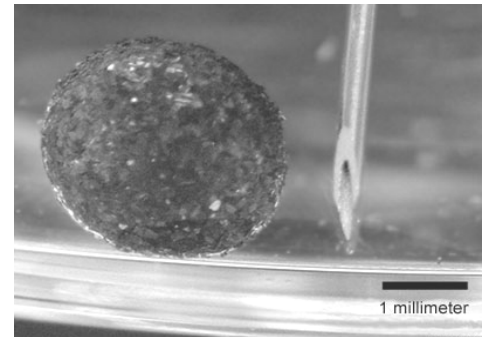


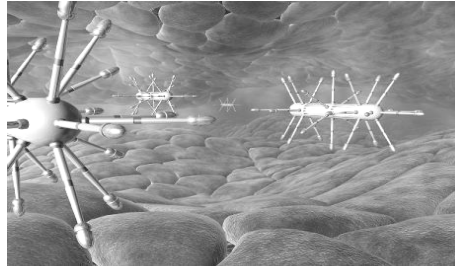
Fig: Magnetic smart dust

Networked by the hundreds, smart dust motes can pass information from one to the other almost instantaneously. They survey the world around them and "chat" wirelessly through the system until the information reaches a central computer. Smart dust is being marketed for use in factories, homes, and public places and for commercial, military, medical, security, and ecological applications. For example, sensors dispersed in an art gallery could sense movement when the gallery was closed. They could be placed anywhere inside or outside an active airport to detect chemical weapons or plastic explosives. Sensors dropped from an airplane could help predict the path of a forest fire, and those positioned around a house could monitor the vital signs of the people living inside. Another project that's not quite as small as the proposed smart dust, but more mobile, is the **micro fly**, a robot project funded by the Department of Defense.



The **micro fly** will weigh less than a paper clip and zip about on wings that are only **one-twentieth** the thickness of a sheet of paper. Its artificial intelligence sensors will allow it to run reconnaissance missions for the military and scout out enemy troops without being detected. According to Promode Bandyopadhyay, head of robotics at the federal Office of Naval Research, "You could have a swarm of them in a battlefield. Eventually, they can work as a group and detect the presence of hostile forces and materials."

Writer and researchers has predicted even smaller robotic AI systems using nanotechnology, which is the engineering of devices on a microscopic scale. He suggests that nanobots could be injected into the human body and travel through a person's system to detect disease. There already is such a device, developed in France that is small enough to be swallowed. It moves along the patient's digestive tract and with a tiny wheel measures the intestines and takes samples. It can also be programmed to stop at a certain spot to release a dose of medicine or perform a simple surgical procedure. German researchers have devised an even smaller robotic unit that can travel inside a blood vessel. As thin as a matchstick, it has three moving sections that push and pull it along like an inchworm. An even smaller robotic arm has been created that is no bigger than a hyphen. Its tiny silicon frame can bend and grab glass beads only a fraction of an inch long.



Advances in powering such tiny AI robots have made surprising leaps in recent years. Some researchers are even using parts of bacteria to create tiny rotors similar to those of a helicopter or a propeller on a boat to move these micro machines along. So far these machines are not equipped with intelligence systems, but researchers believe that in the future they will be used to locate and destroy cancer cells and monitor human health.

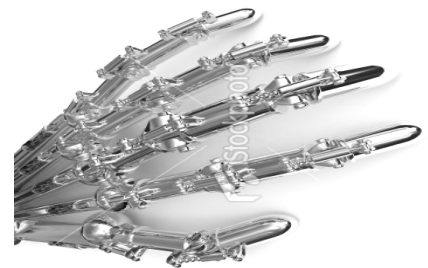


Cyborg Science

A person's memory can grow dim over the years and holds a finite amount of information. The thoughts, ideas, and knowledge are lost after death. But a computer brain can have a limitless amount of memory stored on an infinite number of disks. The knowledge it contains can be downloaded and shared among other computers so that it is never lost. Some AI researchers, like Hans Moravec at the Carnegie Mellon Institute, predict that someday there will be ways to download the contents of the human brain into a computer so that it would "live" forever. But for now, the future may lie in the arm of one AI researcher, Kevin Warwick of Reading University. As part of his AI research, Kevin Warwick had a silicon chip implanted in

his arm to monitor the signals his brain transmits to his nerves. Warwick had a silicon chip implanted in his arm to record the signals that pass through his nerves as he moves. For example, the signals recorded when he wiggles his fingers will be broadcast through a tiny radio antenna to a computer, which will store the signals on a hard drive. Although other researchers have criticized the project as a publicity stunt, Warwick hopes that eventually the computer will be able to play back the signals so that his nervous system will be triggered and wiggle his fingers in response.

If these kinds of brain signals are transmittable, it very well could mean that a man could direct a machine's actions by simply thinking about them, and a machine could direct a man's actions.



Why pursue a man and machine mind meld? Some researchers believe that a thinking robot will never be very effective because of the inherent limitations of trying to duplicate biological systems with machinery. But they hope that a mix of biological intelligence, artificial intelligence, and robotics will produce high-level thinking machines and effective replacement parts for people with mental and physical

disabilities. The people who could benefit most would be those with paralyzed limbs, but the U.S. Department of Defense's DARPA is also interested in mind-controlled battlebots and airplanes that can be directed by thoughts alone. DARPA funds a Human Assisted Neural Devices Program to find ways to integrate human thought processes into computer operations.

If it seems impossible, think again....!!

The mind meld has begun, although not with the human species. In a lab at Duke University's Center for Neuroengineering, a robotic arm swings from side to side, pivots, and straightens as if to snatch something unseen out of the air. The clamplike hand opens and closes, then shoots out again in a different direction.

There is no visible sign of what is controlling the arm except for a trail of tangled cables that snake out the door and down the hall to a small, darkened room.

Inside that room is the power behind the robotic arm—a small monkey strapped in a chair. The monkey is motionless, staring at a computer monitor watching a dot move around the screen. As the monkey watches the dot, its brain is directing the robot arm with its thoughts, which trigger signals picked up by electrodes buried in its brain. The signal is transmitted through the cables to the robotic arm.

Another related research project has created the first robot that moves using the biological neural network that is no longer in a

living body. Called the Hybrot, it is a small circular device with movements that are controlled by neural cells taken from the brain of a rat. "We call it the 'Hybrot' because it is a hybrid of living and robotic components," says Steve Potter, a professor at Georgia Institute of Technology. "We hope to learn how Neurobiologist Miguel Nicolelis has programmed a robotic arm that responds to the brain signals of monkeys.



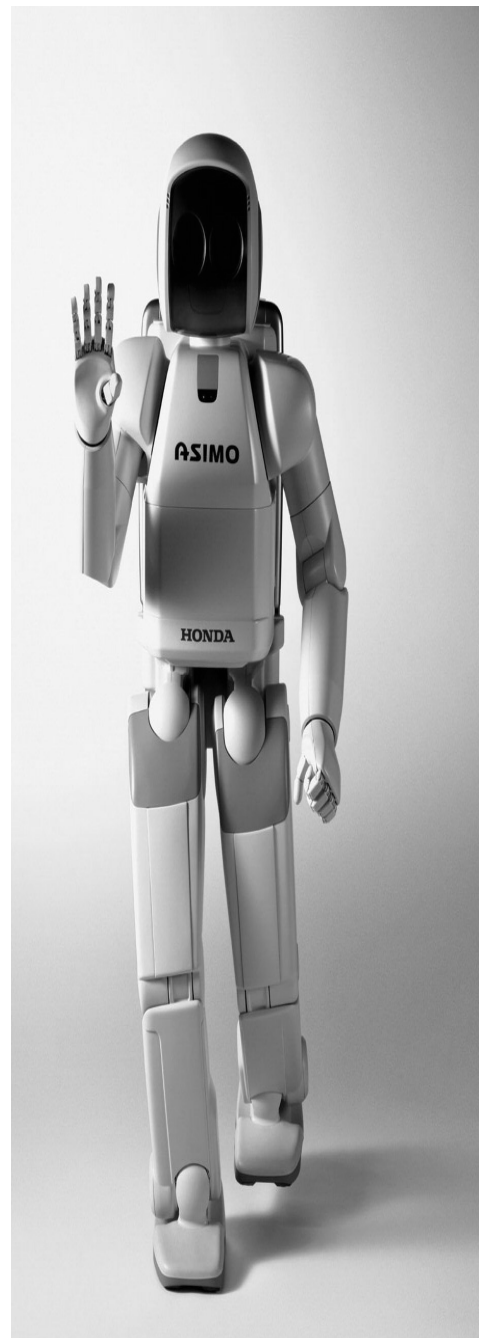
Fig: Neurobiologist Miguel Nicolelis with a monkey.

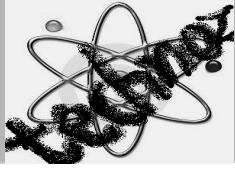
Living neural networks may be applied to the artificial computing systems of tomorrow." Researchers also hope to learn about learning. "Learning is often defined as a lasting change in behavior, resulting from experience,"²⁶ Potter says, and in order for a being to experience the world, the brain needs a body.

A droplet that contains a few thousand living neurons from a rat's brain is placed on a special petri dish fitted with sixty microelectrodes. This functions as the robot's brain. The cell's

activities are recorded by the electrodes and transmitted to the robot's body, a small circular device that can fit in the palm of a hand. The robot's body then moves in response to the electrical impulses received by the cell.

The Hybrot is not cyborg material yet, but it is a start....!!





Touch Screen

...the world is on your fingertips

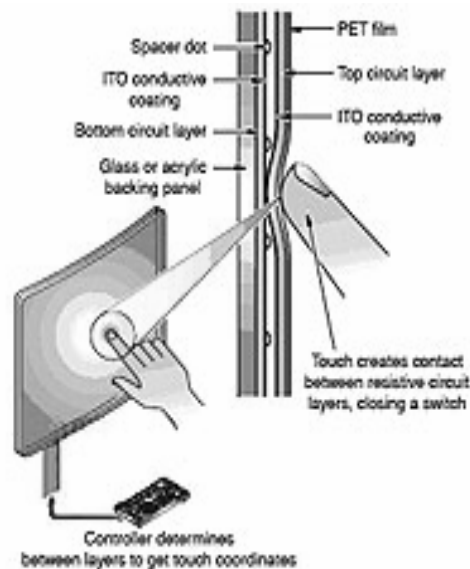
As the name of this technology suggests it related with the touch of finger or hand on the device which is touch screen enabled. A **touch screen** is a display which can detect the presence and location of a touch within the display area. The term generally refers to touch or contact to the display of the device by a finger or hand. Touch screens can also sense other passive objects, such as a **stylus**. The ability to interact directly with a display typically indicates the presence of a touch screen.

There many mechanisms in which the touch screens operate –

Resistive Technology

Resistive technology is versatile and economical for applications such as food service and retail point of sale, industrial process control and instrumentation, portable and handheld products and communication devices. Resistive touch screens have a flexible top layer and a rigid bottom layer separated by insulating dots, with the inside surface of each layer coated with a transparent conductive coating. Voltage applied to the layers produces a gradient across each layer. Pressing the flexible top sheet creates electrical contact between the resistive layers, essentially closing a switch in the circuit. It has advantages like Value solution, Activated by any stylus, High touch point resolution and Low power requirements .

Reduced optical clarity and Polyester surface can be damaged while using it, both are its disadvantages.



Touch screen using resistive technique

Capacitive Technology

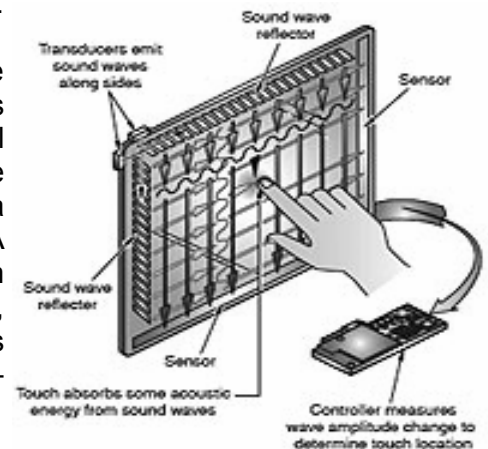
Capacitive technology offers durability, reliability, and optical clarity. Popular applications include gaming machines, ATM installations, kiosks, industrial equipment, and point-of-sale .

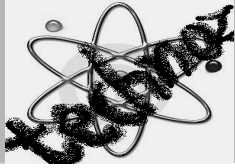
Capacitive touch screens are curved or flat glass substrates coated with a transparent metal oxide. A voltage is applied to the corners of the overlay creating a minute uniform electric field. A bare finger draws current from each corner of the electric field, creating a voltage drop that is measured to determine touch location.

It also have some advantages like Extremely durable , Very accurate , Good optical clarity and Good resolution. But it requires bare finger or capacitive stylus and Severe scratch can affect operation within the damaged area, which are its disadvantages.

Surface wave technology

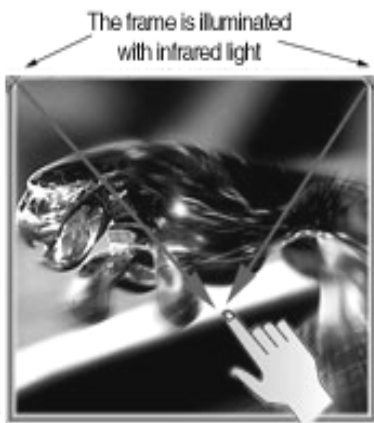
Acoustic wave touch screens use transducers mounted at the edge of a glass overlay to emit ultrasonic sound waves along two sides. These waves are reflected across the surface of the glass and received by sensors. A finger or other soft tipped stylus absorbs some of the acoustic energy and the controller measures the amplitude change of the wave to determine touch location. Good optical clarity, Z-axis capability and Durable glass front are its advantages while Requires finger or sound absorbing stylus, Difficult to industrialize and Signal affected by surface liquids or other contaminants are disadvantages.





Optical imaging

Optical touch screen technology is ideal for large LCD and plasma displays up to 100" diagonal. Optical touch screen technology uses two line scanning cameras located at the corners of the screen. The cameras track the movement of any object close to the surface by detecting the interruption of an infra-red light source. The light is emitted in a plane across the surface of the screen and can be either active (infra-red LED) or passive (special reflective surfaces). 100% light transmission (not an overlay), Accurate, Can be retro-fitted to any existing large format LCD or Plasma display, Can be used with finger, gloved hand or stylus, Requires only one calibration, Plug and play - no software drivers are some of its advantages and Can be affected by direct sunlight, Frame increases overall depth of monitor, Cannot be fitted to plasma and LCD displays with integrated speakers are disadvantages.



Dispersive Signal Technology

Dispersive Signal Technology (DST) consists of a chemically-strengthened glass substrate with piezos mounted on each corner, mated to a sophisticated, dedicated controller. The DST Touch System determines the touch position by pinpointing the source of "bending waves" created by finger or stylus contact within the glass substrate. This process of interpreting bending waves within the glass substrate helps eliminate traditional performance issues related to on-screen contaminants and surface damage, and provides fast, accurate touch attributes. Its Fast, accurate repeatable touch, Touch operates with static objects or other touches on the screen, Touch unaffected by surface contaminants, such as dirt, dust and grime, Excellent light transmission provides vibrant optical characteristics with anti-glare properties, Operation unaffected by surface damage, Input flexibility from finger or stylus, such as pencil, credit card, fingernail, or almost any pointing stylus, Available for display sizes 32" to 46", provide some more benefits but More expensive to integrate than Optical and Only available for displays 32" and larger are its disadvantages.

Gorilla arm

Gorilla arm was a side-effect that destroyed vertically-oriented touchscreens as a mainstream input technology despite a promising start in the early 1980s. Designers of touch-menu systems failed to notice that humans are not built to hold their arms in front of their faces making small motions. After more than a very few selections, the arm begins to feel sore, cramped, and oversized -- the

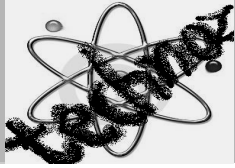
operator looks like a gorilla while using the touch screen and feels like one afterwards. This is now considered a classic cautionary tale to human-factors designers; "Remember the gorilla arm!" is shorthand for "How is this going to fly in real use?". Gorilla arm is not a problem for specialist short-term-use devices such as ATMs, since they only involve brief interactions which are not long enough to cause gorilla arm.

Application in professions

- Public Information Displays
The user-friendly touch screen can help make your information more easily accessible by allowing users to navigate your presentation by simply touching the display screen
- Retail and Restaurant Systems:
Touch screen systems are easy to use so employees can get work done faster, and training time can be reduced for new employees.
- Self-Service
Self-service touch screen terminals can be used to improve customer service at busy stores, fast service restaurants, transportation hubs, and more.
- Control and Automation Systems
The touch screen interface is useful in systems ranging from industrial process control to home automation..
- Computer Based Training
Because the touch screen interface is more user-friendly than other input devices, overall

-KUNAL KHANWILKAR

- MAYURI LAD



training time for computer novices, and therefore training expense, can be reduced



Some Popular touch screen gadgets are -

- laptops run mouse via finger
- iphone mobile phone embedded with all technologies
- tablet PC a table computer with no keyboard no mouse
- Nintendo DS a handheld gaming portal
- apple Digital Diary organising your work with a diary
- touch secure Zurich security system working on



Computer



Phone



Internet



Phone



Phone



Computer

“Stay tuned! Or call me on my IP phone....!!!”

VoIP

VoIP, not a familiar term to many of us. But its application in the recent incidents would raise eyebrows for sure. Yes, the incident is that of the deadly Mumbai attacks. The Mumbai terrorists' most powerful weapon appears not to have been guns or grenades, but instead their handheld VoIP phones, which allowed them to get detailed, live instructions from handlers on how to evade police, and where to attack next, while the police were powerless to detect them. Now let's get on with the basics of VoIP.

Voice over internet protocol (VoIP) is a general term for a family of transmission technologies for delivery of voice communications over IP networks such as the internet or other packet-switched networks. Other terms frequently encountered and synonymous with VoIP are IP telephony, internet telephony, voice over broadband (VoBB), broadband telephony and broadband phone.

VoIP systems usually interface with the traditional public switched telephone network (PSTN) to allow for transparent phone communications worldwide.

VoIP systems employ session control protocols to control the set-up and tear-down of calls as well as audio codecs which encode speech allowing transmission over

an IP network as digital audio via an audio stream. Codec use is varied between different implementations of VoIP (and often a range of codecs are used); some implementations rely on narrowband and compressed speech, while others support fidelity stereo codecs.



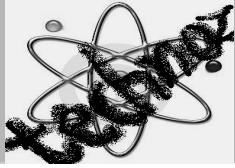
Adoption

A major development starting in 2004 has been the introduction of mass-market VoIP services over broadband Internet access services, in which subscribers make and receive calls as they would over the PSTN. VoIP phone companies provide inbound and outbound calling with Direct Inbound Dialing. Many offer unlimited calling to the U.S., and some to Canada or selected countries in Europe or Asia as well, for a flat monthly fee as well as free calling between subscribers using the same provider. These services have a wide variety of features which can be more or less similar to traditional POTS.

There are three common methods of connecting to VoIP service providers:

1. An Analog Telephone Adapter (ATA) may be connected between an IP network (such as a broadband connection) and an existing telephone jack in order to provide service nearly indistinguishable





from PSTN providers on all the other telephone jacks in the residence. This type of service, which is fixed to one location, is generally offered by broadband Internet providers such as cable companies and telephone companies as a cheaper flat-rate traditional phone service.

2. Dedicated VoIP phones are phones that allow VoIP calls without the use of a computer. Instead they connect directly to the IP network (using technologies such as Wi-Fi or Ethernet). In order to connect to the PSTN they usually require service from a VoIP service provider therefore most people also use them in conjunction with a paid service plan.

3. A softphone (also known as an Internet phone or Digital phone) is a piece of software that can be installed on a computer that allows VoIP calling without dedicated hardware. An advantage of using a softphone with a VoIP service provider is the ability of having a fixed phone number which you can move to any country or location (This is also possible with ATAs and VoIP phones, however requires the physical relocation of the hardware).



PSTN and mobile network providers

It is becoming increasingly common for telecommunications providers to use VoIP telephony over dedicated and public IP networks to connect switching stations and to interconnect with other telephony network providers (this is often referred to as 'IP backhaul').

Many telecommunications companies are looking at the IP Multimedia Subsystem (IMS) which will merge Internet technologies with the mobile world, using a pure VoIP infrastructure. It will enable them to upgrade their existing systems while embracing Internet technologies such as the Web, email, instant messaging, presence, and video conferencing. It will also allow existing VoIP systems to interface with the conventional PSTN and mobile phone networks.

"Dual mode" telephone sets, which allow for the seamless handover between a cellular network and a Wi-Fi network, are expected to help VoIP become more popular.

Phones such as the NEC N900iL, many of the Nokia E series and several other Wi-Fi enabled mobile phones have SIP clients built into the firmware. Such clients operate independently of the mobile phone network (however some operators choose to remove the client from subsidized handsets). Some operators such as Vodafone actively try to block VoIP traffic from their network. Others, like T-Mobile, have refused to interconnect with VoIP-enabled networks as was seen in the legal case between T-Mobile and Truphone, which ultimately was settled in the UK High Court in favor of the VoIP carrier.



Corporate use

Because of the bandwidth efficiency and low costs that VoIP technology can provide businesses are slowly beginning to migrate from traditional copper-wire telephone systems to VoIP systems to reduce their monthly phone costs.

VoIP also offers the advantage of running both voice and data communications over a single network which can represent a significant saving in infrastructure costs.



Benefits

Operational cost :

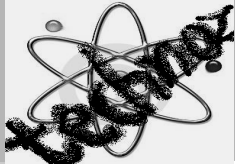
VoIP can be a benefit for reducing communication and infrastructure costs. Examples include-

1. Routing phone calls over existing data networks to avoid the need for separate voice and data networks.
2. Conference calling, IVR, call forwarding, automatic redial, and caller ID features that traditional telecommunication companies (tacos) normally charge extra for are available for free from open source VoIP implementations such as Asterisk.

Flexibility :

VoIP can facilitate tasks and provide services that may be more difficult to implement using the PSTN. Examples include -

1. The ability to transmit more than one telephone call over the same broadband connection. This can make VoIP a simple way to add an extra telephone line to a home or office.
2. Secure calls using standardized



protocols (such as Secure Real-time Transport Protocol.) Most of the difficulties of creating a secure phone connection over traditional phone lines, like digitizing and digital transmission, are already in place with VoIP. It is only necessary to encrypt and authenticate the existing data stream.

3. Location independence. Only an Internet connection is needed to get a connection to a VoIP provider. For instance, call center agents using VoIP phones can work from anywhere with a sufficiently fast and stable Internet connection.

4. Integration with other services available over the Internet, including video conversation, message or data file exchange in parallel with the conversation, audio conferencing, managing address books, and passing information about whether others (e.g., friends or colleagues) are available to interested parties.



How VoIP / Internet Voice Works??

VoIP services convert your voice into a digital signal that travels over the Internet. If you are calling a regular phone number, the signal is converted to a regular telephone signal before it reaches the destination. VoIP can allow you to make a call directly from a computer, a special VoIP phone, or a traditional phone connected to a special adapter. In addition, wireless "hot spots" in locations such as airports, parks, and cafes allow you to connect to the Internet and may enable you to use VoIP service wirelessly.



What Kind of Equipment Do I Need?

A broadband (high speed Internet) connection is required. This can be through a cable modem, or high speed services such as DSL or a local area network. A computer, adaptor, or specialized phone is required. Some VoIP services only work over your computer or a special VoIP phone, while other services allow you to use a traditional phone connected to a VoIP adapter. If you use your computer, you will need some software and an inexpensive microphone. Special VoIP phones plug directly into your broadband connection and operate largely like a traditional telephone. If you use a telephone with a VoIP adapter, you'll be able to dial just as you always have, and the service provider may also provide a dial tone.



Is there a difference between making a Local Call and a Long Distance Call?

Some VoIP providers offer their services for free, normally only for calls to other subscribers to the service. Your VoIP provider may permit you to select an area code different from the area in which you live. It also means that people who call you may incur long distance charges depending on their area code and service. Some VoIP providers charge for a long distance call to a number outside your calling area, similar to existing,

traditional wireline telephone service. Other VoIP providers permit you to call anywhere at a flat rate for a fixed number of minutes.



Terrorist Employed VoIP in Mumbai Attacks ??

It was reported that the handlers were communicating with the attackers using VoIP phones that made it difficult, if not impossible, for the Indian authorities to intercept the calls, or even know they were taking place. Indian security forces surrounding the buildings were able to monitor the terrorists' outgoing calls by intercepting their cellphone signals. But Indian police officials said those directing the attacks, who are believed to be from Lashkar-e-Taiba, a militant group based in Pakistan, were using a Voice over Internet Protocol (VoIP) phone service, which has complicated efforts to determine their whereabouts and identities.

The biggest problem wasn't in determining the whereabouts or identities of those directing the attack, but in being able to intercept their communications. If the authorities could intercept the communications, they could know the terrorists' next actions, said a source from the police department. There is a little bit of good news here, though. The (security) experts said that VoIP calls left a far richer data trail for investigators to mine than someone calling from an old-fashioned pay phone. Maybe the terrorist plan of using VoIP technology for their evil deeds and go undetected might just have backfired and now authorities now have more information about their activities than they envisaged.