Is WAP a Washout?

WAP is the great hope of the Mobile Internet, or that's what all the hype would have you believe. Now that WAP has been available in India for a while, it's time to assess its worth

SUMOD HAJELA

Mobile Internet is poised for growth in India. The low penetration of home PCs as compared to the exploding numbers in the mobile telephony market implies that for a large number of people, the mobile phone could be the first access device

Balu Nayar,
Orange, PRO

to the Internet. This is especially true when you look at the projected increase in the number of Internet users in the country—more than ten-fold in the next three years, at a conservative estimate.

The next group of consumers to enter cyberspace will be less tech-savvy, less comfortable with new interfaces, and probably not willing to either buy a PC or visit cyber cafes. For such a person, the simple one-click-away interface of the mobile phone will be far less intimidating than any PC experience. The mobile phone is a device that he or she is comfortable with as it does not entail a separate investment and provides the anytime, anywhere advantage that the PC cannot.

The *rasion d'etre* of the mobile Internet is the need for Internet access when you're away from a PC. In urban India, the average professional

"The mobile phone is a device that he or she (the consumer) is comfortable with as it does not entail a separate investment and provides the anytime, anywhere advantage that the PC cannot"

spends a high proportion of his/her time in (largely unforeseen) away-from-PC situations with commuting times, traffic jams, delayed flights, etc.

Most of the negatives one encounters can be attributed to the Technology Hype Curve that we seem to follow most faithfully across markets. The Curve goes through extreme hype followed by disillusionment (negative hype), and finally the reality phase.

In making WAP a success story, our task is to grow the category by nurturing users, listening very carefully to them and making continual improvements to our service based on feedback.❖

I bought a Nokia 6210 a couple of months ago, and through my Orange mobile phone connection, I have access to WAP services. I did not buy the phone for WAP—it's just an additional bonus to me, like the games that come built-in.

You could call me a casual WAP user. Orange has a WAP portal that I use for surfing.

"The (WAP) services fall short of being really useful... There is information to make decisions on the move but there isn't enough...Usability has to improve. Using the tiny phone is not convenient"

Primarily I use the WAP capabilities of the phone to access business news, etc, that is available from *Business Standard*, while I am in my car. I find the airline schedule updates quite useful since I travel a lot. Other than this, I look around the other services on the Orange portal as well.

But these services fall short of being really useful. The *Business Standard* news on WAP is nowhere near the news I get through the Web site. Sometimes the service becomes really slow.

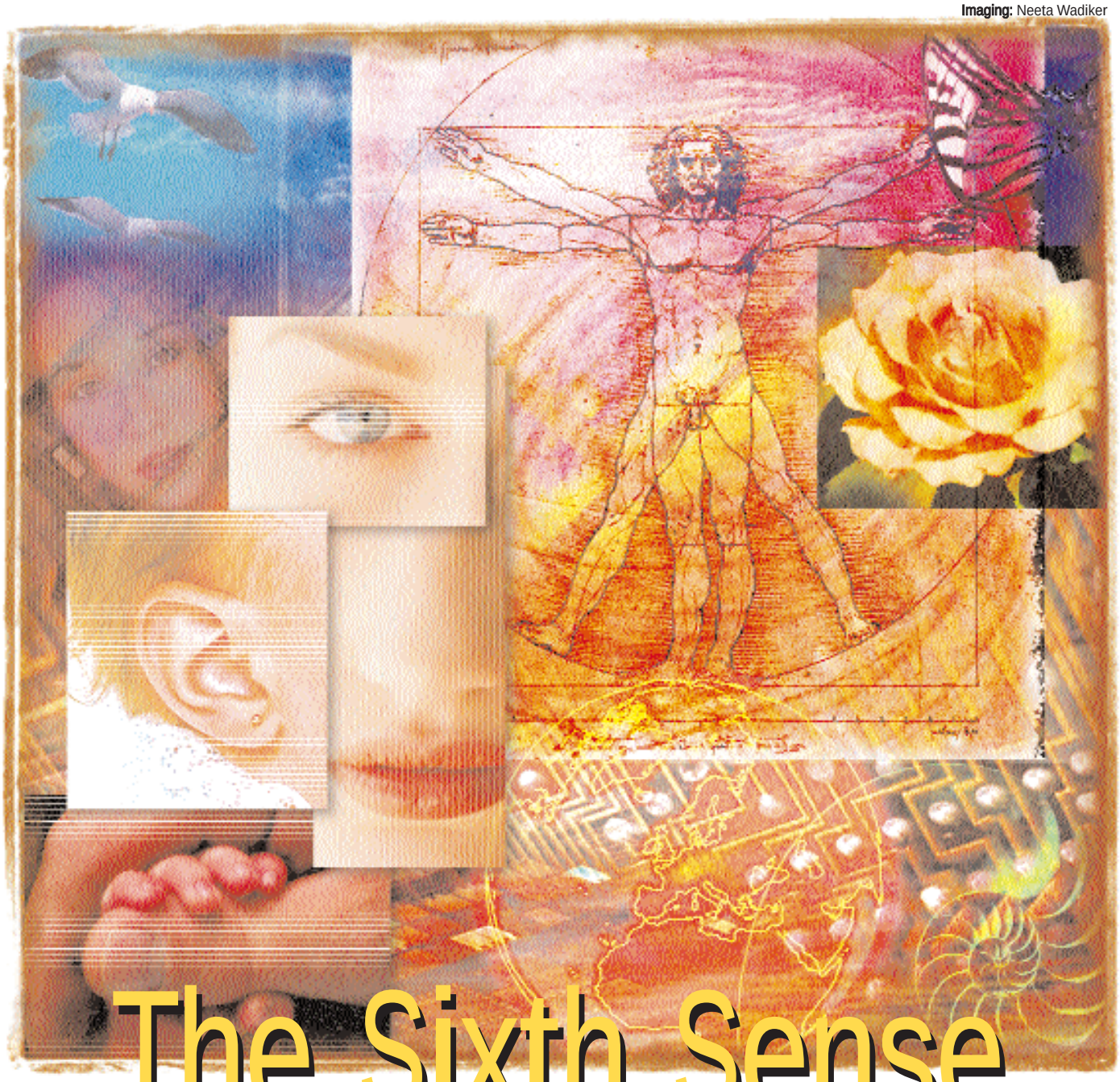
The airline information is organised in such a way that I need to do a lot of scrolling and clicking to find the status of my flight. Why can't I simply key in the flight I want to check in my home page? If I am looking at stock quotes, it would help if I could mark the ones I am interested in, so I could get an e-mail when their prices reach a critical level. There is information to make decisions on the move but there isn't enough.

Pradeep Warrior,
Tata ISP

There is a navigation problem on Orange's site as well. Clicking on a URL is easy, but typing in a URL to go to a specific location is very troublesome. Right now the WAP service is free, so I spend time on it. When it becomes a paid service eventually, I would want to see improvements in these areas. Also, I think WAP has some way to go before it gets effective. Usability has to improve. Using the tiny phone is not convenient.

I think WAP has potential but it is not there yet.❖

Imaging: Neeta Wadiker



The Sixth Sense

With computers getting sensory perceptions, computing finally seems to be taking on a human face

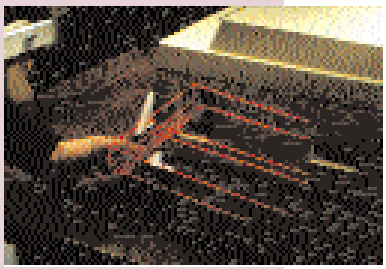
FRANK JENNINGS

You feel the gentle evening breeze on your face. Birds chirp and twitter above your head. A brightly coloured butterfly flutters past. You take a deep breath and smell the sweet fragrance of roses. No, you're not in a park or anywhere outside, but in the comfort of your own living room, enjoying nature in your favourite armchair. Sounds like a scene from a sci-fi movie? Well, you know the saying about truth being stranger than fiction. The day is not far when you will be able to take your cyber dog for a stroll along a cyber street and experience all of these sensations.

This is just one of the many ways in which human-computer interface (HCI) will change your world. This intriguing field has attracted much attention in recent years. Thousands of minds are working on projects across the globe, to overcome the limitations of traditional computing and make it possible for a lifeless silicon device to understand the five senses of human beings. ➜

Augmented Reality

Remember how Arnold Schwarzenegger's character used augmented-reality (AR) spectacles to get information about people in *Terminator II–Judgement Day*? The main idea behind AR is that technology does not replace reality but enhances it to enable humans to derive more information from it. AR will augment our view of the external world and spawn a wide range of applications such as a pathfinder to help navigate through a crowded city. Knowledge-based Augmented Reality for Maintenance Assistance (KARMA), a research project of the Computer Graphics and User Interface Lab, Columbia University, has made some stunning contributions to AR. For example, it has built a prototype system, which uses a see-through head-mounted device to demystify user-maintenance for a laser printer. So when you get a 'paper jam' error, you will actually see where the paper is stuck and how to rectify it in front of your eyes!



Checking the paper jam remotely

Another Columbia University research project, MARS (Mobile Augmented Reality Systems), is exploring the possible synergy of AR and mobile computing. Together, these would allow you to walk down streets reading your virtual journal or drive into a non-existing art gallery and admire the paintings while sitting inside your car.

Till now, computers have been looked upon to make life simpler for humans in the real world. But computing devices are now going beyond that to create a virtual world in which humans can use their sense of smell, touch, sight and hearing. There exist devices that let you smell an imaginary flower, touch a virtual pet, hear the unspoken and see the hidden. These devices are all set to lure you into a technological wonderland where even the splendours of nature are no longer natural.

The scent of things to come

In the not so distant future, you might be buying a lot of domestic products online. It would certainly help make your buying decision easier if you got a whiff of the perfumes, flowers, fruits or other foodstuff you came across in the virtual marketplace.

Convenient, but is it possible? The concept of digital scents was earlier rebuffed and people proclaimed that smell could not be digitally perceived or synthesised. But due to the efforts of DigiScents, a California-based private company, the human olfactory sense is no longer a mystery to computers.

DigiScents is now putting the final touches on a technology that can digitise, transmit and synthesise scent. Using this technology, the company is all set to produce a complete solution for digital scent communication on the Web. Along with software components, the solution includes a peripheral device called the iSmell Personal Scent Synthesizer.

This small box-like peripheral is attached to the USB or serial port of a personal computer and plugs into a standard electrical supply. Using a fairly simple process (*see box: 'How Digital Scent Communication Works'*), iSmell can emit vapours of almost any scent you can imagine. So you can smell your girlfriend's perfume while chatting with her or smell the odour of blood and smoke while playing Quake!

Devices that recognise smell are also being widely used in areas humans would prefer to avoid. Consider for instance, pollution detection in river water. Znose, an electronic sniffer, is better suited for this job than a human. This gadget is based on a surface acoustic wave detector, which detects chemicals and measures their concentration. Znose can differentiate between hundreds of smells in just seconds, to aid humans in sniffing out pollutants in water.

The haptics robot simulating the feel of a spherical object held in the palm by exerting controlled pressure over the finger tip

A touch-and-go situation

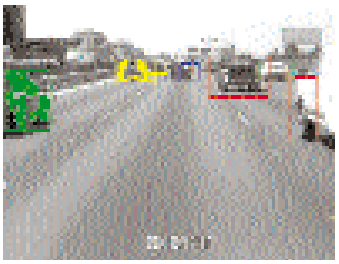
As you pat it, imagine if you could actually feel the soft, silky fur of your virtual dog. Thanks to the Phantom, you will soon be able to. The Phantom Haptic Interface (PHI) is an innovative technique developed by the Haptics Group of MIT's Artificial Intelligence (AI) Lab. This device imparts a realistic feel to an imaginary object, allowing people to touch and feel it.

The Phantom exerts a robust external force on the user's fingertips, creating the illusion of interaction with a 'solid' virtual object. Smooth spheres, flat walls, sharp corners and even texture can be effectively conveyed to the human haptic system. You just have to insert your fingertip inside the Phantom socket to start feeling the virtual objects. PHI's technology makes it superior to the common buzzing tactile simulator. The device has low inertia, low friction and no unbalanced weight, so movements through free virtual space are unimpeded and smooth.

The Haptics Lab of MIT, more famously known as 'Touch Lab', is also pioneering work on human touch perception. It is conducting vast research on multiple disciplines such as biomechanics, neurophysiology, psychophysics, motor control and computational models to understand and model human haptics.

On the Overdrive

The Department of Computer Science, Berkeley University, has come up with the stereo drive project, where visual sensing is used as part of the Advanced Vehicle Control System (AVCS). The innovative Longitudinal and Lateral Control analyses the road, passing cars and vehicles ahead to create a best possible route and steer the vehicle accordingly. This project was funded by California PATH, an Advanced Technology Program that was launched by the California Department of Transportation (Caltrans) and the Institute of Transportation Studies of the University of California at Berkeley. The vehicles will be rig mounted with a stereo camera on top, which 'sees' the traffic ahead and decides to take a better route.



Two to Tango

Can computers be your friends—consoling you when you are sad or rejoicing when you are happy? The Almaden Research Center of IBM is trying to make this possible. Their project, coined BlueEyes, aims to make the computer your best pal, by understanding your emotions and feelings and reacting accordingly.

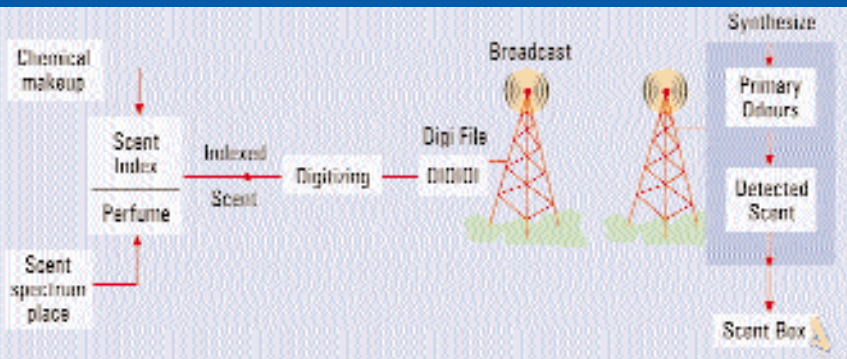
The BlueEyes project is aimed at bringing that accord between humans and computers, with both understanding and knowing what each other thinks. BlueEyes does not use any obtrusive devices like eye straps or headbands, but works with a simple video camera and microphone. It continuously analyses the physical and emotional state of the user and reacts accordingly.

The Center has also devised an emotional mouse,

which detects the emotion of the person touching it.

BlueEyes Pupil Finder uses two infrared time-multiplexed light sources composed of two rings of eight LEDs each, synchronised with the camera frame rate, to identify the person's pupil and act accordingly. So if you've been discussing your date last night with your computer, it won't start that topic again if it's your father who switches it on next time!

How Digital Scent Communication Works



Based on two parameters—chemical makeup and its place in the scent spectrum—the scent is first indexed . This indexed scent is digitised into a small file and sent as an attachment to the recipient's computer. At the receiving end, iSmell, a small box-like device attached to the PC, synthesises and identifies the scent based on the primary odours and emits the accurate vapour.

Infographic: Jaya Shetty

Columbia University's Robotics group has invented GRASPIT!—a versatile 3D grasping and simulation tool. It visualises how different objects are grasped and uses a robotic hand to simulate the grasp. Cybergrasp is another device that lets people hold computer-generated objects and feel their shapes. An arrangement of six computer-controlled tendons, much like those inside the human hand, prevents the user from closing his hand beyond the form of the virtual object being held, while also pushing appropriately on the pads of each fingertip and the palm.

Unchained melodies

Every movie-lover is well aware of the advances in sound technology in the form of Digital Surround Sound and the Dolby system. Extensive research in this field has, to a large extent, demystified the management and projection of sound. The Rainbow Group, a research group of Cambridge University's Computer Laboratory, is currently working on a project called Ambient Sound Management (ASM). ASM aims to monitor all diminutive sounds of a user's environment, analyse the background sound and use realistic 3D effects to produce background sound that blends with the ambience of the user space. An Ambient Sound Manager will centrally manage the presentation of all kind of sound-related data. For example, it can generate all the sound with 3D effects of a car being driven, including the engine noise.

Seeing ain't believing

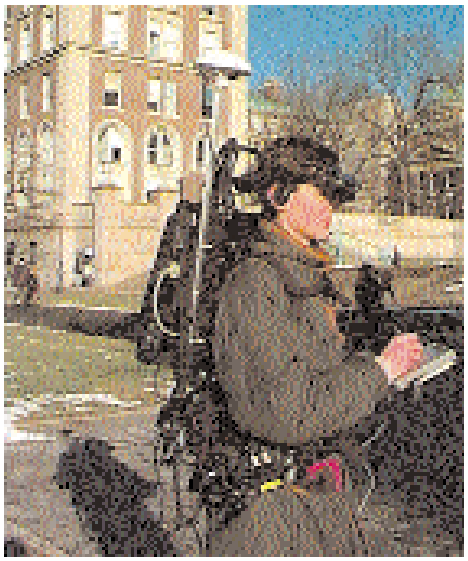
Imagine pointing your finger at a ball and your pet robot scuttling to pick it up. The Department of Engineering at Cambridge University is working to make this possible with the help of a system called Visual Gesture Recognition (VGR). This system detects and tracks a human hand and fingers to enable a user to point at an object of interest and guide the robotic manipulator to pick it up. This project uses uncalibrated stereo vision and visually tracks the hand to build a perfect human-machine interface system.

The School of Cognitive and Computer Sciences, University of Sussex at Brighton, UK has come up with a technology called ISCANIT, which recognises the intention of the user in real-time to enable Visually Mediated Interaction (VMI). The project is working on a behavioural analysis of humans and is tracking gestures, body postures and emotions to mediate a comfortable interaction. Carnegie Mellon University has already built a perfect gaze-tracking system, which monitors, analyses and interprets the gaze of the user. This is the ultimate marvel of HCI technology where the computer tries to understand human emotions.

Another aspect of how technology is using the sense of sight can be found at Columbia University's 3D visual online tour. Here, you can enter a college, roam around the campus, go inside buildings and know more about the layout by just logging into the site. The tour has been designed by the university's Computer Automated Vision Environment (CAVE) Laboratory, using the 360-degree imaging technology available at Columbia's Computer Vision Laboratory. The panoramic images were captured using a software called Parashot imaging system from RemoteReality, with development aid from MIG Software's Remote Studio.

A penny for your thoughts

Monkeys in North Carolina have remotely operated a small robotic arm 600 miles away in MIT's Touch Lab using their brain signals. They did



The Mobile Augmented Reality System (MARS) backpack augments the visual experience

this with the help of 96 tiny electrodes (each less than the diameter of a human hair) embedded into their brains. The electrodes detected the brain signals of these animals and transmitted them across the globe to actuate a robotic arm to fetch food.

Scientists from Duke University Medical Center, MIT and the State University of New York (SUNY) Health Science Center believe this innovative brain-machine interface can be used by paralysed patients to move and control artificial limbs.

Bio-medical engineer Hunter Pechkam of Case Western Research University used this technology to re-establish the damaged connection between a patient's brain and his paralysed limb using Functional Electrical Stimulation (FES). At Emory University, neurologist Phillip Kennedy helped severely paralysed people to communicate through a brain implant that allows them to move a cursor on a computer screen. Some of the best brains at Arizona State University, Brown University and Caltech University are working to establish a reliable brain-machine interface. As Miguel Nicolelis of Duke University puts it, "We're getting to a point where developments in neurosurgical and electrophysiological procedures and in microelectronics are making the brain-machine interface feasible. It is no longer science fiction."

The culmination of all these technologies would result in a powerful interface between man and machine. Once computers understand how we see, feel, hear, smell and speak, they would help us unravel the mysteries of the human senses. And the final frontier could well be the sixth sense! The power of intuition that is the pride of the human-race might one day be downloaded into a pocket-sized device, so that it can be intuitive for us. Let's just hope this doesn't end up like the Frankenstein story! ❖

http://www.

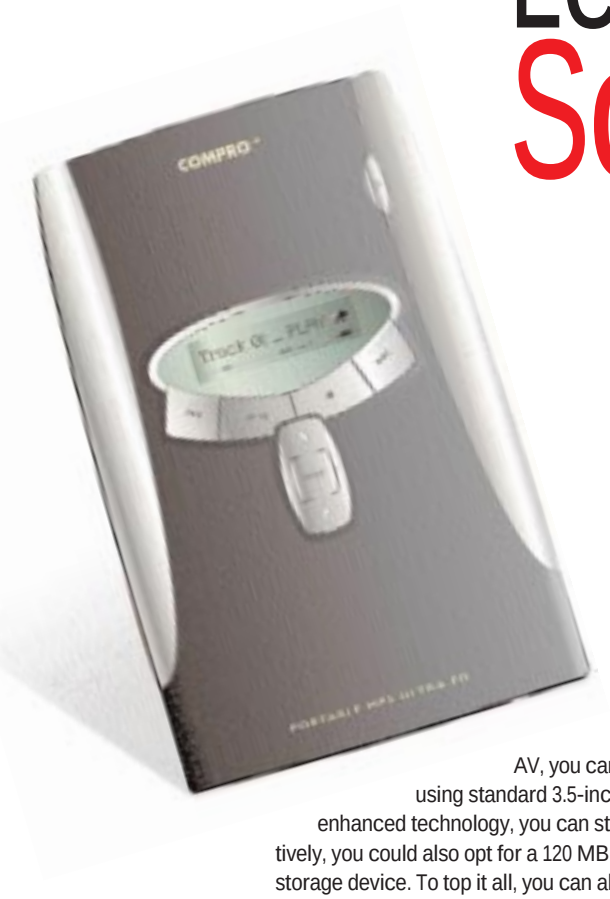
www.almaden.ibm.com
Understand more about the BlueEye project from Almaden Research Center
http://http.cs.berkeley.edu
More information on the stereo drive project
www.cs.columbia.edu
More information on Augmented Reality
www.cl.cam.ac.uk
Browse through the Ambience Sound Project notes at Computer Lab, Cambridge University
www.digiscents.com
Get more insight into DigiScents technology

1/2 Page Ver. AD

Lean Mean Song Machines

MARCO D'SOUZA

There are MP3 players and then there are MP3 players. We've all grown used to the plethora of portable MP3 players that are available in the market. So what's new, you ask. Well, on the fringes of the MP3 world, beckoning tantalisingly, are a few select devices that can truly dazzle in terms of design, functionality and plain, good ol' innovation.



More than music
Compro PDS-AV

Be prepared to be swept off your feet. With the Compro PDS-AV, you can transfer songs to the device using standard 3.5-inch floppy disks. But using an enhanced technology, you can store up to 32 MB of data! Alternatively, you could also opt for a 120 MB SuperDisk or a 240 MB UltraSD storage device. To top it all, you can also use the device to store non-MP3 files such as digital movies, images and large files.

Web site: www.acscompro.com

Smooth operator
Nike psa[play 120

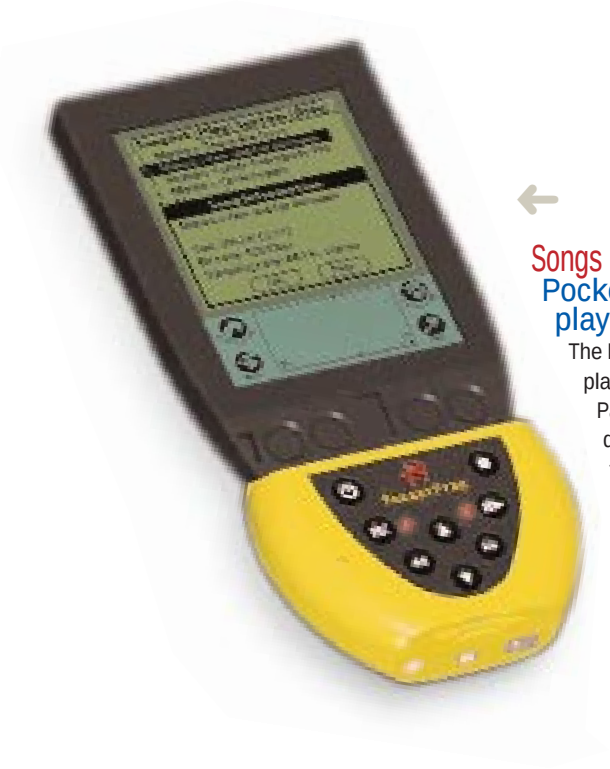
What do you get when one of the funkiest sportswear companies decides to get on to the MP3 bandwagon? Yup—the Nike psa[play. Probably the most innovatively designed MP3 players around, it comes armed with 64 MB of memory and features surprisingly simple controls. This is one player that will go down well with all of you who love to listen to music while you sweat it out.

Web site: www.riohome.com

Pocket full of music
Iomega HipZip

Now, here's a smart, self-sufficient one. While most other MP3 players settle for CompactFlash or SmartMedia cards for storing your songs, the Iomega HipZip uses its own 40 MB PocketZip media. With eye-catching looks and features such as fast USB connectivity, impressive audio quality, equalization settings, etc, this portable digital audio player means business.

Web site: www.iomega.com



Songs in the palm of your hand
Pocket Pyro Palm MP3 player

The PocketPyro is a standalone MP3 player that can also dock with your Palm handheld computer, giving it digital audio playback capabilities. Besides, this device supports many other nifty features such as file storage for your Palm.

Web site: www.pocketpyro.com

The MP3 Schwarzenegger
PJBox

So, you don't fancy those wimpy MP3 players with a 'measly' 64 MB of memory? Then what you need is this Schwarzenegger of MP3 players. Armed with a 6 GB hard disk, PJBox can hold up to 1,200 of your favourite MP3s. With its enormous 10-minute shock protection, you can knock this player around all you want and it will still not skip. A true audiophile's choice.

Web site: www.pjbox.com

Let it roll
Likko LKM012 MP3 Discman

If you have always harped on and on about how you wish there was a portable CD player that could also play MP3s, well, you can stop yowling now. With the Likko MP3 Discman, all you need to do is to record your favourite MP3 tracks on the CD and pop it into the player. With the capability of holding around hundred MP3 tracks per disk, you'll never have to loop your songs the next time you go out for a jog or workout!

Web site: www.likko.com

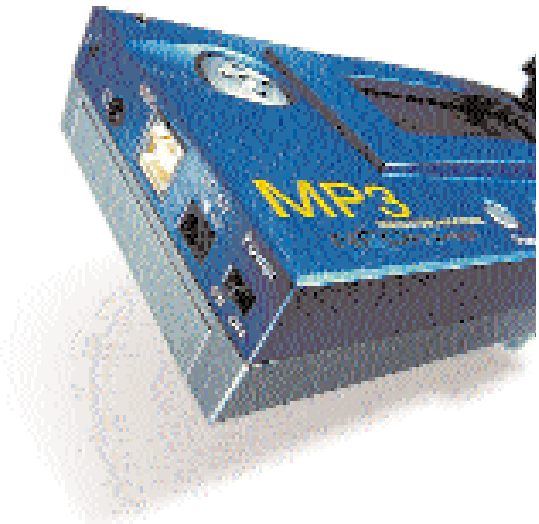
Handyman
SSI Neo25 MP3 player

This is one of those MP3 players that have taken the more radical route to storage—it comes with a 6 GB, 12 GB or 20 GB hard disk! Not only can this device do what all other MP3 players can but it also doubles up as a portable external hard disk—you can transfer any type of data using this device. If looks don't matter, then this battle tank of an MP3 player offers oodles of storage space and top-notch audio features and performance.

Listen and shoot
Fuji FinePix40i

You can call this little device a jack-of-all-trades. This one is no ordinary high-resolution digital camera. Besides featuring an impressive 2.4 megapixel CCD image sensor, the Fuji FinePix40i is a full-fledged MP3 player! The remote control that is integrated into the headphones is used to access the MP3 capabilities and can also be used for controlling the camera. Compatible with conventional SmartMedia cards, storing MP3 audio on it is a snap.

Web site: www.fujifilm.com



Connecting with Cable

Illustration: Mahesh Benkar

Thought the Internet business was restricted to ISPs and cyber cafes? Well, now your local *cablewala* is all set to jump into the fray of providing you easy access to the Net

MANU KHANNA

Remember the days of Doordarshan, with its daily news? Yuck! It's so heartening to know that you don't have to return to those days again. With satellite channels beaming you the best of news through cable, the days of plain old Doordarshan seem so distant and quaint.

Cable television has to a great extent been responsible for changing the viewing patterns of the Indian audience. Cable operators who jumped into the fray with the advent of the cable revolution enjoy almost monopolistic control over most territories they set up base in. And with cable Internet also set to make its mark, it looks as if not only will there be a drastic change in the way we access the Net, but cable operators will also be providing a lot more services than before.

What's it all about?

Simply put, cable Internet is just a means of connecting to the Internet through the same coaxial cable that you use for your cable television. You can either choose to connect the cable to your set-top box (television which is Internet ready) or connect it to the LAN card in your PC.

Cable Internet provides a means for broadband services such as video-on-demand, interactive TV, online shopping facilities for the local area and so on.

Did anybody say speed?

A common misconception is that cable modems will provide faster speeds. This, realistically speaking, is not possible. For instance, if we assume that a cable operator has a 2 Mbps leased line and around 100 people are using it at the same time, then the bandwidth gets divided and

Equipment List

Leased line charges: Rs 13 lakh for 2 Mbps
Router: up to Rs 10 lakh
Cable modem: Rs 15,000
Cables (up to the subscriber end as also connecting to the service provider)
Cable modem termination system: Rs 25 lakh for around 2,000 households
Splitters, amplifiers, etc

a user would probably get a 2 Kbps speed. This may seem quite slow when compared to the 56 Kbps speed you get with a modem, but the plus factor is that the connection is permanent or always on and you don't pay for additional telephone charges.

In theory, cable operators can even get a 30 Mbps leased line and distribute it among the subscribers, but obviously the costs would then shoot up. (A 30 Mbps leased line would approximately cost Rs 2 crore.) Normally, cable operators can also take up one leased line and segment it across different neighbourhoods, with each segment being allotted a specific bandwidth.

Tools of the trade

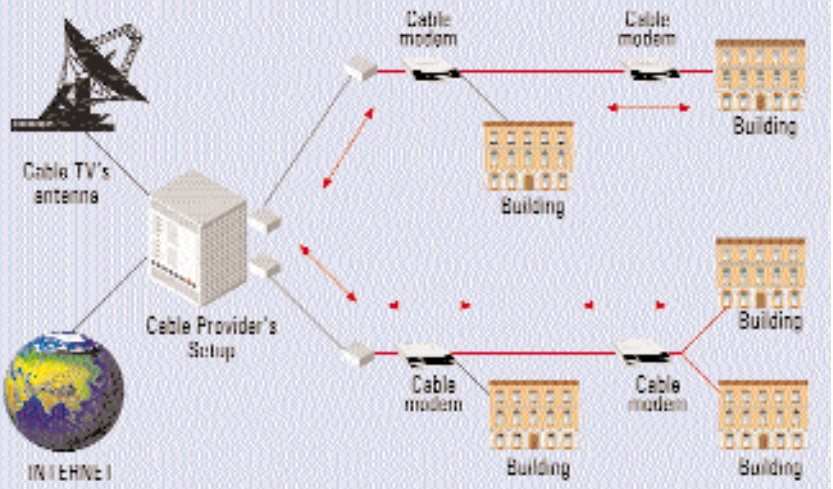
With a cable Internet network, the same cable that brings Zee and Sun to your living room can bring Microsoft.com and rediff.com. There's not much that is required at the cable operator's end. First, the cable operator needs a leased line connectivity from an ISP. The cable operator will also need a router. For the subscribers to access the Internet through the existing co-axial cables that connect to the television, cable modems are required. These cable modems enable high-speed data connection and have two connectors. One of the connectors will be used for the television slot, while the other will be used for the computer.

You would think that cable modems are similar to a normal PC modem, but in reality, cable modems are a lot more complex. They have properties of a modem, radio, bridge, router, coder and other elements. It's also possible to share a cable modem among different users and theoretically you can have 16 users on one cable modem.

The investment

If you are interested in setting up cable Internet services, there are two basic methods. Tie up with an existing service provider who will take care of the costs and your job will just be providing support services. Alternatively, you can go about setting up your own cable network with all the equipment. It's also possible to share costs between different cable operators.

Surfing through Cable



The cable provider has normally hooked up his entire subscribers for cable TV. Now, all he does is take up an Internet leased line connection, and then using cable modems provide the Internet facility for each individual using the existing co-axial wiring.

Infographic: Jaya Shetty

But every cable operator will need a cable modem termination system (CMTs) that allows conversion between IP (Internet Protocol) and RF (Radio Frequency) signals. The routers at each end will cost around Rs 10 lakh, and then there's other software and hardware for billing, authentication and network management purposes. The cable operator also has to spend approximately Rs 3 lakh to upgrade his infrastructure (splitters, amplifiers and so on) and around Rs 3,000 for wiring up each subscriber. But as the demand increases, the price is bound to come down substantially. In all, the total costs may come up to Rs 35-40 lakh. Says Ashish Shirke, an InCable distributor in Navi Mumbai, "I am planning to have a leased line and then connect the different nodes with optical fibres. From the nodes to the subscriber we will connect through the existing cables."

The returns

Obviously, the returns depend to a huge extent on the number of subscribers. The money is normally recovered from the subscribers. Other avenues such as online advertisements and e-commerce activities are also expected to provide returns in the future.

With so many players spending money on getting the infrastructure right, it's just a matter of time before cable Internet is as commonplace as cable TV. Then probably you would watch an advertisement about some brand new consumer good, switch to the Net with a click, order the object and have it shipped within the same working day, and get back to the show you were watching.❖

The Big Players

Hathway, In2Cable, and Siticable have been the early movers in the cable Internet space. In2Cable, which has around 4.5 million cable subscribers, has already started cable Internet operations in Mumbai and will soon debut in other cities too. Similarly, Hathway is affiliated with around 2,500-cable franchisees in eight major cities. It has already started cable ISP operations in Mumbai, Chennai and Pune. Riding on the back of Siticable's presence in 43 cities, Zee TV has ambitious plans to build a convergence platform that is most likely to be rolled out soon.

Ring in the New

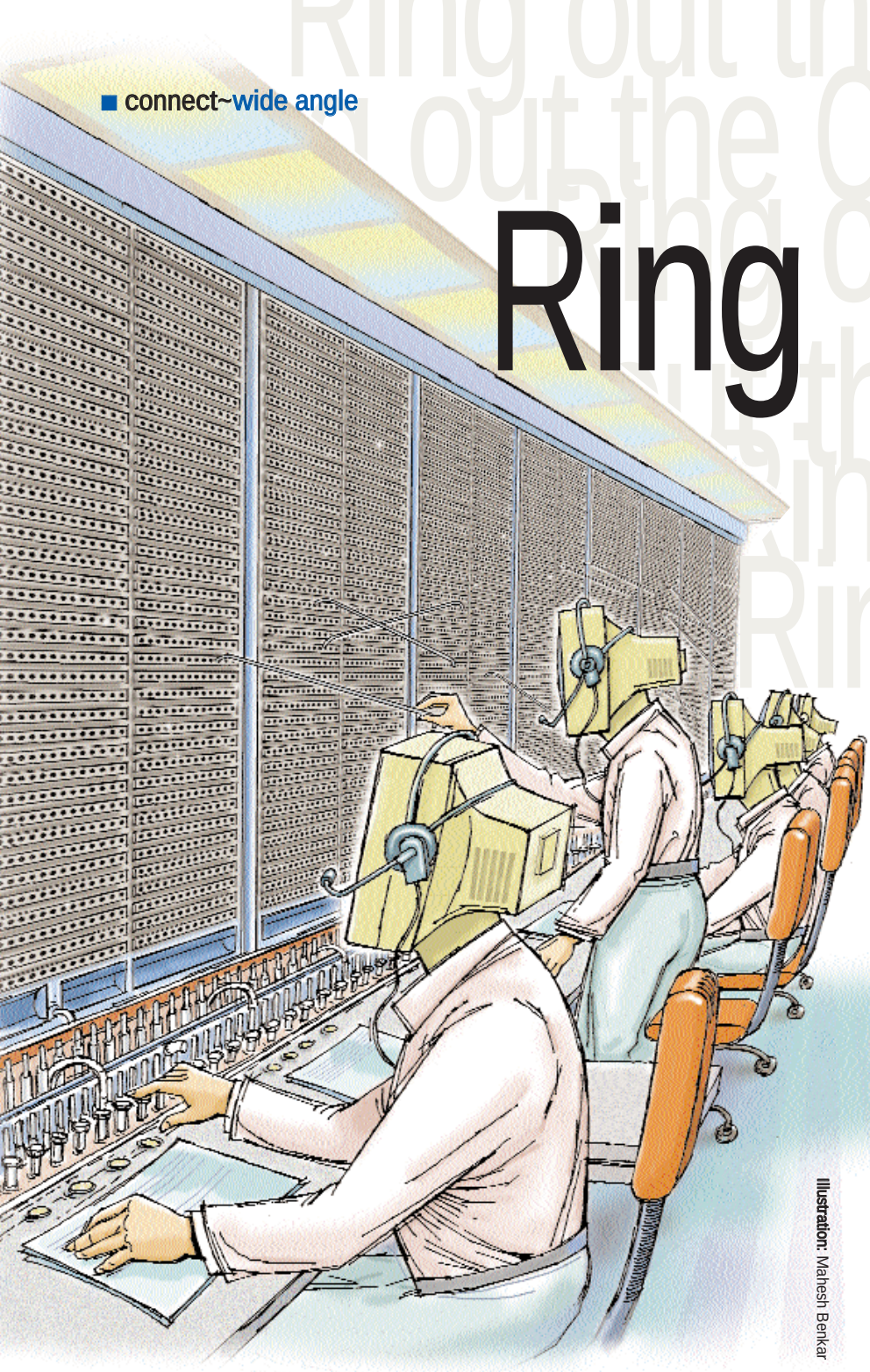


Illustration: Mahesh Benkar

Please welcome Computer Telephony—the digital avtaar of the age-old telephone system that we love (and curse) so much

NILESH KAKADE

On the 14th of this month, 125 years ago, Alexander Graham Bell filed for a patent that is often referred to as the most valuable ever issued by the US Patent Office. Patent 174,465, which was awarded to Bell on March 7, 1876, describes not only the telephone instrument but also the concept of a telephone system.

While the essence of the telephone remains unchanged more than a century later, the technology behind it has developed tremendously to offer you a world of advantages that Bell's prototype couldn't.

"Hello, operator?"

Around 1878, people realised the unfeasibility of running lines directly from each instrument to every other that a caller might wish to connect to. That is when telephone exchanges made their appearance. At that time, telephones were connected to a manually operated central switchboard. A caller cranked a lever to alert the operator, who found out which party the caller wanted and then connected the two phones by plugging them into the appropriate jacks. This was called manual switching.

As telephone traffic continued to grow through the years, it was realised that a large number of common control circuits would be required to switch this traffic and that switches of larger capacity would have to be created to handle it. Also, as the number of telephone subscribers continued to increase, the old telephone exchange proved incapable of handling the workload. This led to the emergence of the electronic digital exchange and ushered in the era of computer telephony.

"Hi! You've reached the voice mailbox of…"

As the name aptly suggests, 'computer telephony' applies the power of the computer to the functions of the telephone. Simply put, it means adding computer intelligence to the process of making, receiving and managing phone calls. Computer telephony systems are present everywhere—you probably come into contact with them several times each day.

Broadly speaking, computer-telephony integration (CTI) can be of two types: call processing and voice processing. Sometimes both these aspects are used together. Call processing is typically employed at large call centres that handle ➜

Eye for Optics

Optical fibre (or fibre optic) refers to the medium and the technology associated with the transmission of information as light pulses along a glass or plastic wire or fibre. Fibre optic is a viable solution for today's telephone infrastructure as it can handle huge amounts of traffic efficiently.

According to research statistics, a single optic fibre in a latest technology cable can run at 400 Gbps and can carry 6,000,000 concurrent phone calls or 100,000 television channels. Therefore, networks based on optical fibre technology have, in effect, unlimited capacity.

Optical fibre technology has been primarily developed for telecommunications applications. The fibre is a silica-based wave-guide that allows optical signals to propagate along its length at very low loss. Such a transmission medium offers significant advantages not only for communications, but also within sensing systems. It is not affected by high electromagnetic fields so there is no need to retransmit signals and as the fibre is an insulator, there are no earthing problems. Besides, it is strong and impervious to many hazardous chemical environments.

Digital Talk

- Provides interactive voice response (IVR) to callers
- Matches the number of a caller with a customer record and displays it for reference when talking to the caller, also screens out unwanted calls
- Manages voice or video conferences
- Gets interactive commercial information and special services assistance
- Receives fax messages and routes them to appropriate fax machines

CALL ROUTING

Infographic: Jaya Shetty

When you call from a mobile phone to a landline, the call is sent to the Base Transceiver Station (BTS) (2), and from there to the Base Station Controller (BSC) (3). This is then forwarded to the gateway, i.e. the Mobile Service Switching Centre/ Visitor Location Register (MSC/VLR) (4), which checks with the authentication centre/equipment identity register (AUC/EIR) whether the mobile phone is allowed to make calls (5). The AUC also provides encryption keys on the radio path to prevent eavesdropping. After proper verification, a link is established along the radio path to the PSTN (landline) (7). When calling from a landline to a mobile phone (7), the call first goes to the gateway (the MSC) which checks with the HLR (Home Location Register) for the location of the mobile phone (6). Once the location is verified, the call is forwarded to the AUC/EIR, then to the MSC/VLR, and then to the BSC (3), which sends an alert to the nearest BTS (2) to track the mobile user (this is called paging or locating). This goes on until a permanent stable connection is established with the mobile station (1).

thousands of calls per day. CTI uses various applications to enable calls to be handled more efficiently and smoothly. For example, when you call someone and are asked to enter the extension number in tone mode, you are using an auto attendant application. When you are out of town and your voice mailbox receives calls on your behalf, it is the obedient computer that takes the call, replies promptly and takes down the messages for you. The friendly (though sometimes irritating) voice at the other end of the line that tells you, "You are in queue; please wait," or "This is your wake-up call; the time is 6.45 am," is an example of computers at work behind the scenes.

"All lines in this route are busy"

The telephone system was the first world-wide public network. Based originally on analog voice traffic, it required switches to set up direct physical links between the source and destination.

The first telephone lines employed the same type of outdoor circuits as telegraph lines—a single non-insulated iron or steel wire supported by wooden poles with glass insulators. The use of single wire made the telephone circuit extremely susceptible to interference by other signals. The problem was addressed by the use of a two-wire or a metallic circuit.

Even with the two-wire system, it soon became apparent that telephone signals could be transmitted to only a fraction of the distance of telegraph signals, owing to the greater attenuation (reduction in strength/loss) in iron and steel at the higher frequencies of telephone signals.

Copper wires proved to be a better option. But as the distances between telephone instruments began to increase beyond those served by local exchange offices, a number of technical problems arose with these as well. Furthermore, the existing copper-based access network is not capable of carrying large bandwidth services.

A superior alternative has emerged in the form of optical fibre. The telecom industry is making use of optical fibres to a large extent because though analog telephone handsets are still in widespread use, the majority of switching networks over land-lines, microwaves and satellites are digital.

The buzz

Availability of bandwidth and faster Internet connections are factors that will continue to affect the future of telecommunications. Advancements in technology are today whipping up phones that are smart enough to access e-mail and browse the Internet. And as wireless Internet connections get faster and data storage capacities increase, the phone of the future will be able to handle a host of features that sound too good to be true.

For example, it will have video-conferencing capabilities and even a voice/touch recognition facility that will allow access only to bona fide users. It could even serve as a remote data-transfer station or act as a fax-cum-intercom. This all-in-one phone will act as your personal information manager, take care of online banking transactions or better still, have control over the electronic systems at your home and office. Certainly beyond Mr Bell's wildest imaginations! ❖

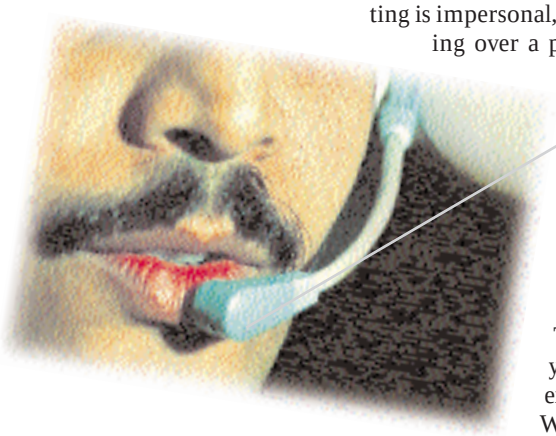
SAY IT LOUD, OK!

The smiley on that text-chat may look cute, but nothing beats expressing your true feelings in…speech

FRANK JENNINGS

You see your friend pounding away at the keyboard at a hurried pace and you admire his capacity to work. Look again…it is likely that he's chatting online with some friend. Electronic chatting seems to have caught everyone's fancy. It's not surprising to see people spending hours 'talking' with their sweethearts over the Net. The advantages are obvious. Chatting, as a mode of communication, transcends many barriers and is cost-effective.

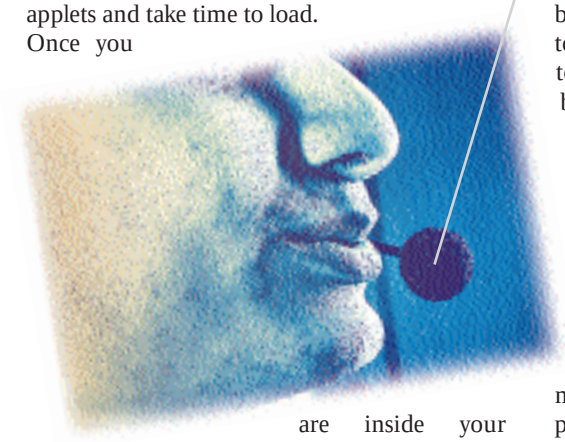
Of course, there are sceptics who say chatting is impersonal, that it's not the same as talking over a phone or actually meeting a person. Well, here's something that should shut them up—voice chats. Voice chatting is not very complicated, and you can get going in almost no time at all.



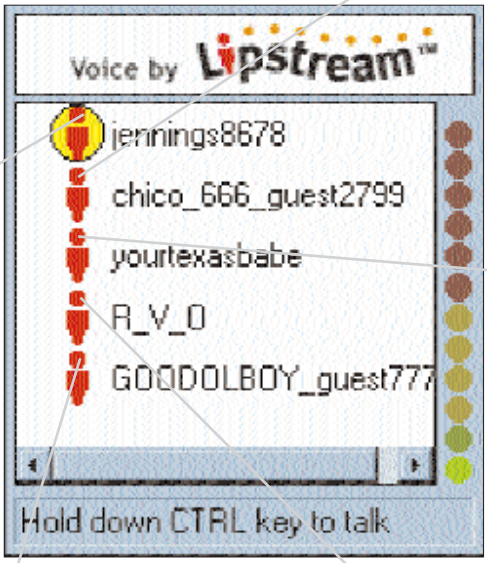
Chat away

There are two ways in which you can voice-chat. You can either join a chat room on a Web site and converse with whoever's present there or you can invite individuals for a private chat session.

Most voice chat programs on Web sites are applets and take time to load. Once you are inside your favourite chat room, you can start chatting by holding down a particular key (dependant on the Web site). The volume meter going up and down as you speak is an indication that your message is getting through.



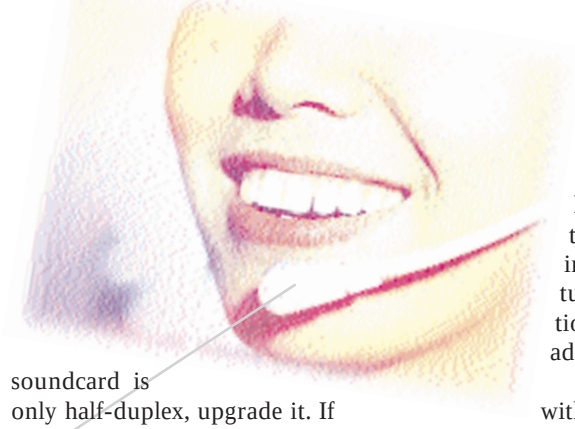
Some sites such as Yahoo! offer a hands-free mode that allows you to talk with other people without holding down any key or pressing a virtual Talk button. To enable this hands-free mode, check in the hands-free checkbox in the main window by clicking on it. When you speak into your microphone, the Talk button will depress by itself and when you finish speaking the button should pop out again. So, as long as the button is depressed you are sure that your voice is being transmitted. While you are chatting, your icon in the chat window will be highlighted or animated to indicate to other users that you are talking.



I can't hear!

Poor sound quality is usually the result of using a low-quality soundcard, a poor network connection or a low-end microphone. Check all connections, particularly the microphone and speaker, to ensure that the peripherals are connected properly.

Ensure that your soundcard supports full-duplex mode for talking and hearing simultaneously across a single connection. If the



soundcard is only half-duplex, upgrade it. If you or anyone else in the chat room uses an ESS Technology soundcard with old drivers, this will create an echo effect in the chat room. So if you are using such a card, update your drivers. Another unwelcome phenomenon is the far-end-echo, where the microphone at the other end picks up the voice you have transmitted and relays it back to you. One way to avoid this is to use a headset.

Apart from these basic hardware problems, there may also be other reasons for faulty sound. Some voice chat programs need the MFC42.dll file to be present in your Windows directory. If you are using Windows 95 or NT, then you should update this file.

Also, if you are using other audio-enabled applications such as a media player or games, you cannot voice-chat simultaneously. So, it is better to close all other such applications. Check the volume level in the applet and adjust accordingly.

If you are behind a firewall, make sure that the ports used by these voice chat programs are not blocked. (For example, the Excite voice chat program uses TCP port 3450 and TCP port 8000-9000).

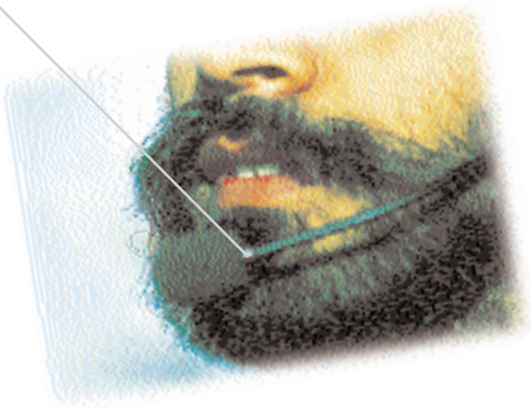
Chatting with Messengers

Apart from Web sites, the voice-chat option is also available to you on instant messaging clients. Instant messengers such as MSN, Yahoo! and AOL have in-built voice chatting facilities. Just click on the name of the buddy you want to invite for your voice conference and set up your own private room.

Alternatively, you can chat in the many available ongoing chat sessions. MSN Messenger has a simple and elegant voice chat feature that is easy to use. Yahoo has rich features, including hands-on/hands-free modes with an attractive graphical display for volume level and intensity. If you are using AOL's voice chat feature, remember that it makes a direct connection between computers and reveals your IP address to others.

Unlike text chatting that can be cluttered with a whole lot of filth messages, voice chatting tends to be straightforward and purposeful. However, you do need a relatively fast Internet connection, else you will end up exchanging squeaky voices or there will be a noticeable time lag between the time you utter the words and the time the person at the other end receives it.

As of now, voice over IP or voice telephony has still not been legalised in India. Therefore, you are not supposed to use voice chatting also. But the situation is expected to change soon. Voice over IP



Voice Chat Specifications

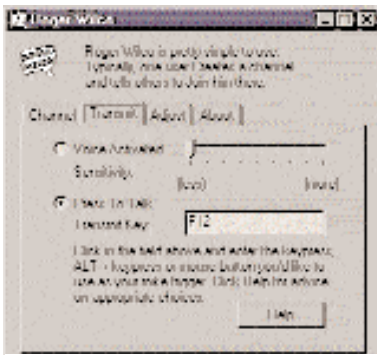
- PC with standard configuration
- Full-duplex soundcard
- Microphone
- Headset (preferable)
- At least a 56.6 Kbps Internet connection (nothing like a T1, though)
- A quiet room with less background noise. Ensure that you won't be disturbed till the end of your session.
- Voice detector's performance may depend on the level of noise around you, the type of microphone you have and its location, how far you are from your microphone and the volume setting level of the microphone. Hands-free settings work best only when there is minimal background noise and the microphone is positioned as close to your mouth as possible.

Talk before you Kill

"Watch out, that guy has a Blaster." That is a typical text message you type while playing *Quake* or some other game over a network. But won't the sense of urgency and feeling be expressed better if you could say it out instead? Voice chatting has entered the regime of online gaming with an increasing number of utilities that let you chat with your team-mates or opponents. Roger Wilco is one such chat application that lets you chat with your friends while playing multiplayer online games.

Once you launch and configure Roger Wilco's audio properties, you can start a network game supported by this software. Remember that you must create a channel in Roger Wilco and act as a host, letting other users connect with your game. This software uses CPU power to compress speech, so try this out only if you have a Pentium II or equivalent. It also offers integration with popular game communities such as gamespy3d.com and mplayer.com.

This voice chat feature works with most of the exciting games including *Diablo*, *Quake II* and *StarCraft*. Voice chat in online gaming can be enabled even with a 28.8 Kbps modem. An important aspect is that your voice mingles with the game audio in real time in an unobtrusive way without slowing down the game. The bandwidth utilisation is thus low and the frame rates are also not disturbed.



Configure Roger Wilco to talk in games

Voice Etiquette

- While choosing a username or handle, select some anonymous name that partially reflects your character and personality. Thus 'hotboy23' or 'smarthead5454' would be better choices than your real name or 'ABC123'.
- For security reasons, it is best not to reveal your real name, location or telephone number to anyone.
- When in a chat room, refrain from using foul language. This does not help build a friendly and conversational atmosphere. And it only takes the other person two seconds to add your name to the 'ignore' list.

Installing Voice Chat

Many sites, like Excite, Yahoo! and AOL, offer voice-chats. However, with most sites, you have to first download their customised voice chat software. Once that is done, you can just log in and join a chat room. Let's see how to start a voice chat using Excite.

STEP 1: LOGGING IN

Log in to the Excite site with your Excite account. In case you do not have an Excite account, you can enter the voice chat room using a guest account. If you have not logged in, you will be prompted for your account information when you enter a chat room.

STEP 2: DOWNLOADING SOFTWARE

The moment you enter the voice chat room, you will be prompted to download the voice chat file. If you are using Internet Explorer and your security level is set to High, you will not be able to download this file; you get a message saying that this ActiveX control is unsafe. Change your browser's security setting to Low in order to enable download of this ActiveX plugin. Some sites such as Yahoo! even offer an Audio Setup wizard that enables you to configure your microphone and speaker for better quality.

STEP 3: THE CHAT ROOM

Once you log in, you will see a list of featured rooms. Select the 'Complete room listing', so you can see all the available voice chat rooms. Double-click on a chat room name to enter that room. A small box with the current active members can be seen on the right side of the screen.

STEP 4: CHATTING

Now you are all set for voice chat. Hold down the [Ctrl] key before you start to speak. If you want to send a personal message to any user, double-click on the user's name and send a text message.

is on its way to being legalised. Then, it can be freely used for corporate communication, reducing telephone bills and paperwork. A business development manager could use voice-chat to verbally instruct his subordinates on the next course of action, especially if the branch offices are spread across the country.

Chatting has always been the primary cybertool for making new friends from around the globe; voice chatting promises to make things all the more exciting. So, time to start working on your accent! ❖

1/2 page Hor. Ad

February 2 Friday

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28			

Blog it Away

Today, I set out to create my first blog — my very own diary on the Web. It felt kinda strange initially, putting personal information on the Web, but in a way it was quite exciting...

FRANK JENNINGS

FRIDAY,
11:30 a.m.
The latecomer

"Okay, I was late today, but did my boss have to shout at me like that, and that too in front of everybody? It was so humiliating and depressing. I felt as if the whole world had ganged up on me."

I'm sure that you too have often felt frustrated or dejected like this. Wouldn't it be great to just release all those pent-up feelings before they seriously affect your work or family-life? But how? Let me share my secret with you—by maintaining a Web log. Why should I lug a physical diary around when the Internet provides me a means of maintaining all my experiences and incidents of daily life online? While I do miss the smooth feel of a Parker pen rolling over paper, the Web's not a bad substitute. It's far more elegant and enduring than a heavy, lifeless dairy.

FRIDAY,
12:30 p.m.
The blogger

"I sometimes wonder what I did without you. How did I ever manage life and its tribulations?"

When John Barger originally came up with the idea of Web logs in 1997, he was thinking along slightly different lines. He intended the Web log to be an index of all the Web pages that a person found interesting. Naturally, it has moved from being an index to a personal statement like this one. Now, the Web log, blog for short, is a Web page with frequently updated posts that are arranged chronologically. It is like a diary, but with a big difference. On the Web, friends, family, acquaintances and even anonymous strangers can drop by to read it, if I want them to.

There's no hard and fast rule on what to put up. I started off with some interesting sites, added a few comments of my own, moved on to a bit of poetry, published some photographs. Once I even experimented with putting up some policies of my company on the site and I did get a whole lot of feedback from other employees. There's a blog for the entire family too, but I have kept it private. Most of the times, however, I just ramble on and it ends up being a short story. I like blogging because I can just about do everything with it and so many people seem to be interested in what I write.

FRIDAY,
2:00 p.m.
The creator

"The best part of blogging is that there are so many sites, each offering different features. It's easy to get lost in this swarm of sites."

Many sites provide Web logging services. Some of them even allow me to maintain an online discussion forum. And thankfully, they don't censor any of my ravings and ranting, which many a times tend to go over the top. Some Web log sites such as Weblogs (**www.weblogs.com**) or Pitas (**www.pitas.com**) allow me the option of creating pages with my name such as the address **http://franky.weblogs.com** or

Creating a blog with Live Journal

http://franky.pitas.com. With other sites like Livejournal, I had to make do with the account www.livejournal.com\users\franky, though I could have paid some money and got an account with my name.

The good thing is that whichever site you pick, creating your blog is uniformly easy. I just had to create an account, after which I was given the URL that pointed to the index page of the

Facets of a Good Web Log

Before you start blogging, remember these points:

Presentation
Present your thoughts in a simple fashion. You can criticise other journals or sites and get away with it if your style of writing is good enough. A good blogger has an element of simplicity and power in his/her writing that attracts others.

Visuals
Design-wise, make sure that your Web log is easy on the eyes. It is better to have a starting page and the Web log page linked to it. Always use low-resolution photographs and a simple design template.

Relevance
Keep in mind the people who read your journal. Point to the most recent links and state only authenticated information. Update your journal as and when required. Want more people to start visiting your blog? Make sure it contains interesting information for others to read. This will greatly increase traffic.

Privacy
Yes, a Web log is akin to a personal diary, but you may never want your personal diary to be published! There is absolutely no point in telling the world highly personal things about you. People may not be interested, or too many might be—and you'll regret it later. So think before you include anything and everything in your Web log.

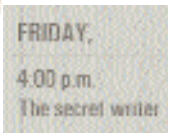
Blog at your own Site

If you have your own server space, you can still maintain a blog and update it regularly, either manually or with the features offered by sites such as blogger.com. Blogger lets you upload and publish pages to the site of your choice. For this, you must have ftp access to the Web server. Some sites also allow you to have scripts, server side includes and ASP or Cold Fusion pages apart from the standard template. If you have an ftp server running and want the site to update your blog archive, make a directory and specify this ftp path in the Web site. (Some famous sites updated by the service provided by Blogger are: http://slashdot.org, www.xmladvantage.com and www.musicinsight.com.)

blog. I then set about creating my first entry in the online journal. You can set your diary to automatically enter the date, time, day, page number, etc.

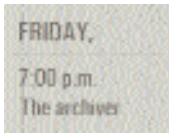
There were many cool templates for designing the page, but since I already knew a bit of designing and HTML, I decided my own layout. I don't have a personal Web site right now, but the moment I have one, I will make use of the 'publishing to other servers' feature that some blog sites offer. (*see box, 'Blog at your own Site'*). The ads that Blogger put on my diary page do irritate me, but then, I guess the axiom, 'There's no such thing as a free lunch,' holds true.

Once I began recording entries regularly, the process became fairly simple. I just logged in whenever I felt like, updated my blog and replied to comments that were posted by people who read my entries. Sometimes, I get those crank, bulk postings, but I just censor them. I keep changing my design once in a while, just to avoid the monotony.



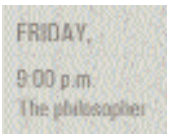
"There are many things that I cannot tell you. I worry that my deep secrets might get into the wrong hands."

Many a time, I was scared. What if someone, for whom my Web log was not intended, chanced upon it? I certainly wouldn't want my boss to know what I actually feel about him. At least the hardbound diary would always be secure with me. Then I discovered that some sites actually offered me the option of distinguishing between a private and public blog. With a public blog anyone could access my blog and post comments. But if I made my blog private, no one can read or post comments on it. Some sites even offered me controlled privacy, which allowed me to make certain pages private and the others public.



"I am inundated with posts and comments. This has become one bloated blog! I wonder if I can store all this older stuff some place else?"

Managing all my posts became quite troublesome after some time. There were just too many. And given my tendency to rush to my blog after each and every fracas with my boss, it was indeed becoming unmanageable. That's when I decided to archive my site on a regular basis. Every Friday was my scheduled archiving duty. I just duplicated all the posts and saved them in a separate archive. There are no problems with the links when I do this—they are still operational. I also have an index page that contains the links to all the archived pages.



"You provide me with a means. You are the tool for my creativity and my spirited soul. I blog, therefore I am."

In recent times, I have become quite addicted to blogging. I check my blogs almost five to six times a day. I was quite amazed at the number of reactions I got initially. Long-lost friends wrote in, strangers who had no relation with me shared my sentiments. I felt I was connecting to a whole new world. And the office-oriented blog I put up actually helped me form a stronger bond with my colleagues. I have made quite a lot of new friends and we have many heated discussions on sundry issues. It's the ultimate in freedom of expression—one that I have always longed for. Of course, I did get a lot of snide comments when I wrote about what I had for dinner last night. And some friends weren't exactly pleased about what I thought of them. All part of the game, I guess. Take the good with the bad. These things don't matter in the long run…just as long as my boss isn't reading this blog.❖

Do you want to share your views with me? Blog me at http://.franky.pitas.com

http://www.

www.weblogs.com
Provides you with a page of your name for free

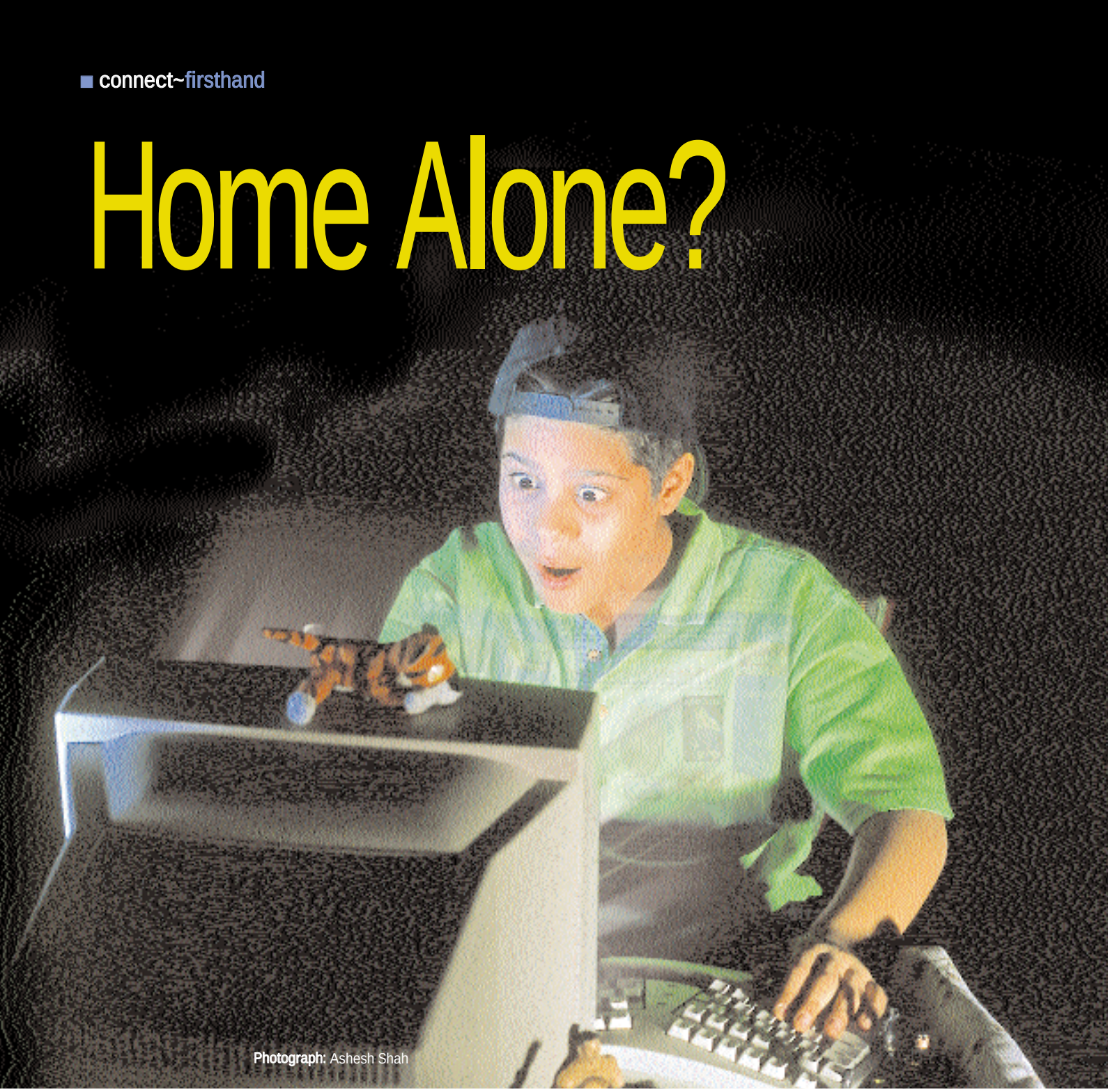
www.blogger.com
Has loads of features and even lets you update blogs in your own server

www.blogspot.com
A free hosting service for Blogger-powered blogs

www.pitas.com
Simple and elegant, offering free blog accounts with your name

www.livejournal.com
Create a funky-looking blog in seconds

Home Alone?



Photograph: Ashesh Shah

Mama always said not to talk to strangers, but little Red Riding Hood still got into trouble. So, how do you stop your children from 'talking' to strangers on the Big Bad Web?

MANU KHANNA

You enter home after a hard day's work and see your 14-year-old son on the computer. He seems dedicated and devoted to this medium and you sleep peacefully, happy at your decision to buy him a computer. Till one day, you just happen to access the History option in Internet Explorer and find a plethora of unprintable sites. Time to do a check on what the computer is actually being used for.

Such scenarios are commonplace, especially if you look at certain statistics. In most search engines, for every 10 keywords used, five are related to pornography and sex figures on top of the list. That implies that gaining access to pornographic material is quite easy. All you have to do is fire up your browser, enter the search term, and you have a number of sites springing up with voyeuristic content. While gaining access to these sites may require a credit card or an age verification service, most of them offer free samples that are pornographic in nature. Besides, many pornographic sites are hosted outside the US, in countries such as Germany or Russia, which do not have stringent regulations prescribing age verification for pornographic ➜

Paper Tiger

In India, too little is being done by the government and other authorities to stop children from accessing pornographic content. Section 67 of the IT Act, 2000 says,

"Whoever publishes or transmits or causes to be published in the electronic form, any material which is lascivious or appeals to the prurient interest or if its effect is such as to tend to deprave and corrupt persons who are likely, having regard to all relevant circumstances, to read, see or hear the matter contained or embodied in it, shall be punished on first conviction with imprisonment of either description for a term which may extend to five years and with fine which may extend to one lakh rupees and in the event of a second or subsequent conviction with imprisonment of either description for a term which may extend to ten years and also with fine which may extend to two lakh rupees."

In recent times, sites such as Rediff and Indiatimes were in the news when they were sued for providing access to pornographic content through their search engines, though it's debatable whether you can 'censor' search engines.

Compare this with the scenario in the US. In October 1998, the US Congress enacted the Child Online Protection Act and established the Commission on Online Child Protection, with adequate funds to study methods to help reduce access by minors to certain sexually explicit material, defined in the statute as harmful to minors.

These are the kind of proactive legal measures that are required to help our children access the Internet safely and reap its benefits, rather than fall prey to malignant elements.

content. Even worse, some sites trick unsuspecting users into visiting their Web page by using innocent sounding URLs. For instance, if you type in **www.whitehouse.com** thinking you might get a look at information related to the US president, don't be surprised at the actual content you get there. (And just in case you are interested, the actual URL is **www.whitehouse.gov**).

Threat perception

Children may be exposed to pornography, violence, underground sites, etc, in a number of ways. Apart from accidentally stumbling on to a site or using a search engine to intentionally reach such sites, chat rooms remain a main source of worry. In November 2000, Priya Singh, a class XI student from Mumbai, eloped with Asad, a guy from Uttar Pradesh. In another incident in the same month, Abrar Ashraf, a class VII student from Mumbai was kidnapped by one Persis Williams. The connection in both the incidents—both Priya and Ashraf met Asad and Persis through chat rooms.

Many a times, a child may enter some 'illegal' or 'unlawful' chat room accidentally or out of curiosity. Many such chat rooms have been created for adults and carry sexually explicit conversations. Almost all popular chat sites such as IRC, Excite, Yahoo! or even Rediff have chat rooms such as The Hot Tub, Boys for Boys, The X Dungeon, etc, which are a haven for exchanging files containing pornographic images or a means to solicit customers. According to estimates, more than 5 million people use chat rooms daily (and the numbers are increasing each day), their identity hidden behind online nicknames that can be changed every second.

> I had heard about software that prevent access to pornographic and other sites. It seemed a good idea, so I installed NetNanny on my PC...but the software cannot block pictures on the home page of some sites
>
> K. S. Premachandra Kurup
> Additional Secretary, Government of Kerala, Trivandrum

Are there any solutions?

Given the constant threat in such forms, is there any method to protect children from being exposed to such objectionable material? As parents, it's not possible for you to continuously monitor the sites your children visit. What do you do then?

One option (though not 100 per cent foolproof) exists in the form of software that control or restrict access to many such sites. Content filtering utilities are software that automatically block or screen access to certain sites on the Internet. There are two methods for filtering Web sites—server side filtering and client-side or software filtering. Server side filtering is done at the ISP level and involves blocking pornographic and other deleterious sites by the server itself.

Using Content Advisor

Internet Explorer also has the ability to restrict access to certain types of content using its built-in Content Advisor, though this filter is of a very basic level.

Setting up Content Advisor

Step 1: Double-click on the My Computer icon on your desktop, then double-click on the Control Panel folder. Double-click on the Internet icon to open up Internet Properties.

Step 2: Click the Security tab, and then click Enable Ratings. If the Enable Ratings button is not visible, then click on Properties.

If a supervisor password has not already been set up for your computer, Windows prompts you to create one. If one has been set up, Windows prompts you to type it. Make sure you do not forget it.

Step 3: On the Ratings tab, click a category in the list, and then adjust the Rating slider to set the limits you want to use. Repeat this process for each category you want to limit.

Caution: There are a few things that you need to remember when using the Content Advisor. Once you enter a password, you cannot change or disable the Advisor settings without again typing in the password. So make sure that you remember the password or write it down and keep it in a safe and secure place for future reference.

Safe Talk

Here are some useful guidelines while chatting or surfing, especially for youngsters.

DON'T

✘ Use nicknames in chat rooms that are gender, age or location specific. Encourage the use of gender-neutral nicknames. For example ScoobyDoo and PowerRanger are innocuous while Neeta17Delhi and Rahul16Mum provide enough information to engage you in conversation.

✘ Disclose your real name, address or phone number while in a chat room.

✘ Respond to online questions from people you do not know.

✘ Send pictures of yourself or your family to anyone unless you have permission for the same.

✘ Meet a cyber friend unless your parents go with you or you have their permission to go alone.

✘ Respond to any e-mail messages that are strange, mean or upsetting.

DO

✔ Approach an older person like your parents or teachers if you feel uncomfortable with an online discussion or Web site.

✔ Learn to use the power on/off switch on the computer. This is the best weapon against a possible hacker attack.

✔ Use the Internet only when you think it's okay and only for as long as you require it.

✔ Change direction swiftly if you accidentally land on a harmful site.

The other method is client-side filtering, where you have to install software such as NetNanny or CyberPatrol. The software then restricts children (or other users as specified by the administrator) from accessing inappropriate sites and chat rooms.

Content filtering

Most of the content filtering software use a combination of host blocking (restricting access on basis of name of site) and keyword blocking (restricting access on basis of words such as sex). If your child happens to land at a site that has not been blocked manually using host blocking, then the software tries to restrict access to it using the keyword blocking method. The developers of the software have a list of malicious or pornographic sites and keywords, which they attach to a database. If you have a content filtering software installed and try to access a site which is listed in the database, then the software blocks the site from being presented.

The software manufacturer periodically updates this software and puts up the updated version on his Web site for its users. Updating your content filtering software is necessary because new sites are created all the time and an old version of the software may not block them out.

Says K.S.P. Kurup, additional secretary, government of Kerala, "I had heard about software that prevent access to pornographic and other sites. It seemed a good idea, so I installed NetNanny on my PC." An Indian company named Pitara Kids' Network recently launched 'Krowser', a specialised software for children, which allows a child to surf the Net without accessing pornographic, hate or violence driven Web sites. Krowser is a software which replaces the conventional browser and dynamically checks the aptness of the site being requested by the user. Krowser too uses the host blocking protocol to filter out content. It screens out Web sites on the basis of its reviews of sites for the quality of their editorial content.

I installed NetNanny because I felt that this would help to a limited extent in blocking unwanted sites

K.K. Narayanan
Assistant Engineer, Kerala House, Mumbai

So, are kids safe?

As parents, you would like to believe that such filtering software cannot be bypassed, says K.K. Narayanan, assistant engineer, Kerala House, Mumbai, who installed NetNanny to protect his children from unwanted sites. But the truth is that if your kid is smart enough, sooner or later he is going to figure out a way to over-ride the software. He could do this on his own or simply visit one of the many sites, which tell him how to 'crack' the software, as S.P. Mittal, a businessman from Chandigarh, soon found out. "I installed CyberPatrol to stop my 14-year-old son from visiting porn sites and I was proudly telling about this to my other son,

Blocking pornographic sites from showing up—NetNanny at work

Angels on the Web

Cyberangels is the largest online safety, education and help group in the world. It operates in cyberspace and is run entirely by volunteers. The volunteers patrol the Internet looking out for child pornography, child molesters and cyber stalkers and can help you in tracing attackers. Once traced you can report the attacker to the police for the law to take suitable action. While you can contact Cyberangels through its Web site, if you are surfing and notice some objectionable material, you can immediately get in touch with them using Internet Relay Chat (IRC). Using any IRC client, log in the server **irc.tri-net.org** and join the Cyberangels channel and report the matter there.

Get Cracking

Here is a small list of the methods that are generally used to bypass content filtering software such as NetNanny or CyberPatrol.

- Most content filtering software make entries to a 'dll' file in the Windows directory. This file has details of the type of content and sites to block. It's possible to simply download a program that will rename this file and create a new empty file bearing the name of the original file. So the next time anyone tries to access porn sites, the software will not object because the file from which it is supposed to take instructions is blank.
- Another loophole is that filtering programs ask parents to enter an Administrator password. Once you enter the Administrator password, you can disable the software's blocking function. There are many programs available, which can crack these passwords and display them on the screen. There are other applications too that replace the master password with another known password. This program can also change the password back to the original so that the program remains unnoticed.
- All content filtering software make an entry in the Windows startup folder so that whenever the computer starts, the software is activated. You just need to remove the program from the Startup folder to disable the software completely.
- The old [Ctrl] + [Alt] + [Delete] always works.

Rohit. Rohit, just to prove me wrong, demonstrated to me how his younger brother had downloaded a crack from a site and bypassed CyberPatrol. This really amazed me and, needless to say, I lost faith in content filtering software."

This is not the only way to bypass content filtering software. Sometimes, the very methodology used by software manufacturers to prepare the software helps users to bypass blocking. It's simply not possible to know of and include all the Web sites in the database. Another issue is the frequency with which the lists are updated. At the time this article was written, NetNanny had posted update files dated October 2000 on its site! Does this mean that no pornographic or hate site has been created after October 2000?

Since these software check for keywords which are present on the homepage, many sites just shift the pornographic content to the inside pages. And some sites might just make use of images without any keywords as Kurup corroborates, "Some sites will have nude pictures on the home page and the software cannot block this as it only searches for keywords."

The last word

As technical means of preventing and protecting your children from the dangerous elements on the Internet are not foolproof, what can you do? The only really effective method is to educate your children about the Net. Show them how useful it can be and how it can positively influence their lives, but do warn them about the perils too. Tell them politely, but firmly, where they can go and where they must not while surfing.

Often, educating works better than censorship! ❖

www.netnanny.com
Content filtering software with a 'hit' log
www.cybersitter.com
Another content filtering software
www.cyberpatrol.com
Content filtering software with time log
www.cyberangels.com
An online safety, education and help group