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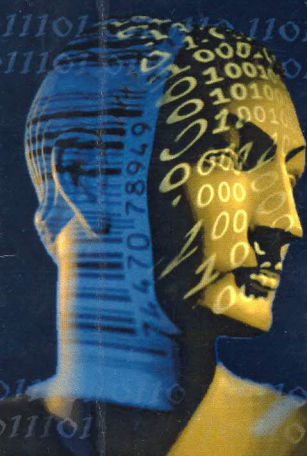


BRIGIT



2012

Association of Information Technology



INFO TECH



Beyond The Future !!! Vol-13

ASSOCIATION OF INFORMATION TECHNOLOGY

BRIGITZ

BRINGS IN

INFOTECHZ



ST.XAVIER'S CATHOLIC COLLEGE OF ENGINEERING
CHUNKANKADAI- 629 807.

EDITORIAL VOICE

“BRIGITZ” association of Information Technology department releases the technical newsletter named INFOTECHZ in every semester. Being the editor of this newsletter, am happy to present much awaited 13th newsletter “INFOTECHZ” which holds valuable information and modern technologies. This newsletter will continue to be a vehicle for promoting latest technologies to the students and staff. I hope INFOTECHZ will cater to the need of all engineering student community. In order to enhance the logical skills of the students, brain storming problems are included. This has been accomplished through the efforts of our association members. Also INFOTECHZ helps to make great collaboration within the department by sharing ideas. A huge thank you to all the persons who contributed writing the wonderful articles, without which there wouldn't have been this newsletter issue. I thank the management, principal and the HOD for their endless support.

Mrs. N. Ansgar Mary



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Our Presidents Message....

Dear BRIGITZ family

*It is my great pleasure to greet you as the president of BRIGITZ family. I am proud on hearing that our Association is releasing the 13th volume of our technical newsletter **INFOTECHZ**. Newsletter is the platform that helps the staff and students to exhibit and share their creative idea and their research findings.*

I thank and congratulate the staff and students who are behind this venture.

With regards


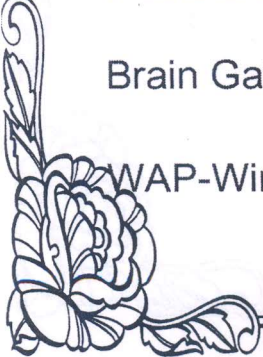


R.P. ANTO KUMAR
[H.O.D]



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ASSOCIATION ACTIVITIES

- The new association members were nominated by our H.O.D for the academic year 2011-2012 and they were introduced on August 11th.
- The Installation ceremony was conducted on August 11th towards the stone of success and special seminar was held to gain knowledge,
- Cancer awareness program was conducted to create awareness among students.
- A seminar on how to design and present Paper was conducted by Mr. Nagarajan, on September 23rd 2011 in an excellent way.
- The students of 2nd year were taken for a one-day industrial visit to the "Science Center, Tirunelveli."
- The 3rd year students went for a two day Industrial visit to Chennai from 14th to 17th of September, 2011.
- Final year students of our department went on a study tour to Delhi, Amritsar, Manali, Agra and Chandigarh from December 28th to January 9th.
- Aptitude exams were conducted for the 2nd, 3rd & 4th year students of our department to improve knowledge among them.
- An intra-departmental competition was conducted for all the students. The various competitions were Debugging, Paper Presentation, Web Designing and Quiz.
- Towards an oriental behavior for the college day we gone towards an "I Tea Park".
- A National level technical symposium has been planned and yet to be conducted during the month of February.

Guest Column.....

Cloud Computing

- Gomathisankar.S, Lead Software Engineer,
Cisco Systems (India) Private Limited, Bangalore.

Everyone is talking about “the cloud.” But, what is cloud computing? Now days, software applications are moving to the cloud. It’s a shift from traditional software models to the Internet has steadily gained momentum over the last 10 years. So, the next decade of cloud computing confirms to new paths to collaborate from anywhere, through mobile devices.

Traditional business applications have always been very complicated and expensive. The amount and variety of hardware and software required to run them are huge. One needs a whole team of experts to install, configure, test, run, secure, and update them. When you multiply this effort across dozens or hundreds of apps, it’s easy to see why the biggest companies with the best IT departments aren’t getting the apps they need. Small and mid-sized businesses don’t stand a chance.

With cloud computing, you eliminate those headaches because you’re not managing hardware and software. That’s the responsibility of the service provider who provides the cloud service.

Cloud-based apps can be up and running in days or weeks, and they cost less. With a cloud app, you just open a browser, log in, customize the app, and start using it.

Businesses are running all kinds of apps in the cloud, like customer relationship management (CRM), HR, accounting, and much more. Some of the world’s largest companies moved their applications to the cloud with salesforce.com after rigorously testing the security and reliability of our infrastructure.

Cloud services:

Cloud services are of three types:

- private cloud
- private cloud
- hybrid cloud

Private Cloud:

Private cloud also providing software as a service to the end user but within an organization using virtualization. So, employees of a company can access the software tools which are hosted in a data center.

Public Cloud:

Service provider like Amazon, Google and Salesforce.com are providing a platform where anyone can host their software for the public to use. These providers will ensure that the hosted

software are up and running for 24/7. So, the end user who uses the software will pay on a subscription model and the owner of the software will pay the service provider for the usage of the hardware and software usages.

Hybrid cloud:

A hybrid cloud is a cloud computing environment in which an organization provides and manages some resources in-house and has others provided externally.

Three ways of Cloud services:

Cloud services are provided in three ways IaaS, PaaS and SaaS

- ❖ IaaS
- ❖ PaaS
- ❖ SaaS

Infrastructure as a Service (IaaS):

Cloud service provider owns the storage, hardware, servers and networking. The client typically pays on a per-use basis. (Example: Amazon EC2 web service).

Platform as a Service (PaaS):

This delivery model provides a platform on which the developer can develop software applications to host it for end user in the cloud. (Example: Google app engine).

Software as a Service (SaaS):

SaaS is a software delivery model in which the software and its data are hosted in the cloud and made available for the end

users in the internet (Example: gmail, yahoo mail).

Characteristics:

Cloud computing has the following key characteristics:

Empowerment

Agility

Application programming interface

Device and location independence

Virtualization

Multi-tenancy

Reliability

Performance

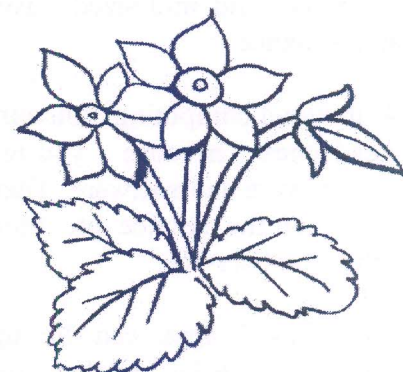
Scalability

Performance

Security

Maintenance is easy

Cost is low.



Personality Profile...

Fredrik Idestam-NOKIA

-Paul Divakar.R

Final IT

Fredrik Idestam born October 28, 1838, Tyrvanto, (Finland, Russia) was a Finnish mining engineer and businessman, best known as a founder of Nokia. Fredrik held a Master's degree in the field of Mining and then he planned his career as a civil servant in the Board of Mines of the Grand Duchy of Finland. On a Finnish Senate scholarship, Fredrik undertook further studies in basic metals in Germany at the School of Mines (Bergakademie) in Freiberg, Saxony. He was appointed as a mining engineer at the Finnish Board of Mines.

But as early as the summer of 1864 his career plans changed. On his way through the Harz Mountains he visited a ground wood mill, is a factory which produced raw material for paper from wood. He realised the importance of this innovation for Finland, where there was an unlimited supply of raw material. As soon as he returned to Finland he ordered machines designed by Voelter from Germany, and he was granted an operating permit by the Senate on 12 May 1865, the date which today's Nokia group of companies regards as its foundation day. The mill began production at Tampere early in 1866. Fredrik was not the first in this field in Finland. The pharmacist Achates Thuneberg had established a ground wood mill near Viipuri in 1860, But Thuneberg was not successful. In contrast, Fredrik was successful and attracted competitors, Fredrik marketed his product energetically. On December 1866 the Tampereen Sanomat became the first newspaper in Finland to be printed on paper containing wood. Fredrik exhibited his groundwood at the 1867 Paris Exhibition and was awarded a Bronze Medal. This was the decisive breakthrough, as Idestam himself stated later.

In 1868 Idestam built a second mill at Nokia, fifteen kilometres west of Tampere. A number of groundwood mills were established in Finland in the early 1870s by Fredrik. Idestam transformed his firm into a share company in 1871. With his close friend Leo Mechelin.

Fredrik founded Nokia Ltd and transferred all activities to Nokia, where a new mill was built. Idestam's mills and Nokia Manor and its interest in the Nokia Rapids, which had been acquired by Mechelin, were transferred to the new company. Idestam owned well over half the shares in the firm. He resigned from the Board of Mines and his position there as Master of the Mint and devoted himself entirely to managing Nokia Ltd. Fredrik was a cautious business manager, and his financial planning allowed Nokia's investments in expanding its production and increasing the degree of processing.

In 1880&1885 three paper machines and first sulphite pulp mill was built by Fredrik. On Fredrik initiative and under his leadership, the paper-industry magnates founded their producers' organisations: a cardboard association in 1874, a pulp association in 1875 and a paper association in 1892.. Idestam was the general manager and chairman of the Paper Association until 1903.

He retired from the management of Nokia in 1896. He was succeeded as general manager by his son-in-law Gustaf Fogelholm and as chairman of the board by Leo Mechelin. On Later Nokia Ltd is well known for their mobile hand devices. On April 8, 1916 Fredrik passed away at the place of Helsinki, (Finland, Russia).



A. Antush Agnes (Pre Final – IT)

HISTORY

Established in 1981, Infosys is a NASDAQ listed global consulting and IT services company with more than 145,000 employees. From a capital of US\$ 250, we have grown to become a US\$ 6.825 billion (LTM Q3- FY12 revenues) company with a market capitalization of approximately US\$ 30 billion.

In our journey of over 29 years, we have catalyzed some of the major changes that have led to India's emergence as the global destination for software services talent. We pioneered the Global Delivery Model and became the first IT Company from India to be listed on NASDAQ.

MILESTONES

2009

- Infosys selected as a member of The Global Dow
- Employee strength grows to over 100,000

2008

- Infosys crosses revenues of US\$ \$ 4.18 billion
- Annual net profits cross US\$ 1 billion

2007

- Infosys crosses revenues of US\$ 3 billion. Employees grow to over 70,000+
- Kris Gopalakrishnan, COO, takes over as CEO. Nandan M. Nilekani is appointed Co-Chairman of the Board of Directors
- Opens new subsidiary in Latin America
- Reports Q2 revenue of over US\$ 1billion

2006

- Infosys celebrates 25 years. Revenues cross US\$ 2 billion. Employees grow to 50,000+

- N. R. Narayana Murthy retires from the services of the company on turning 60. The Board of Directors appoints him as an Additional Director. He continues as Chairman and Chief Mentor of Infosys

2005

- Records the largest international equity offering of US\$ 1 billion from India
- Selected to the Global MAKE Hall of Fame

2004

- Revenues reach US\$ 1 billion
- Infosys Consulting Inc. is launched

2003

- Establishes subsidiaries in China and Australia
- Expands operations in Pune and China, and sets up a development center in Thiruvananthapuram

2002

- Touches revenues of US\$ 500 million
- Nandan M. Nilekani takes over as CEO from N.R. Narayana Murthy, who is appointed Chairman and Chief Mentor
- Opens offices in the Netherlands, Singapore and Switzerland
- Sponsors secondary ADS offering
- Infosys and the Wharton School of the University of Pennsylvania set up The Wharton Infosys Business Transformation Awards (WIBTA)
- Launches Progeon, offering business process outsourcing services

2001

- Touches revenues of US\$ 400 million. Opens offices in UAE and Argentina, and a development center in Japan

- N. R. Narayana Murthy is rated among Time Magazine/CNN's 25 most influential businessmen in the world
- Infosys is rated as the Best Employer by Business World/Hewitt

2000

- Touches revenues of US\$ 200 million
- Opens offices in France and Hong Kong, a global development center in Canada and UK, and three development centers in the US
- Re-launches Banks 2000, the universal banking solution from Infosys, as Finacle™

1999

- Touches revenues of US\$ 100 million. Listed on NASDAQ
- Infosys becomes the 21st company in the world to achieve a CMM Level 5 certification
- Opens offices in Germany, Sweden, Belgium, Australia, and two development centers in the US
- Infosys Business Consulting Services is launched

1998

- Starts Enterprise Solutions (packaged applications) practice

1997

- Opens an office in Toronto, Canada
- Infosys is assessed at CMM Level 4

1996

- The Infosys Foundation is established

1995

- Opens first European office in the UK and global development centers at Toronto and Mangalore. Sets up e-Business practice

1994

- Moves corporate headquarters to Electronic City, Bangalore. Opens a development center at Fremont

1993

- Introduces Employee Stock Options (ESOP) program
- Acquires ISO 9001/TickIT certification
- Goes public

1987

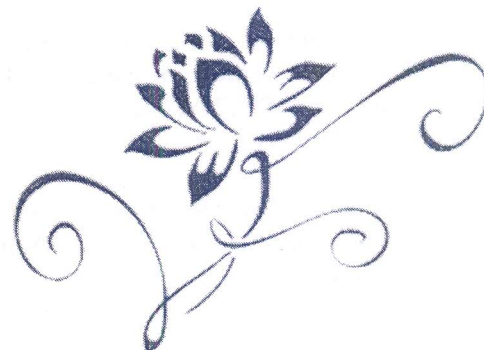
- Opens first international office in Boston, US

1983

- Relocates corporate headquarters to Bangalore

1981

- **Infosys is established by N. R. Narayana Murthy and six engineers in Pune, India, with an initial capital of US\$ 250**
- Signs up its first client, Data Basics Corporation, in New York .



Staff Column...

MOBILE COMMUNICATION

E.CHRISTO ELJIN RAJ
[A.P] M.E

1. Evolution:

➤ 1921:

The Detroit Police Department in 1921 implemented a radio that system allowed the patrol cars to communicate a central control point. although this system has little in common with today's sophisticated modern communications systems, it was the first mobile communications system.

➤ 1939 – 1944 (World War II):

World War II proved that the mass production of VHF (Very High Frequency) radios was possible, by the end of the 1940's there seems to be little standing in the way of the development of mobile communications systems.

➤ 1946:

By 1946 in St. Louis it became possible link a vehicle mounted mobile radio unit to a PSTN (Public Switched Telephone Network).

➤ PMR & PAMR (Private Mobile Radio & Private Access Mobile Radio):

These systems were developed by during the 1950's, usually utilising vehicle mounted units. These systems are mainly used by the emergency services, public utilities, road haulage and taxi's. To start with these systems were very basic single site and single channel. However they have developed into much more complex systems, utilising multi-site, multi-channel, selective calling, connections PABXs/PSTN's and direct calling.

➤ TACS (Total Access Communications System):

TACS was the first real mobile communications system. In 1985 when this system was introduced it was mainly vehicle mounted units, but later developed into mobile units. Unlike the other systems used around the world TACS used the 900 MHz band.

2. Generations:

Generation	Type	Modulation	Data rate	Features
1G	Analog	Frequency	-----	Voice, No roaming
2G	Digital	GMSK	9.6kbps	Voice, SMS(data)
2.5G	Digital	GMSK	50kbps	Voice, GPRS
2.75G	Digital	GMSK	140kbps	Voice, EDGE
3G	Digital	QPSK	2Mbps	Voice, Video calling, IP based
3.5G	Digital	16QAM	14Mbps	Voice, Video calling, IP based, Streaming
4G	Digital	64QAM	1Gbps	LTE, MIMO

3. GSM And CDMA

Global System for Mobile Communication (GSM), there are lot of standards are there (GSM-450, GSM-750, GSM-900, DCS-1800, etc..). In India we are using GSM-900 (primary band) and DCS-1800 (secondary band) standards.

Primary Band: Uplink
 Frequency: 890-915MHz
 Downlink Frequency: 935-960MHz

Secondary Band: Uplink
 Frequency: 1710-1785MHz
 Downlink
 Frequency: 1805-1880MHz

From primary band we get 125 RF channel with carrier frequency 200 KHz and 375 RF channels from secondary band. Out of this 125, one channel is used as a guard band and other channels are used for communication purpose. So, in total each service provider get 50(31 pri+19 sec) channels.

Primary band is used for long range communication and secondary band for short range communication because, high frequency components are attenuate more when compared to the low frequency components.

In GSM, we use both FDMA and TDMA multiplexing technique. So, we can accommodate 8 users in each RF channels. For that each channel is divided into 8 time slots with 0.577ms per user.

To accommodate large number of users, we use *frequency reuse* concept, which states "using the same radio frequencies on radio transmitter sites within a geographic area, which are separated by sufficient distance".

Sometimes reflected signals and direct signals cause interference. To avoid this situation a *frequency hopping* technique is used and is "transmitting radio signals by shifting a carrier across a number of channels with a pseudorandom sequence that the sending and receiving station knows beforehand".

Normally, we can't use the frequency greater than 8GHz for mobile communication because geometric property of water droplet and the wavelength are comparable so, it absorbs the RF signal and cause rain attenuation. Normally, these frequencies are used for satellite communications and so we can't

use the DTH(Direct To Home)services in the rainy days.

CDMA uses Code Division Multiple Access technique, where each user get separate pseudo random code and it depends upon the change in the data rates of total number of users available in the network and so the RF channel can be used effectively in CDMA than GSM. Security and power management are also good in the prior one.

4. 3G & 4G

3G which uses WCDMA technique and 4Gwhich uses OFDM technique, enable mobile users to harness the full power of the Internet through efficient high-speed radio transmission and results into an optimised multimedia communications. In these techniques, IP based connection exists among the mobile and BTS (Base Transceiver System). So that, the devices always connected in the network, but it is not in the case with GSM where circuit switched concept is used.4G enablesglobal mobility and thus it provides service portability.



ELECTRONIC INK

-Benisha.J
Final IT

E Ink is the creator of electronic ink the optical component of a film used in Electronic Paper Displays. Although futuristic-sounding, electronic ink is actually a straightforward fusion of existing knowledge of chemistry, physics and electronics to create this new material. It's so much like paper, it actually utilizes the same pigments used in the printing industry today.

HISTORY & MANUFACTURING PROCESS:

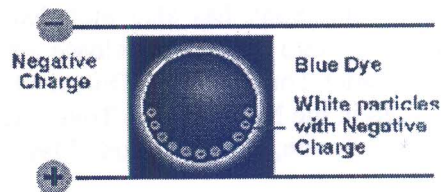
Two companies are simultaneously developing similar electronic inks -- E Ink of Cambridge, MA, and Xerox in Palo Alto, CA. At first glance, a bottle of electronic ink looks just like regular ink, but a closer examination shows something much different. Although the two companies' products vary slightly, here are the three components of both electronic inks that give them the ability to rearrange upon command:

- Millions of tiny **microcapsules** or cavities
- An **ink** or oily substance filling the microcapsules or cavities
- Pigmented chips or balls with a **negative charge** floating inside the microcapsule

Electronic ink can be applied to the same materials that regular ink can be printed on. In the case of a digital book, the pages would be made out of some kind of ultra-thin plastic. The ink would cover the entire page, separated by cells that resemble the cells on graph paper. Think of these cells as pixels on your computer

screen, with each cell wired to **microelectronics** embedded in this plastic sheet. These microelectronics would then be used to apply a positive or negative **charge** to the microcapsules to create the desired text or images.

Xerox and E Ink are using different techniques to develop their electronic inks. To help people understand how E Ink's technology works, the company compares the millions of microcapsules inside the ink to clear beach balls. Each of these beach balls is filled with hundreds of tiny, white ping-pong balls. And instead of air, the beach ball is filled with a blue dye. If you looked at the top of this beach ball, you would see the ping-pong balls floating in the liquid, and the beach ball would appear white. But if you looked at the bottom of the ball, it would appear blue.



Here you can see how E Ink's pigment chips would react to positive and negative charges.

When an **electrical charge** is applied to the microcapsules, the chips will either rise to the top or be pulled to the bottom. When pushed to the top, the chips make the capsules look white; when they are pulled to the bottom, the viewer only sees the dark ink. Patterns of white and dark can then be created to form words and sentences.

THE SMART INK DISPLAY:

To form a smart ink display, the ink is coated onto a sheet of plastic film that is laminated to a layer of circuitry.

The circuitry forms a pattern of pixels that can then be controlled by a display driver. The microcapsules are suspended in a liquid "carrier medium" allowing them to be coated using existing coating processes. The final laminate can be applied onto virtually any surface, including glass, plastic, fabric and even paper. Ultimately electronic ink will permit most any surface to become a display, bringing information out of the confines of traditional devices and into the world around us.

E-INK PEARL:

On July 31, 2010, E Ink announced a second generation of E-ink displays, a higher contrast screen built with E Ink Pearl Imaging Film. The updated Amazon Kindle DX was the first device announced to use the screen, and the Kindle 3, Kindle 4, and Kindle Touch also incorporate the Pearl display. Sony has also included this technology into its latest release of the Sony Reader Touch edition. This display is also used in the Nook Simple Touch, Kobo eReader Touch, Onyx Boox M90 and X61S.

E-INK TRITON:

On November 9, 2010, E Ink announced a third generation of E-ink displays: a color display that is easy to read in high light. The E Ink Triton will display 16 shades of gray, and 4096 colors. E Ink Triton is being used in commercially available products such as the anvon color eReader.

USES OF ELECTRONIC INK:

Just as electronic ink could radically change the way we read books, it could change the way you receive your daily newspaper. Instead of delivery people tossing the paper from their bike or out their car window, a new high-tech breed of paper deliverers would simply press a

button on their computer that would simultaneously update thousands of electronic newspapers each morning. Sure, it would look and feel like your old paper.

E Ink will be developing a marketable electronic display screen for cell phones, PDAs, pagers and digital watches. Electronic ink displays would have several advantages over current display technology, including:

- **Low power usage**
- **Flexibility**
- **Readability**

E Ink said that in electronic devices, electronic ink would use 50 to 100 times less power than liquid crystal displays because electronic ink only needs power when changing its display.

REMOTE MEDIA IMMERSION SYSTEM (RMI)

**-M. Sumuga Pramma Sakthi
Pre-Final IT**

INTRODUCTION:

The charter of the Integrated Media Systems Center (IMSC) at the University of Southern California (USC) is to investigate new methods and technologies that combine multiple modalities into highly effective, immersive technologies, applications and environments. One of the results of these research efforts is the Remote Media Immersion (RMI) system. The goal of the RMI is to create and develop a complete aural and visual environment that places a participant or group of participants in a virtual space

where they can experience events that occurred in different physical locations. RMI technology can effectively overcome the barriers of time and space to enable, on demand, the realistic recreation of visual and aural cues recorded in widely separated locations [MNNS99]. The focus of the RMI effort is to enable the most realistic recreation of an event possible while streaming the data over the Internet. Therefore, we push the technological boundaries much beyond what current video-on-demand or streaming media systems can deliver. As a consequence, high-end rendering equipment and significant transmission bandwidth are required. However, we trust that advances in electronics, compression and residential

Real-time digital storage and playback of multiple independent streams:

Broadband technologies will make such a system feasible first in commercial settings and later at home in the not too distant future. Some of the indicators that support this assumption are, for example, that the next generation of the DVD specification calls for network access of DVD players. Furthermore, Forrester Research forecasts that almost 15 per cent of films will be viewed by on demand services rather than by DVD or video by 2005 [Ric03a]. The infrastructure necessary for these services is gradually being built as is demonstrated in Utah, where 17 cities are planning to construct an ultra-high speed network for both businesses and residents [Ric03b]. The RMI project integrates several technologies that are the result of research efforts at IMSC. The current operational version is based on four major components

that are responsible for the acquisition, storage, transmission, and rendering of high quality media.

STAGES OF RMI:

Acquisition of high-quality media streams:

This authoring component is an important part of the overall chain to ensure the high quality of the rendering result as experienced by users at a later time. As the saying "garbage in, garbage out" implies, no amount of quality control in later stages of the delivery chain can make up for poorly acquired media. In the current RMI version, authoring is an offline process and involves its own set of technologies. Because of space constraints, we will not focus on this part.

The Yima [SZFY02] Scalable Streaming Media Architecture provides real-time storage, retrieval and transmission capabilities. The Yima server is based on a scalable cluster design. Each cluster node is an off-the-shelf personal computer with attached storage devices and, for example, a Fast or Gigabit Ethernet connection.

The Yima server software manages the storage and network resources to provide real-time service to the multiple clients that are requesting media streams. Media types include, but are not limited to, MPEG-2 at NTSC and HDTV resolutions, multi channel audio (e.g., 10.2 channel immersive audio), and MPEG-4.

Protocols for synchronized, efficient real-time transmission of multiple media streams:

A selective data retransmission scheme improves playback quality while maintaining real time properties. A flow

control component reduces network traffic variability and enables streams of various characteristics to be synchronized at the rendering location. Industry standard networking protocols such as Real-Time Protocol (RTP) and Real-Time Streaming Protocol (RTSP) provide compatibility with commercial systems.

Rendering of immersive audio and high resolution video:

Immersive audio is a technique developed at IMSC for capturing the audio environment at a remote site and accurately reproducing the complete audio sensation and ambience at the client location with full fidelity, dynamic range and directionality for a group of listeners (16 channels of compressed linear PCM at a data rate of up to 17.6Mb/s). Software from N even vision identifies 24 feature points on the face and tracks them in real time. Movement, shape and color are then analyzed to identify gestures like a smile or eyebrows being raised.

The RMI video is rendered in HDTV resolutions (1080i or 720p format) and transmitted at a rate of up to 45 Mb/s. In this report we detail some of these components and the techniques that are employed within each. The hope is that our advances in digital media delivery will enable new applications in the future, be that in the entertainment sector (sports bars, digital cinemas, and eventually the home theater), distance education, or others. We will focus mainly on the transmission and rendering aspects.

MIND - READING COMPUTERS

-Bhuvaneshwari.K

Final IT

There are difficult challenges: Using a digital video camera, the mind-reading computer system analyzes a person's facial expressions in real time and infers that person's underlying mental state, such as whether he or she is agreeing or disagreeing, interested or bored, thinking or confused. Prior knowledge of how particular mental states are expressed in the face is combined with analysis of facial expressions and head gestures occurring in real time. The model represents these at different granularities, starting with face and head movements and building those in time and in space to form a clearer model of what mental state is being represented. Combinations of these occurring over time indicate mental states. For example, a combination of a head nod, with a smile and eyebrows raised might mean interest. The relationship between observable head and facial displays and the corresponding hidden mental states over time is modeled using Dynamic Bayesian Networks.

NEED OF MIND READING:

The mind-reading computer system presents information about our mental state as easily as a keyboard and mouse present text and commands. Imagine a future where we are surrounded with mobile phones, cars and online services that can read our minds and react to our moods. Many are

working with a major car manufacturer to implement this system in cars to detect driver mental states such as drowsiness, distraction and anger.

Current projects in Cambridge are considering further inputs such as body posture and gestures to improve the inference. The same models are used to control the animation of cartoon avatars. Mind-reading to support on-line shopping and learning systems are also under research. The mind-reading computer system may also be used to monitor and suggest improvements in human-human interaction. **The Affective Computing Group** at the MIT Media Laboratory is developing an emotional-social intelligence prosthesis that explores new technologies to augment and improve people's social interactions and communication skills.

WORKING OF MIND-READING COMPUTER:

The mind reading actually involves measuring the volume and oxygen level of the blood around the subject's brain, using technology called **functional near-infrared spectroscopy (FNIRS)**. The user wears a sort of futuristic headband that sends light in that spectrum into the tissues of the head where it is absorbed by active, blood-filled tissues.

The headband then measures how much light was not absorbed, letting the computer gauge the metabolic demands that the brain is making. The results are often compared to an MRI, but can be gathered with lightweight, non-invasive equipment. Wearing the FNIRS sensor,

experimental subjects were asked to count the number of squares on a rotating onscreen cube and to perform other tasks. The subjects were then asked to rate the difficulty of the tasks, and their ratings agreed with the work intensity detected by the FNIRS system up to 83 percent of the time.

TELEVISION TECHNOLOGY 3D WITHOUT GLASSES

**-M.Sumuga Pramma Sakthi
Pre-Final IT**

New television technology is now creating 3d without glasses. The popularity of 3d television has been slowly increasing in popularity, however many consumers would prefer 3D TV without glasses. Wearing special 3d glasses is a different for many consumers because the eye-wear is uncomfortable for some and unnatural for others. For example you need multiple pairs of glasses for your friends and family if you want them to watch television together. This is like having your family and friends wear special clothing to ride in your car. It may be novel but it will never gain wide acceptance. The television industry has been developing new television technology so you can watch 3d without glasses.

3D TV SCREENS:

We naturally see things in stereo with our eyes, with each eye viewing a different angle of an object. Seeing different angles of an image allows us to create 3d imaginary in our heads. To allow us to see different angles of the same image, so we can see 3d without

glasses, gaming devices such as the Nintendo 3DS use “parallax” display screens. This technology consists of a surface coating on the screen that has a series of vertical lines. These lines are approximately pixel in width so you can’t see them. Behind the surface, the screen shows two images. The images are two viewing angles of the same image.

This creates a 3d image for our perception, but it only works if your head is located in a “sweet spot”, which is 12 inches (30.4cm) to 24 inches (60.9cm) directly in front of the screen. This technology works well for small gaming devices and Smartphone but not for larger television screens. When you move your head outside of the “sweet spot” or viewing angles, the 3d effect doesn’t work. Consumers are not comfortable with this restriction when watching their television sets. For example, they would have to crowd family and friends together to watch 3d television.

3D FACIAL TRACKING:

To solve the problem of “sweet spot” viewing, television manufacturers are using facial tracking and multiple angles of images projected through “parallax” screens to improve 3d television technology. Sony has also developed a “lenticular” sheet of film (3mm thick) that can be adhered to laptop screens.

Accompanied by image processing software and facial tracking technology, it can project 3D images at distances ranging from 12 inches (30.4 cm) to 39 inches (99 cm) at viewing angles from 60 to 120 degrees.

3D PRODUCTION:

In the production of 3d digital media, there has always been a problem filming multiple angles of images from different cameras to create life-like 3D images. This is because all camera positions and angles require the same focal length and optical axes. Television technology now exists that calibrates and syncs multiple cameras to solve this problem. Affordable and convenient 3d television for consumers, without 3d glasses, is still a few years away. But 3D digital sign advertisers are beginning to use the latest advancements in 3d technology. Most likely, digital advertising displays in shopping malls, and commercial centers, will be the first places you will see large screen 3D TV without glasses. Consumers will eventually see this television technology in their homes when it becomes affordable.

BLU-RAY DISC

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Blu-ray (not Blue-ray) also known as Blu-ray Disc (BD), is the name of a new optical disc format jointly developed by the Blu-ray Disc Association (BDA), a group of the world's leading consumer electronics, personal computer and media manufacturers. The format was developed to enable recording, rewriting and playback of high-definition video (HD), as well as storing large amounts of data. The format offers more than five times the storage capacity of traditional DVDs and can hold up to 25GB on a single-layer disc and 50GB on a dual-layer disc. This extra capacity combined with the use of advanced video and audio codes will offer consumers an unprecedented HD experience.

Blu-ray is a new optical disc standard based on the use of a blue laser rather than the red laser of today's DVD players. The standard, developed collaboratively by Hitachi, LG, Matsushita (Panasonic), Pioneer, Philips, Samsung, Sharp, Sony, and Thomson, threatens to make current DVD players obsolete. It is not clear whether new Blu-ray players might include both kinds of lasers in order to be able to read current CD and DVD formats. The new standard, developed jointly in order to avoid competing standards, is also being touted as the replacement for writable DVDs. The blue laser has a 405 nanometer (nm) wavelength that can focus more tightly than the red lasers used for writable DVD and as a consequence, write much more data in the same 12 centimeter space. Like the rewritable DVD formats, Blu-ray uses phase change technology to enable repeated writing to the disc.

The first Blu-ray Disc prototypes were unveiled in October 2000, and the first prototype player was released in April 2003 in Japan. Afterwards, it continued to be developed until its official release in June 2006.

The name Blu-ray Disc refers to the blue laser used to read the disc, which allows information to be stored at a greater density than is possible with the longer-wavelength red laser used for DVDs. The following formats are part of the Blu-ray Disc specification:

- BD-ROM - read-only format for distribution of HD movies, games, software, etc.
- BD-R - recordable format for HD video recording and PC data storage.
- BD-RE - rewritable format for HD video recording and PC data storage.

According to the Blu-ray Disc specification, 1x speed is defined as 36Mbps. However, as BD-ROM movies will require a 54Mbps data transfer rate the minimum speed we're expecting to see is 2x (72Mbps). Blu-ray also has the potential for much higher speeds, as a result of the larger numerical aperture (NA) adopted by Blu-ray Disc. The large NA value effectively means that Blu-ray will require less recording power and lower disc rotation speed than DVD and HD-DVD to achieve the same data transfer rate. While the media itself limited the recording speed in the past, the only limiting factor for Blu-ray is the capacity of the hardware. If we assume a maximum disc rotation speed of 10,000 RPM, then 12x at the outer diameter should be possible (about 400Mbps). This is why the Blu-ray Disc Association (BDA) already has plans to raise the speed to 8x (288Mbps) or more in the future.

Blu-ray's storage capacity is enough to store a continuous backup copy of most people's hard drives on a single disc. The first products will have a 27 gigabyte (GB) single-sided capacity, 50 GB on dual-layer discs. Data streams at 36 megabytes per second (Mbps), fast enough for high quality video recording. Single-sided Blu-ray discs can store up to 13 hours of standard video data, compared to single-sided DVD's 133 minutes.

Blu-ray discs will not play on current CD and DVD players, because they lack the blue-violet laser required to read them. If the appropriate lasers are included, Blu-ray players will be able to play the other two formats. However, because it would be considerably more expensive, most manufacturers may not make their players backward compatible.

The Blu-ray Disc enables the recording, rewriting and play back of up to 27 gigabytes (GB) of data on a single sided single layer 12cm CD/DVD size disc using a 405nm blue-violet laser. By employing a short wavelength blue violet laser, the Blu-ray Disc successfully minimizes its beam spot size by making the numerical aperture (NA) on a field lens that converges the laser 0.85. In addition, by using a disc structure with a 0.1mm optical transmittance protection layer, the Blu-ray Disc diminishes aberration caused by disc tilt. This also allows for disc better readout and an increased recording density. The Blu-ray Disc's tracking pitch is reduced to 0.32um, almost half of that of a regular DVD, achieving up to 27 GB high-density recording on a single sided disc.

Because the Blu-ray Disc utilizes global standard "MPEG-2 Transport Stream" compression technology highly compatible with digital broadcasting for video recording, a wide range of content can be recorded. It is possible for the Blu-ray Disc to record digital high definition broadcasting while maintaining high quality and other data simultaneously with video data if they are received together. In addition, the adoption of a unique ID written on a Blu-ray Disc realizes high quality copyright protection functions.

The Blu-ray Disc is a technology platform that can store sound and video while maintaining high quality and also access the stored content in an easy-to-use way. This will be important in the coming broadband era as content distribution becomes increasingly diversified. The nine companies involved in the announcement will respectively develop products that take full advantage of Blu-ray Disc's large capacity and high-speed data transfer rate. They are also aiming to further enhance the appeal of the new format through developing a larger capacity, such as over 30GB on a single sided single layer disc and over 50GB on a single sided double

layer disc. Adoption of the Blu-ray Disc in a variety of applications including PC data storage and high definition video software is being considered. Blu-ray also promises some added security, making ways for copyright protections.

Blu-ray discs can have a unique ID written on them to have copyright protection inside the recorded streams. Blu-ray disc takes the DVD technology one step further, just by using a laser with a nice color.

GOOGLE MAY BE GOING AFTER APPLE WITH MUSIC DEVICE

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Google has developed a prototype of a device designed to stream music via a home's Wi-Fi network, though it could expand the product's capacity in the future. Citing unnamed sources, the New York Times reported that the device is set to be sold to consumers as a branded product.

The move could be a direct salvo at Apple. In November, Google launched a challenge to Apple's iTunes service when it opened an online music store called Google Music, where users may buy music and upload and store up to 20,000 songs for free.

Google could be looking to get a piece of the lucrative online music market, which Apple dominates with its iTunes store and its array of iPod devices. If the streaming music device becomes a reality, Google would have the ability to let users buy and store music, and it could sell them the devices they can stream it on.

Over the past years, Google has made its designs on consumers' living

rooms clear with a lot of talk about Google TV. But then talk turned to a streaming device when the company filed an application with the Federal Communications Commission. In the application, Google refers to a new "entertainment device" and said it planned to test the product for six months, from Jan. 17 to July 17. Users will connect their device to home Wi-Fi networks and use Bluetooth to connect to other home electronics equipment, the document states.

The company also noted that Google employees will be testing the device in company facilities in Mountain View, California, Los Angeles, Cambridge and New York City. Dan Olds, an analyst with Gabriel Consulting Group, said it won't be easy for Google to establish itself in the music and home entertainment markets. "There are already devices that will stream music via Wi-Fi and Bluetooth throughout your home, although they haven't seen a lot of adoption yet," Olds said.

"The market right now, in terms of hardware revenue, is pretty damned small potatoes for a company the size of Google. Google care? This new device could possibly be a project that they've inherited from the Motorola purchase." With Google reportedly testing this new hardware, it wouldn't be a bad idea for the company to open new testing labs.

Google is working on a multifaceted \$120-million construction project at its Mountain View corporate headquarters, and the project is to include work on new or "previously secret hardware testing. Larry Page, Google's CEO said, "Just as we continuously work to improve our products, it's important to iterate on our work space to keep us productive".

BRAIN GATE

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INTRODUCTION:

Brain gate is an electrode chip which can be implemented in the brain. When it is implemented in brain, the electrical signal exchanged by neurons within the brain. Those signals are sent to the brain and it executes body movement. All the signaling process is handled by special software.

The signal sends to the computer and then the computer is controlled by patient. Whenever a man forgotten about his past due to certain accidental matter or he had lost his part of his body, at that time this electrode chip can be implemented on his brain and active the man as well.

OBJECTIVE OF BRAIN GATE:

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

TYPES OF BRAIN COMPUTER INTERFACE(BCI):

1. **One way BCI:**
Computers either accept commands from the brain or send signals to it
2. **Two ways BCI:**
Allow brains and external devices to exchange information in both directions.

HISTORY OF BRAIN GATE...

Research on BCIs has been going on for more than 30 years, but from the mid-1990s there has been a dramatic increase in working experimental implants. Brain Gate was developed by the bio-tech company Cyberkinetics in 2003 in conjunction with the Department of Neuroscience at Brown University.

BRAIN GATE RESEARCH IN ANIMALS:

At first, rats were implanted with BCI. Signals recorded from the cerebral cortex of ratto operate BCI to carry out the movement. Researchers at the University of Pittsburgh had demonstrated on a monkey that can feed itself with a robotic arm simply by using signals from its brain.

It Worked!

Using only its mind the monkey was able to control a cursor on a computer monitor via Brain Gate. Since there were no complications in trials with monkeys.

Next Step: Humans!

In December 7, 2004, brain-computer interface had been clinically tested on a human by an American company Cyberkinetics. The Nature report describes the first participant in these trials, a 25-year-old man who had sustained a spinal cord injury leading to paralysis in all four limbs three years prior to the study. Over a period of nine months, he took part in 57 sessions during which the implanted Brain Gate sensor recorded activity in his motor cortex while he imagined moving his Paralyzed limbs and then used that imagined motion for several computer-based tasks such as, moving a computer cursor to open simulated e-mail, draw circular shapes and play simple video games.

PRINCIPLE:

The system consists of a sensor that is implanted on the motor cortex of the brain (Pedestal) and a Brain Gate Neural Interface Device that analyzes the brain signal. The principle is that the intact brain functions, brain signals are generated even though they are not sent to the arms, hands and legs. The signals are interpreted and translated into cursor movements, offering the user an alternate "BRAIN GATE PATHWAY" "to control a computer with thought, just as individuals who have the ability to move their hands.

HOW IT IMPLEMENTS?

The Brain Gate sensor (Red arrow), resting on a US penny, connected by a 13-cm ribbon cable to the Pedestal (Black arrow), which is secured to the skull. Neural signals are recorded while the pedestal is connected to the remainder of the Brain Gate system. This is one of electrode implemented in brain. Individual electrodes are 1-mm long and spaced 400m apart, in a 10x10 grid. The electrical signal exchanged by neurons within brain. Those signals are sent when the brain executes a body movement.

SOFTWARE BEHIND BRAIN GATE...

The computers translate brain activity and create the communication output using custom decoding software.

System uses adaptive algorithms and pattern-matching techniques to facilitate communication. The algorithms are written in C, JAVA and MATLAB.

APPLICATIONS:

In Foxborough, a 25-year-old quadriplegic sits in a wheelchair with wires coming out of a bottle-cap-size connector stuck in his skull. The wires run from 100 tiny sensors implanted in

his brain and out to computer. Using just his thoughts, he was playing the computer game Pong.

- ❖ In classification of EEG signal.
- ❖ In multimedia communication.
- ❖ In evaluation of spike detection algorithms.
- ❖ Actuated control of mobile robot by human EEG.
- ❖ As a brain controlled switch for asynchronous control.
- ❖ In evaluating the machine learning algorithms.

CONCLUSION:

- According to the Cyber kinetics' website, two patients have been implanted with the Brain Gate system.
- Using the system, called Brain Gate, the patient can read e-mail, play videogames, turn lights on or off and change channels or adjust the volume of television set.
- In early test sessions, the patient was able to control the TV and carry on a conversation and move his head at the same time.
- The results are spectacular and almost unbelievable.
- Brain Gate can help paralyzed people move by controlling their own electric wheelchairs, communicate by using e-mail and Internet-based phone systems, and be independent by controlling items such as televisions and thermostats.

**The Empires of the Future are
Empires of the mind.**

-Winston Churchill

WAP-Wireless Application Protocol

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INTRODUCTION:

WAP is a hot topic that has been widely hyped in the mobile industry and outside of it. It has become imperative for all Information Technology companies in Nordic countries and beyond to have a WAP division. Many advertising agencies and "dotcoms" have announced WAP services. From the user's perspective, using WAP is much like surfing the net on a personal computer; the mobile device is fitted with a small, or not so small, display which can be used just like a desktop browser. Information sources can be selected which are then downloaded and their content is displayed. Hyper Text links and buttons can then be pressed to move around from page to page in a very simple way. In this respect, there is very little difference between WAP browsing and desktop surfing, but, behind the scenes there are considerable differences because of the medium through which the information must travel, over radio waves rather than along hard-wired or telephone lines.

IMPORTANCE OF WAP

- It provides a standardized way of linking the Internet to mobile phones, thereby linking two of the hottest industries anywhere.
- Its founder members include the major wireless vendors of Nokia, Ericsson and Motorola, plus a newcomer Phone.com.

Compared to the wired networks there are many constraints in this wireless world.

- * Less band width.
- * Less connection stability.
- * Less predictable availability.

In order to meet the requirements for mobile operations the solutions must be:

- Inter operable-terminals from different manufacturers are able to communicate with the services in the mobile networks.
- Scalable-mobile network operators are able to scale services to customer needs.
- Efficient-provides quality of services suited to the behavior and characteristics of the mobile world.
- Reliable-provides a consistent and predictable platform for deploying services.
- Secure-enables services to be extended over potentially unprotected mobile networks while still preserving the integrity of user data, protects the devices and services from security problems such as denial of service.

WAP also has its detractors and controversies:

- It is very difficult to configure WAP phones for new WAP services, with 20 or so different parameters needing to be entered to gain access to a WAP service.
- Compared with the installed base of Short Message Service (SMS) compliant phones, the relative number of handsets supporting WAP is tiny. WAP is a protocol that runs on top of an underlying bearer. None of the existing GSM bearers for WAP- the Short Message Service (SMS), Unstructured Supplementary Services Data (USSD) and Circuit Switched Data (CSD) are optimized for WAP.

AN ATM WITH AN EYE

-By Anusha.G
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ABSTRACT:

There is an urgent need for improving security in banking region. With the advent of ATM though banking became a lot easier it even became a lot vulnerable. The chances of misuse of this much hyped 'insecure' baby product (ATM) are manifold due to the exponential growth of 'intelligent' criminals day by day. ATM systems today use no more than an access card and PIN for identity verification. This situation is unfortunate since tremendous progress has been made in biometric identification techniques, including finger printing, retina scanning, and facial recognition. This paper proposes the development of a system that integrates facial recognition technology into the identity verification process used in ATMs. The development of such a system would serve to protect consumers and financial institutions alike from fraud and other breaches of security.

INTRODUCTION:

The rise of technology in India has brought into force many types of equipment that aim at more customer satisfaction. ATM is one such machine which made money transactions easy for customers to bank. The other side of this improvement is the enhancement of the culprit's probability to get his 'unauthentic' share. Traditionally, security is handled by requiring the combination of a physical access card and a PIN or other password in order to access a customer's account. This model invites fraudulent attempts through stolen cards, badly-chosen or automatically assigned PINs,

cards with little or no encryption schemes, employees with access to non-encrypted customer account information and other points of failure. Our paper proposes an automatic teller machine security model that would combine a physical access card, a PIN, and electronic facial recognition. By forcing the ATM to match a live image of a customer's face with an image stored in a bank database that is associated with the account number, the damage to be caused by stolen cards and PINs is effectively neutralized. Only when the PIN matches the account and the live image and stored image match would a user be considered fully verified. Further, a positive visual match would cause the live image to be stored in the database so that future transactions would have a broader base from which to compare if the original account image fails to provide a match – thereby decreasing false negatives.

When a match is made with the PIN but not the images, the bank could limit transactions in a manner agreed upon by the customer when the account was opened, and could store the image of the user for later examination by bank officials. In regards to bank employees gaining access to customer PINs for use in fraudulent transactions, this system would likewise reduce that threat to exposure to the low limit imposed by the bank and agreed to by the customer on visually unverifiable transactions. In the case of credit card use at ATMs, such a verification system would not currently be feasible without creating an overhaul for the entire credit card issuing industry, but it is possible that positive results (read: significant fraud reduction) achieved by this system might motivate such an overhaul. The last consideration is that consumers may be wary of the privacy concerns raised by maintaining images of customers in a bank database, encrypted or otherwise, due to possible hacking attempts or employee misuse. However, one could argue that having the image compromised by a third party would have far less dire consequences than the account

information itself. Furthermore, since nearly all ATMs videotape customers engaging in transactions, it is no broad leap to realize that banks already build an archive of their customer images, even if they are not necessarily grouped with account information.

OUR METHODOLOGY:

The first and most important step of this project will be to locate a powerful open-source facial recognition program that uses local feature analysis and that is targeted at facial verification. This program should be compilable on multiple systems, including Linux and Windows variants, and should be customizable to the extent of allowing for variations in processing power of the machines onto which it would be deployed. We will then need to familiarize ourselves with the internal workings of the program so that we can learn its strengths and limitations. Simple testing of this program will also need to occur so that we could Pass all input data to the server code, which will handle the calls to the facial recognition software, further reducing the memory footprint and processor load required on the client end. In this sense, the thin client architecture of many ATMs will be emulated. We will then investigate the process of using the black box program to control a USB camera attached to the computer to avoid the use of the folder of "live" images. Lastly, it may be possible to add some sort of knowing that this will increase the processor load, but better evaluate its effectiveness. Several sample images will be taken of several individuals to be used as test cases – one each for "account" images, and several each for "live" images, each of which would vary pose, lighting conditions, and expressions.

Once a final program is chosen, we will develop a simple ATM black box program. This program will server as the theoretical ATM with which the facial

recognition software will interact. It will take in a name and password, and then look in a folder for an image that is associated with that name. It will then take in an image from a separate folder of "live" images and use the facial recognition program to generate a match level between the two. Finally it will use the match level to decide whether or not to allow "access", at which point it will terminate.

All of this will be necessary, of course, because we will not have access to an actual ATM or its software. Both pieces of software will be compiled and run on a Windows XP and a Linux system. Once they are both functioning properly, they will be tweaked as much as possible to increase performance (decreasing the time spent matching) and to decrease memory footprint. Following that, the black boxes will be broken into two components – a server and a client – to be used in a two-machine network. The client code will act as a user interface, allowing us to gauge the time it takes to process.

CONCLUSION:

We thus develop an ATM model that is more reliable in providing security by using facial recognition software. By keeping the time elapsed in the verification process to a negligible amount we even try to maintain the efficiency of this ATM system to a greater degree.

**One machine can do the work
of fifty ordinary men. No
machine can do the work of
one extraordinary man.**

-Elbert Hubbard

WORLD OF ROBOTS

**-Asha.I
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INTRODUCTION:

The brave new world of humanoid robots that not only take out the rubbish and clean the carpet but also look after children, care for the elderly and travel into space is now almost upon us. The robots will combine the latest developments in control software, sensors and actuators — the mechanisms that facilitate movement — with advances in "walking" technology and sound synthesis. These technological advances will lead to improvements and innovations in the application of robotics to industry, medicine, the military, space exploration, underwater exploration, and personal service. **The research projects listed below are only a few of many robotic research projects worldwide.**

ARTIFICIAL PASSENGER (AP):

The main part of the Artificial Passenger is the Disruptive Speech Recognition. An artificial passenger (AP) is a device that would be used in a motor vehicle to make sure that the driver stays awake. IBM has developed a prototype that holds a conversation with a driver, telling jokes and asking questions intended to determine whether the driver can respond alertly enough. Assuming the IBM approach, an artificial passenger would use a microphone for the driver and a speech generator and the vehicle's audio speakers to converse with the driver. The conversation would be based on a personalized profile of the driver. A camera could be used to evaluate the driver's "facial state" and a voice analyzer to evaluate whether the driver was

becoming drowsy. If a driver seemed to display too much fatigue, the artificial passenger might be programmed to open all the windows, sound a buzzer, increase background music volume, or even spray the driver with ice water. The computer will step in by changing the radio, trying to play games with the driver, or by opening window to wake the driver up

ROBOT ASSISTED THERAPY:

Hermano Igo Krebs, a principal research scientist in MIT's Department of Mechanical Engineering, developed the MIT-Manus robot which is used for medical therapy.

Stroke patients who received robot-assisted therapy were able to regain some ability to use their arms, even if the stroke had occurred years earlier. The study, conducted at four Veterans Affairs (VA) hospitals, found that patients who used the MIT robotic devices for 12 weeks experienced significant gain in arm function and another group of patients who received high-intensity therapy from a therapist, which matched the number and intensity of the robot movements, showed similar improvements. In The MIT-Manus system, The patient grasps a robotic joystick that guides the patient's arm, wrist or hand as he or she tries to make specific movements, helping the brain form new connections that will eventually help the patient relearn to move the limb on his or her own.

If the person starts moving in the wrong direction or does not move, the robotic arm gently nudges his or her arm in the right direction.

Krebs and his collaborators are also studying whether the MIT-Manus could help patients with cerebral palsy, multiple sclerosis and spinal cord injury.

ARCPACK:

The robotic welding package, ArcPack, is designed to offer high quality welds with minimum downtime and provides manufacturers with intelligent controls to manage welding applications in metal fabrication; from bicycles to sporting goods, and from automotive parts to agricultural equipment.

The new intelligent welding power source (RPC) provides enhanced control of welding applications, allowing manufacturers to specify process parameters such as voltage, current and gas flow; all managed via the ABB FlexPendant interface. Manufacturers can simply select the thickness of the plate to be welded and let the system **automatically** choose the right welding parameters.

ROBONAUT:

The Robonaut, a project run by NASA, is setting new standards in dexterity designed to mimic the work of astronauts. The aim is to build a robot with the dexterity of a six-year-old child within the next twenty years.

COG-A HUMANOID ROBOT:

Two of the many research projects of the MIT Artificial Intelligence department include an artificial humanoid called Cog, and his baby brother, Kismet.

Once finished, Cog is 2 meters tall, complete with arms, hands and all three senses--including touch-sensitive skin.

Cog will have everything except legs, whereas Kismet has only a 3.6-kilogram head that can display a wide variety of emotions. To do this Kismet has been given movable facial features that can express basic emotional states that resemble those of a human infant. Kismet can thus let its "parents" know whether it needs more or less stimulation--an interactive process that the researchers hope will produce an intelligent robot that has some basic **"understanding" of the world.**

ROBOKONEKO:

An example of a hardware brain is Robokoneko the robocat from Genobyte. It has a brain from a machine, the CAM-machine. In mimicking human intelligence, the goal is to make sure robots get a brain and reasoning. An important pioneer in the field of AI is Marvin Minsky.

Most robots at present have software brains, meaning a computer with a program running with a computer. The programs cannot change themselves. In other words, learning is not possible while using a software brain. A brain made out of hardware, or a number of processors will be closer to reality. The brain will consist of several chips that act both independently and as a group. The general belief is that the real brain works as a neural network of lots of independent processing units. Every chip in itself has a small program.

It will process information but also pass it on to other chips. The program changes on a continuous basis. The network of chips is quick and will adapt, so in contrast with the software brain, it will learn better and faster.

THE ROBOCUP:

Robocup competition is organized a few times a year. Robocup is a competition of Robot soccer teams. Movement, pattern recognition, where's the ball, where's the goal, who is in my team, all this and more is needed to score a goal. A simple game becomes a challenge for a robot team. Besides moving and finding the ball and team members the robots needs to define a strategy and take lots of decisions in a short time frame. Robocup has produced much advancement in both robotic effectors and sensors. Who could have imagined that soccer would contribute to robot research where robots eventually will be smart and capable of cooperation with other to reach a goal?

ADVANCED ENCODING TECHNIQUES WITH WINDOWS MEDIA 9 SERIES

**- A.Arthika Suji
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INTRODUCTION:

Working with digital media is an art, not a science, so be prepared to practice, test, and tweak to achieve the highest quality.

This section outlines topics to keep in mind as you prepare to capture your audio and video content.

CAPTURING TO AN AVI FILE:

For the best quality, avoid combining the capturing and encoding processes. advantages: Removes any issues related to the processor falling Enables the use of editing programs to perform steps such as trimming the start

and end times of the file. **Comparing Audio and Video Sources.** For the best quality, capture SDI video and digital audio. It is important to start with the best-quality source. This section lists possible sources, in the order from best to worst

Serial digital interface (SDI) video:

Used for digital video cameras and camcorders. Because the content stays in a digital format throughout the capturing and encoding processes, this results in the least amount of data translations, and results in the best-quality video.

Component video:

Used when sourcing from DVDs. With this source, the video signals are separated, for example, into the RGB or Y/R-y/B-y format. Results in good-quality video.

S-Video:

Used for S-VHS, DVD, or Hi-8 camcorders. The video signal is divided into luminance and chrominance. Results in good-quality video.

DV video:

Used with DV devices, such as Mini DV digital camcorders connected through an IEEE 1394 video port. Results in good-quality video.

Composite video:

Used for analog cameras, camcorders, cable TV, and VCRs. Composite video should only be used as a source as a last resort. With composite video, luminance and chrominance components are mixed, which makes it difficult to get good-quality video.

Audio:

If possible, capture digital audio. If you must capture audio from an analog source, balanced audio connections are better than RCA.

SETTING PROPER AUDIO AND VIDEO LEVELS:

Set your video and audio levels properly before you start capturing. Adjust your video monitor using SMPTE color bars. Adjust your video capture card levels. Check and normalize all audio levels in your system.

OPTIMIZING YOUR COMPUTER:

Defragment your hard disk. Turn off network and file sharing. Close all other programs, especially if a program accesses the hard disk. Monitor system resources, making sure that the computer is sufficiently powerful to keep pace with the data feed.

CAPTURING TO OPTIMAL PIXEL FORMATS:

Capture to a YUY2 pixel format to avoid color conversions during encoding. It is recommended that you capture to a YUY2 (4:2:2) pixel format, which enables you to avoid pixel format conversions during encoding. The Windows Media Video 9 Series codec is primarily a 4:2:0 pixel format, except that if you choose to maintain the interlacing in your computer.

CAPTURING OPTIMAL RESOLUTIONS:

Capture video at either a resolution of 320×480 or 640×480. If you capture 320×240 to an AVI file, the capture card throws away one of the fields, which effectively deinterlaces the video. If your target audience plays the video at

320×240, this usually produces acceptable results.

ENCODING TECHNIQUES:

Optimizing Video:

The option you choose depends on the source of your video, as follows: **Film-originated content:** Standard motion picture film is shot at 24 frames per second (fps). Before it can be broadcast on television it must be converted. **Video-originated content:** It is recommended that you either deinterlace or maintain the interlacing in the source video, depending on the playback device you are targeting. **Mixed film and video content.** If the source video is 640×480 and 30 fps, deinterlacing is recommended.

SELECTING AN ENCODING MODE:

Using Windows Media Encoder, you can encode audio and video content at either a constant bit rate (CBR) or a variable bit rate (VBR). The mode to use depends both on your source and on the scenario you are targeting:

One-pass CBR. Use when capturing live content, when broadcasting, or when you are targeting older players or devices.

Two-pass CBR. Use when capturing from files, when encoding to a file, and when you want to set up an on-demand streaming scenario.

Quality-based VBR (one-pass). Use when you want to ensure a constant quality level.

Bit rate-based VBR (two-pass). Use when you want to achieve the best-quality level while staying within a predictable average bandwidth.

COMPRESSION SETTINGS:

Key frame. A key frame is a point in encoded video where the data for the entire frame is transmitted, rather than just the changes.

Buffer size. The bit rate and quality of content fluctuate within the confines of the buffer size. A larger buffer size enables more bits within the buffer range to be allocated to complex scenes.

Video smoothness. Video smoothness determines the tradeoff between sharp images and smooth motion.

iPHONE TURNED INTO spiPHONE

A. Antush Agnes
Pre-Final IT

Smartphone Senses Nearby Keyboard Vibrations and Deciphers Sentences:

It's a pattern that no doubt repeats itself daily in hundreds of millions of officers around the world: People sit down, turn on their computers, set their mobile phones on their desks and begin to work. What if a hacker could use that phone to track what the person was typing on the keyboard just inches away?.

A research team at Georgia Tech has discovered how to do exactly that, using a smartphone accelerometer -- the internal device that detects when and how the phone is tilted -- to sense keyboard vibrations and decipher complete sentences with up to 80 percent accuracy. The procedure is not easy, they say, but is definitely possible with the latest generations of smartphones.

A typical smartphone's microphone samples vibration roughly 44,000 times

per second, while even newer phones' accelerometers sample just 100 times per second -- two full orders of magnitude less often. Plus, manufacturers have installed security around a phone's microphone; the phone's operating system is programmed to ask users whether to give new applications access to most built-in sensors, including the microphone. Accelerometers typically are not protected in this way.

The technique works through probability and by detecting pairs of keystrokes, rather than individual keys. It models "keyboard events" in pairs, and then determines whether the pair of keys pressed is on the left versus right side of the keyboard, and whether they are close together or far apart. After the system has determined these characteristics for each pair of keys depressed, it compares the results against a preloaded dictionary, each word of which has been broken down along similar measurements (i.e., are the letters left/right, near/far on a standard QWERTY keyboard). Finally, the technique only works reliably on words of three or more letters. For example, take the word "canoe," which when typed breaks down into four keystroke pairs: "C-A, A-N, N-O and O-E." Those pairs then translate into the detection system's code as follows: Left-Left-Near, Left-Right-Far, Right-Right-Far and Right-Left-Far, or LLN-LRF-RRF-RLF. This code is then compared to the preloaded dictionary and yields "canoe" as the statistically probable typed word. Working with dictionaries comprising about 58,000 words, the system reached word-recovery rates as high as 80 percent.

"The way we see this attack working is that, the phone's owner, would request or be asked to download an innocuous-looking application, which doesn't ask you for the use of any suspicious phone sensors. Then the keyboard-detection malware is turned on, and the next time you place your phone

next to the keyboard and start typing, it starts listening."The likelihood of someone falling victim to an attack like this right now is pretty low. This was really hard to do. But could people do it if they really wanted to? "We think yes."

ARTIFICIAL REALITY

-Paul Divakar. R
Final IT

INTRODUCTION:

Aritifical Reality has drawn much attention in the last few years. Extensive media coverage causes this in this interest to grow rapidly. In the last years the stormy development of microprocessor technology brings faster and faster computer to the market. This machines are equipped with better graphics board and they are cheap It becomes possible for an average user, to move into the world of computer graphics.

They want to interact with it, instead of just watching those graphics pictures. This interaction technology which becomes popular and fashionable in current decade is called Aritifical Reality. Aritifical Reality are used in computer community interchangeably. Aritifical World is another term which refers the same concept. There are two important terms on behalf of Aritifical Reality.

- ✓ Telepresence
- ✓ Cyberspace.

TELEPRESENCE:

It is a specific kind of Aritifical Reality simulates a real but remote environment

CYBERSPACE:

“A consensual hallucination experienced daily by billions of legitimate operators, a graphics representation of data abstracted from the bank of every computer in Human system”

LEVELS OF IMMERSION IN AR SYSTEM:

In AR system a computer generates sensor impression that are delivered into human sense. The type and quality of the impression determine the level of immersion and the feeling of presence in AR. The Artificial World systems can be grouped according to the level of immersion they offer to the user.

DESKTOP AR:

It is called has WOW(Window On World)system. This is the simplest type of Artificial World applications. It uses conventional monitor to display the image of the world, No other sensory output is supported.

IMMERSIVE SYSTEM:

They let the user totally immerse in computer generated world with the help of HMD that supports a stereoscopic view of the scene accordingly to the users position and orientation. These systems may be enhanced by audio and sensor interfaces.

APPLICATIONS:

Artificial Reality provides an easy and intuitive way of human-computer interaction. The user can watch and manipulate the simulated environment. Artificial World system promises a more

intuitive way of interaction. The first attempts to apply Artificial Reality as a visualization tool were architectural walkthrough system.

MODELING:

In modeling Artificial Reality offers the possibility of watching in real-time and real-space what the modeled object look like. They can change colors, textures etc...

CONCLUSION:

The main advantage of this technology is that the user can see and even feel the shaped surface under their finger tips. The great applications are possible in the industries.

THE COMPUTER PROGRAM THAT DRAWS REALISTIC EXOPLANETS

-Kiran Dani Bush.P
Pre-Final IT

When astronomers discover a planet orbiting another star, they can easily deduce its size, temperature, and chemical makeup. But even the most powerful telescope cannot relate what the planet truly looks like. For that, scientists have historically relied on artistic interpretations.

Now physicist Abel Mendez of the University of Puerto Rico at Arecibo has developed a more accurate resource: software that transforms a constellation of data points into a realistic planetary portrait.

The program, called the Scientific Exoplanet Renderer, or SER, takes in observational information about the planet and its parent star, crunches the numbers in various physical models, and spits out an approximate likeness. It can visualize many breeds of planets and atmospheres, but it is intended for those that resemble Earth, such as damp, potentially cloud-covered HD 85512b.

Mendez, who will make the program available to scientists, hopes the detailed visualizations will help them interpret the mind-numbing streams of numbers typically used to evaluate new planetary discoveries. SER will also spare the general public from the imaginative but often inaccurate artistic renderings that entertain more than inform.

Here are some planets models from SER, all courtesy of the Planetary Habitability Laboratory at the University of Puerto Rico at Arecibo:

- A Mars-sized icy planet.
- A Jupiter-sized hot planet.
- A Mars-size carbon planet with a thin atmosphere.

Gliese 581d, a warm planet significantly larger than Earth.

Nothing can stop the man with the right mental attitude from achieving his goal; nothing on earth can help the man with the wrong mental attitude.

-Thomas Jefferson

STUDENT TRACKER USING PERVASIVE COMPUTING

**-Muzaffer Muneer.K
Pre-Final IT**

Pervasive computing is otherwise called as ubiquitous computing. The word ubiquitous mean omnipresent, i.e. Existing or being everywhere, or in all places, at the same time. This paper deals with application of pervasive computing in the following field:

1. Health Care
2. Education (Student Tracker).

pervasive computing is applied in the field of health care useful to save a valuable human life. Managing an Educational Institute is a tedious process nowadays. Pervasive computing can be used to solve this tedious process.

PRE REQUISTIE:

Before Knowing what is pervasive computing we need to know about certain following terms such as

- Microprocessors
- Embedded System
- Wireless technology

1. Microprocessors:

Microprocessors are silicon processing chips. It is a multipurpose, programmable, clock-driven, register-based electronic device that accepts binary data as input, processes it according to instructions stored in its memory, and provides results as output.

2. Embedded System:

Embedded systems are controlled by one or more main processing cores that are

typically either microcontrollers or digital signal processors. The program instructions written for embedded systems are referred to as firmware, and are stored in read-only memory or Flash memory chips.

3. Wireless Technology:

Wireless is a term used to describe telecommunications in which electromagnetic waves carry the signal over communication path. Wireless communications can be via: Radio frequency or microwaves, example long-range line-of-sight via highly directional antennas, or short-range communication, Infrared (IR) short-range communication, for example from consumer IR devices such as remote controls or via Infrared Data Association (IrDA).

PERVASIVE COMPUTING:

The term pervasive computing is defined as the process of embedding microprocessors over an object and accessing them using the wireless technology. It is the result of computer technology advancing at exponential speeds. Pervasive computing goes beyond the realm of personal computers. The goal of pervasive computing, which combines current network technologies with wireless computing, voice recognition, Internet capability and artificial intelligence, is to create an environment where the connectivity of devices is embedded in such a way that the connectivity is unobtrusive and always available.

WHY NOT MOBILE TRACKER:

1. Useful for Stake Holder:

This student tracker will be more useful to the stake holders, parents, who visit the campus to see the student.

2. Mobile Banned Campus:

It will be more useful in the mobile banned campus where a student can be tracked easily.

PROBLEMS IN THE PROJECT:

In this mobile tracker project we will face lots of problem, but the following ones are the very important problems.

1. Economy Problem:

Economy will be a very big issue of this project. Embedding of Microprocessors, establishing the centre will be very costly.

2. ID Card:

ID card damage, microprocessors damage is also very big problem, and if the ID card is not worn by the student, the tracker will be a failure one.

3. Network Connection:

For this project we need to have fast network connection, which also a great problem which we should overcome.

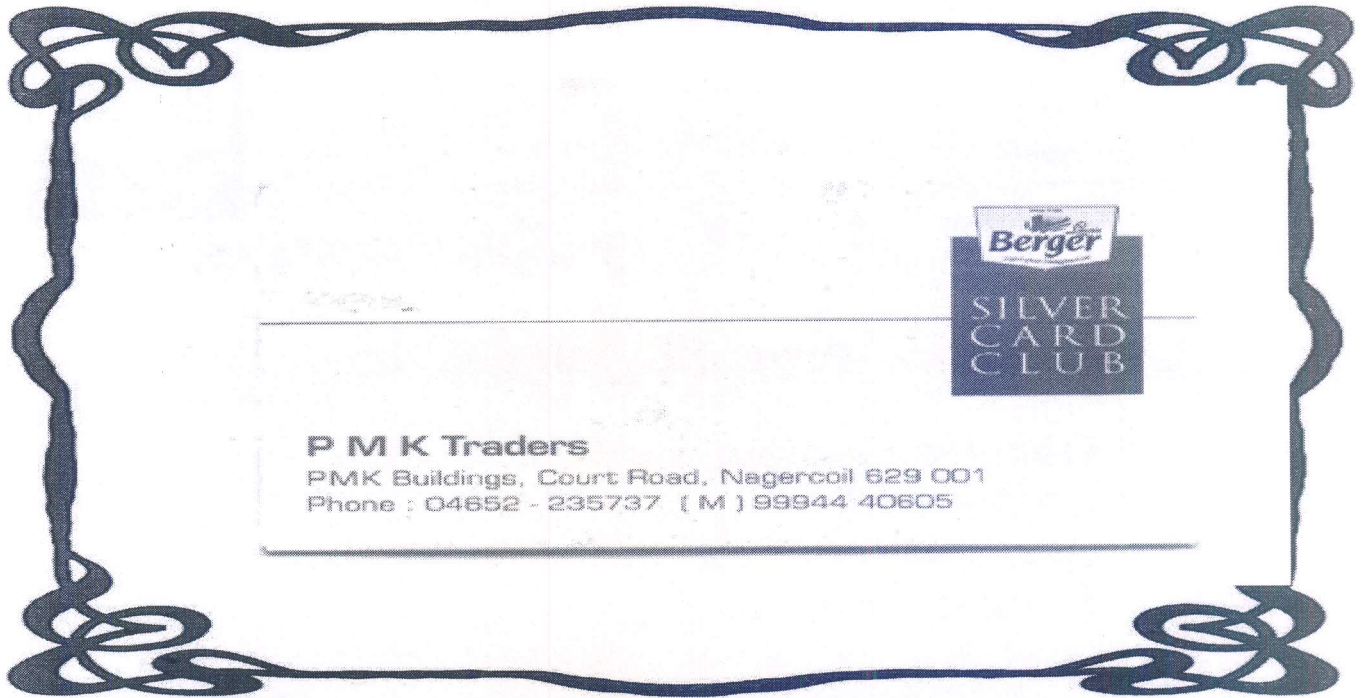
4. Microprocessor Radiation:

Microprocessors which are embedded on the ID card will emit radiations which will harm the Students.

CONCLUSION:

Pervasive computing is the emerging trend in the field of science and technology and also the field in which research can be done in a large scale.





P M K Traders

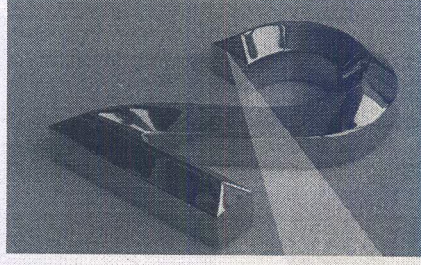
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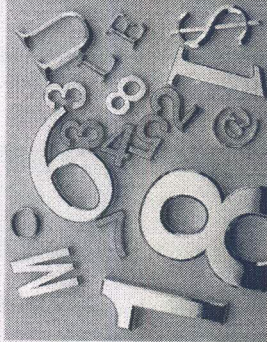
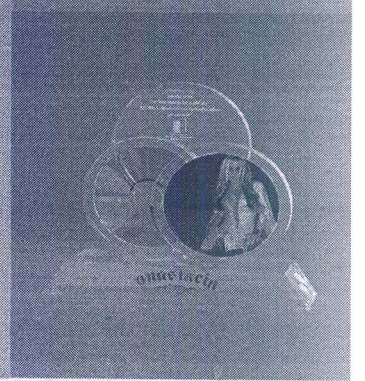
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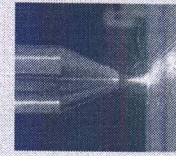
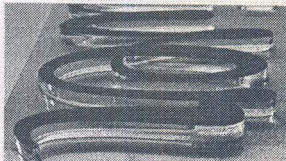
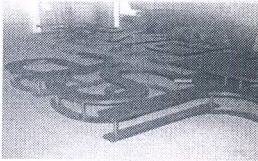
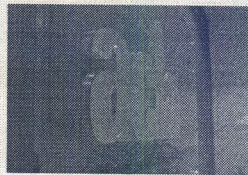
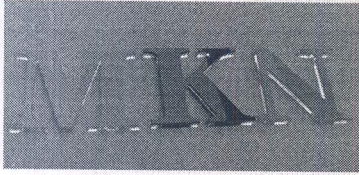


வரவேற்பு விளம்பர போர்டுகள் தான் உங்களது வாடிக்கையாளர்களை கவரும், உங்கள் நிறுவனத்தின் முக பிம்பம். அதாவது வரவேற்பு விளம்பரங்கள்தான் உங்கள் நிறுவனத்தின் முதல் திலகக்குறி. ஆகவே அவற்றை வாடிக்கையாளர்களின் கவனம் ஈர்க்கும் வகையில் வடிவமைப்பதிலும், அவை செய்யப்படும் விதத்திலும் அதிக கவனம் தேவைப்படுகிறது.

பிளாஸ்டிக் பொருட்களிலான எம்ப்ளம் மற்றும் எழுத்துக்கள் மிகுந்த கவன ஈர்ப்பை பெறுகின்றன. எங்களின் அதிநவீன லேசர் கட்டிங் இயந்திரத்தின் உதவியால் பிளாஸ்டிக் எழுத்துக்கள் மிக துல்லியமாகவும் பளபளப்புடனும் செய்ய முடிகிறது. அனைத்து வண்ணங்களிலும் கிடைக்கிறது. ஸ்டீல், மற்றும் பித்தளை கலவையுடனான எழுத்துக்கள் உங்கள் விளம்பரங்களை இன்னும் மிளிர்ச்சிக்கின்றன.



தரம்வாய்ந்த பித்தளை, வெங்கலம் மற்றும் ஸ்டீல் கலவைகள் பூசப்பட்ட நீடித்து உழைக்கக்கூடிய எழுத்துக்கள் கலையுந்துடன்கூடிய உயர்நிலை விளம்பரத்தை கொடுக்கின்றன. உங்கள் வாசனங்களின் நம்பர் பிளேட்களுக்கு அழகூட்டுகிறது.



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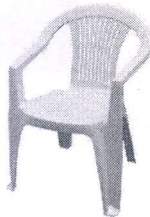
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