UNIT-1

INTRODUCTION

* MULTIMEDIA ▸

Multimedia means that computer information can be represented through audio or video. In addition to text, image, graphics and animation.

Multimedia has popular powerful communication technology in the ever changing world of computer.

Multimedia means communication of different types of media such as text, graphics, natural image.

According to American heritage dictionary, a multimedia system categorised by computer control, integrated production, manipulation, presentation; storage and communication of independent information which is encoded at least to a continious and time independent medium.

* Component of Multimedia ▸

Text
Graphics
Audio
Video
Animation

(i) Text :

The screen display word that is text. It is the base of most application. The use of different type and style of font, colors are imphasis the specific point.

(ii) Graphics :

It include word-art, computer generated photographic and capture video frames.

(iii) Audio :

This include speech audio effects, different types of background sound and music.

(iv) Video :

Everything that we see on the screen is called video sound, picture moving picture is called video.

(v) Animation :

It is a continious movement of a series of graphics, picture, images, that is called Animated picture.

* Types Of Multimedia :

(i) Linear Multimedia
(ii) Non-Linear Multimedia

(i) Linear Multimedia :

A multimedia project is said to linear if the user can site back and watch just like watching a movie.

(ii) Non-Linear Multimedia :

A multimedia project is said to be non-linear if the user are given navigational control and can wonder through the content of the project or multimedia. It is also called "inte multimedia.

* Application in Multimedia :

Business application for multimedia include presentation, training, marketing, advertisment, product demo, catelog, instant messanging and network communication.

With the help of multimedia technology using the communication technology for global work group as like video voice-mail,

audio-conferencing, cell-phone, personal digital assistant (PDA), Utilizing Bluetooth and Wi-fi communication technology.

* Multimedia in educational & training

Multimedia is used in educational & training sector by "Yale University" school of medicine, is provides physician with 3D case presentation and cardio-logist, radiologist and medical sector.

Multimedia is enjoying wide spread use in training program. Flight a learn to manage international terrorism and security through simulation.

Interactive television widely used among computer to join student from different location into a class with one teacher.

In on-line school, the student can enroll take admission all over the world.

* Multimedia in intertainment :→

Now a days mutimedia games are develop using special technology such as virtual reality to make the games just like experience of real-life.

It's use in the field of television, broad-casting and movie also as for eg:- Television replay slow motion, chart analysis.

(iii)* Multimedia in Public-place :→

Multimedia is widely used in hotel, Railway station, Shopping-Malls, Library with the help of stand lone terminal which providing information and help to customer and visitor.

Now a days multimedia are also found in the place of work ship live video attached with multimedia sound system and special effect lighting.

(iv)* *Virtual reality :→

It is an artificial environment created from the computer hardware and software presented to the user. such as, manner that it appears and feel like a real enviornment. To enter in a virtual world a user wear special glasses, ear-phone, goygles all of which receive their input from the

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computer system.

In virtual reality of geometric and point plotted in three dimensional (3-D) states.

* **Building-block of Multimedia :-** ▸

A type face is a family of graphic characte that usually include many type size and style. font is a collection of character of single size and style begining to particular type face family. critical font style are Bold face and Italic, underline and outline of character is additional attributes with the help of multimedia software. Type size are usually expressed in point one point is 0.0138 inch or about 1/72 of an inch.

* **Hypertext :-** ▸

With the help of user can easily jump from one web page to anoth by clicking the pointing device.

* **Web-pages :-** ▸

Collection and link of pages are called Home-page. Hypertext work like a bridge to connect from another page. Text file are usually store character by character and each character required 1-byte space in the memory. Text can be made using various text editing and processing tools such as M.S. word, Page-maker, etc were text file can be developed and Later imported into multimedia tools.

* **Graphics and Image :-** ▸

'Graphics' is described as the pictorial representation of data form by the premeptive object such as line, polygone, and circle, curve and arc. In graphics line can be presented by mathmatical equation, whose can be stored as a set of binary code. As for example,
CAD (computer Aided design) is a software
CAM (computer aided manufacturing)

* **Image :-** ▸

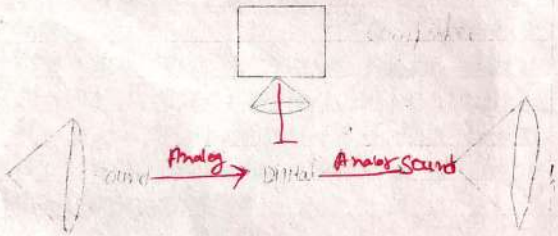
Image are the steal picture that are represented as Bitmap. Bitmap is a image consists of 2-Dimensional square □ which is called "Pixel" or "Dot" on the screen. The size and quality of image is depend upon the pixel density and number of color it use.

* Pixel :- ▶

Pixel is the smallest area on dot of screen. The pixel depends 2- Dimensional shape.

* Audio :- ▶

It is the viberation of air molecules in the atmosphere that can be detected the ear. when the audio converted into digital from to produce digital audio. In order to use it in multimedia and the digital audio system again converted into analog from which can be heared on the speaker these two way transmission of sound is called "Analog to Digital" and Digital to Analog.



common type of sound file are MIDI (Musical Instrument Digital Interface), WAV, it is used to store wave form audio data.

* Video :- ▶

Video is the moving picture on screen. It is used for primitive television show film and advertising. There are three main type of video file are used in multimedia i.e Quick-time, avi, mpeg.

* Quick-time :- ▶

Quick-time and mpeg are most commonly used format file. mpeg is extremely high quality output. It delivers higher image resolution and picture quality with multi resolution and multi channel audio feature.

* Animation :- ▶

Animation is the process of sequencing still image in a rapid session to give the effect of live motion.

* WAV (Wave form)

AVI :-

AVI technology on you create, edit, present motion, video segment usually in small window in present.

* MPEG (Motion Picture Expert Group)

* Animation :- ▸

An animation has sta
a certain number of image and frame in
very essential position for professional
animation one need to have at lea
st 30 frame per second. Animation can be
useful because, it provide :-

(i) Continuty in transition :- ▸

When so
some thing has two or more state then
change between state will be much ea
ier for user to understand. if the transi
ssion are animated instead of being
simultaneously.

(ii) Illustrating change over time :- ▸

Si
nce an animation is a time display, it prov
de a one-to-one mapping to phenomen
the change over time.

(iii) Attracting attention :- ▸

Animation has
the ability to control a user visual aware-
ness and this advantage can be change in
the interface.

* Hardware requirements for multimedia computer :- ▸

(1) C.P.U :- ▸

CPU is required for multimedia
computer must have advance chip, such as
power PC, Intel microprocessor, core-Dual,
centrino, centrino-2 with the latest version
of operating system and silicon graphic
have their a set of powerfull processor
for multimedia. CPU of multimedia computer
should be math co-processor attached
otherwise the response time of multime-
dia will be poor. with the help of co-
processor chip greately reduce the load
of CPU. The powerfull co-processor chip
added for multimedia supporting the
graphic is called "graphic accelerator".

(2) Memory :- ▸

To develop the multimedia,
memory must have powerful as a like
RAM 1GB and attached additional memory

as a like cache memory.

Secondary storage device : →

In multi media development, there are different types of secondary storage devices are used as a like Harddisk/floppy disk, CD, DVD.

Input Device : →

Input device are use in multimedia development as a like keyboard, mouse, touch screen, bluetooth Infrared, Wi-fi, digital camera.

Output Device : →

Output device is speaker monitor (CRT, TFT, LCD), multimedia projector printer are output device which is used for multimedia development.

Connection Device : →

There are several types of communication device which used in multimedia development for data communication. As for example – Modem ISDN, DSL (Digital subscriber line), DVD (Digital versatile disk). DVD is a new medium capable of GB storage capacity but also full motion, video and ~~audio~~ high quality audio in sound. It is used for multimedia development. The main advantage of PC user is the capacity of 4.7 GB to 17 GB.

Sound Card : →

If you want to better quality and capability for sound output or input are required then their must be a device which can be added to the basic machine. This device is known as "Sound Card". It is added into the basic machine by inserting it in free slot. It is used for better quality of sound from the Loud-speaker.

Monitor : →

Our multimedia PC should be required SVGA (Super Video Graphics Array) monitor, SVGA support the better resolution for better quality of graphic and picture.

* Software tools used in Multimedia :-

The software in our multimedia book it and our skill at using it determine what kind of multimedia work we can do. Fine and fancy making good multimedia means picking a successful road through the software.

following are the common basic software tools that are used in multimedia system :-

(i) Text editing and word-processing tools

A word processor is usually the first software tools computer usages learn. Learn letter, invoice to project contents. The better our keyboard or our typing skill. The easier and more efficient will be our multimedia day-to-day life.

Word processor to complex building and office tool that might include spread sheet, database, e-mail, web-browser and presentation application.

(ii) OCR (Optical Character Reader) :- ▸

With the OCR software a flate-hand-scanner in our computer, we can save many our of printed word and get the job done faster and more accurately than a roomful.

The OCR software terms bitmap character into electronically recognizable ASCII text.

A scanner typically change according to content text or graphics by examine the textual and density of area of the bitmap and by detecting edge.

(iii) Painting and Drawing tools :- ▸

Both tool as well as 3-D model are perhaps the most important item in our tool kit because of all the multimedia element, the graphical impact of our project will likely have the greatest influence on the end-user.

Painting software such as photoshop, fire-work and painter is dedicated to producing craft bitmap image.

Drawing software such as corel-draw, free-hand, illustrator designer and easier to dedicated producing vector based line art easily printed to paper at high resolution.

(iv) 3-D modeling and animation tools :-

These are several 3-D modeling software are used to produce 3-D images that is auto desk, strata 3-D and Avid's softe image, alias wave front etc. Each 3D image from a few hours to complete depending upon the complexity of draw

(v) Image editing tool :→

These are specialised and powerful tools of inha- ncing and detouching existing bitmap image. These application also provide many of the features and tools of painting and drawing programs, can be used to create image from scratch as well as image from scanner, digital camera, clip-art file, original art-work file created with a painting or drawing package.

(vi) Sound Editing tool :→

Sound Editing too for both digital and MIDI sound let we see music as well as hear. By drawing a representation of sound in fine increments whether a score or a wave form, we can cut, copy, paste and otherwise edit segment of it. Real-one player, jet audio, winamp, D-V-D player are also supported this type of task. you can easily perform the work/task of sound in this software.

(vii) Animation, Video and Digital movie :→

Animation and digital video movie are sequence of bitmap graphics frame rapidely playback But animation can also be made within the authority system by rapidely changing the location of object or sprite to generate and appearance of motion.

V-V1 Authoring tools with respect to Multimedia

Multimedia authoring tools provide the im- portant frame work for organizing and editing the element of multimedia project including sound, graphics, animation and video clip. Authoring tools are used for designing interface for presenting the project on screen and for assembling multimedia element into a single product. Authoring software provides an integrated enviornment for binding together the content and func- tion of the project. Creating, editing and import specific type of data, assemble

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raw data into a play back sequence provide to user input with multi-au thoring software we can make,

(i) Video production (vi) Kiosks Applicati
(ii) Animation (vii) Demo disk and Guiding too
(iii) Games (viii) Interactive training
(iv) Interactive Web-site (ix) Simulation pack
(v) Presentation and technical vi

There are three type of Authoring tools :→

(1) Card or page-based tools
(2) Icon or object based even driven tool
(3) Time based tools

(1) Card or page-based tools :→

In th authoring system elements are organize as page up a book or a stack of a car Thousands of pages or cards may be available in the book or stack. These tools are best use when the bulk o our contain, consists of elements tha can be view individually like e the pa of a book or card in a card-file. The authoring system link these pages or cards in to organize sequence, we can jump on command to any pag we wish in the structure navigation pattern.

(2) Icon or object based even driven tools :→

In this authoring system multimedia elements and interaction use as object in a structural frame-work or process. Icon or object based event driven tools simplify the organization of our project and typically display flow diagram of activities along branching path. In complete navigational structure this charting is particularly useful during development.

(3) Time based tools :→

In these system elements can events are organize along a time line with resolution as higher or higher than 1/30 second. Time based tools are best to use when we have a message with a begining and end. sequencly organised graphic format are play-back at a speed that we can set other element. such as audio events are trigger data given time or location in the sequence of events. The more powerful time based tools program jump to any location in a sequence there by adding navigation and interactive control.

* Authoring System :-

An authoring system is a set of software tools for creating multimedia application in an authoring environment. A person who create application for multimedia, integration is called "Author".

* Features of authoring software :-

Authoring software is the main production tools for multimedia. An authoring system is a program which has a prepogram element for development of interactive multimedia titles. Authoring system very widely in orientation-capabilities, learning capabilities of the users.

The main features of authoring software are :—

(i) Integrated multimedia element

(ii) Script language programming

(iii) Dynamic linking library (DLL)

(iv) Supportive CD-ROM

(i) Integrated multimedia element :-

With the help of authoring software, we can add on board and peripheral devices to play multimedia. Authoring programs are used in education, training, business application.

(ii) Script language programming :-

Authoring software provide ability to write script for software to built features that are not supported by the software itself.

Script language program create multimedia presentation from a series of programming style command, link together in a word-processing type script.

With the help of authoring software we can write the script language which is closest in form to traditional programming and specify multimedia elements sequencing.

(iii) Dynamic linking library (DLL) :-

Dynamic linking library for extending features which provides the facility to add on board and peripheral devices include, specilized DLL upon installation.

specilized programming language user create own DLL for inhance function

iv) Supporting CD-ROM :-

Storing array, video, Audio and picture on hardware often not practicle to get the quality and speed as might be desired. Authoring software allow full control from CD-Drives to integrated Audio, video and computer file.

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UNIT-2

MULTIMEDIA SYSTM

* File Format :-

The component of multimedia such as text, image, audio and video are stored digitially in the computer memory with different file format.

A Bitmap image is consists of 2-D square, which are called "Pixel" or "Dot". The size and quality of an image is depend on the pixe density and number of color.

As for example- A standard V.G.A screen use 640 x 480 pixel a total of = 307200 pixel to display image.

If the image is in Black & white (B/w) then only one digited bit is required to store this information each pixel or dot of B/W image is represented by either "0" for black or "1" for white.

To store a B/W image we require (640x480)/8 = 38100 bytes, i.e. 37.5 KB memory space.

A standard V.G.A which use 16-color need, the information, so the pixel can be coded in single byte. It is required to store a single image with 16-colo

Similarly for image width 256-c
Color (8-bit per dot) then 32,ccc colc
(16-bit per dot) 16,00000 colors
(24-bit per dot).

So, the stand
rd image with 16 color will be idec
solution for a low cost multim
dia package. This bitmap file can be
edit easily. However, required large
memory space for editin purpose. As bitm
image are st d as a large file
required lar amount of large
space to avoid this problem the image
can be compressed which make the
of facts that many entries in a bi
map file has repeate information or
Contain very little information.

There
are various format such as bmp,
pcx, GIF, JPEG, tiff etc.

(i) Bmp: ▸

It is a standard, uncomp
ressed bitmap file format for microso
ft windows and IBM os-2, It has a
maximum of 16.7 millions colors(
(24 bit per pixel). These type of imag
file are accessible through wind
ow paint-brush the extension is ".bmp"

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(ii) Pcx: ▸

It is popular file format
used widely for paint and desktop pub-
lishing program. It has a maximum
of color 16.7 million (24 bit per pixel)
and extension is ".pcx".

(iii) gif: ▸

It is a compressed file format
that keep the file smaller size. This
format is widely use on the web, since
file can be send faster than many othe
format. It has a maximum of 256-colo
(8-bit per pixel); extension is ".gif".

(iv) jpeg ▸

It is compressed file format
that keeps the file size much more smalle
(10 times than gif files). It has a maximu
of 16.7 million color (24 bit per pixel). Jpe
file format is use to store photo realisit
image that contain many colors and
extension name is ".jpeg".

(v) tiff: ▸ (Tagged image file format):-

It provides the higher quality but
it has large file size. This format supports
16.7 million colors (24 bit per pixel) and
the file have the extension name is ".tif

* Multimedia communication system

Multimedia communication system is transmission and exchange inform between the data of desc media.

Moreover in which each digit system transmitted information divided into individual unit i.e "pa and subsequently send away from and destination. The source and des nation can be located either on same computer or an different m A sequence of individual packets transmitted in a time dependent fashi called "Data flow". Packets can b carry either information of contin or discreet media.

An example o continious media data flow is transm ssion of a speed in a telephone system

retrieval of a document from the da base is an example of discreet m

There are three method of data trans-mission or data communication t place in multimedia commanica system.

(i) Asychronous transmission
(ii) Sychronous transmission simultaneesly
(iii) Isochronous transmission

(i) Asychronous transmission :

It is the most commonly used transmission mode asychronous transmission of data is ch character to be transmitted in preeceded by start bit and transmission by a stop bit Because of this asychronous transmiss is some time defer to start/stop tra nsmission.

Asychronous transmission is often used low speed transmission of data. As for example.

A person is sitting with the keyboard of a termi nal i.e connected to one computer to anot er computer is called "Synchronous computi

(ii) Sychronous transmission :

It is used to activate high speed of data tra mission. In this mode the sender tran mit block of character fogether in a si ngle transmission. This synchronization betw een the transmission device and the recei er device is achived by the transmissio

pre-determined group of bits is known as synchronous transmission. The receiving device accept the data until it detect a special incoding character synchronization transmission commonly use the faster Bacad-band channel. It is used direct computer to computer communication for large computer system, because of high speed of data transfer is required.

(iii) Isochronous transmission :→

It is a technique which makes the use of both synchronous and Asychronous. In this mode each character start with a start bit and with a stop bit. In additional the time internal between the transmission of two character will be an integer multiplication of length of the time required to transmit one character.

Isochronous transmission is generally use to achieve higher data rate of transmission as compare to asychronous transmission and also the advantage of synchronous transmission.

* Multimedia Database :→

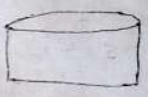
A data base is a collection of related information stores so that it is available to many users for different purposes.

The multimedia data base contain the raw material registerd and descriptive data for different media such as text, image, graphics, animation, audio and video.

A uncompressed image consists of a set of pixel.

UNIT - 3

* How video work ?



Ans When light reflected from an object passes through a video camera lens that light is converted into electronic signal by a special sensor called "Charge couple Device" (CCD). The output of the CCD is process by the camera in to a signal containing three channe information and synchonization pulse. There are several video standard from managing CCD output each dealing with the amount of seperation between the component of the signal. The more seperation of the color information found in signal. The higher quality of the image each channel of color information is transmitted in a

* VIDEO TECHNOLOGY

seperate signal on its own cond
uctor the signal output is called "RGB"
which is prefered method for higher qu
ality professional video work. Output
can also be splite in to two seperate
chrom (color) and Luma compone
channel which makes the dark an
light part of the video.

Analog video :

In analog system
video signal from the camera is de
vered to the video in collector a VCR
(Video cassette recorder) where it
is recorded on magnetic video tape.
A camera recorder combine both cam
era and type recorded in a single de
vice one or two channel of sound may
be recorded on the video tape. T
video signal is written to tape by
spenning recording head the cha
nges

local magnetic properties of the tape sur-
face in a series of long diagonal stripes
each stripes represent information for
one field of a video frame. A single
video frame is made up of two fields.
The audio is recorded on a seperate
straight line track at the top of the
video track although which some
recording system sound is recorded
between video track at the bottom of
the tape a contol track containing
the pulse used to regulate speed is
present.

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* Analog display standard :→

Th
analog broadcast video standard
commonly used around the wo

(i) NTSC (National television standard co
(ii) PAL (Phase alternate Line)
(iii) SECAM (sequential colos and memo

In the United state the NTSC st
dard being phase out replaced
the ATSC (Advance television sy
committee) digital television. beca
these standard and format are no
easily interchangable. It is impo
tant to know where your multi
dia project will be used. A video c
ette recorded in the United state
not play on a television set in an
Europian country even though the
recording method and the standard
style of the cassettee is differe
Each system is based on a differe
standard that define the way info
mation is encoded to produce the
electronic signal that alternately cr
a television picture. Multi format VC
can playback all three standard
typically can not clay from one

standard to another.

(i) NTSC :→

The United state Canada, MAXICO, Jaipan, and many other country used to system from broadcasting and display video that is based upon the specification set by the "1952". NTSC, it encodes information into electronic signal that alternately create a television picture. As specify the NTSC standard a single fram of video was made up of "525 horizontal scan line" into the inside face of a "phospher coated picture tub".

(ii) PAL :→

The PAL system was used in the United kindom, western Europe, Australia, South Africa, China, and other countries can be used. PAL increase the screen resolution to "625 horizontal Line", the scan rate to "25 frame per second".

(iii) SECAM :→

The SECAM was used in France Estern Europe and few other country. Although SECAM is a "625 lines", "50

Mega Hertz" frequency. It differ
great from both the NTSC and PAL
color system in its basic technology
and broadcaste method.

* Digital Video :-

If a video chip is stored a data on a Hard Disk, CD-ROM or other mass storage device that chip can be playback on the computers monitor without overlap broads.

This play-back of digital video is accompolished by using software architecture such as Quicktime, or AVI.

In this mode the video signal from the video camera are converted to digital signal with the help of digitizer and the process is called "Sampling". After conversion the digital signal can be stored in binary data structure format. "0" and "1". The digital data file is compressed to a considerable amount using some compression program. During the process of compression the digitizer face the digital video into a digital movie format and save all the section of the compressed movie in the hard-disk. The conversion and compression is completed the file can be playback on the computer screen. These digitize file can also be edited according to the requirement using various video editing software.

There are various compressed file format such as MPEG, AVI are used to store the digital video in a compressed format.

Digital video broadcasting :

Digital video broadcasting is used mostly in Europe, where the stand defines the physical layer and data link layer of a distribution system. Integrated device digital broadcasting is used in Japan to allow radio and television station to convert digital format.

Over scan and the safe title :

It is common practice in the television industries to broadcaste an image larger than will fit on a standard T.V screen so, that the edge of the image seen by a viewer is always bounded by the T.V frame, this is called "over scan". In constraint computer monitor display a smaller image on the monitor's picture tube (under

consequently when a digitize video image is display on RBG screen. There is a border around the image and when a computer screen is converted to video the outer edge of the image will not fit on a T.V screen only about 360 of the 480 line of the computer screen will be visible.

Image Capture :

Most of the type of image discuss normaly captured using on physical scanner or camera whose purpose is not to be convert the image in to a rectangular array of a point called picture element or Pixel. An optical scanning system consists of a light source, a document holder and a light detector during scanning the light becomes move and across the document, the reflected light from is path is converted into electronic signal which is turn are changes, into digital form for processing and stored as an array of pixel. The size of this array depend upon type of image to be capture.

(ii) Bitmap image has only relates to one bit/pixel with a value "1" or "0"

(iii) Color image are characterized by the intencity of three primary color or grey. The number of color simultaneously available that can be supported by n-bit and image containing 256 Color B/W required 8-bit/pixel to store it.

The size of array also depend upon the density describe in the form of number of pixel/inch an one direction. This is also used to describe the resolution of the screen. The choice of resolution is link to the resolution required on the output device As for example:→

Computer display screen needs between 70-200 dpi (dot per inch), laser printer typically needs 300 dpi.

The speed of capture varries from three A4 page/minute. Image of camera are available for the capture of high resolution image clip to 2200 × 1700 for used in color art work. Still frame may also be capture from moving video sequence using a video digitizer or frame.

In animation and digital video one in a sequence of graphics image is called frame.

* **Digital Imaging :→**

Computer application are used different type of image. Bitonal (B/W) image include text in business document, such as A4 letter and frame. These images are typically scan and store in electronic file, folder for use in application. such as Insurance clame and mortgage processing optical scanning and storage technology are also repairing image form on record managable, system where document such as plants, movie records, taxation form and bank records and to be achieved small item such as check and credit card. Credit card voucher are avilable electronically in high volume transaction processing system.

A second type of bitonal image as line art include engineering drawing in ---------- CAD application diagram in technical manual form

area space and different section cha... flow-diagram, map and cartoon. A... mixture of scanning and recognizatio... technology will be required to handl... such as image, medical image fo... magnetic resources imaging and... computed aided tomography (C.T Sca... for example :—

It may be used... for a remote diagonosis and radiolog...

* **Conferencing :** ▸

A multimedia... conferencing system enables peo... work together across geographically... distance location without the need o... meeting at once site. They commu... icate among each other using m... video, audio and textual informatio...

(i) **Audio conferencing :** ▸

It is the... oldest and most popular technique... conferencing. In this technique tw... or more person can interact wit... each other at the same time using... common communication channel. T... technique utilize the service of telec... company and service provided by cellular... companies.

(ii) **Video conferencing :** ▸

This is a technique of conferencing where audio and video conferencing are takes place.

In this technique the person involve in the conferencing can not only talk with each other but also see each other. It is a very high-tech conferencing technique and it is very stil costly. Therefore it is being used in a very large size commercial organization, public utility department and media channel. Video conferencing is used either in an office environment where the video is display on P.C or in a conference room where the video is display on a video wall (a large T.V screen).

(iii) **Document conferencing :** ▸

It is also called audio graphics conferencing technology allow people to meet using their PC and their telephone line. The telephone line in connected to the participates so they can share audio information and the data they store in their P.C. In additional allow on-line editing of documents by several partici...

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cipated people in the confere
The conferencing has been used
educational field, it extends
boundaries of the class room
reach-out into the community.
document that can used in con
ce may consists of text, graphics
al even video cliping.

* Animation :→

An animation
Covers all changes that have a visu
al effects. Visual effect can be of
include different nature, they might
include time position shapes, color, trar
sparency, structure and texture o
an object and change in ligh
ting camera position, orientation a
focus.

Animation an illusion of
movement created by sequen
ially playing image frame @ 15-20 fra
mes per second. The eye retains the
image enough to allow the
brain to connect the frame in a con
nious sequence creating the movemen
There are two technique of
animation :→

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(1) Computer based animation
(2) Cell animation

(1) Computer Based animation :→

Computer based animation is an ani-
mation performed by a computer using
graphical tools to provide visual effects.
Computer Based animation because this
kind of animation will become part
of multimedia system. Although, traditional
animation is a discipline it self and
expert consideration influence over
computer based animation.

Computer
animation program typically implies the
same logic and procedural concept,
cell animation and used some voca-
bulary and classic cell animation such as
layer, key-frame, the primary difference
among animation software program is
in how much must be draw by the
animator and how much is authomitic-
ally generated by the software. In
path based 2-D animation. An animation
simply creates an animator simply
creates an object and describe a
path from the object to follow:-

an object and describe
path from the object to follow:-

The computer software then takes
over actually creating the animation
on the fly as the program as
being viewed by the user.

In cel
based 2-D animation each frame o
an animation is provided by the
animator and the frame are then
composite into a single file of
image to be play in sequence.

Leads gif animator such as graph
image file such as avi or Quick
time for playing - back an anim
ation.

For 3-D animation most of
our effort may be send one appli-
cation to another application one
creating the models of individual
objects and the designing the char
cterisitics of their shap and surfac
It is the sfw that then computes
the movement of the object within
the 3-D space and movement of each
frame, in the attach together in a digi
output files as an avi and Quick time
movie.

* Morphing :→

Morphing is a popular effect in which one image trans form into another image. morphing application and other modelling application and other modelling tools that after this effect can transition not only between still image but often between moving image as well as some product that offers morphing features are black-belt's easy morph and win image, human software. squizz and valis group.

(ii) Cell animation :→

The animation technique made famous by disney use a series of progressivily different graphics or cell on each frame of movie film. A ~~minute~~ minitue of animation may thus required as many as 1440 seperate frames and each frame may be composed of many layer of cell.

The term cell derives from the clear cell id sheet that where used for drawing each frame which have been replaced to day

by layer of digital image.

The cell for each frame for our example of a walking girl which may consists of text title a background foreground characteristic seperate cell for a left arm, right arm, legs, shoes and facial feature are carefully registered and stacks.

It is composite that becomes the final photograph, single frame in an animated movie.

* Animation file format :-

Same file formats are designed specifically to certain so they can be ported among application and platform with the proper translator. Those format includes director (.dir and .dcr), animatorpro (.fli) 3-D studio makes (.Max). Super card and director (.pics) and flash (.fla and .swf).

In some case specially with 3-D animation the individual rendered frame of an animation are put together into one of the standard digital video file format (such as windows audio, video, interleaved format such as AVI format, quicktime (.qt, mov) or MPEG video .Mpeg or .Mpg.

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UNIT-4

VIDEO COMPRESSION

* **Data compression :-** ▸

In term of computer, the only limitation of multimedia presentation is that it consume a lot of storage space. In order to reduce the storage space the multimedia component must be compressed. Compressing a file refers to the process of cutting down the size of the file by using special compression algorithm. There are two type of compression technique are used.

(i) Lossy compression
(ii) Lossless compression

(i) **Lossy Compression :-** ▸

It is a data compression technique, in which some data is discarded from the original file, In order to reduce the size of the file. In this compression format we can not recover all original lossy compression file. JPEG image and MPEG video file are example of lossy compress file.

(ii) **Lossless Compression :-** ▸

Lossless compression refers to a data

compression technique that reduces the size of the file without permanently discarding any information of the original data. If an image that has under gone Lossless compression is decompressed the original data can be reconstructed exactly. Exactly bit-by-bit i.e identical to the original image before it was compressed image file format used lossless compression

* **How compression work ?**

Ans Compression is a technology that removes the data from video image, to reduce the size of the file. The trick is to removed i.e not abreviousion. to viewer It is done into two way :-

(i) Interframe
(ii) Intraframe

(i) **Interframe :-** ▸

It removes duplicate data that appears within a single frame as for example - It

area of sky are some shade of blue color. only the value of one pixel need to be same along the location of where other identical pixel appeared in the frame.

(ii) Intraframe :-▸

It looks for duplication information in frame that follow one another. as for example, In a scene with flies the background not change much or at all between frame. In this case all of the data in the first frame is stored. In the next frame only the data has change in store rest thrown away the system display, the first frame then update it with just the change store for the next frame.

* LZW (Lempel ziv Wealth) :-▸

Data compression has undesired reputation for being dificult to master hard implement and tough to maintenance In fact DCT (Discrete cosign technique can be implemented with standard utilities only a few line of code LZW compression technique is a good all purpose data compression technique

It is a programmer that has few dozen of screen code easily of the compression the screen of 500 kb of software could be distributed to end user on a single 360 KB floppy disk. Highly redundant data base file can be compress down to 40% of original size. Once, the tools are availabel the application for compression will show a regular basis.

The original LZW approach to data compression was first published on 1977.

"Terry Weich's" refinement to 1978 algorithm where published 1984. The algorithm is surprising as simple In breif a LZW compression

Replace string of characters with single byte.

* DCT (Discrete cosign Fram) :→

It is a video compression technique which is used to transform the data in different mathmatical domain, this technique is carried-out in a series of step :→

Step:1 The code first creating a frame consisting of 1000 pixels by sampling the analog signal from video camera.

Step:2 It devide the frame into block consisting of 16 x 16 pixel of luminious 8x8 pixel for each chroma channel.

Step:3 It is analysis the block of determine what data should be same. In order to avoid sending data that have not change since the previous frame.

Step:4 The major change have take place. It uses intraframe coding to send the entirly new data.

Step:5 If there are only a small diff It use interaframe coding add information already available.

Step:6 If there are no change in it reprint the block.

Step:7 It use quantization process to p good quality image or video.

Step:8 Finally it use 2-D incoding redu the compress the video image.

* MPEG :→

It is stand for "Motio Picture Expert Group". working gro convey by the International Stand organization (Iso) and Internation Electro-Technical commission (IEC To create, standard digital repres tation of moving picture and associ and other data MPEG1 and MPEG2 are the correct standard. using MPEG1 and MPEG2 are the corr Standard. Using MPEG1 we can de 1.2 Mbps of video and 250 kbps two Channel stereo audio usin CD-ROM technology.

MPEG2 is com by

different MPEG1 required higher data rate 3-50 Mbps but deliver higher image resolution picture quality interleaved video format multi resolution scalability and multichannel audio features.

MPEG may become the method of choice for encoding motion image because it has become widely accepted for both internet and DVD videos.

MPEG required dedicated hardware for playback but look better than a T.V screen. Players are widely available for playback of MPEG video on the Web.

* JPEG :-

It is stands for "Join picture Expert Group". JPEG image may contain 24-bit color depth(million of color). JPEG use a powerful but lossy compression method that produce files as much as 10 times more compressed the GIF(Graphic Image format) use JPEG form photo realistic image already forced into 250 colors ptette or for line drawing or one bit black and white image.

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·GIF com
as drawing and cartoons that ha
only a few colors in then much bet
then JPEG which may introduce visib
defect, sharp edge and lines th
specially with small size text. Tes
the amount, the compression acce
table for our JPEG image stay
inside the hold of visible error.

We
can not edit or reedit files that
in JPEG format. Everytime we
open a JPEG image then compres
and save it as compress JPE
the image degrates. If you wan
to download JPEG file from th
internet by FTP (File Transfer Pro
using fetch( ) be same to
add ·JPEG and ·JPG to list of
binary file types in the customiz
mapping menu. Otherwise fetch w
be retrieve JPEG file in te
mode are corrupt the data

* MHEG:

The multimedia and hypermedia information coding expert group is a join ISO i.e working to define the representation and encoding of multimedia and hypermedia information object that will be interchange within or a cross applications or service. Its aim is to enable bit stream specification for multimedia and hypermedia application media or any plateform. MHEG cover stripes such as synchronization buffer memory input object button and menus.

Eg- interactive object like prompts. It is design to meet the requirements of multimedia application running on work-station from different vendor and interchanging information in real time such application include computer supported co-operative work electronic publishing and audio visual system for training and education.

* Hyper text and Hyper media:

Multimedia is a combination of text, graphics, and audio elements into a single collection or presentation becomes as interactive multimedia when we give the user some control over what information is view and when it is view.

Interactive multimedia become hyper-media when its designer provide a structure of link element through which a user can navigate and interact. when hyper-media project includes large amount of text or symbolic contents. This content can be include and its element then linked together to offer-rapid electronic retrieval of the associated information. when words are key or inside to other words, we have a hypertext system the text part of this term represents the project content and meaning, rather than the graphical presentation of the text. Hyper text is what the WWW is all about.

When the text is stored in a computer instead of an printer page, the computer powerful

processing capability can be applied to the text more accessible and meaningful. The text can then called hypertext because the word selection and through are link, the user can navigate through text in a non-linear way quickly.

SGML document architecture :

SGML stands for "standard Generalize Mark-up language". SGML tags (codes) are used to develop multimedia document. SGML determines the form of the tag, but it does not specify their location or meaning.

In case of SGML document processing is divided into two processor :—

Formatter
Perser

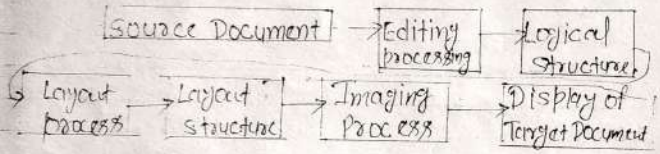
Only the formatter known the meaning of the tag and transfer the document in formatted. The 'perser' use the tag occuring in the document. In combination with the corresponding done with the tag. Here,

the part of layout are linked together. This is based on joint context between the original of the document and formatter process.

Multimedia data are supported in SGML standard only in the form of graphics. A graphical image as a CGM (computer Graphics Metafile) is embedded in an SGML document. SGML are file format where the multimedia graphical database store for communication.

* ODA (Open Document Architecture) :

Open document architecture is a document architecture which defines the interchange format to represent the structure of the information in a document.



* Open document architecture processing :

ODA is a document structure processing for formatting and presenting multimedia consisting of text as well as graphics.

There are three document processing:-

(i) Editing process
(ii) Layout process
(iii) Imaging process

The main part of processable document deal with the document structure and rules for

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document layout. The logical structure describe how the document is divided into logical object like chapter, sect paragraph, list etc.

In addition logical structure and document co tent. A processable documents ru that direct the layout process. The rules are described by a generic lay structure and by layout and pres tation style. The generic layout presentation defines the propert of the layout object that are com to a class of document.

for

Eg :→ page header and footer, a on a page or column.

layout st aggregate information that contr how contents is to be designed t such object during layout proces for instance a layout may specif that all object referencing th style have to be layout on new page. Presentation style aggregat information that concern the fo matting of contents such as font and line space.

Accordi

to ODA processing model the layout process information a document into a formatted processable document.

A formatted document can be presented on a device such as printer or a display screen.

According to ODA processing model, this output is done by document processing, document presentation process i.e, directed by specific layout structure and presentation style.

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UNIT-5

HARDWARE PERIPHERALS

* Communication DEVICES :→

Many multimedia application are developed on workgroup compermizing Construactional designer, writer, graphics, artist, photographer, programmer and musician located in the same office place or building. This workgroup member computer into typically connected on a local area network (LAN). The client computer however, may be thousands of miles distance. A combination of communication by E-mail and FTP may be the most cost effective and efficient solution for both a creative and development project management. Some of the commonly and communication devices are :—

(1) Modem :→

It can be connected all computer externally at the serial port and internally as a seperate board. Internal modem often include FAX capabilities Sure modem a compatiable.

(2) ISDN and DSL :→

Both are stands for "Integrated Service Digital Network"

and Digital Subscriber Line):

For higher transmission speed telephone we will need to use integrated service digital network, switch DSL ATM or another of the telephone companies digital switch network service.

ISDN line offer a 120 Kbps data transfer rate twice a part as 56 Kbps analog modem. ISDN lines are used for internet access, networking and audio and video conferencing. These dedicated telephone lines are more expensive than conventional analog or POTS (Plain old Telephone service) line so it is wise to analysis the cost and benefit carefully before upgrading.

However, faster digital subscribing line technology using a dedicated copper's line has over taken the popularity of ISDN. DSL uses a single frequency higher than those used by voice or facts. When a DSL filter is connected our phone so voice traffic on the phone and FAX signal goes to phone on the FAX machine while data traffic the Web downloading the long file or photo goes to our computer.

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UNIT-6

MULTIMEDIA & INTERNET

WWW :-

The web which are interconnect through wise in the world According to research Internet explore 85% use in the world. case-Tool is a software thraigh which automatically software generated. As for example front page generate automatically code generated

Designing for WWW :-

Designing and making multimedia element for web is done by HTML. HTML is the principle mark-up language, use to create web-page with text related information, display on web-page. An HTML created document is portable i.e open in all browser In internet explorer- Mozilla, Firefox, or Netscape. HTML describe the structure of text base information on a web-page by the marking the text as heading, paragraph, list, and so on. HTML makes it possible to present information on the internet. Therefor, we should know how to place the text on the web-page in the format and style we need to use different

HTML element such as Tags to create a well designed HTML document.

Text for the Web :-

In a web page we can specify the fonts and even alternates fonts using the face attributes of the font. for flexibility in the font management in the web site we can use Cascading Style sheet (CSS) available in the HTML document. It is used for setting text, style across the web pages.

We can control the attribute of display text the colors attribute, set the color of specify character of text and size attribute increase or decrease the size of text. We can also set the background of individual cell in a table by using "BG color attribute".

The powerful features of HTML found in table tag used to organize the text in too document.

Image for the web :→

Once the gif has been stored on a web page on that a computer can include the image by reffreshing the file.

An image reference consists of the <IMG> image tag which include the keyword the SRC followed by the name of file on the disk.

Eg :→

<IMG SRC = xxx.gif">

An image on web page can appear by it self or adsecent to text. Infact when the browser display a web page. The browser treats and image like an oversize word. That appear in the middle of a line of text.

This example show

HTML provide a way to control the details of how an image is allign with surronding text. Alligment information is provided in an imag tag if no allignment is specify the button of the image is placed on the some line.

Sound for the Web :→

In the begining when internet was primilarly a collection of UNIX machine, some file where send from machine-to-machine in "AU" format and when download were fully play back using a sound application as the web has develop sound has been more important and plug in currently allowed embedding capable. MS internet explorer occur the <BG sound> tag to play on avi web or MIDI sound. Some track in a document back ground Netscape navigator Internet explorer offers the quick. Time for playing aif [illegible] and wave form and avi. format.

<HTML>
Tell the browser this is webpage

<HEAD>
Begins the header information

<TITLE>
Write the title name, it is displa
on the title bar as the top c
the browser.

<BODY>

<! Related About HTML>

HTML is composed of two
types of document.

1. Container
2. Empty

It has two tags
i.e start and End Tag. As for eg:

<HTML>

</HTML>

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Empty :→
It has not end tag.
As for eg:-

Basic Structure of HTML Documents

```
<!Doctype>
<html>
<head>
<title>
        title of the web page
</title>
</head>
<Body>
        contents of the web page
</Body>
</HTML>
```

A to the browser to see

```
<!Doctype>
<HTML>
<HEAD>
<Title>
  :
</title>
</head>
```

```
<Body> bg color="red">
Content the webpage
</Body>
</HTML>
```

* HTML style tags :-

1. <B> for bold </B>
2. <U> for Underline </U>
3. <I> for Italic </I>
4. <B><I> Bold Italic </B></I>

* Adding a Background Image to the web page.

<Body bg color = "green" background = "A:\Document\ ..... .JPEG"> </Body>

* Using image as a link :-

<Body>
<centre>
<h1> Both the image and text can be link </h1>
<a>
<href = "Page 1.HTML">
<img src = c:\img\image.gif"
Alt = "Ram is a good boy = "?">
</Img>

</centre>

* Animation for the web :-

HTML makes no provision for animation by itself. A static page of text and graphics. Netscape 1.0 offered the <blink> tag, microsoft offerd the <MARQUEE> tag to scroll text horizontally. Java scribt abbly to force the sliding text into the status bar.