Lecture №11 Multimedia technology

- Multimedia technology
- Multimedia attributes
- Classification of Multimedia
- Types of Multimedia
- Importance of Multimedia

What is multimedia?

The term "multimedia" describes a new application technology that is based on the sensory nature of humans and the ability of computers to transfer various types of information. Fundamental to this technology is the ability to manipulate digital forms of audio and video information in the computer. Multimedia requires integrating storage, communication and presentation mechanisms for varied data types in a single technology.

- Multimedia technology is computer based, interactive applications having multiple media elements, including text, graphics, animations, video, and sound.
- Multimedia technology refers to both the hardware and software used to create and run such systems.
- Multimedia technologies enable the users to integrate and manipulate data from diverse sources such as video, images, graphics, animation, audio and text on a single hardware platform.

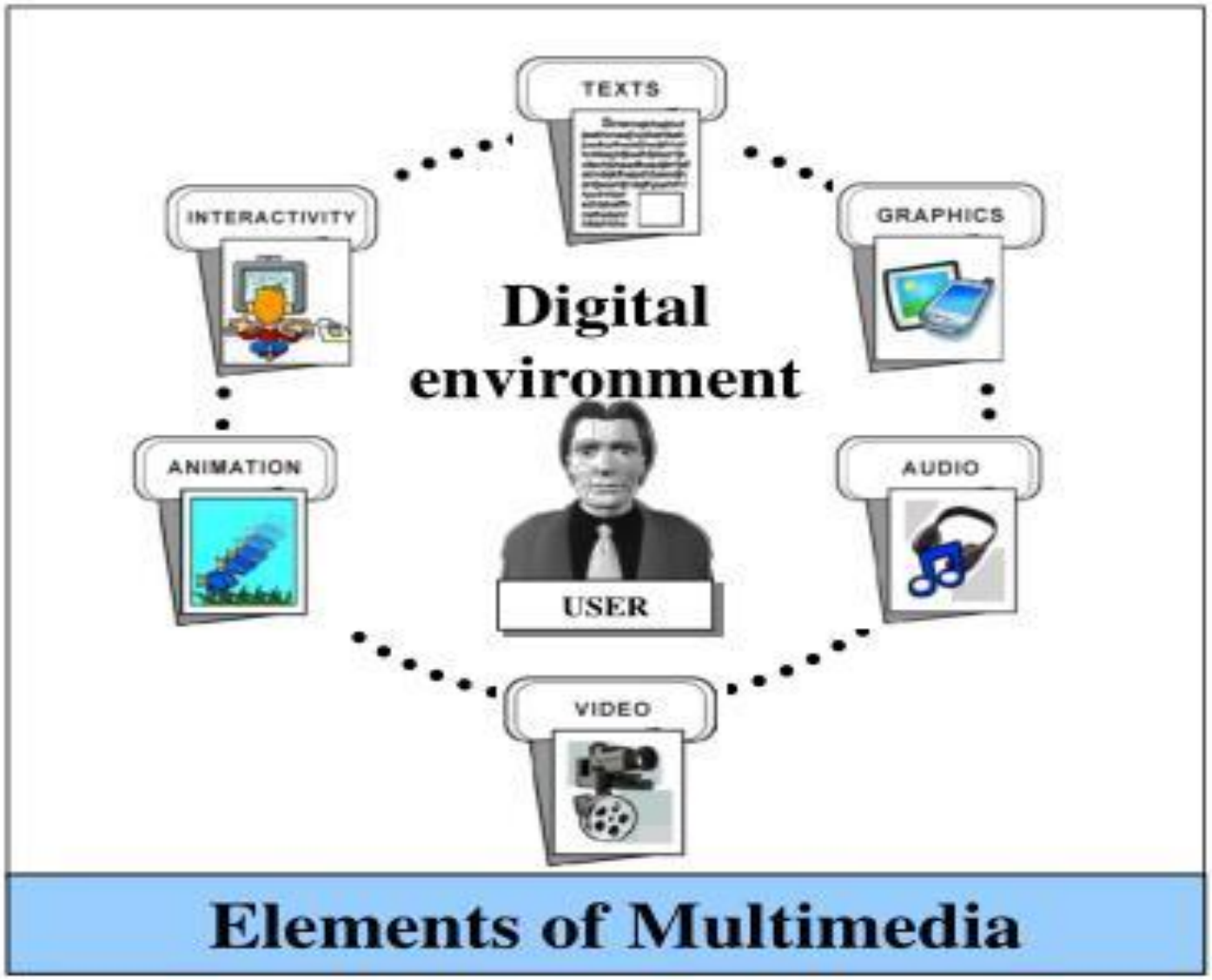
Multimedia can be any combination of text, graphics, sound, animation and video, i.e. any medium where every type of information can be represented, processed, stored, transmitted, produced and presented digitally. It is delivered to the user by computer, electronic devices or digitally manipulated means.

Multimedia attributes:

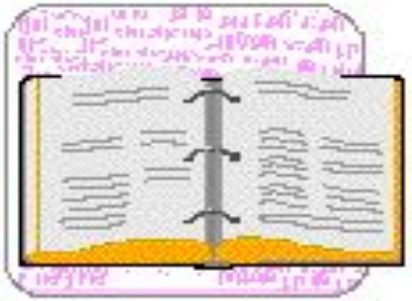
- **Digitized**: All media including audio/video are represented in digital format
- **Distributed**: The information transmitted is remote, stored or produced in realtime, distributed over networks
- **Interactive**: It is possible to affect the information received, and send own information,
- **Integrated**: The media are presented in an orginized way, but are possible to manipulate independently

Classification of Multimedia

- Text
- Audio
- Image
- Video
- Animation


TEXTS
INTERACTIVITY
GRAPHICS
Digital environment
ANIMATION
AUDIO
USER
VIDEO
Elements of Multimedia

Text



Text or written language is the most common way of communicating information. It is one of the basic components of multimedia. It was originally defined by printed media such as books and newspapers that used various typefaces to display the alphabet, numbers, and special characters. Although multimedia products include pictures, audio and video, text may be the most common data type found in multimedia applications.

Images

Images are an important component of multimedia. These are generated by the computer in two ways, as bitmap or raster images and as vector images

Raster or Bitmap Images

The most common and comprehensive form of storage for images on a computer is a raster or bitmap image. Bitmap is a simple matrix of the tiny dots called pixel that forms a raster or bitmap
image . Each pixel consists of two or more colours. Depending on the hardware capabilities, each point can display from two to millions of colours. Bitmap formats are Windows Bitmap (BMP), Device Independent Bitmap (DIB)

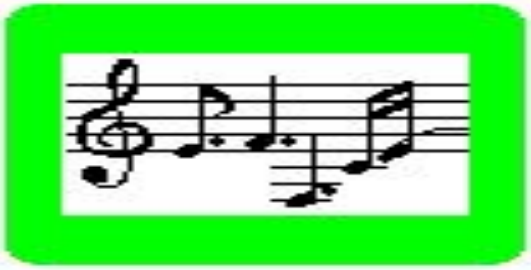
Vector Images

Vector images base on drawing elements or objects such as lines, rectangles, circles and so forth to create an image. The image consists of a set of drawingcommands that are drawn when needed. Mostly used vector format is Windows metfile in windows operating system. Formats of vector images are GIF, TIFF and JPEG.

Animation

Animation consists of still images displayed so quickly that they give the impression of continuous movement. The screen object is a vector image in animation. Animations may be two or three dimensional. Such animations are typically rendered frame by high-end three dimensional animation softwares. Animation tools are very powerful and effective. There are two basic types of animations, path animation and frame animation.

Sound



Sound is probably the most sensuous element of multimedia. In computers, audio is the sound system that comes with or can be added to a computer. Sound is a sequence of naturally analog signals that are converted to digital signals by the audio card. When sound is played, the digital signals are sent to the speakers where they are converted back to analog signals that generate varied sound.

Video

Video is a sequence of pictures, it is defined as the display of recorded real events on a television type screen. The embedding of video in multimedia applications is a powerful way to convey information. The video may be categorised in two types, analog video and digital video.

Types of Multimedia

- Interactive multimedia
- Hyperactive multimedia
- Linear multimedia

Interactive Multimedia

- The users control the delivery of elements – to control the what and when.
- Users have the ability to move around or follow different path through the information presentation.
- User control the flow of the show.

Hypermedia

Interactive Multimedia which provides a structure of linked elements through which the user can navigate

LinearMultimedia

- The users sit back and watches the presentation
- The presentation normally plays from the start to end or even loops continually to present the information.

A movie is a common type of linear multimedia

Some examples of multimedia applications are:

- business presentations, online newspapers, distance education, and interactive
- gaming, advertisements, art, entertainment, engineering, medicine, mathematics, business,
- scientific research and spatial temporal applications.

Why Multimedia?

Multimedia enhances learning, memory and etention

- audio stimulation - 20% retention rate
- audio/visual - up to 30% retention rate
- interactive multimedia - up to 60% retention rate

Why is Multimedia Important ?

- Digital audio/video is revolutionizing music, film, game, and video &audio industries
- Convergence of computers, telecommunication, radio, and TV

- Caused by technology and competition
- Dramatic changes in products and infrastructure

- New application potential

– Huge potential markets

– Improving our lives (learning, entertainment, and work)

- Interesting technical issues

Questions:

1. What is Multimedia? Give definition to Multimedia technologies?
2. Name the Multimedia attributes?
3. Classification of Multimedia?
4. Explain the types of Multimedia.
5. Some examples of Multimedia applications?
6. Why Multimedia ?
7. Name the importants of Multimedia?

References

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