MMGD0101
INTRODUCTION TO MULTIMEDIA

Chapter 2
Multimedia Systems

Definition of Multimedia System

A **Multimedia System** is a system capable of processing multimedia data and applications. It is characterized by the processing, storage, generation, manipulation and rendition of Multimedia information.

Definition of Multimedia System

The differences between print and multimedia:

- Different modes of display
- Interactivity and involvement of participants in multimedia systems
- Ease of distribution
- Authority of document

Characteristics of a Multimedia Systems

A Multimedia systems has four basic characteristics:

- Multimedia systems must be **computer controlled.**
- Multimedia systems are **integrated**.
- The information they handle must be represented **digitally**.
- The interface to the final presentation of media is usually **interactive.**

Characteristics of a Multimedia Systems

Computer Controlled

- Producing the content of the information – e.g. by using the authoring tools, image editor, sound and video editor
- Storing the information – providing large and shared capacity for multimedia information.
- Transmitting the information – through the network.
- Presenting the information to the end user – make direct use of computer peripheral such as display device (monitor) or sound generator (speaker).

Characteristics of a Multimedia Systems

Integrated

- All **multimedia** components (audio, video, text, graphics) used in the system must be somehow integrated.
- Every device, such as microphone and camera is connected to and controlled by a single computer.
- A single type of digital storage is used for all media type.
- Video sequences are shown on computer screen instead of TV monitor.

Characteristics of a Multimedia Systems

Interactivity

- **Level 1**: Interactivity strictly on information delivery. Users select the time at which the presentation starts, the order, the speed and the form of the presentation itself.
- **Level 2**: Users can modify or enrich the content of the information, and this modification is recorded.
- **Level 3**: Actual processing of users input and the computer generate genuine result based on the users input.

Characteristics of a Multimedia Systems

Digitally Represented

- Digitization: process involved in transforming an analog signal to digital signal.

Challenges for Multimedia Systems

The key issues multimedia systems need to deal with here are:

- How to represent and store temporal information.
- How to strictly maintain the temporal relationships on play back/retrieval.
- What process are involved in the above.

Desirable Features for a Multimedia System

- Very High Processing Power
- Multimedia Capable File System
- Data Representations/File Formats that support multimedia
- Efficient and High I/O
- Special Operating System
- Storage and Memory
- Network Support
- Software Tools

Components of a Multimedia System

Capture Devices

- Video Camera
- Video Recorder
- Audio Microphone
- Keyboards
- Mice

- Graphics tablets
- 3D input devices
- Tactile sensors
- VR devices
- Digitizing/Sampling Hardware





Components of a Multimedia System

Storage Devices

- Hard disk drive
- Zip drive
- Compact Disc

- Digital Versatile Disc
- Bluray Disc

Components of a Multimedia System

Communication Networks

- Ethernet
- Token Ring
- Fiber Distributed Data Interface (FDDI)
- Asynchronous Transfer Mode

- Intranets
- Internets

Components of a Multimedia System

Computer Systems

- Desktop computer
- Processor
- RAM
- Display card

- Sound card
- Capture card

Components of a Multimedia System

Display Devices

- High resolution monitor
- High quality speakers
- Color printer
- Projector

Class Activity

Exercise

Group discussion. You are require to set up a Multimedia Systems. Identify the components and budget to set up the system. Present to the class.