**ACROPOLIS INSTITUTE OF TECHNOLOGY AND RESEARCH INDORE**



SUBJECT: Computer graphics and multimedia

TOPIC: MPEG STANDARDS

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**MPEG STANDARDS**

* **Introduction**

MPEG is standard for encoding videos, movies, motion pictures. The MPEG (**Moving Picture Experts Group**) standards are an evolving set of standards for video and audio compression and for multimedia. The MPEG or as pronounced as m-peg. The MPEG standards consist of different parts. Each one covers a certain aspect of specification. There are many types (parts ) of MPEG which are standardized by its new editions. It has some standards like MPEG-1, MPEG-2, MPEG-4 which are current standards which we will discuss further. It is similar techniques as JPEG to individual image.

Today, MPEG-1 has become the most widely compatible lossy audio/video format in the world, and is used in a large number of products and technologies. Perhaps the best-known part of the MPEG-1 standard is the [MP3](https://en.wikipedia.org/wiki/MP3) audio format it introduced.

The MPEG system consists of two layers:

* System layer (timing information to synchronise video and audio).
* Compression layer (includes audio and video streams).

MPEG has standardized the following compression formats and ancillary standards:

* **MPEG-1 :** Initial video and audio compression standard. Later used as the standard for video compression includes the popular 3 (MP3) audio compression format.
* **MPEG-2 :** Transport, video and audio standards for broadcast quality television. Used for overs the air digital television, digital satellite TV services like dish network**,** digital cable television signals SVCD.
* **MPEG-3 :** Originally designed for HDTV, but abandoned when it was realised that MPEG-2(with extensions) was sufficient for HDTV.
* **MPEG-4 :** Expands MPEG-1 to support video/audio “objects”, 3D content.
* **MPEG-7 :** Multimedia content description standard.
* **MPEG-21 :** MPEG describes this standard as a multimedia framework.
* **Background**

MPEG is a group of authorities that was formed by ISO and IEC to set standards for audio and video compression and transmission. It was established in 1988 by the initiative of Hiroshi Yasuda( Nippon Telegraph and Telephone) and Leonardo chiariglone, group chair since its inception. MPEG’s official designation is ISO/IEC JTC 1/SC 29/WG 11- coding of moving pictures and audio

* **Applications Of MPEG**

**MPEG-1**

**Video Kiosk**

The video kiosks or information kiosks, are a new opportunity for the use of video. Shops, car dealerships and banks are finding that automated information kiosks are a way to increase sales. Theses came about due to the addition of professional quality video found in MPEG-1. Information that was once laboriously displayed as slides can be brought to life with video. Using MPEG-1 and a standard hard-disc or CD-ROM, the developer can easily update their kiosk information on a regular basis. Advanced kiosk features become possible due the advent of friendly, personal help video tailored to the needs of each user.

**Video on Demand**

Video on Demand (VOD) envelopes nearly all video based applications. However, the most common application of VOD is movies on demand. Initially in hotels and hospitals and eventually in our homes. All of us will have an interactive television set from which we can order movies on demand, at any given time. The missing ingredient for home use is low prices, interactive decoders (CD-I was one attempt). Given that this application is also considering the MPEG-2 standard, VOD to the home appears years away from a large scale implementation.

**Video Library**

Organisations storing massive quantities of video cassettes for occassional playback, can benefit by encoding their existing and new material. Storing the MPEG files on a digital library video server allows long-term storage and multiple playback without any quality degradation, fast random access retrieval and multi-point playback. Museums, large libraries, government agencies and news agencies using video footage, are now converting to digital video.

### **MPEG-2**

**CATV (Cable Television)**

CATV will use MPEG as the standard for compressing and decompressing video for distribution and for broadcasting. The need is perfect-quality video and the bandwidth is available to handle high bit rates. Because of this the industry has settled on MPEG-2 video although some are still using MPEG-1 on the interior.

**Other Applications**

Other applications include : Digital video tape; High Density CD; Video Conferencing and Digital Camcorders.

* **Advantages and Disadvantages :**

**Advantages**

* Occupies less disk space.
* Reading and writing and faster.
* File transferring is faster.
* Overall sharp pictures.
* Audio and video stay in sync with each other.

**Disadvantages**

* Pictures flashes, blurs when there is too much movement on screen.
* Higher bitrate often does not solve this problem.