

Chapter 6 - Video

- Motion video is the element of multimedia that can draw gasps from a crowd at a trade show or firmly hold a student's interest in a computer-based learning project.
- Digital video is the most engaging of multimedia venues, and it is a powerful tool for bringing computer users closer to the real world. It is also an excellent method for delivering multimedia to an audience raised on television.
- With video elements in your project, you can effectively present your messages and reinforce your story, and viewers tend to retain more of what they see.
- But, Video that is not thought out or well produced can degrade your presentation.

Using Video:

- Carefully planned, well-executed video clips can make a dramatic difference in a multimedia project.
- For Example
A clip of John F. Kennedy proclaiming "Ich bin ein Berliner" in video and sound is more compelling than a scrolling text field containing that same speech.
- Before deciding whether to add video to your project, however, it is essential to have an understanding of the medium, its limitations, and its costs.
- Video standards and formats are still being refined as transport, storage, compression, and display technologies take shape in laboratories and in the marketplace and while equipment and post-processing evolves from its analog beginnings to become fully digital, from capture to display.

- Of all the multimedia elements, video places the highest performance demand on your computer or device—and its memory and storage.

- Example:

Consider that a high-quality color still image on a computer screen could require as much as a megabyte or more of storage memory. Multiply this by 30—the number of times per second that the picture is replaced to provide the appearance of motion—and you would need at least 30 megabytes of storage to play your video for one second, more than 1.8 gigabytes of storage for a minute, and 108 gigabytes or more for an hour.

- Just moving all this picture data from computer memory to the screen at that rate would challenge the processing capability of a supercomputer.
- Some of the multimedia technologies and research efforts have dealt with compressing digital video image data into manageable streams of information.
- **Compression (and decompression), using special software called a CODEC, allows a massive amount of imagery to be squeezed into a comparatively small data file,** which can still deliver a good viewing experience on the intended viewing platform during playback.
- If you control the delivery platform for your multimedia project, you can specify special hardware and software enhancements that will allow you to work with high-definition, full-motion video, and sophisticated audio for high-quality surround sound.
- **You can also design a project to meet a specific compression standard, such as MPEG2 for DIGITAL VERSATILE DISC (DVD) playback or MPEG4 for home video.**
- **You can install a superfast RAID (REDUNDANT ARRAY OF INDEPENDENT DISKS) system that will support high-speed data transfer rates.**

- You can include instructions in your authoring system that will spool video clips into RAM, ready for high-speed playback before they need to play.
- Having control of the playback platform is always good, but it is seldom available in the real world, so as you develop your video elements, you will need to make many choices and compromises based upon your assessment of the “lowest common denominator” playback platform where your project will be used.

How Video Works and Is Displayed

1. When light reflected from an object passes through a video camera lens, that light is converted into an electronic signal by a special sensor called a **charge-coupled device (CCD)**.
2. Top-quality broadcast cameras and even camcorders may have as many as three **CCDs (one for each color of red, green, and blue)** to enhance the resolution of the camera and the quality of the image.

Difference between analog and digital video.

- Analog video has a resolution measured in the number of horizontal scan lines (due to the nature of early cathode-tube cameras), but each of those lines represents continuous measurements of the color and brightness along the horizontal axis, in a linear signal that is analogous to an audio signal.
- Digital video signals consist of a discrete color and brightness (RGB) value for each pixel.
- Digitizing analog video involves reading the analog signal and breaking it into separate data packets. This process is similar to digitizing audio, except that with video the vertical resolution is limited to the number of horizontal scan lines.
- For some multimedia projects you may need to digitize legacy analog video.

For any doubt contact 9873961596