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Multimedia technologies

Multimedia technologies are inextricably linked with virtually all spheres of human life. Training, entertainment, business - everywhere they are used quite widely. Without them, our world would be completely different.

Also an integral part of all modern multimedia systems is interactivity, that is, the ability to interact with the user.

Multimedia technologies are one of the most promising and popular areas of computer science. They aim to create a product that contains "collections of images, texts and data accompanied by sound, video, animation and other visual effects (Simulation), including an interactive interface and other management mechanisms." This definition was formulated in 1988 by the largest European Commission dealing with the problems of introducing and using new technologies.

Multicomponent multimedia environment is divided into three groups: 1) audioriod, 2) video series, 3) textual information.

1) Audiorade can include speech, music, special effects (noise, thunder, creak, etc.), combined with the designation WAVE (wave). The main problem with the use of this group of multisolid is the information capacity. To record one minute of WAVE sound of the highest quality, memory is required of the order of 10 MB. To solve this problem, methods of compression of audio information are used.

Another direction is the use of MIDI (Musical Instrument Digitale Interface) in the multispeed. In this case, the sounds of musical instruments (one-voice and many-voiced music, right up to the orchestra), sound effects are synthesized by software-controlled electronic synthesizers. Correction and digital recording of MIDI sounds is performed using music editors (sequencer software). The main advantage of MIDI is the small amount of required memory - 1 minute of MIDI sound takes an average of 10 Kbytes.

2) The video collection is characterized by a large number of elements compared to the audiist. Highlight static and dynamic video sequences.

The static video sequence includes bitmap and vector graphics (drawings, symbols in graphical mode, 3D models) and photographs (photographs and scanned images).

Graphical information is usually associated with large amounts of memory, so data compression technologies are used, which are methods of storing the same amount of information using fewer bits. This optimization is especially important when publishing graphical information on the Internet. The schedule needs to be pre-optimized in order to reduce its volume and as a consequence of traffic.

Dynamic video is a sequence of static elements (frames). There are three typical groups: the usual "live" video sequence of photos (about 24 frames per second); quasi-video sparse photo sequence (6-12 frames per second); animation is a sequence of framed images.

When working with a digital video signal, it becomes necessary to process and store very large amounts of information. The amount of video information can be significantly reduced without noticeable degradation of the image by MPEG compression.

3) Text is often an element of the organization of a multimedia product, starting with memorable headlines and ending with various comments and articles accompanying the presentation. Various methods and tools have been developed for converting text documents between different forms of storage, taking into account the document structure, text processor codes, links, tables of contents, hyperlinks, etc., that are present in the source document. It is possible to work with scanned texts, use optical character recognition in text format.

It is customary to divide multimedia technologies into linear and non-linear technologies. The former exist independently of the user. For example, it could be a movie in a movie theater or a laser show. Non-linear adjust to the person and respond to his requests and commands. An example of such technologies is an interactive presentation or computer game.

Areas of application of multimedia technologies are quite extensive and constantly increasing:

1. Business. Thanks to computerization, it is possible to carry out online monitoring in real time for production processes, movement of corporate transport and always remain in touch with employees. In addition, multimedia devices are widely used for demonstration of goods at sales outlets, while the client can take an active part in choosing the right category. Such systems have found application in the banking, tourism and automotive sectors. Especially the offer of virtual tours to various important places is developing.

2. Education. Presentations and lectures in online mode are widely used in higher schools around the world. And software labs allow not only to save money on expensive equipment, but also to enable students to better understand the material. Plus - qualitative and unbiased evaluation in a test form. Receiving information in various forms of perception increases learning and memorizing by at least a quarter.

3. Linguistics. It is multimedia that allows you to manage services with gestures, voice and even eye movement. And individual programs-translators can immediately reproduce the text in any of the languages, so that artificial pronunciation will be almost imperceptible.

4. Multimedia media technologies. Today every newspaper or magazine has its own Internet version, which is open for viewing wherever there is access to the Web. And accessibility created the opportunity to share news with everyone who has a desire. Globalization and hyper connection allow in a few seconds to learn about events that occurred in any part of the world, both on a large regional scale and personal.

Of course, the entertainment industry occupies a significant part of the use of multimedia technologies. The most progressive development is the creation of virtual realities. In the last quarter of a century, computer games have evolved from two-dimensional arcades into full-fledged life-substitutes. Glasses and gloves allow not only to see and hear, but also to feel non-existent objects.

Almost all novelties of the film industry are created in 3D format, and in each city centers are opened, where in virtual reality one can immerse oneself by one hundred percent thanks to a combination of three-dimensional video, sound, smell and kinetic sensations indistinguishable from the real ones. Thus, multimedia technologies are widely included in the life of a person, simplifying life.