

CREATION OF AUTOMATED MEDICAL WORKSTATIONS FOR MEDICAL PERSONNEL AND IMPLEMENTATION IN UZBEKISTAN

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Abstract: In the 21st century, due to the development of radiation diagnostic methods and information technology, new approaches to diagnosis, imaging, therapy, surgery, treatment and rehabilitation have been proposed in medicine. The rapid development of computer graphics methods has provided high-quality 3D visualization of the patient's anatomical structures

Keywords: *3D visualization, 3D animation, computer games, advertising, cinema, transformation, digitalization, diagnosis, angiography, digital technology*

Main part:

3D visualization of objects, 3D animation are widely used in various fields such as architecture, industry, medicine, computer games, educational materials, advertising, film and video production.

3D-visualization provides an opportunity to show the (still intangible) features and advantages of an object. Virtual tours of such an object is a powerful marketing tool, it is the strongest means and methods of realization, giving advantages in overcoming objections and misunderstandings. All this helps us to give an objective assessment of the essence and is the need for transformation and digitalization of the traditional health care system.

The relevance of the topic is the introduction of 3D visualization of objects in medicine, which are related to the universal digitalization in medicine and accurate diagnosis of various diseases at an early stage, which accelerates the process of digital transformation of the medical field.

The purpose of visualization is the diagnosis of pathological conditions or preparation for medical intervention, and sometimes the representation of the functions of individual organs or tissues.

The purpose of this paper is to familiarize with the ALTIMA F-100 angiograph from Allengers and to actively implement in the therapeutic and preventive process of digital technologies in the clinics of the new Uzbekistan.

Cardiovascular diseases caused by atherosclerotic lesions of the main arteries (coronary, cerebral) are the main cause of death worldwide: for no other reason do not die annually as many people as from CVD.

WHO estimates that 26.9 million people died from CVDs in 2022, accounting for 31% of all deaths worldwide. 85% of these deaths were due to MI and stroke, and more than 75% of deaths from

CVDs occur in low- and middle-income countries, almost equally among men and women. Of the 20 million deaths from non-communicable diseases before the age of 70, 82% occur in low- and middle-income countries, and 37% are caused by CVDs.

Angioplasty, also known as balloon angioplasty and percutaneous transluminal angioplasty (PTA), is a minimally invasive endovascular procedure used to dilate narrowed or blocked arteries or veins, usually to treat arterial atherosclerosis.

- A deflated balloon attached to a catheter (balloon catheter) is passed through a guide wire into the narrowed vessel and then inflated to a fixed size. The balloon causes the blood vessel and surrounding muscle wall to dilate, providing improved blood flow. A stent may be inserted during ballooning to ensure that the vessel remains open, and then the balloon is deflated and removed. Angioplasty has come to include all types of vascular interventions that are commonly performed percutaneously.

- - Hospital Management System (HMS) or Hospital Information System (HIS) from Allengers Infotech will make hospital management paperless and save time. In other words, HMS consolidates all the resources of a hospital into a single software system.

- - The system aims to offer high-end solutions when it comes to managing not only clinical but also other interdisciplinary and back office activities.

- - The system offers a fully configured, advanced modular or complete web-based package with exceptional anywhere and anytime login capabilities, patient record management, emergency handling that optimize all aspects of the hospital. Почему Allengers HMS (Clarity)?

- All-in-one solution provider
- Secure information sharing
- Reduced labor force
- Saves time, facilitating timely decision making
- Requires minimal maintenance
- Built with the latest technology
- Clear and user-friendly
- Document Management Solution
- Improved operational efficiency
- Modeling of orthopedic shoes and earmolds, etc.

3D modeling can be performed in standard or specialized medical software. There are a number of software environments that allow you to simulate surgical conditions, i.e. simulators used for training and planning.

The most active branches of medicine in the use of 3D modeling are cosmetology, plastic surgery and prosthetics. In the first two, visualization will play the biggest role, as the patient most often turns to specialists in this field for maximum aesthetic effect (medicine). Visualization allows you to select the best treatment options or changes, make a preliminary assessment of changes and their feasibility.

It is very difficult, even impossible, to do without 3D modeling in prosthetics. And regardless of the scale, whether it is a small crown of a tooth or a whole exoskeleton, 3D modeling allows you to do all the work quickly and maximally individualize the finished product. This means that even at the design stage it will take into account the anatomical features and needs of the patient. 3D моделирование имплантатов позволяет создавать анатомически точные детали тела человека. Это может быть кусок черепа, кость, хрящи, позвонок и т.д. Аппелируя точными 3D сканами можно смоделировать изделие, максимально соответствующее реалиям.

The use of 3D technology, and 3D modeling in particular, makes it possible to provide quality services to patients, to treat them faster, according to their needs. And as a result, all of this pursues only one crucial goal - to significantly improve the quality of life of a person, especially those who are characterized by disabilities due to a number of reasons.

3D printing has become virtually synonymous with rapid prototyping. The ease of use and low cost of 3D printing when implemented in-house has also revolutionized product development, and many medical instrument manufacturers have adapted the technology to produce entirely new medical devices and surgical instruments.

More than 90 percent among the top 50 medical device companies are using 3D printing to create accurate prototypes of medical devices, as well as clamping and mounting fixtures to facilitate testing.

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