Institute of Control Science Russian Academy of Sciences Laboratory №17 “Automated queuing systems”

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Introduction

The basic directions of scientific researches and applied workings out of laboratory are:

- **Principles of intellectualization of information and service systems on the base of actual information, speech and multimodal interfaces, and mobile services**
- **Creation of the distributed information and services systems on the network centric control principles and strategic computer technologies**
- **Interactive system of monitoring of physical training state of schoolboys and sportsmen on the basis of an original testing method**
- **Creation of training system for deaf persons on the base of speech and multimedia technologies**

The laboratory also is ready to cooperate in following areas:

- **Creation of complex systems of safety with voice (speech) control;**
- **3D modeling of technogenic and natural accidents;**
- **Creation socially significant and educational services in the Internet of new generation.**

Main activities

Automated queuing systems with multi-modal interfaces for voice, web service, etc.

Automated queuing system suggests a large number of people who wish to take advantage of interesting them services. The use of multimodal interfaces enables people to choose a convenient way to communicate to them, thus improving the quality of service.

Multimodal interface may include interaction with specialized devices keyboard, mouse, voice control, gestures, etc. It also covers the various available means of communication, such as PC, mobile and landline phone.

The laboratory has developed the automated taxi booking system based on speech recognition. The system without human intervention, recognizing the phone number, address and time of booking, shaped card order is sent to operator e-mail.

Also we research area of gesture recognition and gesture input. Human-computer interfaces with gesture input may be useful for people with certain restrictions the musculoskeletal system, and may improve the usability of using of different information systems for general population.

Development of Internet portals

The laboratory is also developing a service-oriented web portals of various kinds. At the heart of development is stable and time-tested platform Drupal, well established in international projects such as the White House Web site U.S. (whitehouse.gov), the UK Government information portal (data.gov.uk) and many others.

For specialized applications, such as "The calculation of physical fitness," library is used Zend Framework - an open source library of the company engaged in the development of the programming language PHP.

Old laboratory's site is based on its own CMS. The new site of laboratory (asmon.ru) uses Drupal 7.

Information Society

From the many different functions of the state and government in nowadays highest priority in the case of IT we can give to the services functions and developing and maintenance the common information environment for the citizens. Bringing up-to-date and times to come of these services requires improvement of existing state infrastructure and also developing and implementation of fundamentally new services, technologies and paradigms.

In our laboratory we research the network centric technology and problems of the application of such approach in the case of automate of state functions. The network centric approach implies apply the multimodality paradigm, and also the common standardized interfaces of data exchange between the different services and human-services interaction interfaces.

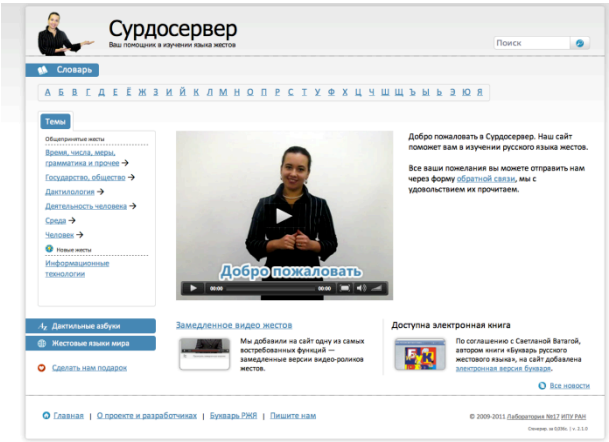
Projects

Surdoserver

Surdoserver was created to help the deaf, hard-of-hearing people and the public to access to the resources of Russian sign language and sign languages of the world via Internet.

The project was launched in open access in February 2010. By June 2011 the site has been used by more than 11,000 absolutely unique visitors who made more than 30 000 visits and over 600 000 views different pages.

Website - surdoserver.ru.



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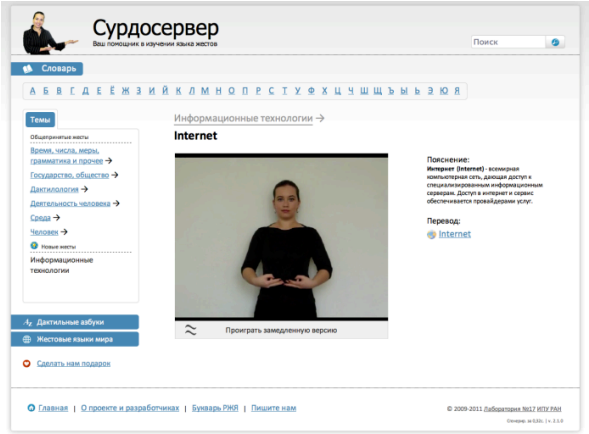
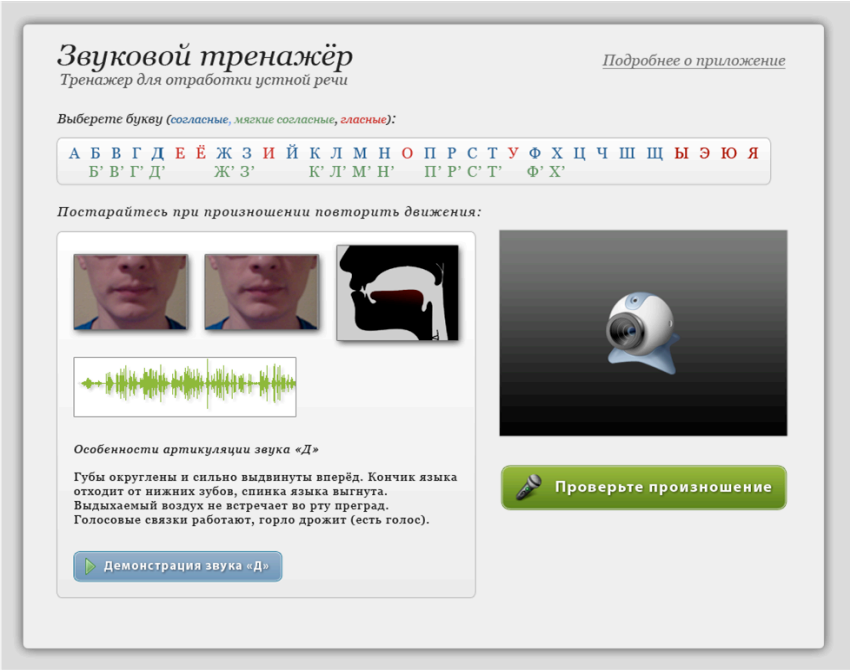


Speech trainer

As a rule, articulatory apparatus of people who suffer from hearing impairment is not affected, but they cannot use it without special training. The participation of specially trained teachers in this process is indispensable. But today's computer technology allows creating applications that can help people in the formation of the correct pronunciation. Putting those programs on the Internet and provide online access to them will significantly increase the number of people who will have the opportunity to train with the pronunciation of home computers. A prototype of such a program was developed in the laboratory.

The user selects a sound that wants to practice in pronunciation, and pronounces him a microphone and software, analyzing it, gives an estimate. In addition the program includes reference materials that can help the student.

The program can be adapted for different languages.



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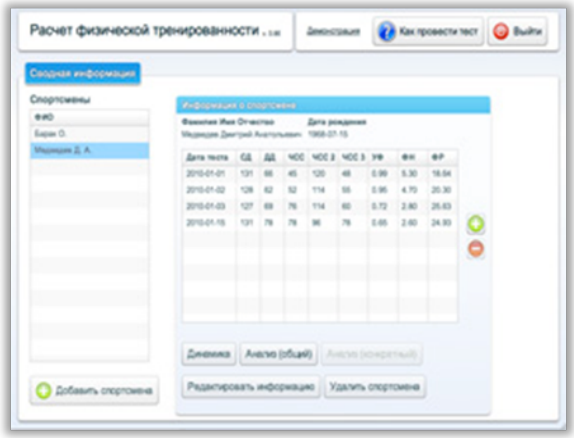
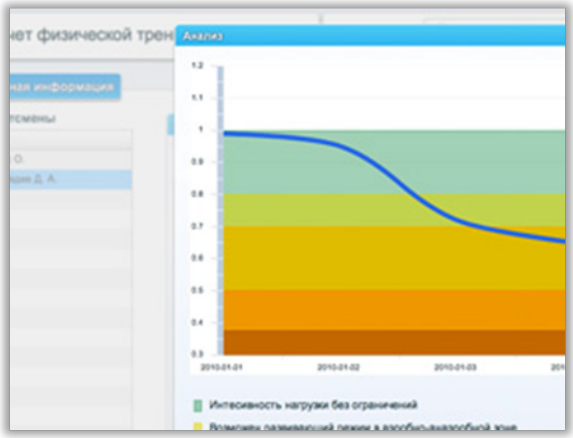
Calculation of physical fitness

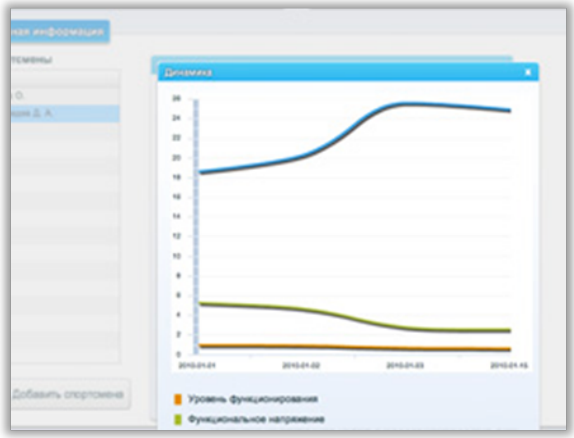
"Calculation of physical fitness" is a simple and rapid method for measuring physical condition. Themainfeaturesoftheapplicationare:

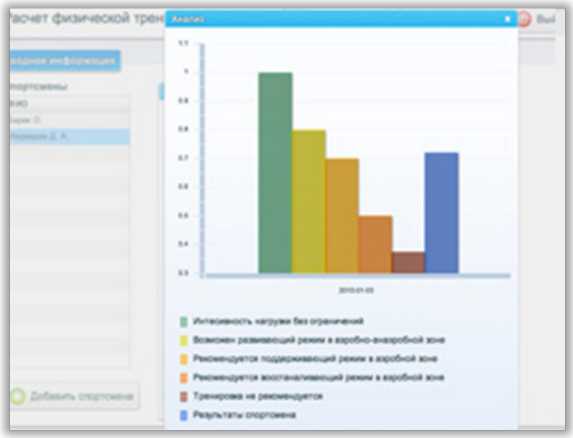
- Storing the history of the dynamics of the physical condition;
- User-friendlywebinterface;
- Clear and understandable visualization of information.

The methodology underlying the program was developed at the Russian Research Institute of Physical Culture and Sports (RRIPCS).









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