VIRTUAL RESEARCH CENTER

JOINT STOCK CORPORATION
SHIPBUILDING & SHIPREPAIR
TECHNOLOGY CENTER

Due to intense competition between manufacturers of advanced marine equipment, one must maintain adequate degree of competitiveness by implementing up-to-date approaches to products development, which are most adapted to current industry conditions and capable to minimize costs for equipment operation, maintenance and repair.

Complex analysis method based on virtual reality (VR) technologies is one of such modern approaches. Implementation of VR technologies will help all shipbuilding enterprises to move to a new level of equipment design, construction and maintenance.

Application of VR technologies allows to reduce lead time and introduction of products to the market, to advance cooperation procedures in common information space between design institutions and production companies involved in development and manufacturing of civil and defence goods.

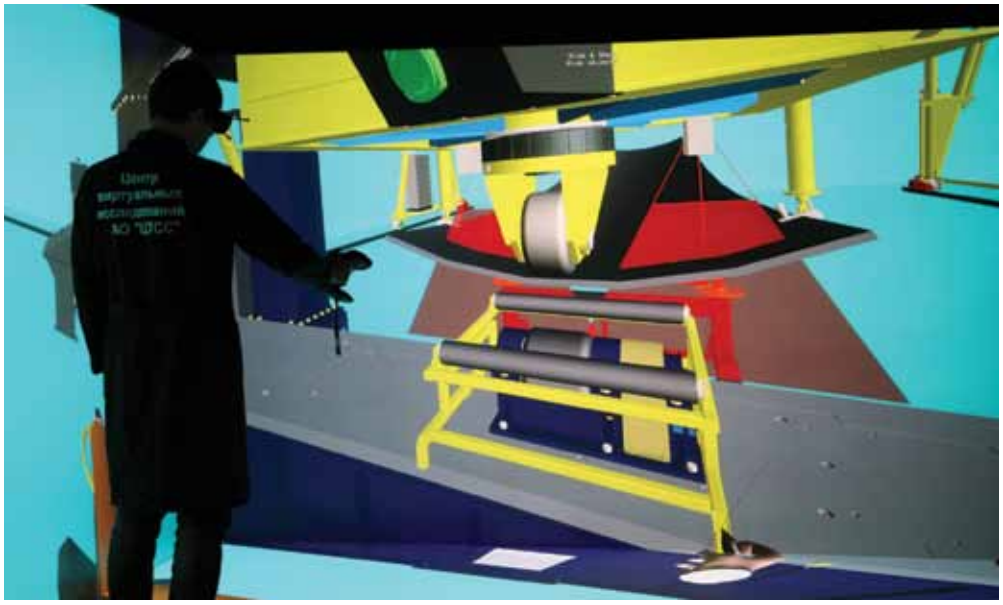
In order to implement the same, in 2014 JSC SSTC established the Virtual Research Center equipped with 4-screen CAVE-type silhouetting system.

The Center is equipped with software and hardware facilities for 3D-visualization, tools for interaction with CAD/CAM/PLM packages, such as AVEVA Marine, Foran, CATIA, DELMIA, Creo Elements (Pro/E), Autodesk Inventor, KOMPAS 3D, etc.

The abovementioned hardware includes: 3D-glasses, spatial controller, 3D-model tactile feedback system, VR-suit.

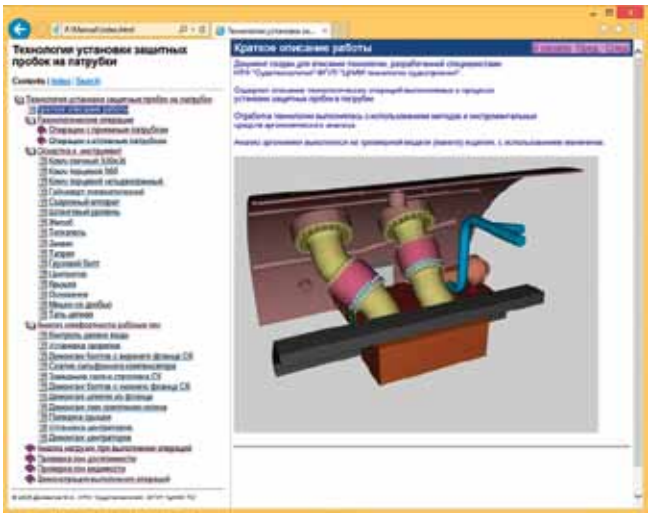
VIRTUAL RESEARCH CENTER IS FOCUSED ON SOLVING THE FOLLOWING TASKS:

- Development and verification of manufacturing technologies at early design stages of civil and defence equipment;
- Checking work performance possibility in highly congested compartments;
- Development of equipment assemblydisassembly technologies in ships compartments using electronic dummies, including:
  - visibility zone analysis;
  - reach analysis;
  - personnel operational comfort analysis;
  - analysis of personnel workload when using manual or automated technological equipment;
- Definition of requirements and design of technological equipment for solving certain production tasks;
- Checking optimal layout of pipelines, ventilation system components and equipment in ship compartments in terms of convenience of assembly and further maintenance;
- Visual representation of work results (including layout and configuration of shipbuilding facilities) with “immersion” effect;
- “Virtual tours” along 3D models of articles, sites and production facilities;
- Rendering engineering services for enterprises and organizations in analysis of design solutions and products processability, calculation of ergonomics and assemblability.



LIST OF SERVICES PROVIDED BY VIRTUAL RESEARCH CENTER:

- Presentation of work results to the Customer;
- Support of briefings on configuration and design solutions finalization;
- Analysis of configuration solutions (including ergonomic requirements);
- Analysis of designed articles assemblability (by means of tactile feedback system);
- Preparation of illustrated content for project report documentation;
- Analysis and development of technologies for assembly/ disassembly and maintenance of equipment;
- Preparing engineering and economical solutions on equipment assembly and maintenance;
- Personnel training.



In 2015, at the international exhibition «High Technologies. Innovations. Investments.», R&D product of JSC SSTC «Center for virtual investigations» was awarded gold medal and Diploma of 1st grade in nomination «Best innovative project in the area of information tecnologies, educational technologies, computer programs, knowledge bases, data bases».

7, Promyshlennaya Street, St. Petersburg, 198095, RUSSIA
Phone: +7 (812) 786-2610, Fax: +7 (812) 786-0459
e-mail: inbox@sstc.spb.ru **www.sstc.spb.ru**