RoboScan

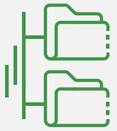
Robotic autonomous complex for ultrasonic diagnostics

Problem

MARKED OPERATOR-DEPENDENCE

Localization of doctors in large cities, shortage in remote regions

WEAK STANDARDIZATION AND FORMALIZATION OF ULTRASOUND



LACK OF COLLECTION AND ACCUMULATION OF PRIMARY INFORMATION IN ROUTINE ULTRASOUND PRACTICE

EXTENDED PROCEDURE DURATION

Because of the need for repeated manipulation of the physician during the examination

THE RISK OF INFECTING A PHYSICIAN

Because of the need to be in close proximity to an infected patient

HIGH COST OF THE PROCEDURE

Because of expensive specialists

Separation of ultrasound data acquisition and analysis processes

1. Ultrasound data collection	
Automated examination mode	Robot + Lab technician
Remote control function	Robot + Lab technician
Separation of data collection and analysis of results	Robot + Lab technician
2. Saving initial data in DICOM	
3. Data research	
Expert data analysis	Physician
Decision Support System	AI + Physician
Automated analysis process	AI

Solution

SAVING RESOURCES

The possibility of ultrasound without or with minimal involvement of a human operator (lab technician)

SAVING TIME

Routine work (data collection) is formalized and standardized

QUALITY IMPROVEMENT

By automating the screening process and forming centers of excellence using telemedicine technologies, quality expertise

REMOTE ACCESS

Allows physicians to work with hard-to-reach regions and eliminates the need for direct contact with infected patients

DATA ANALYSIS

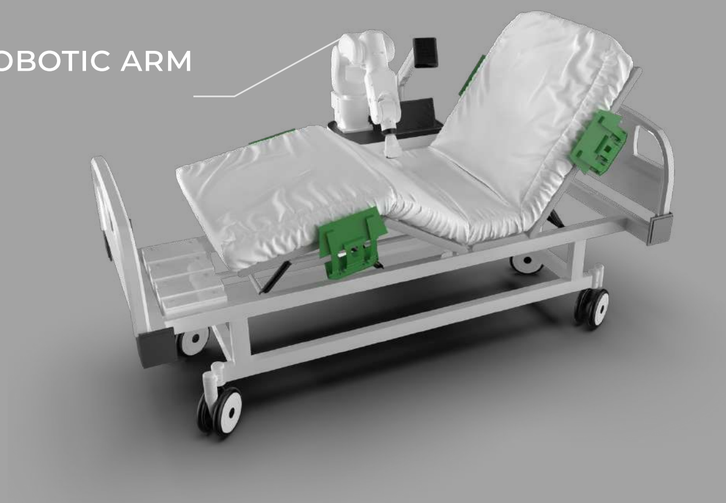
Data accumulation, storage, and analysis will allow: faster examinations, prediction of diagnosis and treatment options

CREATING NEW SOLUTIONS

Forming an extensive dataset for research, new product creation, development and training of medical programs based on Machine Learning

Composition of the complex

Diagnostic site



- Ultrasound machine
- Collaborative robotic manipulator, which implements the screening process in automated mode according to a predetermined trajectory, depending on the study area

The doctor's workplace

- Converting received data to DICOM
- 3D modeling of the examined organ
- Physician's work interface with the display of the marked data of the ultrasound
- Accumulation, storage and analysis of examination results

Target markets

B2B

Private medical centers

Medical equipment manufacturers

Manufacturers of medical complexes

B2G

State medical institutions

Defense structures

MES

Current status

MVP, capable of performing automated examination of the pelvic area

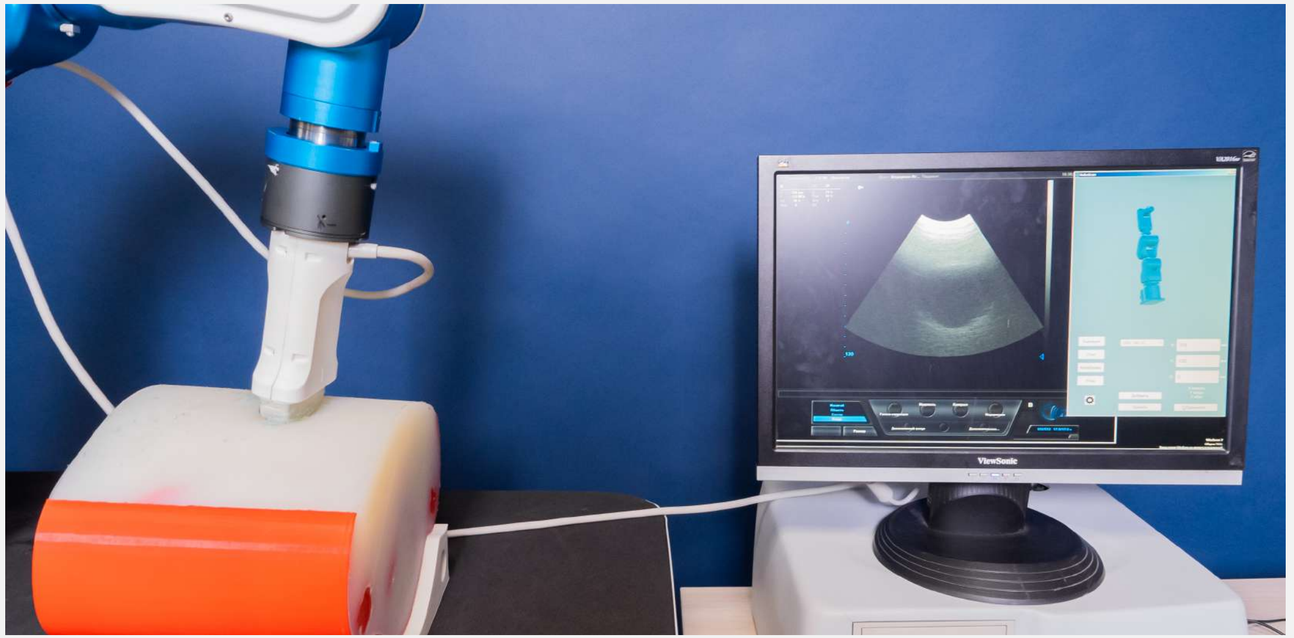
Algorithms of formation and automatic analysis of ultrasound images

A platform for secure storage, processing and visualization of medical data

Strain gauge to regulate the degree of pressure

Developed ergonomic solutions

Current status



MVP, capable of performing automated examination of the pelvic area

Partners

Skolkovo Innovation Center

Member of the Skolkovo project

Moscow Innovation Cluster

Cluster member

Sechenov University

Testing of the prototype complex

Manufacturer and distributor of medical devices and consumables

Production and distribution

Team

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A team of developers, engineers and industrial designers

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