intetics

Where software concepts come alive™

Business Domain
Healthcare and Life Sciences

Project Type
Desktop application for surgeons

Medical Device Company Received a New Application That Helps Surgeons Navigate Neural Implant Insertion

Client

The Client is a medical device company committed to developing innovative therapies for patients suffering from Central Nervous System (CNS) diseases. The Client's platform technology involves electrical stimulation of the Sphenopalatine Ganglion (SPG), a nervous center known to increase cerebral blood flow.

Project

Development of a desktop application executed on special computers that assist a surgeon during an operation by inserting an implant into the patient's brain. The application helps in navigation.

Objective

The Client required a new application that would navigate a surgeon in inserting an implant into the patient's brain. For this purpose, MRI images of a patient's head are processed by the software; ML&AI algorithms are used to build a path for an implant, which is shown on the screen on top of an MRI image.

Team Reinforcement

The Client doesn't have a software development team. The Client's team consists of doctors and scientists. Intetics' Remote In-Sourcing model was used to create a team of engineers that developed the application. The formed development team led the app development process while reporting to the Client and the company`s Product Management.

![intetics — Where software concepts come alive™]

Challenge

The Client is exploring several applications for their technology and is currently focusing on the treatment of acute ischemic stroke. The Client's technology is based on established scientific evidence that electrical stimulation of the Sphenopalatine Ganglion (SPG) increases cerebral blood flow.

The Client had many doubts about the technology selection. The application uses C++ for speed and control. On the other side, the application needed a friendly and functional user interface.

The Client doesn't have their own software developers and expected a vendor to provide a high level of service and develop the application that would be used during very sensitive surgery.

Quick Facts

✓ FDA Approved solution

✓ Designed 100% of the Client's application and implemented it

✓ The Client is able to concentrate on medical solutions, not technical details

Technologies
C++ / ML&AI / Qt / Windows API / VTK / DICOM / Multithreading / CT / MPR

Solution

⭐ **01**

The Client received the application, which helps surgeons save many lives and improve a patient's condition after an ischemic stroke.

⭐ **02**

The created software fully emulates and presents to a surgeon in 3D view everything that is happening while inserting the implant.
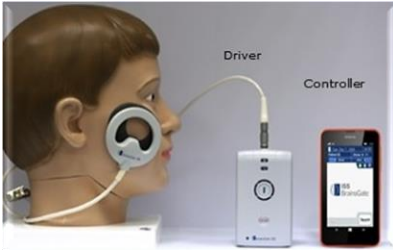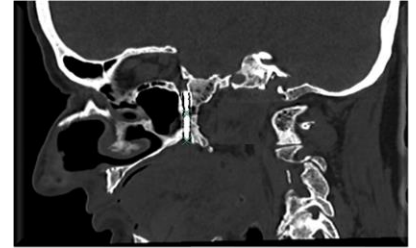
⭐ **03**

The software complex includes a special camera and pointers that help in navigation.

⭐ **04**

The application is a part of the hardware and software complex that consists of a special camera, implant injector, optical markers, and CT marker. This is a very complicated solution that shows the patient's head and the position of the implant in real-time.

⭐ **05**

The Remote In-Sourcing Team® was formed from high-level professionals that have specific knowledge not only in programming but also in the medical domain. The programmers were required to work with CT and MRI images along with their 3D models.

Client Reference

"

The Intetics team helped us with many directions, some of which we hadn't encountered before. Design, technology selection, implementation, and testing were made fully by Intetics.

Product owner

Benefits and Results

★ Only the unique knowledge of the Intetics team helped the Client build the solution with FDA-required parameters.

★ The newly created solution enables the Client to certify the whole hardware and software complex and start selling it in US clinics.

★ The Client is currently running the ImpACT-24b, a multi-national, pivotal study to assess the safety and efficacy of its treatment for stroke patients in a 24-hour window.

★ The software solution was developed and implemented within 12 months of conception.

Intetics Inc.
Email: intetics@intetics.com
Phone: +1-239-217-4907
www.intetics.com

Techstack:

C++, ML&AI, Qt, Windows API, VTK, DICOM, Multithreading, CT, MPR

Team: 7

Project Manager,
System Analyst,
Software Developers,
QA Engineers,
Designer