Software Development for a Surgical System

Comtrade helps client develop software for a Minimally Invasive Surgery device

Our client lacked the in-house resources and expertise to quickly assemble a team of software engineers needed for the development of a highly sophisticated surgical device. They enlisted Comtrade’s help based on our company’s experience and proven expertise in the medical industry and embedded software development.

The minimally invasive surgical tool that our client was working on had to be developed in line with the highest functional safety and product quality standards.

Situation & Challenges

Today, medical devices are highly sophisticated and require multifaceted interaction between hardware and embedded software. As an extremely high-level of safety and quality is essential, both hardware and software need to be designed and developed according to industry-specific standards.

Our client, a leading German provider of OEM products for the micro optics and fiber optics industry, was working on the development of an endoscopic device.
The project required delivery of a high-quality 2D and 3D camera surgical device that enables outstanding Full HD visualization. It was also necessary to design and code the software component of the product. Furthermore, the product had to be developed in compliance with safety class B, based on the EN62304 standard.

This cutting-edge, robot-assisted device is one of the most minimally invasive tools currently available on the market and therefore functional safety and product quality were of paramount importance. As this was a very demanding project in terms of timelines and manpower, our client, a mid-size company, found it challenging to quickly ramp-up resources. Another challenge was to quickly assemble a highly qualified and experienced team of engineers with medical industry standard certifications.

**Solution**

As soon as Comtrade was brought onboard, we kicked the project into high gear. We assigned our top team of software engineer and consultants to take over the development of the visualization component of the embedded software. Our engineers produced sophisticated software that combined several different modules, including a 3D monitor, light source, command station and camera head with a special communication layer between them.

The firmware was made up of several sub-components with distinct functionality scopes and defined the allowed complexity. The system had to be responsive and reliable at the same time. To provide stability against programming and hardware errors, all modules were built following the EN62304 standard.
Some of the software modules were developed with built-in flexibility, which allows the client to easily reuse and adapt them to different devices and projects.

Results Delivered

Although the timelines for final product delivery were highly demanding, with proper management and planning our team was able to successfully meet the agreed deadlines and deliver high-quality and safety-critical software that meets all regulatory compliance.

The surgical device enables medical professionals to perform endoscopic laparoscopy with greater efficiency thanks to the Full HD visualization combined with the latest 3D technology, which helps to optimize hand-eye coordination. The 3D system also greatly increases precision during operations enabling surgeons to perfectly position needles and separate extremely fine tissue structures.

About the Client

Our client is a leading German provider of Original Equipment Manufacturer (OEM) products for the micro optics and fiber optics industry with over 40 years of experience.
Creating value through partnership

Comtrade is a leading IT organization in South East Europe specializing in the fields of IT solutions, system integration and hardware distribution. With more than 900 satisfied customers and offices across Europe and the USA, Comtrade has become a recognized name on the global stage. Founded in 1990, Comtrade now employs over 1,500 business and IT experts, including 1,000+ software engineers. With a proven track record of delivering IT solutions and services that help reduce business complexities and costs, we are a trusted technology partner to medium and enterprise businesses.

1500+ Total employees
30 Strategic partnerships
1000+ Software engineers
10 Development campuses
900+ Loyal customers
03 Technology centers

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