

Single-Use Surgical Robotics

**Client**

StaplCam

Practice Areas

Smart Medical Devices

Core Disciplines

Software Engineering
Mechanical Engineering
Systems Engineering
Electrical Engineering
Industrial Design

Challenge

Developing a fully disposable surgical robot required rethinking conventional robotic surgery platforms while maintaining the performance required for both routine and complex procedures.

The system needed to deliver precision and functionality expected of advanced robotic surgical devices while introducing an entirely new approach to sterility, workflow efficiency, and cost. Achieving that vision leveraged Triple Ring's expertise spanning user-centered design, systems engineering, mechanical engineering, electrical engineering, software engineering, and rapid prototyping.

Solution

Triple Ring partnered closely with StaplCam throughout the product development process, helping transform an ambitious concept into a functional robotic platform.

The development program included:

- Defining user needs and mapping clinical workflows to guide system requirements
- Creating product concepts and visualizations to accelerate design refinement
- Developing novel intellectual property supporting the disposable robotic platform
- Designing, engineering, and integrating a complete robotic system
- Building proof-of-concept prototypes and conducting iterative engineering cycles
- Supporting preclinical testing to advance the system toward clinical readiness

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