TATA

TATA ELXSI

RE-ENGINEERING LASER-BASED LITHOTRIPSY DEVICE FOR PERFORMANCE AND EASE OF USE

CASE STUDY

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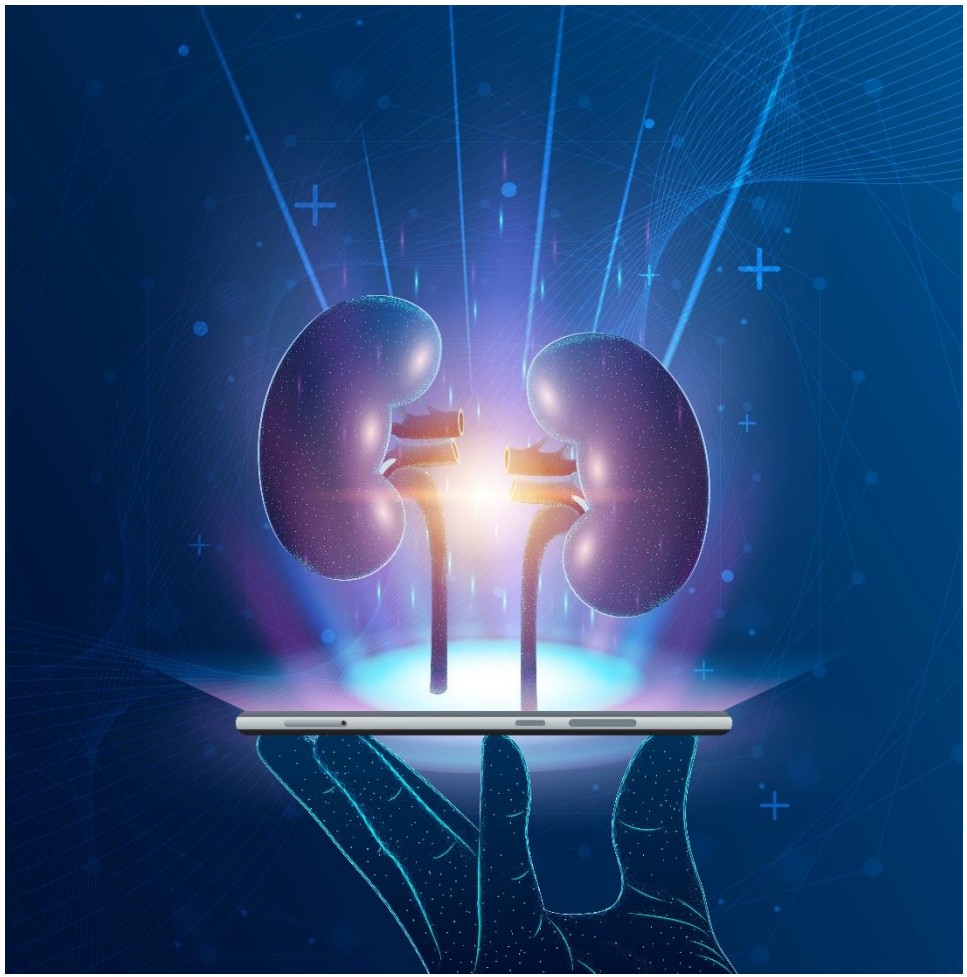
Customer Challenges

Our client is a Germany-based medical devices manufacturer known for its pioneering technologies and revolutionary therapies in the field of urology.

The customer intended to re-engineer its existing laser-based lithotripter for improved user experience, performance, and clinical outcomes. Therefore, the customer needed a partner with expertise in product engineering, industrial design, and digital engineering.



Scope

- Benchmarking the client's products against those of its competitors on functional, system-level, and ergonomic criteria
- Re-designing the product with improved industrial design concepts, including form aesthetics and CMF options for housing
- Performing an engineering feasibility study for the integration of the existing system's internal sub-assemblies
- Designing and verifying the system with increased laser energy from 30W to 35W and 20Hz to 22Hz
- Developing an Android application for secondary remote wireless display
- Ensuring compliance with Basic Safety edition 3.1 and EMC 4th edition standards
- Providing end-to-end regulatory and product life cycle support activities

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Approach

Tata Elxsi was tasked with revamping the laser lithotripter to attain state-of-the-art technology and compliance with the latest Basic Safety and EMC standards.

Tata Elxsi's team entirely overhauled the laser-based therapeutic equipment. The team redesigned the hardware for high performance, ensured the industrial design was in line with the new design language, developed an Android-based secondary display to wirelessly monitor real-time parameters for ease of use during the procedure, and performed sub-system and system verification and validation.

The team developed clear and constant communication with the client, established an adequate tracking mechanism, and planned for any potential setbacks and associated corrective actions, thereby enhancing efficiency and decreasing the overall project cost.

Impact

- Enabled early product launch in the US and Europe to ensure a competitive edge
- Comprehensive project management resulted in a €150k reduction in R&D costs
- Delivered a future-ready product for upcoming compliance requirements
- Standardized requirement management and DHF remediation