Holistic Value Engineering Leading to a 25% Reduction in BOM Cost of Blood Coagulation Analyzer

CASE STUDY

ACHIEVED 25% BOM COST REDUCTION THROUGH HOLISTIC VALUE ENGINEERING OF BLOOD COAGULATION ANALYZER

Customer Challenges

Our client is a Japan-based manufacturer of Lab automation and information systems, analyzers for clinical chemistry diagnostics, and diagnostics reagents.

The customer intended to enhance the technology of their legacy blood coagulation analyzer while reducing the cost of the product. Additionally, they also wanted to expand the product market reach to ASEAN and EU countries.

Scope

- Hardware and software development
- Hardware-software integration
- Creation of V&V test protocols including EMI/EMC compliance, test execution & preparation of test report
- Compliance oriented design & DHF for Japan, Korea, China and other ASEAN countries
- Creation of technical documentation and performance evaluation templates as per EU IVDR 2017/746 requirements

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Approach

Tata Elxsi facilitated a cross-functional team of interdisciplinary engineers and subject matter experts (HW, SW, validation, and regulatory) along with a bilingual onsite/offshore support team for efficient and seamless communication with the customer team.

Tata Elxsi team redesigned the enclosure for size reduction and changed material (metal to plastic) for weight reduction. The team reduced electrical BOM costs by making a single board design, replacing SD cards with flash memories, and FPGA with an STM32 microcontroller.

Tata Elxsi also ensured portable design by replacing the in-built thermal printer with a high-speed USB 2.0 interface for external thermal printers and enabling rechargeable battery backup.

Impact

- Achieved 25% BOM cost reduction, 35% weight reduction, and 40% size reduction
- Enabled market expansion into ASEAN and EU countries by performing the compliance check and creating technical files for CE certification
- Ensured business continuity during the pandemic and delivered the agreed-upon milestones on time
- Delivered prototypes for early market study and user feedback