TECHNOLOGY LEADER EXTENDS DIGITAL INNOVATION ADVANTAGE

Apexon's product engineering excellence accelerates design, development, testing and certification

This company is one of the world's leading technology companies. It develops, manufactures, licenses supports, and sells computer software, consumer electronics, personal computers, and related services.

To support co-innovation, Apexon helped the company in key areas of engineering ranging from board bring-up to firmware development. The client engaged with Apexon in 2004 and has since been assisted in the journey with product development, middleware development, automation testing, resource mobilization, and more.

☆ **Fortune 500 technology leader**

🌐 **100,000+ employees globally**

👥 **Millions of user across multiple product and service lines**

THE CUSTOMER JOURNEY

2004 - 2009	2007	2008	2010	2012	2015	2017	2022
Video conferencing devices development	IP phones development	USB phones development	Mobile app development	Room conferencing systems development and testing	Devices testing and validation	Web portal/ B2B and B2C development and testing	Devices certifications
		Mobile development					

KEY OUTCOMES

EXPANDED PRODUCT INNOVATION THROUGH PARTNER ECOSYSTEM

FASTER TIME TO MARKET FOR CO-ENGINEERING OFFERINGS

HIGHER SERVICE LEVELS FOR USERS

THE CHALLENGE

FOCUSING ON THE CORE BUSINESS WHILE ACCELERATING PRODUCT INNOVATION

Innovation can drive strategic partnerships in the technology space when companies want to bring new advancements to market, with futuristic products which are ahead of the competition. Apexon's partnership with this client started in 2004 to build an advanced video conferencing product.

Our engagement began with the development of a conferencing device that could connect with an integrated system that stitched images together from multiple cameras. The organization was looking for an innovation partner with the requisite experience and expertise to take over its embedded engineering work so that it could focus on its core business of software development. It was looking for a partner with experience in both software and embedded engineering with the capability to architect and support solution conceptualization, development, and delivery of a robust product.

Apexon was selected because of its engineering experience, capabilities, and resources. 18 years later Apexon remains one of the company's most preferred technology services partners and has been co-engineering multiple products from conceptualization to delivery.

THE SOLUTION

ACCELERATING PRODUCT INNOVATION THROUGH ITS PARTNER ECOSYSTEM

Apexon brings together product engineering services with digital technologies and platform solutions to help clients meet rapidly changing requirements through co-development, co-engineering, and co-innovation.

Apexon brings together product engineering services with digital technologies and platform solutions to help clients meet rapidly changing requirements through co-development, co-engineering, and co-innovation. We have more than 20 years of experience in digital engineering and have developed a variety of intelligent solutions for healthcare, technology, and financial organizations from around the globe. Our deep technical expertise, Agile methodologies, and data-driven intelligence enable Apexon to deliver custom solutions that create a clear competitive advantage for our clients.

Our product engineering services are designed to create a perfect partnership with clients to co-develop unmatched products. Our managed services model allows us to take care of the full spectrum of IT functions for our clients proactively to give our them the benefits of cost and risk reduction while allowing them to focus on their core operations. Through product engineering innovations, we support our clients in building a sustainable competitive advantage through product differentiation and reduced time-to-market.

Apexon has been involved in multiple projects for the technology company, including the development of state-of-the-art audio and video conferencing devices as a co-engineering partner. In some projects we have rendered 100% managed services with 98% offshore resources. Our engagements include development in both the software and embedded spaces.

In the embedded space we have been helping our customers deliver products, including:

Building Labs	Board Bring-up	Firmware Development	Solution Architecting	End-to-end Testing	Deployment	Support Through Managed Services

A major decision was taken by the client in the early phase of its journey to move from developing its own hardware to certifying devices developed by partners. This would enable the company to stay focused on its core software strengths while also expanding the development capacity through its ecosystem, and assuring the high quality its users expected. As the product-engineering partner, Apexon helped manage the entire certification process involving end-to-end testing and validation of the client's software on all the partner devices.

In addition to certification and test automation, Apexon has also supported the client with:

Website Development	High-Tech Partner Portals	Telemetry Solutions	Integration Between Portals	Embedded Engineering

Apexon was selected as a preferred partner by the client for several reasons. Besides the historical value coming from the long-standing experience of co-development, our core strengths in both the software and embedded space were critical. We also have been very successful in attracting high-tech engineering resources like top audio and video CODEC and DSP professionals.

Apexon's product engineering services helped the client design and develop software products while reducing their time-to-market through faster innovation and reduced development lifecycles. This helped the client react more quickly to changes in the market and differentiate its solutions with improved performance.

PROJECTS & IMPLEMENTATIONS

Embedded Technologies

Apexon's Embedded Engineering capabilities enabled the client to integrate leading technologies like IoT, AI, and ML with deep data-driven insights. As a result, the client did not need to build in-house tools or construct innovation labs as a complete ecosystem that would be required for planning, development, execution, and support. Apexon's strength and expertise in product development from scratch in embedded firmware and hardware verticals were a big advantage for the client.

Firmware Development

Apexon developed robust firmware using industry best practices for smart devices equipped with different types of sensors. The engagement also involved the development of CODECs to digitize analog inputs captured through sensors. Digital Signal Processors (DSPs) and microcontrollers were deployed to feed the digital information back to real-world applications to enable control of smart devices.

Apexon developed robust, optimized firmware leveraging our expertise in board bring up including the lower-level HAL layers with ISO standards (IEC 60601-1: 60601-1-8, 60601-2-24 and ISO 13485:2016). The team also has expertise in developing automotive applications, medical devices and smart industrial automation sectors.

Certification Testing

Apexon supported testing, compliance, and certification of the client's products under one roof as a product engineering partner. We helped the client manage product lifecycles, application lifecycles, and service-level agreements across its digital engineering ecosystem. We also validated archetypes to support the development of wireframes and prototypes for faster turn-around.

Apexon acts as the main certification house for the validation, testing, and certification of all the partner devices with client-developed software solutions. Certification was done in compliance with the highest standards of quality in software development.

Device Testing

Apexon's device engineering team helped the client throughout the process – from designing the test framework to handling end-to-end testing of the devices, and managing all the firmware builds cutting across various flavors and models working in parallel with multiple OEM partners. Our engineering team follows all the standard protocols to deliver on-time by

- Testing early and testing continuously
- Performing regular testing risk assessment measured by test efficiency and defect slippage
- Focusing on developing patterns from QA data

IoT/Wireless RF

IoT innovations are transforming traditional development processes by making them more efficient and faster. By adding analytics on Bluetooth Low Energy (BLE), LoRawan, and other ISM band RF devices, Apexon added additional value to the client's software offerings by creating possibilities for real-time analysis that helped the client adapt its products to changing market dynamics.

Here we leveraged our expertise in stack-level development for RF protocols as well as machine vision, vision analytics, healthcare wearables, automotive comfort seating, and smart medical beds. Our extensive development experience on IOT protocols such as MQTT, CoAP was also helpful.

We also followed encrypted data communication methodologies for safe and reliable data delivery service.

Test Automation Development

Apexon provided speed, quality, and efficiency at scale with mature testing supported by auto-generated test scripts using Apexon's own in-house, robot frameworks tool for successive regression cycles. This saved the client cost, effort, and time while also increasing coverage. Typical savings included reducing the client's manual testing time from 3 hours to 18 min for each incident through UI automation.

Web Application Development

Apexon worked on telemetry data for the client, developed device marketplaces, service portals, telemetry agents, and supported end-to-end development in both B2B and B2C areas. Using technologies like .Net, NodeJS, React JS, Cosmos DB and Azure DevOps automation, Apexon delivered end-to-end web solutions for complete marketplace and related businesses.

This technology client needed a Product Engineering partner that was experienced in not just software development, but also embedded systems, networking, audio, and video development. Apexon, being an existing partner that had helped the organization manage several deployments and testing projects, was an unrivaled choice. Apexon assisted the technology leader throughout the digital transformation journey including architecture development, device testing, and tech support for troubleshooting.