





Custom HMI Tablets

Real-Time Gas Chromatography Monitoring & Analysis



Captec delivered a customised, battery-free tablet solution for our customer's Gas Chromatography systems, enhancing real-time data monitoring, reliability, and user experience. This custom device met ruggedised requirements, reduced deployment time, and supported seamless global rollout for critical analytical operations.



The customer is a global leader in Gas Chromatography (GC) solutions, serving critical sections including Oil & Gas, Chemical, Pharmaceutical, Environmental Pollutants, and Food Handling. Their cutting-edge GC technology plays a vital role in identifying and analysing chemical compounds in diverse samples, ensuring stringent quality control and adherence to regulatory standards.

The Challenge

The customer faced multiple challenges: they needed a budget-friendly, ruggedised device that could handle high computation and real-time analysis, surpassing the capabilities of standard options. Additionally, the solution required a battery-free design, as continuous charging leads to battery degradation. Ensuring reliable performance for at least three years, the device also needed a locked-in design, preventing frequent updates or changes that could disrupt ongoing operations.

Key requirements included continuity and longevity of supply, a low failure rate, and comprehensive technology refresh options to mitigate obsolescence. Developing a battery-less tablet that could connect to a network while drawing USB power presented a unique challenge, with no comparable commercial devices available. The device needed to be cost-effective yet maintain the robustness necessary for seamless integration into the customer's gas chromatography systems.

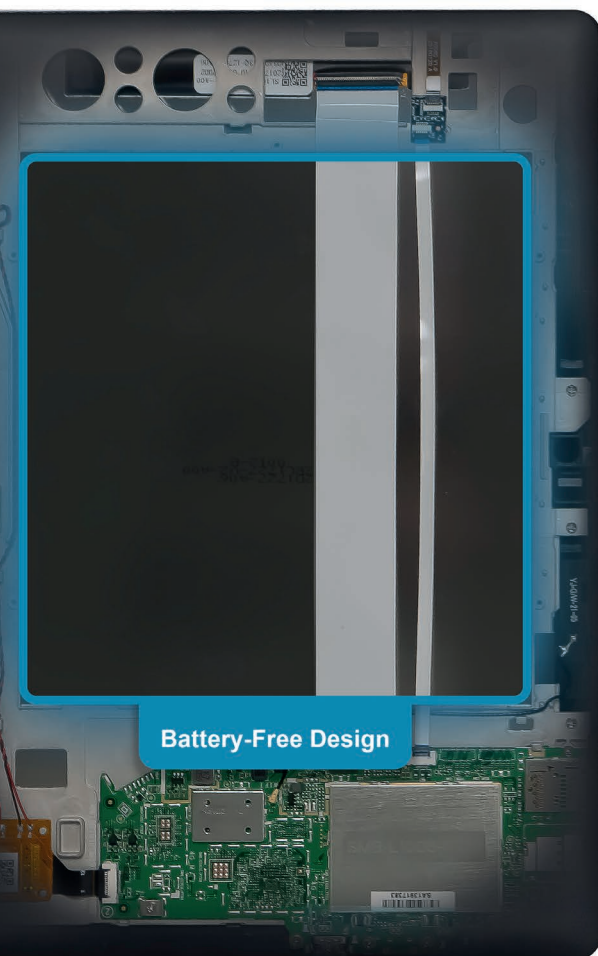


The Solution

To meet these challenges, Captec's specialist team modified a re-engineered a custom tablet, achieving a balance of cost-effectiveness and high-performance. The Android operating system was adapted to run only necessary customer software, eliminating background applications and gestures, creating a simplified user interface that enables operators to monitor data in real-time.

A central part of this solution involved designing a custom USB connection that allowed the tablet to operate without a battery while maintaining a wired data network connection. This innovative feature met the customer's demand for a battery-free, reliable device. The tablet included an integrated Snapdragon System on Chip (SoC) capable of supporting high-fidelity graphics for data visualisation, coupled with a high-resolution touchscreen that offered the responsive user experience required for precise control.

Throughout the development and delivery of this solution, the Captec team delivered a consultative approach, understanding the customer's operational goals and long-term roadmap, which ultimately positioned us as their preferred partner. Captec's minimal order quantity, customisation options, and commitment to long-term supply assurance filled a gap the customer had struggled to find elsewhere.



The Outcome

The Captec tablet is now embedded into all the customer's Gas Chromatography systems deployed globally, providing operators with a consistent, enhanced user experience. A customised application allows for seamless instrument control, while the battery-free design has notably improved ease of use. Users can access data mid-process, enabling them to make quick, informed adjustments, enhancing both accuracy and efficiency.

The plug and play setup has reduced installation time, allowing for faster commissioning and minimising operational downtime. Combining modern hardware and analytical software on a single platform, this customised tablet provides full visibility into instrument status and analytical progress.

Following this success, the customer has engaged Captec in a broader technical refresh, focusing on obsolescence and lifecycle management for future product generations. The Captec team's proactive support also includes securing last-time-buy components, which provides additional stability for our customers while allowing flexibility for future growth. This partnership demonstrates Captec's commitment to supporting our customers in delivering reliability, innovation, and enduring support for mission-critical industrial applications.



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