

Insulin Pump Starts GUI Revolution

When the team at Tandem Diabetes Care® set out to develop a new insulin pump, they wanted to transform their users' experience. Existing products on the market required users to press small physical buttons and scroll through monochrome menus to access essential functions. Developing their new device in the age of the smart phone, Tandem saw an opportunity to break free from the standard insulin pump look and feel – and they seized it. With a clear focus on usability, they got to work ... and the t:slim® Insulin Pump was born.

Tandem launched its t:slim® Insulin Pump, the first ever insulin pump with a touch screen to receive FDA clearance, and started a revolution.

Simple, straightforward viewing of essential data like insulin on board and pump status can be done from the device home screen. Advanced functions like bolus calculating and dosing can be completed with the touch of a finger.

Now that's a great GUI.



How did Tandem do it?

As with all medical devices, Tandem was faced with strict development and performance requirements.

Like all true visionaries, Tandem's team set some lofty goals for their ground-breaking new product. With their expert use of Altia's user interface development tools, Tandem was able to meet each requirement and achieve massive GUI innovation for their compact insulin pump.

Tandem developed their insulin pump with a QVGA (320x240) RGB 16-bit 5-6-5 color display. The GUI is running on an STM32 ARM Cortex-M3 chip with a very small RTOS and 96KB of on-chip RAM. This low power 32-bit RISC processor with ARMv7-M architecture is capable of running at 72MHZ nominal to power the pump, screen illumination and user interface logic. Altia's generated graphics code offered Tandem the powerful capability of GUI performance for low power hardware.

Software that delivers a full color touch screen GUI that will run for a week on a small rechargeable battery?

Now that's a great GUI tool.



Why Altia?

- Automated Code Generation Advantages – Altia DeepScreen generates pure ANSI C source code and does not require any additional overhead or runtime engines on target.
- Experts in Embedded GUIs – Altia has been in the business of embedded GUIs for over two decades. Altia DeepScreen customers have achieved FDA approval for numerous devices.
- Open Tool Integration – Altia supports the tools that our customers are using. Tandem used the IAR Embedded Workbench suite for ARM on this project for compilation, debugging and programming the target.
- Model-Based Development for Outstanding UX – The Altia GUI model offers better communication of behavior and interaction than any written specification and allows for user testing early and often so Tandem achieved the best user experience before going to production.

Minimum memory footprint.

Maximum user experience satisfaction.

Ready for your next great GUI? Contact Altia.