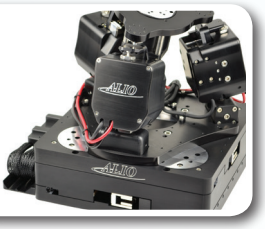
Design World

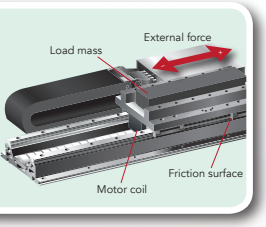
www.designworldonline.com
July 2019

inside:



MOTION CONTROL:
Getting to the point in precision

p. 52



LINEAR MOTION:
Using software for designing and sizing motion-control systems

p. 56

ELECTRONICS:
Keeping out the bad guys

p. 70

Wheel bearings move telescope to new heights

page 64

User interface enhances monitor for critical medical environments

Edited by **Mike Santora** • Associate Editor

Setra FLEX, a flexible room-environment control and monitoring solution, is used in hospital operating rooms, burn units, cleanrooms and other areas where regulating the indoor environment is crucial to help medical-related facilities reduce and prevent healthcare-associated infections.

Setra Systems is a manufacturer of pressure transducers, transmitters, capacitive pressure sensors, and acceleration-sensing devices. The products are used in HVAC/R, semiconductor, test and measurement, medical, pharmaceutical, barometric, vacuum, and other industrial markets.

Setra set out to revamp and improve its flexible room-environment control and monitoring solution, which is used in hospital operating rooms, burn units, cleanrooms, and other areas where regulating the indoor environment is crucial. Setra's differential pressure transducers measure the pressure parameters in these environments, helping hospitals and other medical-related facilities reduce and prevent healthcare-associated infections. (According to the Centers for Disease Control, on any given day, approximately one in 31 hospital patients has at least one healthcare-associated infection.)

Improving the product, the Setra FLEX, required making some essential upgrades, especially to the user interface (UI). The challenge: both medical professionals and the operations personnel charged with monitoring the system had to be able to use the device without any prior training and without needing to consult an operator's manual to understand how to use it. Ease of use was paramount. Further, the device required a UI inviting enough to appeal to architecture firms and real estate developers that would be willing to recommend Setra FLEX to their clients.

Without its own in-house user experience (UX) team, Setra knew outside experts were needed to create both high-level UI and UX design, and to develop the software, which was where the value of the Setra FLEX would lie. Being familiar with Integrated Computer Solutions' (ICS) Qt development knowledge and their in-vehicle infotainment system (IVI) work for Intel, Setra enlisted the company for the project. Setra was looking for a solution with:

- Information Architecture
- Interactive Prototype
- Gesture Interaction Spec
- Development-Ready Assets
- Iconography
- Visual Screen Comps
- Visual Style/Layout Specs

Setra envisioned its new product to be intuitive and easy to navigate by two distinct audiences without prior training. That meant figuring out how to best configure the device, as well as how to present complex data in a way that could be read quickly and understood with ease.

ICS analyzed Voice-of-the-Customer data and created personas to help them understand what users are trying to accomplish, what goals drive their behavior, and how they make decisions. In other words, provide the researched-backed context that would make it possible for Setra to deliver a product that filled a real need and would be embraced by the target audiences.

From there, the ICS design team created wireframes to flesh out the ideas and help guide the decision making. Throughout the process, the team kept both of the audiences (medical professionals, and installers, and maintenance workers) in mind to design and deliver a device that what would make sense to them.

The UX team also paid attention to the visual design, including the treatment of parameter badges, background colors, icons, alarms, and room status among other elements, to ensure it met the needs of both user audiences. Further, the team carefully designed the UI so critical status information could be easily read from a distance and detailed data up close.

The design of the navigation features a large condition banner and an array of parameters that can be shifted laterally by touch to reveal additional readings. Emphasizing functionality and legibility, the ICS team incorporated the ability to view and analyze data from multiple rooms connected to the system. The design also incorporates creative use of gestures, such as swiping, to make it easy for users to navigate quickly.

With development and UX design complete, Setra FLEX was sent off for testing. The response was positive, reinforcing that the team was on the right path. Users were able to navigate with ease and found the interface attractive and informative without being too complicated — precisely the goal for the UI. DW

ICS | www.ics.com

The Design Challenge: both medical professionals and the operations personnel monitoring the system had to be able to use the device without any prior training.