Bluetooth Pulse Oximeter Provides Crucial Remote Monitoring

BERRY® Bluetooth®

EFR32 BG22 Series 2 Bluetooth® Wireless SoC

The Challenge

To develop a Bluetooth pulse oximeter that tackles the current global shortage of medical resources and the growing need for remote monitoring.

The Result

Shanghai Berry created the Fingertip Pulse Oximeter, a health tracking device that uses Bluetooth to provide instant, remote monitoring and safely stores consumer data.

The Solution

Silicon Labs' EFR32BG22 Series 2 Bluetooth® Wireless SoC offered Shanghai Berry the reliable wireless performance, affordable price and low power consumption needed for a secure device with long battery life.

Health Monitoring at Your Fingertips

Shanghai Berry, a Chinese-based company, has been in the health tracking industry since it was founded in 2003. But when the global COVID-19 pandemic occurred, not only did it expose the global shortage of medical resources – it made it worse.

Shanghai Berry knew right away that their solutions could address the challenge and alleviate some of the global strain: wireless monitoring devices.

Shanghai Berry's Bluetooth Fingertip Pulse Oximeter, approved by the U.S. Food and Drug Administration (FDA) in 2017, empowers consumers to take health into their own hands. The oximeter not only provides instant and remote monitoring but also safely stores patient data so it can be shared with physicians, caregivers or even a family member. Having the ability to continuously monitor and share health data, without the need of hospital visits, frees up valuable medical resources for others who might need it more.

BG22 Bluetooth Low Energy Modules

To create an efficient device, Shanghai Berry needed a wireless solution that guaranteed both accuracy and durability.

After testing numerous options, Shanghai Berry chose Silicon Labs' BG22 for their Fingertip Pulse Oximeter due to its reliable wireless performance, affordable price, and – most importantly – low power consumption, which translates to long battery life. These attributes allowed Shanghai Berry to focus on what matters most: precise performance tracking in their products that sets them apart from the competition.

Silicon Labs' BG22 Bluetooth Low Energy wireless SoC combines ultra-low transmit and receive power with high-performance, delivering energy efficiency that extends battery life up to ten years. Designed for a variety of IoT applications, the modules can be used in a wide spectrum of life products – from a smart door lock to personal healthcare and fitness devices.

The result is a compact and convenient finger pulse oximeter that integrates an oxygen saturation (SpO2) probe and data processing to monitor for:

- Blood oxygen level (SpO2), ensuring that the delicate balance of oxygen levels is always at optimal performance – above 95%.
- Pulse rate, measuring resting heart rate and providing insights into overall health and fitness levels.

What's more, the oximeter is user-friendly and intuitive:

- Pairs with phone or tablet via Bluetooth and enables data tracking and analysis in the App
- Features a crisp LCD and OLED display
- Calls for two AAA alkaline batteries
- Lasts for over 15 hours of continuous use

Silicon Labs BG22

- High Performance 32-bit ARM® Cortex®-M33 core
- Up to 352 kB of flash and 32 kB of RAM
- Energy-efficient radio core with 27 µA/MHz active and 1.2 µA sleep currents
- Protocol support for Bluetooth Low Energy (Bluetooth 5.2), Proprietary and Bluetooth mesh Low Power Node (512 kB parts only)
- Best-in-class security through Secure Boot with Root of Trust and Secure Loader (RTSL)

The need for remote health monitoring has never been more apparent. Responsible companies must offer not only efficiency and accuracy but also an easy experience. Shanghai Berry achieves all three elements with its oximeter.

For more information on Shanghai Berry, visit shberrymed.com

Get started with integrating low-power Bluetooth connectivity in your medical devices today

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