Case Study

Freescale MCUs Power a Family of Innovative Consumer Health Devices

Withings' innovative devices measure and track key health indicators so consumers can pursue healthier lifestyles in new, networked ways

The Intersection of Form, Fitness and Function

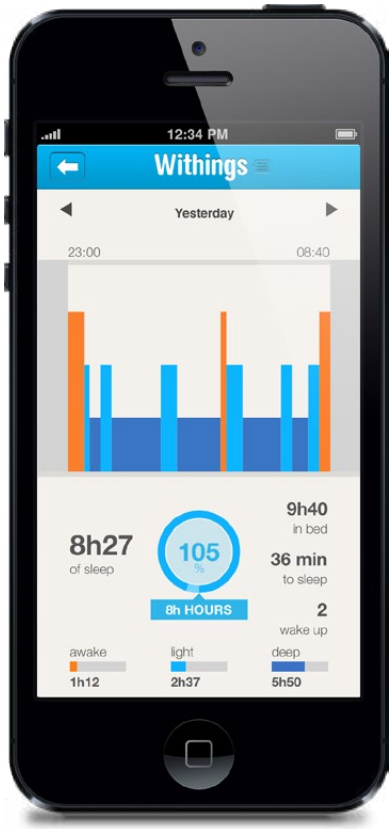
The connected health and wellness world is becoming more populated every day, and Withings is one of the reasons why. The pioneering company's devices for measuring and tracking weight, activity and other health indicators enable health-conscious consumers to keep tabs on and improve their physical condition in new and innovative ways.

Withings devices strike the ideal balance between form and function, combining outstanding performance, innovative capabilities, exceptional design and outstanding material quality. They are designed to be satisfying on every level, from the way the look to the way they work.

"These devices are part of a whole ecosystem of networked resources that support people pursuing health and wellness," says Eric Carreel, Chairman of Withings. "We see this ecosystem as part of the phenomenon known as the Internet of Things, in which connected technology systems interact to make life easier for people."

The Right Weight. Right Away.

The Wireless Scale WS-30 displays an accurate weight reading instantly, along with Body Mass Index (BMI) information. It then stores the data, updates it every time the person who's using the scale weighs again, and makes the latest data easily available online or via mobile app. People who want to share their weight-goal achievements can even send their weight data to their Facebook or Twitter accounts. The scale takes just 60 seconds to set up, can be used via wireless or Bluetooth® connectivity from anywhere in the house, and stores multiple profiles for households where it's used by more than one person. It also connects with the Withings



Challenge:

Create a complete line of easy-to-use, connected health monitoring devices that has a sleek, consumer friendly design.

Solution:

Withings health devices rely on the Freescale Kinetis MCU family to enable advanced functionality in a low profile, low-power package.

Benefit:

The unique combination of low power, performance, cloud connectivity and attractive design makes Withings healthcare devices appealing to today's active, health-conscious consumer. The availability of a wide range of capabilities within the Kinetis family of MCUs makes designing new devices more efficient and cost-effective for Withings.

Withings

Health Mate app to track weight trends via smartphone or tablet, and with other mobile weight-control and health apps.

A Smarter Smart Scale

The Smart Body Analyzer measures heart rate and indoor air quality, along with providing traditional weight and BMI information, and presents it all in a quick snapshot view. The additional functions require no special effort beyond standing on the scale for a few seconds to get a pulse reading. Like the Wireless Scale WS-30, the Smart Body Analyzer is designed to make the most of the data it collects, turning it into useful graph views and storing it securely for retrieval online or with a mobile app. It's also compatible with Withings partner apps for everything from calorie tracking to coaching.

Handheld Health Help

Just about the size of a small memory stick, and weighing only a fraction of an ounce, the Withings Pulse packs a lot of power into a very small package. It monitors a multitude of activity-related measurements, such as number of steps, strides, stairs; calories burned; heart rate; and sleep quality. It collects and stores data in real time, and sends the data wirelessly to mobile devices for integration with the Withings Health Mate app and third-party health and fitness apps. Like other Withings devices, this one features a sleek, streamlined design.

Withings Makes It Possible. Freescale Makes It Work.

The sophisticated capabilities and sleek profiles that are the hallmarks of Withings devices are made possible by Kinetis MCUs—Freescale's scalable portfolio of low-power, high-performance 32-bit MCUs built on the ARM® Cortex®-M4 core. The Withings devices described in this document are powered by the Kinetis K20 family (one of five families in the portfolio), which offers a broad range of memory options. The K20 100 MHz version meets the memory-intensive requirements of the Wireless Scale WS-30 and the Smart Body Analyzer. The K20 72 MHz version features a small package and high pin density that make it ideal for packing a lot of features into the pocket-size Withings Pulse. It also enables touchscreen capabilities that minimize the need for inelegant mechanical buttons.

Having a scalable family of MCUs at their disposal affords Withings the flexibility to keep development costs low and time to value short. Rather than having to build new devices from the ground up, they can simply scale up or down to another product in the same family based on the amount of memory needed, power consumption and connectivity options. They can also use the same Tower System modular development platform, further reducing the time and cost needed to bring new devices to market. The Tower System saves months of development time through rapid prototyping and tool re-use.

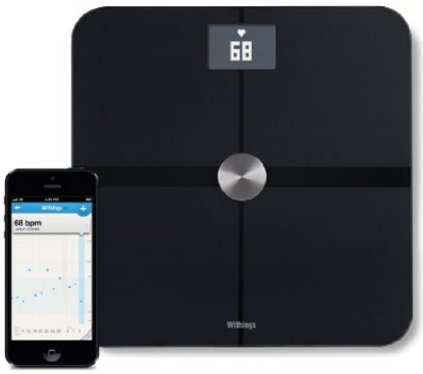
"The range of capabilities and the scalability offered by Freescale supports the economical development of extremely innovative, forward-looking technology," says Carreel. "This is what makes it possible to deliver our devices at a price point that's appropriate to a consumer market."

Freescale: Medical Expertise for the Long Term

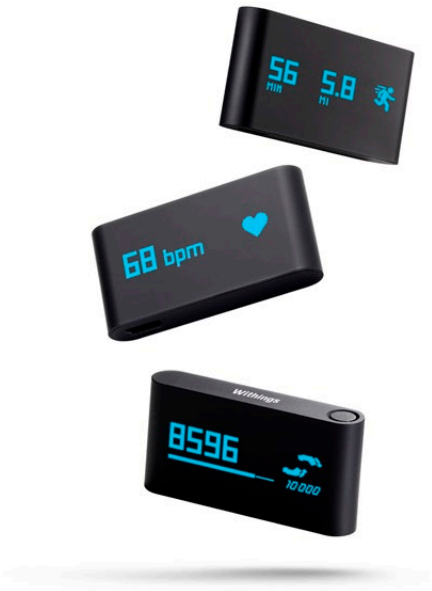
Semiconductor technology plays a critical role in the development of new technologies to assist with patient monitoring, diagnostics, therapy and imaging. Medical device designers need to balance processing requirements with power consumption, help to ensure a fast time to market and navigate the regulatory environment. Freescale is a trusted provider of MCUs, MPUs, analog and sensor components, RF amplifiers and wireless technology to meet the unique needs of medical designs. These vital technologies, along with Freescale enablement tools, expertise and alliances, help enable customers to develop breakthrough medical systems and life-critical applications. Freescale also offers a formal product longevity program for the medical segment, ensuring that a broad range of program devices will be available for a minimum of 15 years*.

* For Terms and Conditions and to obtain a list of available products included in our product longevity program, visit **freescale.com/productlongevity**

Freescale Technology in Withings Devices



- Kinetis K20 100 MHz MCU–Wireless Scale WS-30, Smart Body Analyzer



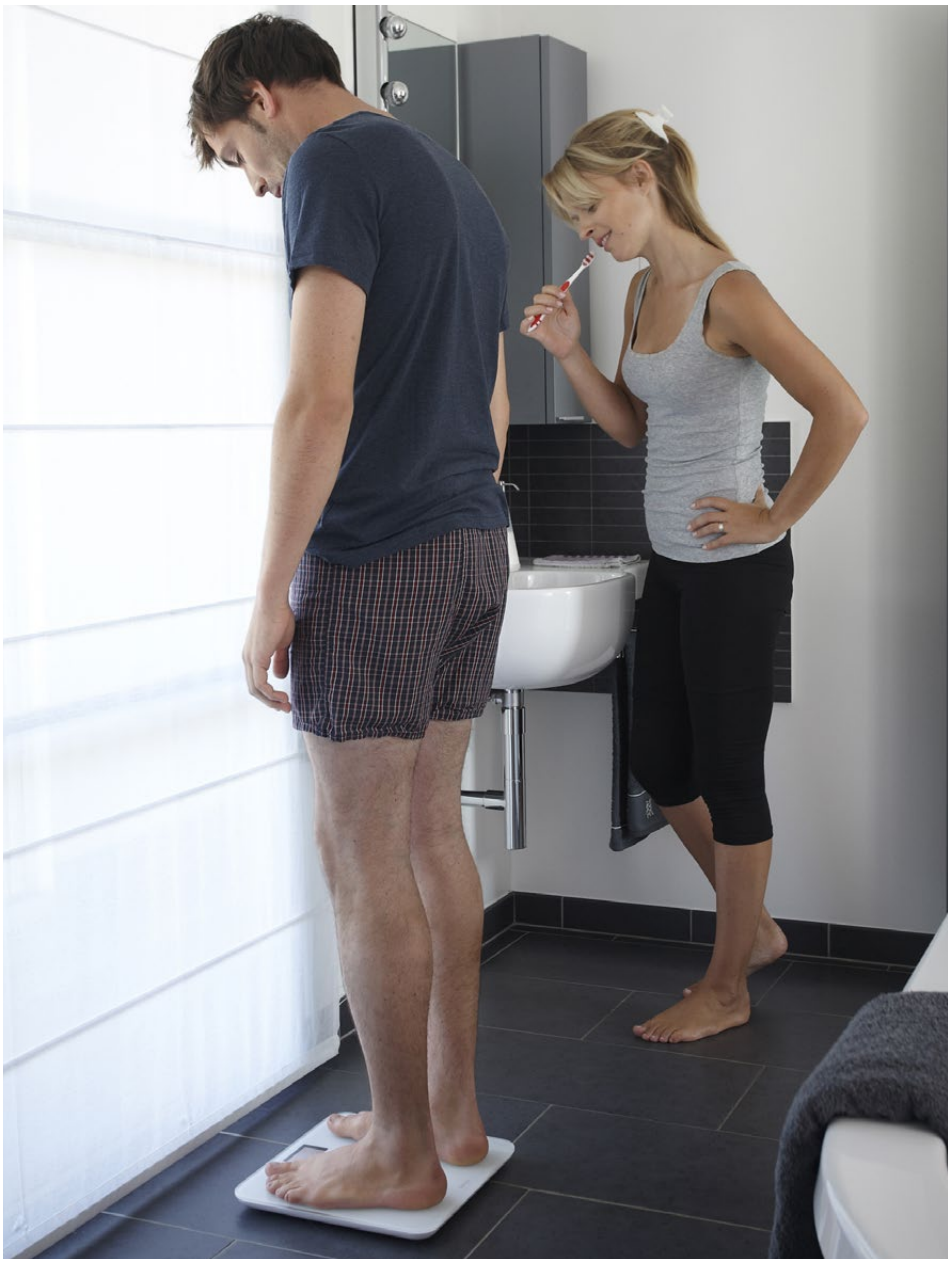
- Kinetis K20 72 MHz MCU–Withings Pulse

Freescale Development Tools

- Tower System development board platform

Withings: Smart Products to Help People Take Care of Their Health

Withings is an innovative company that creates smart products and apps to help people across the world easily take care of their health and well-being. Founded by French executives Cedric Hutchings and Eric Carreel, Withings has been pioneering Health 2.0 since the launch of their first Wi-Fi® Body Scale in 2009 and is leading the way of the connected health movement. By extending the capabilities of an object through network resources, Withings provides access to infinite computing and storage at no extra cost, turning objects into smart connected devices. Withings has since brought those benefits to a wide range of lifestyle friendly devices including the Smart Body Scale, the Smart Blood Pressure Monitor and the Smart Baby Monitor.



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For more information on Freescale healthcare and medical solutions, visit freescale.com/medical

To learn more about how Withings products are powered by Freescale technology, visit freescale.com/Withings

Document Number: WITHINGSCS REV 1