500 Million Licenses
OKAO® Vision Shipments

Electronic and Mechanical Components Business × Network Camera Sensors

Expanding IoT through Image Sensing Technologies

In 1995, Omron began development on our proprietary OKAO® Vision image sensing technology. This technology uses facial recognition to detect detailed changes in expression and mannerisms to estimate the gender and age of a person. As IoT connects all manner of objects through networks, we will begin to use this technology to create new social needs.

Simple Image Sensors Anyone Can Use

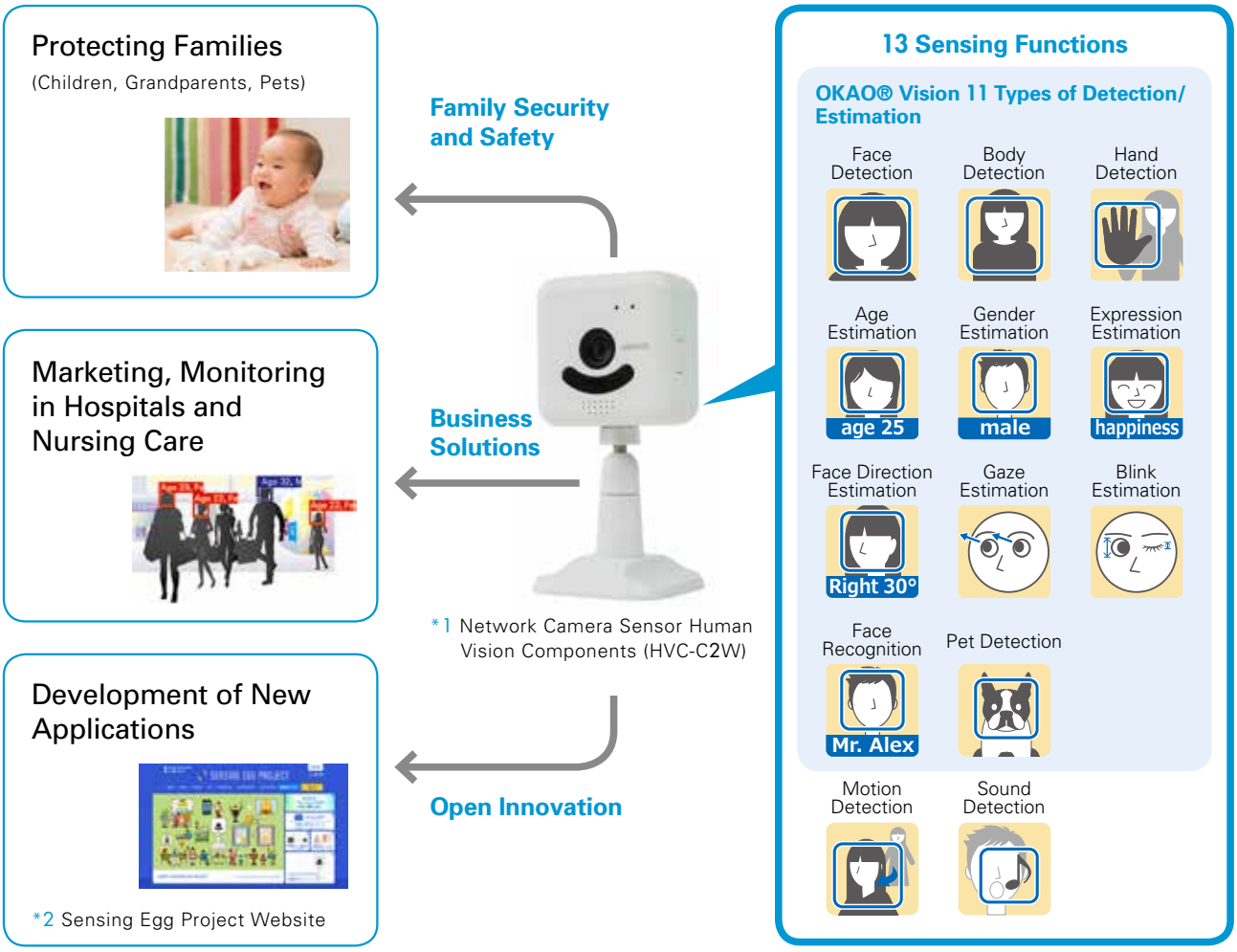
In September 2015, Omron introduced a consumer product using network camera sensors*1 equipped with OKAO® Vision. This marked the advent of user-friendly image sensors—technology that used to require a high level of skill and knowledge to operate.

Now, families can use this product to remotely monitor children, grandparents, pets, and more. Businesses can use this technology in marketing, hospitals, nursing care, and even simple security applications.

Open Innovation

Developers who have purchased this product for personal or commercial use have free access to the Sensing Egg Project*2, Omron's open innovation website. This platform offers a variety of information necessary for application development. User needs are becoming more varied and diverse. As manufacturers shift to developing applications and systems from the user's perspective, we will see an amazing leap forward in the potential for new uses of image sensors.

The Expanding Role of Omron Image Sensing Technologies in Society



More than 180 Million Units

Healthcare Business × Lifestyle Diseases — **Cumulative No. of Blood Pressure Monitors Sold Over the Past 43 Years**

Helping Prevent Cerebral and Cardiovascular Diseases

Estimates suggest that nearly 1 billion people–or roughly 13% of the planet's population[*1] have high blood pressure. In 2012, 17.5 million people[*2] died from cerebral and cardiovascular diseases caused by high blood pressure. Omron is applying our unique technologies in a new fight to realize zero cerebral and cardiovascular events.

Technology that Measures Blood Pressure with Every Heartbeat

Our blood pressure goes through significant changes throughout the day. To fully understand our risk of disease, we must monitor our blood pressure on a continual basis. Traditional blood pressure monitors squeeze the upper arm or wrist tightly, temporarily stopping the flow of blood. This discomfort associated with measuring blood pressure makes it difficult for users to measure with frequency.

To resolve this issue, Omron developed the world's first wrist-wearable blood pressure monitor that uses the tonometry method[*3]. With this technology, patients only need place the monitor on their wrist to measure their blood pressure health. If this type of comfortable blood pressure monitor becomes a practical everyday product, users will be able to track blood pressure variations in a way not possible with current monitors. In particular, this development will allow users to monitor their blood pressure during sleep. Dramatic spikes in blood pressure during sleep have been tied to an increased risk of heart attacks and strokes.

Continuously measuring blood pressure at every heartbeat lets a user track variations in blood pressure that could indicate the onset of cerebral and cardiovascular diseases. This in turn can aid in preventing sickness, as users can be prompted to take measures against lifestyle diseases and high blood pressure.

New Technology Creates New Value in the Blood Pressure Business

Using this technology, our first step is to create a product for clinical use by the end of 2017. At present, blood pressure monitors account for 50% of the ¥100 billion in annual Healthcare Business sales. We will deliver new value to customers, who will be able to predict their risk of heart attacks and strokes by detecting fluctuations in their blood pressure. At the same time, this new technology will serve as the foundation for our sustainable growth over the next 10 to 20 years.

*1 Source: WHO 2013 Report
*2 Source: WHO 2015 Report
*3 Method to measure blood pressure by pressing a pressure sensor on the radial artery.
† News release: http://www.healthcare.omron.co.jp/english/news/2016/0418.html

Blood Pressure Varies Widely throughout the Day

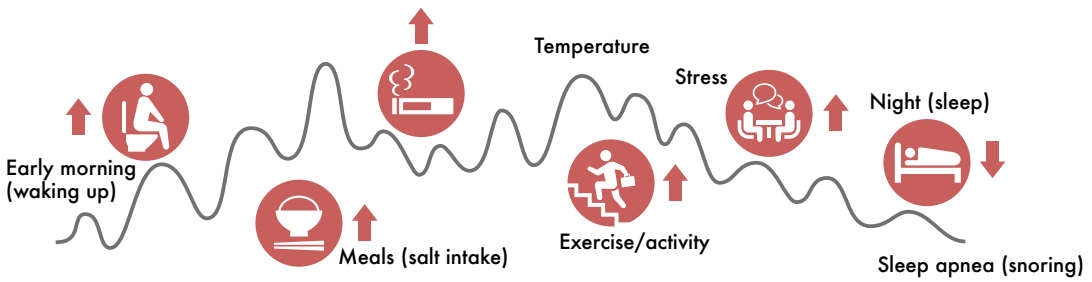
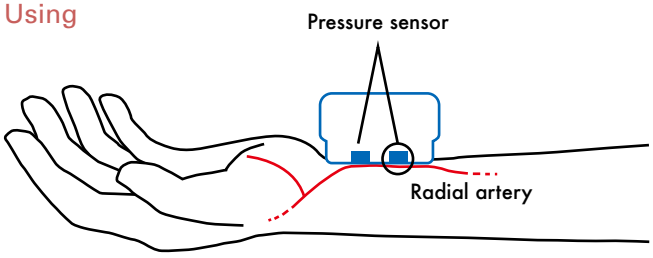


Diagram of Blood Pressure Monitor Using New Technology (on Radial Artery)



Evolving as a Pioneer in Train Station Solutions

In 1967, we developed the world's first automated train station system, combining automated ticket vending machines with automated ticket gates. In nearly 50 years since that time, we have evolved our train station systems to meet the needs of railroad companies, passengers, and society at large.

In 2015, we delivered a new automated ticket gate system to Kitakyushu Urban Monorail Co., Ltd. (Kitakyushu Monorail). This system allows the use of both QR Code tickets* and IC card tickets.

Responding to the Changing Times

Omron established a position as a leader in high-precision mechatronics for moving magnetic tickets quickly and smoothly through automated ticket gates. As the use of IC card tickets has become widely popular, we developed non-contact ticket gates that do not involve complicated mechanical movements. At the same time, many passengers still prefer not to use IC card tickets for their travel. These customers require automated ticket gates that still work with paper-based magnetic tickets.

The automated ticket gate we delivered for the Kitakyushu Monorail uses QR Code tickets, rather than magnetic tickets. This eliminates the need for complex mechanics inside the ticket gate. QR Code tickets, however, demand new answers for security, which we solved by developing new technologies. Specifically, we created a multi-layered security system to prevent copying or counterfeiting QR Codes. This is an issue because QR Code technology is widely available to the public. We also created a system that can determine whether a particular QR Code has been used, preventing unauthorized access to the train platforms.

Eco-Friendly Tickets

Magnetic tickets are coated with iron powder on one side, which means these tickets must be painstakingly separated from other trash before recycling. In contrast, QR Code tickets need no magnetic processing, making them easily recyclable and eco-friendly.

We will continue to anticipate new social needs in the future, creating new products and services for a more secure, safer, more comfortable society.

* Paper ticket with a printed QR code (2D code).
QR Code is a registered trademark of Denso Wave Incorporated.

New Automated Ticket Gate System
Compatible with both QR Code tickets and IC card tickets

† Image courtesy of Kitakyushu Urban Monorail Co., Ltd.

Benefits of QR Code Tickets to Railroad Companies

① Reduced investment in station equipment, lower maintenance costs, and less incidence of equipment failure
② Eco-friendly (easily recyclable)