Logitech
Innovation Brief

RightLight™ Technology

Logitech, the world's leading manufacturer of webcams, has introduced Logitech® RightLight™ technology: a system of hardware and software technologies that improves image quality in a webcam under a wide variety of lighting conditions. Built into some of Logitech's best new webcams, Logitech RightLight technology consists of premium sensors, advanced firmware and the very best lenses that work together to deliver great video performance.

Today's hottest webcam applications, such as MSN® Video Conversation with full-screen video, are empowering consumers to see and talk to each other over the Internet, from around the world, as if they're in the same room. That benefit, however, is truly realized only when a webcam can accurately capture and transmit high-quality images in a variety of lighting conditions – whether it's in a dark hotel room or in a bright, window-lit living room. When lighting isn't perfect, which happens often, the images of those communicating can appear silhouetted in shadows or ghostly bright white with very little facial detail.

Logitech RightLight technology solves these lighting challenges, improving the video performance of webcams and making video conversations over the Internet more natural than ever before.

Here's how it works:

New Sensors Deliver Greater Light Sensitivity

"All I see are shadows... Is that you or the cat?"

One of the most common challenges for webcams is interpreting and transmitting images when the level of light in a room is low. Webcams with Logitech RightLight technology include new CMOS sensors that maximize the amount of light a webcam can capture in any situation. These new high-performance sensors feature more transistors for each pixel of resolution, allowing the sensor to more precisely measure the light it captures, so that areas that are not well lighted – whether it's a shadowed face or an entirely dark image – will appear brighter and have more detail.

TOP: Image taken without Logitech RightLight technology.

BOTTOM: An image taken with Logitech RightLight technology shows better lighting on the face, more natural skin tones and improved background detail.

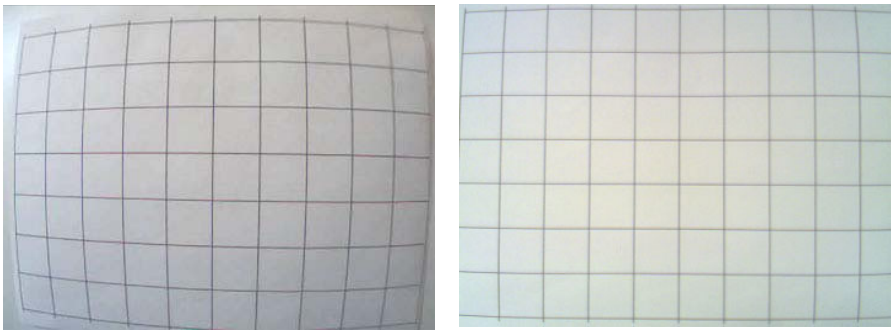
Optimized Skin Color

"Your face is sure red – did you get a little too much sun today?"

Bright colors are great, but most people don't want their face to appear unnaturally saturated with colors. Logitech RightLight technology optimizes color performance to produce natural-looking skin tones.

At the beginning of the manufacturing process, Logitech webcams are tested to see how they reproduce a spectrum of colors. This testing, using the Gretag Macbeth 24-color checker, synchronizes how a Logitech webcam produces color and how it is reproduced on a standard video display. Logitech pays particular attention to how its camera reproduces the light and dark skin-tone colors represented on the Macbeth checker. Adjustments to color hues and saturation are made within camera firmware before mass production, ensuring that all cameras with Logitech RightLight technology reproduce skin tones as accurately as possible.

Other webcams on the market prioritize bright colors, which can make the colors of a face appear overly saturated – sometimes even awkwardly tinted – rather than as normal human skin. For those who would like to increase the saturation of colors, Logitech QuickCam software includes a color-boost option within the camera settings panel. This gives colorful items, such as shirts or background, a deeper color – though it may negatively impact the color of a face.



LEFT: A competitor's webcam lens displays obvious distortion. RIGHT: A webcam with Logitech RightLight Technology minimizes distortion.

Minimizing Distortion

"Wow, your forehead has really grown."

A big determining factor in the quality of a webcam is the camera lens itself. Logitech is scrupulous when it comes to the process of designing and manufacturing its webcam lenses. Some webcam lenses show dramatic distortion, which can make a face in the image appear too long or wide, like a carnival fun house mirror – not exactly how people want their friends and families to see them.

Logitech performs rigorous testing to ensure its lenses produce a level of distortion that is not noticeable on a computer monitor.

Key Webcam Terminology

artifact: Artificial character, such as a dark speck or digital garble, that appears on a video stream, often due to a lack of light.

field of view: The entire area that is visible through a webcam's lens.

firmware: Computer programming instructions that are stored in a read-only memory unit rather than being implemented through software.

pixel: The smallest discrete component of a digital image or picture. High-end webcams typically produce images that are 640 pixels wide by 480 pixels high.

sensor: A webcam sensor is a semiconductor that records light and transforms it into data before sending it to the computer to be processed.

transistor: Millions of microscopic transistors comprise the sensors that are part of a webcam. The more transistors in the sensor, the higher quality light a sensor is capable of reproducing.

No More Lighting Hassles

"I can see you so clearly, and you look fantastic! … It's like you're in the same room."

Camera manufacturers in the 1970s and 1980s took big steps to make taking good pictures easier. Very few people understood how to properly set camera exposure, or had the ability to get a subject in perfect focus every time. Manufacturers responded by providing automatic flash, focus and exposure features now found in most modern-day consumer cameras. Now, everyone can take great pictures with nearly every click.

The Logitech RightLight technology solves similar challenges for webcams: Historically webcams have worked poorly or not at all in dimly lighted rooms. Logitech RightLight technology allows people to conduct video call even when lighting is less than ideal. It also makes sure that people will appear natural on video – so natural that it will seem like everyone is in the same room.