A WHOLE NEW APPROACH TO HOME SECURITY AND SURVEILLANCE

A Qualcomm® Snapdragon™ Powered 360 Camera Case Study Featuring IC Real Tech

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Introduction: the ALLie Sees Everything

Keeping homes safe and secure with surveillance cameras often depends on how much and how well these cameras see.

No one knows this better than IC Real Tech, Inc., a video technology company based in Pompano Beach, Florida. With their revolutionary ALLie Home security camera, they have changed the way customers view everything.

Powered by the Qualcomm® Snapdragon™ 800 processor, the ALLie Home camera is an innovative design, both inside and out. Using two back-to-back camera lenses inside its attractive aluminum case, the ALLie offers unobstructed, high-definition views of any area, with no blind spots.

IC Real Tech first used two lenses in its IC720 camera for commercial customers. Two lenses allow 360 degree views both horizontally and vertically. The name IC720 means being able to survey even more than 360 degrees — double the newly formed expectation in the surveillance industry.

IC Real Tech is an entrepreneurial offshoot of IC Realtime, a leader in the video surveillance solutions industry. Since 2006, IC Realtime has been providing quality surveillance systems and excellent service, with warehouses and showrooms around the world. IC Realtime continues to win numerous awards, including CE Pro #1 ranked brand for three consecutive years.

ALLie Home Security Camera with Dual Lenses

Case Study Highlights

▶ *IC Real Tech, Inc., a video technology company based in Pompano Beach, Florida, wanted to develop the ALLie Home security camera.*

▶ *Using the Open-Q 8074 System on Module from Intrinsyc Technologies featuring Qualcomm's Snapdragon 800 processor, IC Real Tech was able to design and implement the world's first truly smart video camera, a whole new approach to home security and surveillance.*

▶ *Results—The revolutionary ALLie Home security camera uses two back-to-back cameras to provide unobstructed, high-definition views -- 360° x 360° – with no blind spots. It works seamlessly with its software app allowing for convenient real-time or recorded viewing.*

A Bold Experiment at CES

The IC720 technology proved successful and was a big hit at the Consumer Electronics Show (CES) in Las Vegas two years ago. So was the Qualcomm-sponsored Formula E racing car, making its debut. In a bold experiment, IC Real Tech mounted the IC720 on the Formula E car, capturing footage of Las Vegas Boulevard and impressing Qualcomm executives at CES.

The IC720 was using another company's chipset but IC Real Tech wanted to expand the camera's features and move into the home, do-it-yourself market by developing the ALLie Home. (*ALLie* is a takeoff on the word *selfie*, meaning the camera can photograph and see ALL.) To accomplish this, they needed a powerful and sophisticated chip. IC Real Tech was convinced that the Snapdragon processor was perfect for its new camera. Snapdragon processors are designed for fast computation and efficiency in small-sized embedded applications.

"The Snapdragon was the most advanced out-of-box solution," explained Dmitry Kozko, president of IC Real Tech. "Quick development time and support from Qualcomm Technologies Inc. ecosystem were also key factors."

Qualcomm® snapdragon

IC720 Camera on Qualcomm-sponsored Formula E Car at CES in Las Vegas

Implementing the Snapdragon Processor

IC Real Tech took a whole new approach by developing the ALLie Home. They began by experimenting with less costly components that would fit into the consumer price point, yet still be powerful enough to process cameras back-to-back. They also investigated several different architectural layouts.

According to President Kozko, IC Real Tech faced several development challenges that usually arise when creating a consumer facing product.

First, the small camera footprint was a factor. Bringing many electronic components close together could make them heat up quickly.

The Power of Snapdragon 800

- ▶ *All-in-one design with CPU, GPU, DSP and dual-image signal processors (ISP) for advanced camera applications*
- ▶ *High-performance CPU with a maximum clock speed of 2,300 MHz, and four cores, resulting in extremely efficient multi-tasking when compared to dual-core processors*
- ▶ *Hardware-based h.264 video encoding for efficient, consistent videos*
- ▶ *Supports secure and seamless connectivity, including W-Fi and Bluetooth*

Second, when a camera is used constantly around the clock, heat dissipation may also become an issue. This is a known problem in the action camera space, and is often the reason why many cameras cannot be run continuously for more than two hours at a time.

"The Snapdragon chipset, plus our unique engineering, helped us consume less power, thus reducing the amount of heat produced by the camera," explained Kozko. "Other chipsets failed our internal testing when cameras ran for continued periods of time."

Third, the company needed major processing power to be present on the camera to accommodate architecting several software features, such as stitching of two images live, face detection, pattern tracking, voice command activation and others.

"Snapdragon allowed enough processing power to not only accommodate our current feature set, but also expand into the future features without redesign of hardware. That is especially important when designing a consumer electronics product with the longest possible use," said Kozko.

Enabled by Intrinsyc

IC Real Tech's development team worked closely with Intrinsyc Technologies, a Qualcomm Technologies, Inc. licensee, to fully integrate and maximize the use of the Snapdragon into the IC720 design. Located in Vancouver, Canada, Intrinsyc is a leader in Snapdragon-based product development for the embedded systems ecosystem. According to president Kozko, "Intrinsyc is quite a good partner with very experienced people."

ALLie Home Security Camera

The result is a beautifully designed, compact camera that looks good, but also sees well, wherever it is placed or mounted in a home. Using two fish eye lenses back-to-back, the ALLie provides tilt and turn technology without any moving internal components and simultaneously captures 360 degree horizontal and vertical views.

Customers can view the camera's captured spherical video stream in real time or from video archived in the cloud using the ALLie app on their computers, smart phones or tablets. Whether customers are away on vacation or at work in an office, they can see what's going on at home or check on pets, for example, with the ALLie camera data stream and its matching app. Together they allow customers to zoom and pan a room from floor to ceiling and corner to corner, and even talk their pets through a speaker inside the ALLie Home camera.

In addition to these features, the camera includes an Event mode, which allows customers to store important events such as birthday parties and holiday family dinners. As long as customers have a wall plug, they can capture memories and relive them in immersive mode later, even through a virtual-reality (VR) headset. With two modes (security and event) the ALLie Home camera is more versatile and usable for consumers. "Such capabilities on top of future ones, would not be possible with a lower-grade chipset," said Kozko.

Customer Quote

"We are very excited to be working with Qualcomm for over two years now and finally coming out with a product that both companies can be proud of."

-   *Dmitry Kozko, President*
-   *IC Real Tech, Inc.*

Next Steps: A Portable ALLie, aka ALLie Go

True to its cutting-edge and dynamic approach, IC Real Tech will keep innovating with the ALLie cameras. Next on the horizon is the ALLie Go, an advanced security camera with a built-in portable battery pack, making it fully portable. This portable version will allow customers to set up surveillance where they need it, such as behind the scenes at sporting or other public events or during bike rides on the trails. In addition IC Real Tech plans to expand into other markets, such as drones, marine applications and entertainment (monitoring audience response, for example).

Added President Kozko: "No longer will someone need to have a separate camera for home surveillance and another for entertainment. ALLie Go will allow both capabilities to be fully portable. We realize that some important events happen outside of consumers' homes and based on this frequently requested feature, ALLie Go will be released in 2016."

About Intrinsyc

-   *Company Name: Intrinsyc Technologies Corp.*
-   *Description: QTI licensee and a leader in Qualcomm Snapdragon-based product development for the embedded systems market.*
-   *Location: Vancouver, BC, Canada*

For More Information

-   Visit www.icrealtech.com for more information on IC Real Tech.
-   Visit https://alliecam.com for more information on the ALLie Home security camera.
-   Visit www.qualcomm.com/products/snapdragon/embedded-computing & https://developer.qualcomm.com/get-started/embedded-computing for more information on Snapdragon processors and development kits for embedded processing.
-   Visit www.intrinsyc.com for more information on Snapdragon product development.

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