

New Chip to Bring Holograms to Smartphones

[Evelyn M. Rusli](#) | [WSJ](#) | June 2nd 2014



Ostendo's CEO says that 'display is the last frontier.' Pictured, a company chip that can produce a hologram. Sam Hodgson for The Wall Street Journal

In the future, virtual reality won't require strapping a bulky contraption to your head.

Instead, imagine stepping into an empty room and then suddenly seeing life-size, 3-D images of people and furniture. Or looking down at a smartwatch and [seeing virtual objects float](#) and bounce above the wrist, like the holographic Princess Leia beamed by R2-D2 in the movie "Star Wars."

A key to this future may lay in Carlsbad, Calif., where startup Ostendo Technologies Inc. has spent the past nine years quietly working on miniature projectors designed to emit crisp videos and glasses-free 3-D images for smartphones and giant screens.

Other companies have shown they can project floating images that appear to be holograms, but many involve large machines

employing a system of mirrors to direct light with limited viewing angles. For instance, the lifelike image of the late rapper Tupac Shakur, which graced the Coachella music festival stage in 2012, was a combination of computer graphics and video projection that relied on visual effects first designed in the 19th century.

An Ostendo chip with an affixed lens sitting in the palm of a hand. Evelyn M. Rusli for The Wall Street Journal

Ostendo's projectors, in contrast, are roughly the size of Tic Tacs, powered by a computer chip that can control the color, brightness and angle of each beam of light across one million pixels.

One chipset, small enough to fit into a smartphone, is capable of projecting video on a surface with a 48-inch diagonal. A patchwork of chips, laid together, can form far larger and more complex images. The first iteration of the chip, which is scheduled to begin shipping next year, will only project 2-D videos, but the next version, expected to follow soon after will feature holographic capability, according to Ostendo's chief executive and founder, Hussein S. El-Ghoroury.

"Display is the last frontier," said Dr. El-Ghoroury, who in 1998 sold CommQuest Technologies, a mobile chipset company, to [International Business Machines Corp.](#) [IBM -0.71%](#) for about \$250 million in cash and stock. "Over the years, processing power has improved and networks have more bandwidth, but what is missing is comparable advancement in display."

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