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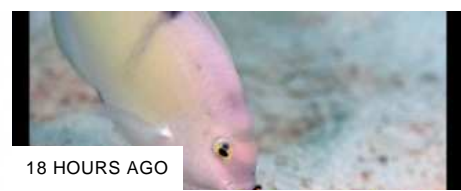
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## New Imaging Device Could Revolutionize Future Digital Cameras

Patricia Ramos · Feb 25, 2013 · 0 Comments

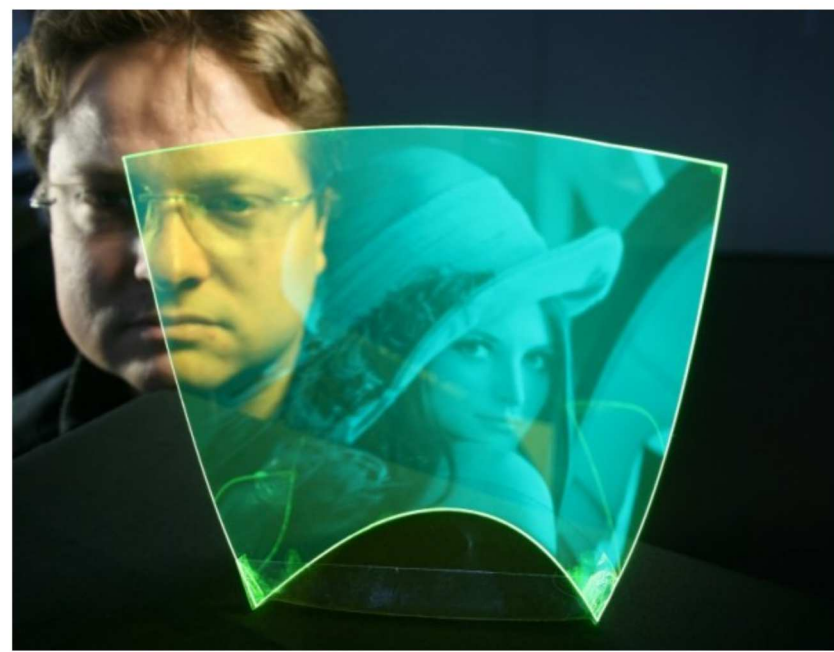


Image 1: The world's first flexible and completely transparent image sensor. The plastic film is coated with fluorescent particles. Credit: Optics Express.

This exciting new imaging device developed by researchers at the [Johannes Kepler University](#) in Linz, Austria could dictate the form factor of digital cameras in the coming years. Instead of the tiny sensor that we all know and love, this flat, flexible, transparent and potentially disposable polymer sheet could be the next big thing.

The new sensor resembles a flexible plastic film. It captures incoming light using fluorescent particles and channels a portion of that light to an array of sensors. The result is an elegant design ideal for a new class of imaging technologies. This would affect user interface devices that respond to gestures instead of touches.

“To our knowledge, we are the first to present an image sensor that is fully

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flexible and scalable at the same time,” says [Oliver Bimber](#) of the Johannes Kepler University Linz in Austria, co-author of the Optics Express [paper](#).

The solution is derived from light attenuation as it travels through the polymer. Basically, the longer the it travels, the dimmer it becomes. They measured the relative brightness of light as it reached the sensors, thereby allowing them to calculate where the light entered the film. The image is then reconstructed using a technique more commonly known as a CT scan.

“In CT technology, it’s impossible to reconstruct an image from a single measurement of X-ray attenuation along one scanning direction alone,” says Bimber. “With a multiple of these measurements taken at different positions and directions, however, this becomes possible. Our system works in the same way, but where CT uses X-rays, our technique uses visible light.”

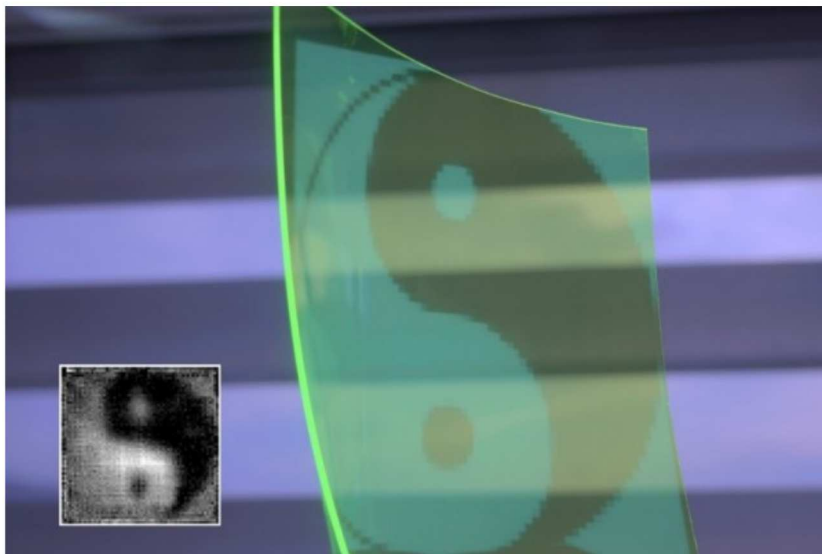


Image 2: A comparison between the (ground truth) image being focused on the sensor surface and the reconstructed image (inset). Photo courtesy Oliver Bimber, Johannes Kepler University Linz.

The sample images produced by the prototypes aren’t much to look at yet, but the researchers are looking into increasing image resolution with full RGB color by layering each fluoresce at different wavelengths.

VIA [GIZMODO](#)

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IMAGE CREDIT [OPTICS EXPRESS, OLIVER BIMBER, JOHANNES KEPLER UNIVERSITY LINZ](#)

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THE AUTHOR



I am a freelance photographer who is no stranger to smudged lenses, long hours in front of the computer, heavy camera bags (and the back aches that ensued) and missing lens caps. If you know what I'm talking about, you probably have as much love and passion for photography as I do.

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