NEARLY TRANSPARENT IMAGING SYSTEM

SENSORS
Lens-less, nearly transparent optical sensor for computational generation of images.

TECHNOLOGY TYPE
 Imaging
 Optical Sensor
 Software

STAGE OF DEVELOPMENT
- Proof of concept demonstrated using a diffractive filter and CMOS sensor.
- Prototype and algorithms in development.
- Optimization of imaging performance still required.

IP PROTECTION
PCTs filed.

LEARN MORE
Reference Numbers: U-6193, U-6401
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TECHNOLOGY SUMMARY
Traditional imaging methods, which are relatively costly and complex, rely on a lens to focus light onto a sensor that records photons.

The proposed invention uses an image recording device placed at the edges of a transparent layer to accurately reproduce an image. A small fraction of the light from the outside scene scatters off imperfections in the transparent layer to reach the image-recording device. The full scene is reproduced computationally from the point sources. The image is captured without a lens and without a direct line of sight to the scene. While the system could be used to capture any image, it is applicable specifically to biometrics and automotive machine vision.

FEATURES AND BENEFITS
- Enables lens-less imaging.
- Provides a lighter, less expensive form factor for cameras.
- Facilitates imaging around corners and obstacles.
- Improves imaging that involves rigid, transparent surfaces of various geometries.

RECENT PUBLICATIONS
Kim, G., Isaacson, K., Palmer, R., Menon, R. (2017). Lensless photography with only an image sensor. Applied Optics. 56(23), 6450. doi: 10.1364/ao.56.006450

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