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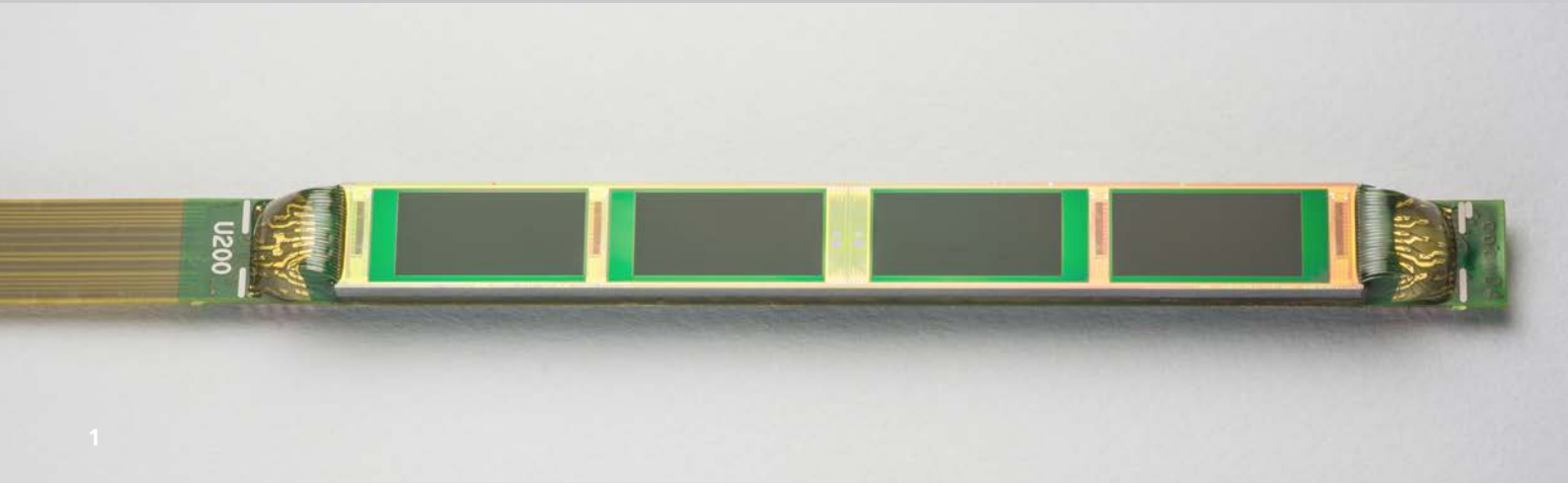

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1 *Image sensor for depth measurement and refocusing*
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MULTI-APERTURE-IMAGE SENSOR FOR 3D IMAGING

Compact, robust and precise imaging methods are necessary in many advanced applications. The facetVISION image sensor with its 4 individual image fields is suitable for stereoscopic and multi-lens systems and enables three-dimensional vision and measuring on smallest assembly space. In combination with compact optics and the used global shutter, cost-effective and robust camera systems can be manufactured for mobile devices and machine vision.

Features and Benefits

With a width of 3.2 mm and contacts on the narrow sides, the image sensor is suitable for ultra-small stereo-cameras and camera modules. The four image fields are arranged on the chip at fixed intervals. Thus, complex alignment of each image sensors is not necessary. In combination with the compact facetVISION-optic and the global shutter, the system enables sharp images even in case of fast movement and acceleration.

The dedicated Fraunhofer IIS software enables creating a depth map of the recorded image. Apart from this, post processing image corrections like refocusing can be realized, which has been possible only during image capture up until now.
The sensor is manufactured in standard image sensor technology and can be produced cost-effectively. As ASIC, the image sensor can be adapted to customer-specific applications.

Fraunhofer Institute for Integrated Circuits IIS

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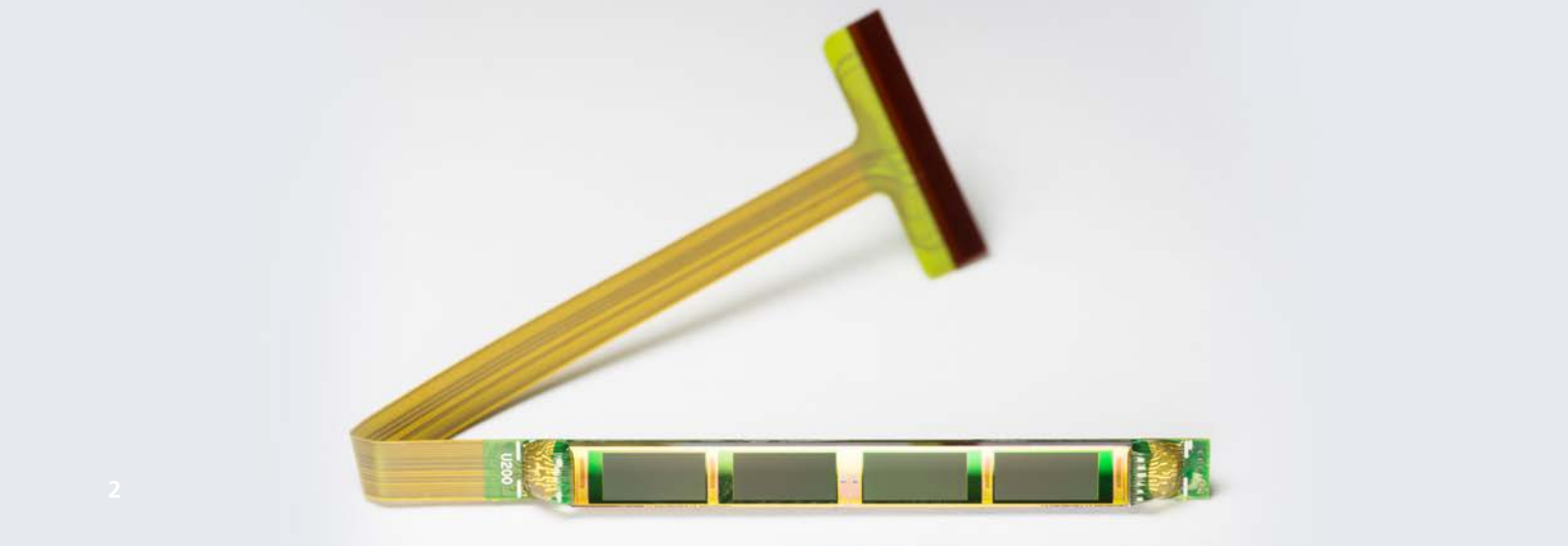

Applications

- Ultra flat cameras, e.g. in smartphones, tablets, notebooks, VR glasses
- Stereoscopic imaging for gesture recognition, machine vision, object recognition in the nearfield
- Multi-aperturesystems for post processing image correction (refocusing, crop imaging, cutting out)
- Fast multi-modal and multi-spectral imaging without motion artefacts due to different polarization- and color filters in front of the image fields

Services

- Customized development of image sensors and nanostructured filters in CMOS
- Development of integrated circuits for image sensor signal processing
- Development of image-sensor IPs
- Characterization of image sensor-systems
- Design of prototypes
- Transfer to series production and supply chain management of image sensor-ASICs
- Independent feasibility studies

Features

- Global shutter
- Pixel size: 3.6 µm
- Resolution: 1 600 x 768 (x4)
- Framerate: 30 fps
- Sensor dimension: 15.5 mm x 3.2 mm x 1 mm
- Interface: 12 bit parallel synchronous

2 *Multi-apertur-image sensor for ultra flat cameras*
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