COMPACT MULTISPECTRAL CAMERA WITH LATERAL STRUCTURED FILTER-ARRAY

Ambition

Ultra-compact system for multispectral imaging of extended scenes with high spatial resolution and individual customized spectral bands in single shot acquisition.

Technical concept / Technology

- Multi-aperture imaging system
- Ultra-compact system concept based on wafer-level components: structured multispectral filter-array, microlens-array, baffle array, and CMOS-Sensor
- Sampling of individual spectral bands (VIS/NIR) by a customized monolithic filter-array
- Filter concept realized by a combination of grayscale lithography and dry etching processes for the lateral structuring
- Adapted image processing for the analysis of spectra from a raw image

Characteristics

- Overall size 46 x 47 x 33 mm³
- Total track length 7.75 mm
- Spectral range 490 - 940 nm
- Spectral sampling individual customized spectral bands (VIS/NIR)
- Number of channels 4 x 3
- Image resolution 610 x 610 pixel
- Pixel pitch 2.2 µm
- F-number (F/#) 5.4
- Field of view 32° (diagonal)

Application

- Precision agriculture, plant monitoring
- Security and surveillance
- Biomedical inspection
- Recycling, industrial sorting