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(54) Title: MICROSCOPY METHOD AND SYSTEM INCORPORATING NANOFEATURES

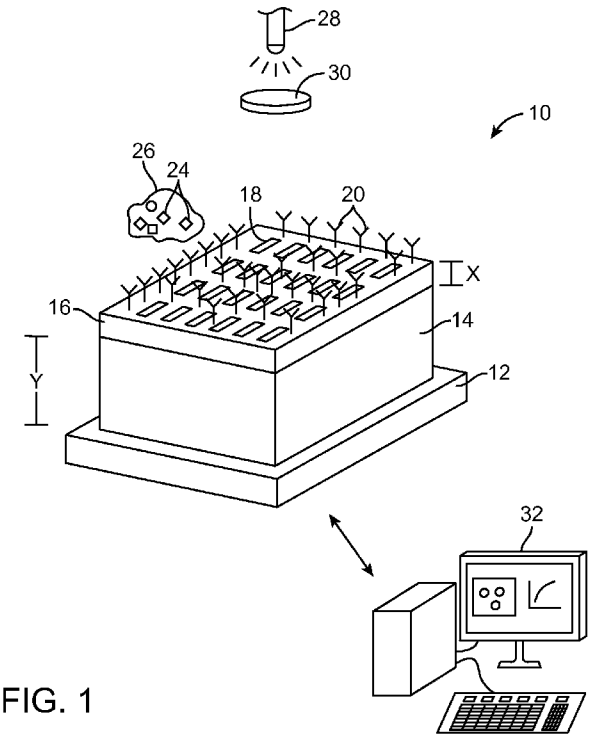

FIG. 1

(57) Abstract: A lensfree imaging and sensing device includes an image sensor comprising an array of pixels and a substantially optically transparent layer disposed above the image sensor. Nano-sized features that support surface plasmon waves are populated on the substantially optically transparent layer separating the image sensor from the nano-sized features. The nano-sized features may include apertures through a substantially optically opaque layer (e.g., metal layer) or they may include antennas. An illumination source is provided that is configured to illuminate a sample. At least one processor is operatively coupled to the image sensor. Changes to the detected transmission pattern at the image sensor are used to sense conditions at or near the surface containing the nano-sized features. Conditions may include binding events or other changes to the index of refraction occurring near the surface of the device.

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A. CLASSIFICATION OF SUBJECT MATTER

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According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

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Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords: imaging, image sensor, surface plasmon, nano, aperture, antenna, microscope and similar terms.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	ELKHATIB, TAMER A, et al., "High resolution imaging through integrated nanoholes image sensor," Biomedical Circuits and Systems Conference, November 2008, pages 245-248.	1-31
A	See pages 245-248.	32-41
Y	LIU, ZHENGTONG, et al., "Plasmonic nanoantenna arrays for the visible," Metamaterials, vol. 2, March 2008, pages 45-51.	1-31
A	See pages 45-51.	32-41
A	US 7456383 B2 (KIM HONG KOO et al.) 25 November 2008 See abstract, claims 1-24 and figures 1-36.	1-41
A	US 2010-0140460 A1 (RIGNEAULT HERVE et al.) 10 June 2010 See abstract, claims 1-16 and figures 1-9.	1-41

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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Information on patent family members

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