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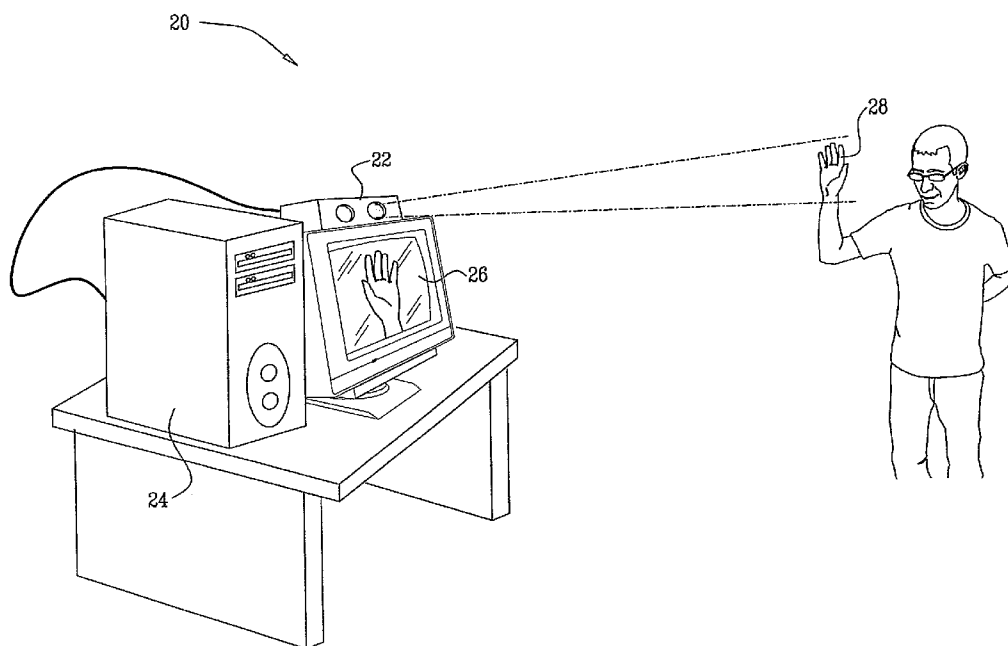
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PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM,
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[Continued on next page]

(54) Title: THREE-DIMENSIONAL SENSING USING SPECKLE PATTERNS



(57) Abstract: Apparatus (20) for 3D mapping of an object (28) includes an illumination assembly (30), including a coherent light source (32) and a diffuser (33), which are arranged to project a primary speckle pattern on the object. A single image capture assembly (38) is arranged to capture images of the primary speckle pattern on the object from a single, fixed location and angle relative to the illumination assembly. A processor (24) is coupled to process the images of the primary speckle pattern captured at the single, fixed angle so as to derive a 3D map of the object.

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A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - G06K 9/00 (2008.04)

USPC - 382/154

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)

USPC: 382/154

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

USPC: 356/4.03, 611; 382/100, 154 (keyword limited - see search terms)

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

PubWEST (USPT, PGPB, EPAB, JPAB); Google Patents; Google

Search Terms Used: laser; diffuser; detector array; Fourier plane; beam former; objective lens; 3D; speckle pattern; coherent light; motion

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2004/0228519 A1 (LITTLEFIELD et al.) 18 November 2004 (18.11.2004), entire document, especially; para [0054], [0056], [0057], [0059]	1 - 44
Y	US 2005/0200925 A1 (BROTHERTON-RATCLIFFE et al.) 15 September 2005 (15.09.2005), entire document, especially; para [0037], [0059]-[0061], [0089], [0104], [0119], [0120], [0123]-[0132], [0145]-[0148], [0186], [0189], [0206], [0212], [0235], [0238], [0239], [0241]-[0245], [0247], [0250], [0257], [0283]	1 - 44

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

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"A" document defining the general state of the art which is not considered to be of particular relevance

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"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

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