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.
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: 3504.03, 611; 362/100, 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 (USPTO, PGDB, 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

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>US 2004/0228519 A1 (LITTLEFIELD et al.) 18 November 2004 (18.11.2004), entire document, especially; para [0054], [0056], [0057], [0059]</td>
<td>1 - 44</td>
</tr>
<tr>
<td>Y</td>
<td>US 2005/0209025 A1 (BROTHERTON-RATCLIFFE et al.) 15 September 2005 (15.09.2005), entire document, especially; para [0037], [0059]-[0061], [0089], [0104], [0115], [0120], [0125]-[0132], [0145]-[0148], [0166], [0169], [0206], [0212], [0235], [0238], [0239], [0241]-[0245], [0247], [0250], [0257], [0263]</td>
<td>1 - 44</td>
</tr>
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</table>

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

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  "O" document referring to an oral disclosure, use, exhibition or other means
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  "X" document of particular relevance, the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
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Date of the actual completion of the international search: 26 September 2008 (26.09.2008)

Date of mailing of the international search report: 02 OCT 2008

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