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[Continued on next page]

(54) Title: RENDERING, VIEWING AND ANNOTATING PANORAMIC IMAGES, AND APPLICATIONS THEREOF

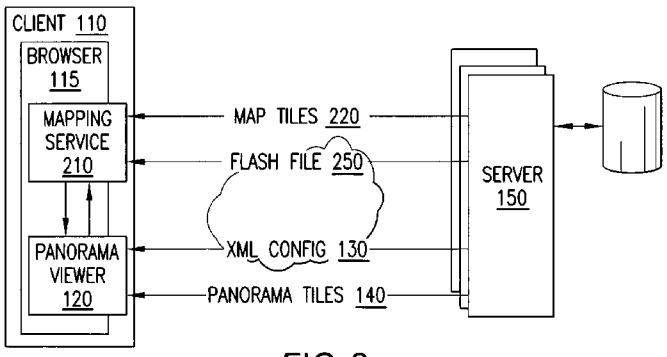

FIG.2

(57) Abstract: The present invention relates to rendering, viewing and annotating panoramic images. In an embodiment, a system may be used for viewing panoramic images. The system includes a panorama viewer that receives at least a portion of a first panoramic image and presents a viewport that displays the portion of the first panoramic image. The viewport includes a three-dimensional overlay rendered with the panoramic image. The panorama viewer changes the three-dimensional overlay's orientation in three-dimensional space as it is rendered with the panoramic image so as to match a change in orientation of the panoramic image within the viewport.

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NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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INTERNATIONAL SEARCH REPORT

International application No
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A. CLASSIFICATION OF SUBJECT MATTER
INV. G06T17/50 G06T15/20 G01C21/26

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)
G06T G01C

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

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2006/074549 A1 (TAKAHASHI YOSHITAKA [JP] ET AL) 6 April 2006 (2006-04-06) abstract; claim 4; figures 6,7A-7C,15,16 paragraphs [0006], [0044] - [0047], [0054], [0061], [0066], [0067]	1-11
A	US 6 563 529 B1 (JONGERIUS JERRY [US]) 13 May 2003 (2003-05-13) abstract; figures 3,4 column 4, line 57 - column 5, line 23	1-11

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[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

* Special categories of cited documents :

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

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"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

"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	Date of mailing of the international search report
27 October 2008	16/02/2009

Name and mailing address of the ISA/	Authorized officer
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INTERNATIONAL SEARCH REPORT

International application No
PCT/US2008/006683

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	SHENCHANG ERIC CHEN ED - COOK R: "QUICKTIME VR - AN IMAGE-BASED APPROACH TO VIRTUAL ENVIRONMENT NAVIGATION" COMPUTER GRAPHICS PROCEEDINGS. LOS ANGELES, AUG. 6 - 11, 1995; [COMPUTER GRAPHICS PROCEEDINGS (SIGGRAPH)], NEW YORK, IEEE, US, 6 August 1995 (1995-08-06), pages 29-38, XP000546213 ISBN: 978-0-89791-701-8 abstract paragraph [4.3.1.3]	1-11
A	EP 1 426 904 A (ZENRIN CO LTD [JP]) 9 June 2004 (2004-06-09) abstract paragraphs [0002], [0008]	1-11

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2008/006683

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers allsearchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search reportcovers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-11

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.

☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.

☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-11

A method and system for viewing panoramic images weherein a change in viewing orientation is visualised in an intuitive manner by correspondingly changing the orientation of a 3D overlay.

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2. claims: 12-27

A method and a system for rendering a surface involving a first and a second mapping transformations.

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3. claims: 28-37

A method and a system for processing different annotations provided by a user for one and the same feature in a panoramic image.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/US2008/006683

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2006074549 A1	06-04-2006	CN 1755326 A	05-04-2006
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