

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
28 November 2002 (28.11.2002)

PCT

(10) International Publication Number
WO 2002/094080 A3

(51) International Patent Classification:
G09B 23/28 (2006.01)

(74) Agent: **G.E. EHRLICH (1995) LTD.**; 28 Bezalel Street,
52521 Ramat Gan (IL).

(21) International Application Number:
PCT/IL2002/000393

(22) International Filing Date: 20 May 2002 (20.05.2002)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
143255 20 May 2001 (20.05.2001) IL

(71) Applicant (for all designated States except US): **SIM-BIONIX LTD.** [IL/IL]; Hamelacha Street 6, Northern Industrial Zone, 71520 Lod (IL).

(72) Inventors; and

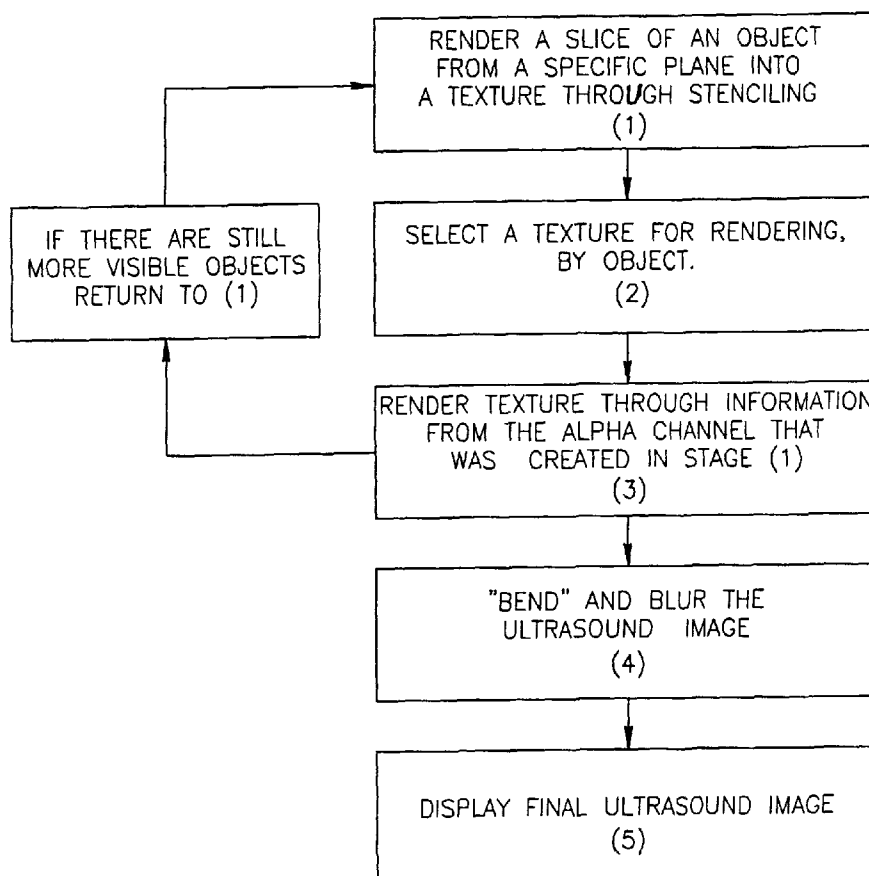
(75) Inventors/Applicants (for US only): **CHOSACK, Edna** [IL/IL]; Zahal Street 9, 55451 Kiryat Ono (IL). **BARKAY, David** [IL/IL]; Zahal Street 9, 55451 Kiryat Ono (IL). **BRONSTEIN, Ran** [IL/IL]; Almogan Street 23, 71700 Modiin (IL). **FISHER, Niv** [IL/IL]; Hamelacha Street 6, Northern Industrial Area, 71520 Lod (IL).

(81) Designated States (*national*): AE, AG, AL, AM, AT (utility model), AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ (utility model), CZ, DE (utility model), DE, DK (utility model), DK, DM, DZ, EC, EE (utility model), EE, ES, FI (utility model), FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK (utility model), SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: ENDOSCOPIC ULTRASONOGRAPHY SIMULATION



(57) Abstract: A method and a system to simulate ultrasound images and hence for simulating the evaluation of a subject with such images as a diagnostic tool. For the purpose of simulating ultrasound images, these images may be considered to be planar slices of a given geometry. These slices are generated from the surface geometry of the portion of the subject which would receive the ultrasound waves if the ultrasound diagnostic procedure was actually performed. Simulating such ultrasound images may therefore be performed by determining such images from surface models, and then rendering those ultrasound images at the desired position. The rendering of such simulated ultrasound images also optionally and preferably includes the simulation of the "grainy" quality of such images.

WO 2002/094080 A3



Published:

— with international search report

(88) Date of publication of the international search report:

8 November 2007

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/IL02/00393

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G09B 23/28
US CL : 434/262

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)
U.S. : 434/219,262,267,269,272,307R,308,365; 600/407,443,449

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 practicable, search terms used)
Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6,117,078 A (LYSYANSKY et al) 12 September 2000 (12.09.2000), see Figs. 1-9c.	1-12
A	US 6,210,168 B1 (AIGER et al) 02 April 2001 (02.04.2001), see Figs. 1-12.	1-12
A	US 6,193,657 B1 (DRAPKIN) 27 February 2001 (27.02.2001), see Figs. 1-8c.	1-12
A, P	US 6,264,609 B1 (HERRINGTON et al) 24 July 2001 (24.07.2001), see Figs. 1-10.	1-12



Further documents are listed in the continuation of Box C.



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
"B" earlier application or patent 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

04 November 2002 (04.11.2002)

Date of mailing of the international search report

12 DEC 2002

Name and mailing address of the ISA/US
Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231
Facsimile No. (703)305-3230

Authorized officer

Joe H. Cheng

Telephone No. (703)308-1148

Shelia Vercy
Paralegal Specialist
Group 3700

INTERNATIONAL SEARCH REPORT

PCT/IL02/00393

Continuation of B. FIELDS SEARCHED Item 3:

EAST

search terms: simulating ultrasound image, anatomical feature, planar slice surface geometry, viewpoint, positive value, pixels, grayscale