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Gutierrez Novelo

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(54) **3D VIDEOGAME SYSTEM**

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273/461; 345/419; 345/539; 345/653; 345/654;
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See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS
4,559,555 A 12/1985 Schoolman
(Continued)

FOREIGN PATENT DOCUMENTS

DE 198 06 547 A 11/1998
(Continued)

OTHER PUBLICATIONS

Akutsu, et al., Stereoscopic Display Which Shows 3D Natural Scenes
Without Contradiction of Accommodation and Convergence, SPIE,
2005, vol. 5664, pp. 480-487.

(Continued)

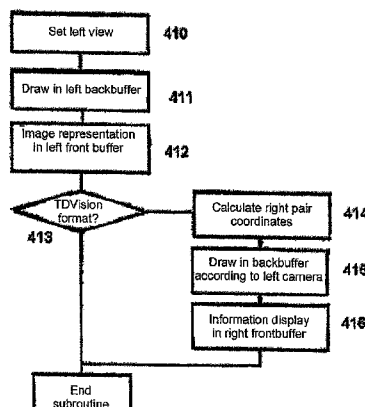
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(57) **ABSTRACT**

A 3D videogame system capable of displaying a left-right
sequences through a different, independent VGA or video
channel, with a display device sharing a memory in an
immerse manner. The system has a videogame engine con-
trolling and validating the image perspectives, assigning tex-
tures, lighting, positions, movements and aspects associated
with each object participating in the game; creates left and
right backbuffers, creates images and presents the informa-
tion in the frontbuffers. The system allows handling the infor-
mation of data associated to the xyz coordinates of the
object's image in real-time, increases the RAM for the left-
right backbuffer, with the possibility to discriminate and take
the corresponding backbuffer, whose information is sent to
the frontbuffer or additional independent display device shar-
ing a memory in an immerse manner.

19 Claims, 13 Drawing Sheets



U.S. PATENT DOCUMENTS

4,825,393	A *	4/1989	Nishiya	702/152
4,870,600	A	9/1989	Hiraoka	
4,925,294	A	5/1990	Geshwind et al.	
4,962,422	A	10/1990	Ohtomo et al.	
5,355,181	A	10/1994	Ashizaki et al.	
5,430,474	A	7/1995	Hines	
5,467,104	A	11/1995	Furness, III et al.	
5,510,832	A	4/1996	Garcia	
5,523,886	A	6/1996	Johnson-Williams et al.	
5,594,843	A	1/1997	O'Neill	
5,694,530	A *	12/1997	Goto	345/419
5,717,415	A *	2/1998	Iue et al.	345/8
5,734,807	A	3/1998	Sumi	
5,745,126	A	4/1998	Jain et al.	
5,751,927	A	5/1998	Wason	
5,801,705	A *	9/1998	Kato et al.	345/419
5,801,717	A	9/1998	Engstrom et al.	
5,867,210	A	2/1999	Rod	
5,872,590	A	2/1999	Aritake et al.	
5,877,840	A *	3/1999	Yamada et al.	351/201
5,905,499	A	5/1999	McDowall et al.	
5,929,859	A	7/1999	Meijers	
5,973,704	A	10/1999	Nishiumi et al.	
5,976,017	A	11/1999	Omori et al.	
5,982,375	A *	11/1999	Nelson et al.	345/419
5,986,667	A	11/1999	Jevans	
6,005,607	A	12/1999	Uomori et al.	
6,031,564	A	2/2000	Ma et al.	
6,104,402	A *	8/2000	Goddard et al.	345/419
6,108,029	A	8/2000	Lo	
6,151,060	A	11/2000	Tabata	
6,175,371	B1 *	1/2001	Schoulz et al.	345/630
6,352,476	B2	3/2002	Miyamoto et al.	
6,384,859	B1	5/2002	Matsumoto et al.	
6,388,666	B1	5/2002	Murray	
6,466,206	B1	10/2002	Deering	
6,466,208	B1	10/2002	Yet et al.	
6,496,183	B1	12/2002	Bar-Nahum	
6,496,187	B1	12/2002	Deering et al.	
6,496,598	B1	12/2002	Harman	
6,501,468	B1 *	12/2002	Kaji	345/419
6,515,662	B1	2/2003	Garland	
6,556,195	B1	4/2003	Totsuka et al.	
6,559,844	B1	5/2003	Alamparambil	
6,573,928	B1	6/2003	Jones et al.	
6,583,793	B1	6/2003	Gould et al.	
6,614,927	B1	9/2003	Tabata	
6,753,828	B2 *	6/2004	Tuceryan et al.	345/8
6,760,020	B1 *	7/2004	Uchiyama et al.	345/419
6,760,034	B2	7/2004	Prache	
6,765,568	B2	7/2004	Swift et al.	
6,816,158	B1	11/2004	Lemelson et al.	
6,985,162	B1	1/2006	Schinnerer et al.	
7,219,352	B2	5/2007	Estrop	
7,254,265	B2	8/2007	Naske et al.	
2002/0075286	A1	6/2002	Yonezawa et al.	
2002/0154214	A1	10/2002	Scallie et al.	
2003/0112327	A1	6/2003	Jeong et al.	
2003/0152264	A1	8/2003	Perkins	
2003/0179198	A1	9/2003	Uchiyama	

FOREIGN PATENT DOCUMENTS

JP	2-109493	A	4/1990
JP	07-296185		11/1995
JP	8-149519	A	6/1996
JP	09-139957		5/1997
JP	09-237353		9/1997
JP	11-509998		8/1999
JP	2000-020757		1/2000
JP	2002-519792		7/2002
JP	2003-067784		3/2003

OTHER PUBLICATIONS

Ames, et al., Development of a Miniaturized System for Monitoring

Eichenlaub, Passive Method of Eliminating Accommodation/Convergence Disparity in Stereoscopic Head Mounted Displays, SPIE, 2005, vol. 5665, pp. 517-529.

Fehn, Depth-Image-Based Rendering (DIBR), Compression and Transmission for a New Approach on 3D-TV, SPIE, 2004, vol. 5291, pp. 93-104.

Hendriks, et al., Real Time Synthesis of Digital Multi Viewpoint Stereoscopic Images, SPIE, 1999, vol. 3639, pp. 266-276.

Holliman, Mapping Perceived Depth to Regions of Interest in Stereoscopic Images, SPIE, 2004, vol. 5291, pp. 117-128.

Hur, et al., A Software-Based Minimum-Time Vergence Control Scheme for a Parallel-Axis Stereoscopic Camera, SPIE, 2004, vol. 5599, pp. 32-40.

Jin, et al., Creating a Comfortable Stereoscopic Viewing Experience: Effects of Viewing Distance and Field of View on Fusional Range, SPIE, 2005, vol. 5665, pp. 10-21.

Kwon, et al., Automatic control of parallel stereoscopic camera by disparity compensation, SPIE, 2003, vol. 5006, pp. 417-423.

Kwon, Automatic Vergence and Focus Control of Parallel Stereoscopic Camera by Cepstral Filter, Journal of Electronic Imaging, 2004, vol. 13(2), pp. 376-383.

Lee, et al., Parallel-Axis Stereoscopic Camera with Vergence Control and Multiplexing Functions, SPIE, 2003, vol. 5006, pp. 389-398.

Lee, et al., Adaptive Stereoscopic Image Conversion of 2D Image, SPIE, 2001, vol. 4471, pp. 66-72.

Lemmer, et al., Enhancement of Stereoscopic Comfort by Fast Control of Frequency Content with Wavelet Transformation, SPIE, 2003, pp. 283-291.

Nam, et al., Development of the Real-Time Stereoscopic Error Corrector and Convergence Controller, SPIE, 2006, vol. 60550H-1-9.

Park, Stereoscopic Imaging Camera with Simultaneous Vergence and Focus Control, Opt. Eng., 2004, 43(12) 3130-3137.

Schowengerdt, et al., Stereoscopic Retinal Scanning Laser Display with Integrated Focus Cues for Ocular Accommodation, SPIE, 2004, vol. 5291, pp. 366-376.

Schowengerdt, et al., True 3-D Scanned Voxel Displays Using Single or Multiple Light Sources, Journal of the SID, 2006, Journal of the SID, 2006, 14/2, pp. 135-143.

Shibata, et al., Examination of Asthenopia Recovery Using Stereoscopic 3-D display with Dynamic Optical Correction, SPIE, 2006, vol. 6055, pp. 60550E-1-8.

Shibata, et al., Stereoscopic 3-D Display with Dynamic Optical Correction for Recovering from Asthenopia, SPIE, 2005, vol. 5664, pp. 1-9.

Sun, et al., Evaluating Methods for Controlling Depth Perception in Stereoscopic Cinematography, SPIE, 2009, vol. 7237 pp. 723701-1-12.

Tam, et al., Depth Image Based Rendering for Multiview Stereoscopic Displays: Role of Information at Object Boundaries, SPIE, 2005, vol. 6016, pp. 601609-1-11.

Tzovaras, et al., Object-Based Coding of Stereo Image Sequences using Joint 3-D Motion/Disparity Segmentation, 1995, SPIE, vol. 2501, pp. 1678-1689.

Um, et al., Investigation of the Effect of Disparity-Based Asymmetrical Filtering on Stereoscopic Video, SPIE, 2004, vol. 5150, pp. 110-118.

Ware, et al., Algorithm for Dynamic Disparity Adjustment, SPIE, 1995, vol. 2409, pp. 150-156.

Watt, et al., Achieving near-correct focus cues in a 3-D display using multiple image planes, SPIE, 2005, vol. 5666, pp. 393-401.

Gotoh, H. "Gotoh Hiroshige's Monthly Report," DOS/V Power Report, Japan, Impress Corporation, Jul. 1, 2003, vol. 13, No. 7, pp. 125-126.

Scribner, et al., The Effect of Stereoscopic and Wide Field of View Conditions on Teleoperator Performance, Army Research Laboratory, Mar. 1998, pp. 1-40.

Heath, Jenny, Virtual Reality Resource Guide, AI Expert, May 1994, vol. 9, pp. 1-45.

Rodriguez, et al., Full Window Stereo, J. Mol. Graphics Mod., 1999, vol. 17, pp. 319-314.

Liao, et al., The Design and Application of High-Resolution 3D

US 8,206,218 B2

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interactive Digital Media 2000, Plzen (Pilsen), Czech Republic, Feb. 7-11, 2000, pp. 1-7 [retrieved from http://wscg.zcu.cz/wscg2000/Papers_2000/R5.pdf].

Bourke, Paul, 3D Stereo Rendering Using OpenGL (and GLUT), Nov. 1999 (7 pages).

Microsoft DirectX 8.1 (C++), Programmers Guide, available from www.sc.ehu.es/ccwgamao/docencia/Material/hoy/Direct3D, Jun. 17, 2002 (406 pages).

* cited by examiner

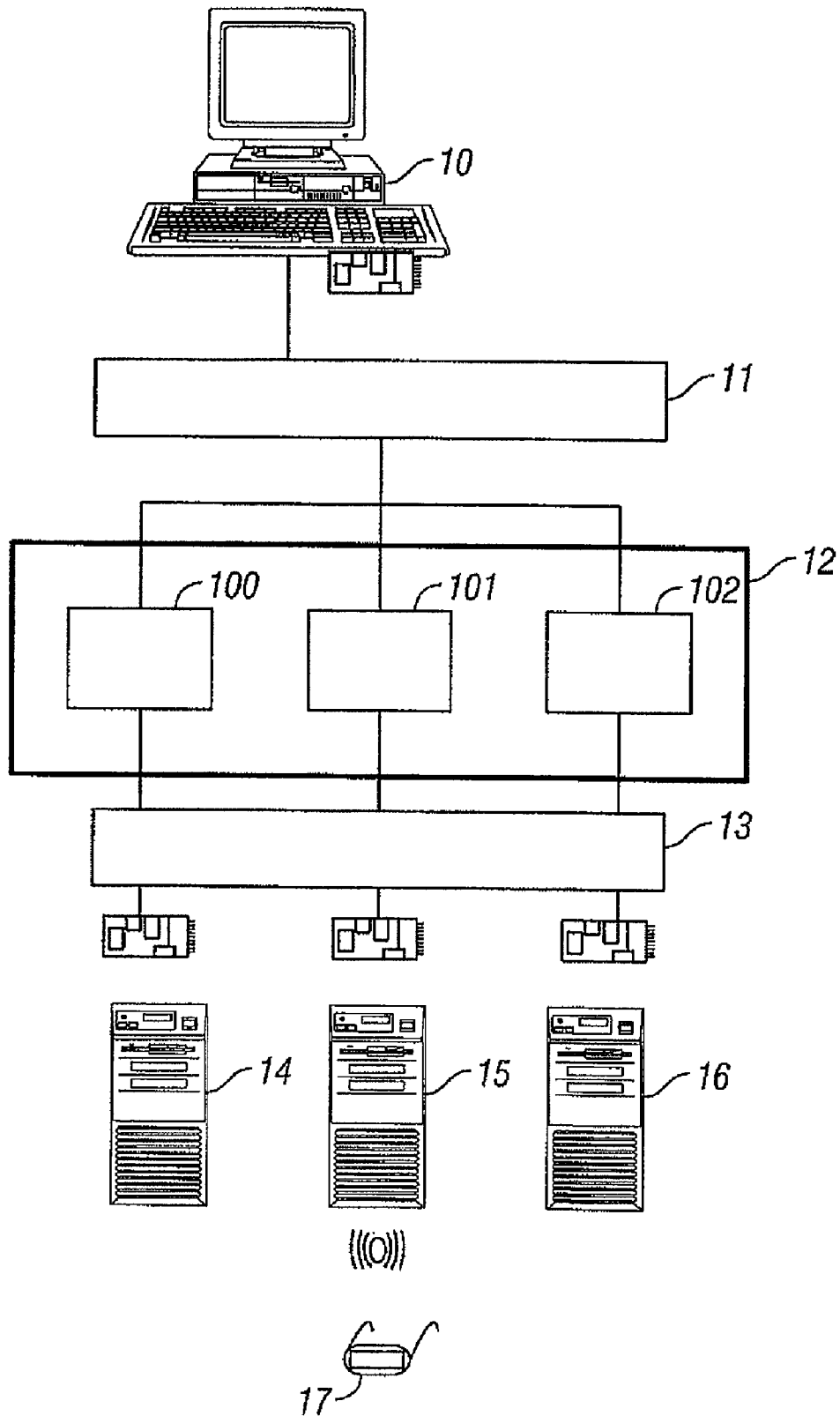


FIG. 1

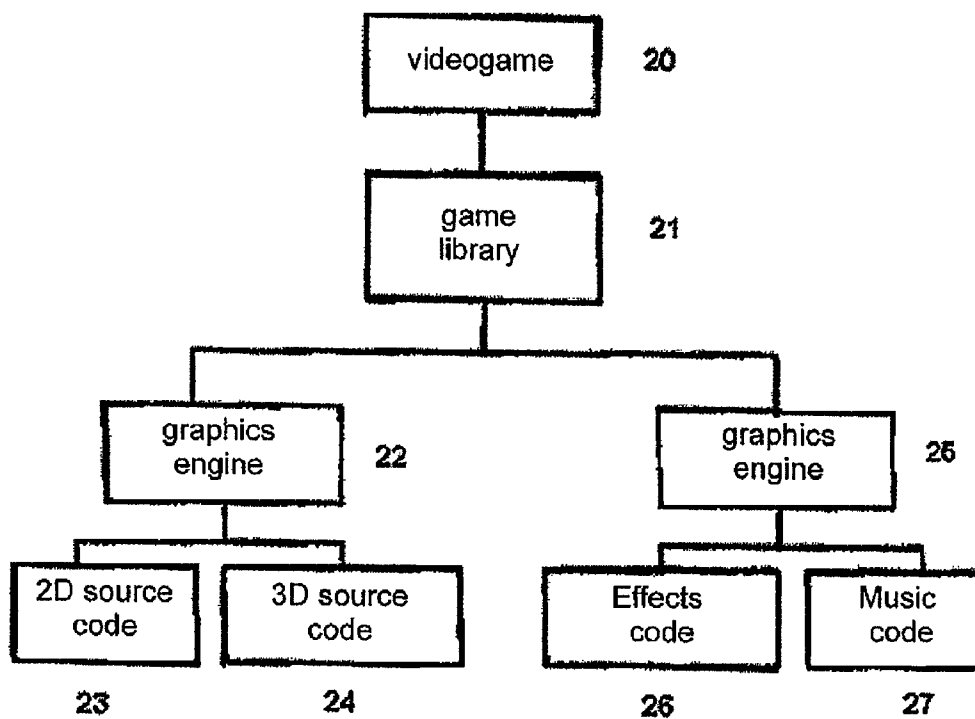


Fig. 2

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