(19)





(11) **EP 1 642 624 A3**

(12)

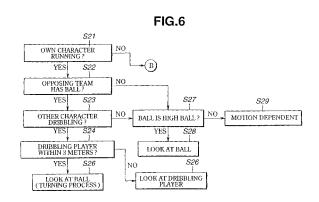
EUROPEAN PATENT APPLICATION

(88) Date of publication A3: (51) Int Cl.: A63F 13/10^(2006.01) G06T 15/00^(2006.01) 28.02.2007 Bulletin 2007/09 (43) Date of publication A2: 05.04.2006 Bulletin 2006/14 (21) Application number: 04076956.4 (22) Date of filing: 18.02.1998 (84) Designated Contracting States: • Mifume, Satoshi DE ES FR GB IT Sega Enterprises, Ltd. Tokyo 144-8531 (JP) (30) Priority: 18.02.1997 JP 3408997 · Yamamoto, Makot 18.02.1997 JP 3416397 Sega Enterprises, Ltd. Tokyo 144-8531 (JP) (62) Document number(s) of the earlier application(s) in Yamamoto, Kaori accordance with Art. 76 EPC: Sega Enterprises, Ltd. 98904377.3 / 0 901 803 Tokyo 144-8531 (JP) Yamashita, Maski (71) Applicant: SEGA ENTERPRISES, LTD. c/o SEGA Corporation Tokyo 144-8531 (JP) Tokyo 144-8531 (JP) (72) Inventors: (74) Representative: Brown, Kenneth Richard et al R.G.C. Jenkins & Co. • Haga, Norio Sega Enterprises, Ltd. 26 Caxton Street Tokyo 144-8531 (JP) London SW1H 0RJ (GB) • Numata, Tadanob Sega Enterprises, Ltd. Tokyo 144-8531 (JP)

(54) Image processing device and image processing method

(57) Games are processed in a more realistic and immediate manner during image processing for soccer games and the like. Specifically, the movements of characters more accurately simulate those of actual opponents, resulting in greater game realism.

The invention is an image processing device for imaging and displaying the behavior of characters modeled on opponents in virtual three-dimensional space. It is determined (S21 to S24) whether or not there exists a certain situation in which the relation to the game contents (in the centering area, for example) or the positional relation (such as distance) between characters and a target (such as opponent characters or the ball) having a relation through the game to said characters matches certain conditions, and the eyes of the characters are directed to the target (S25, S26, S28, etc.) when it is determined that the certain situation exists. The invention is especially suitable for soccer games.



EP 1 642 624 A3



EUROPEAN SEARCH REPORT

Application Number EP 04 07 6956

	DOCUMENTS CONSID	ERED TO BE RELEVANT		
Category	Citation of document with in of relevant passa	dication, where appropriate, ages	Releva to clain	
X	Eye-Animation and F ELECTRONICS AND COM	L.: "Computer Graphics eeling of Gaze Line" MUNICATION IN JAPAN, 995 (1995-11), pages		INV. A63F13/10 G06T15/00
Ŷ	<pre>- page 45, left-han * page 46, left-han page 47, left-hand</pre>	nd column, paragraph 3 d column, paragraph 1 * d column, paragraph 3 - column, paragraph 2 * nd column, paragraph 4		
Y	EP 0 758 117 A (SEG 12 February 1997 (1 * abstract *		2	
Ŷ	EP 0 714 685 A (SEG 5 June 1996 (1996-0 * column 2, line 32	6-05)	3	TECHNICAL FIELDS SEARCHED (IPC)
A	THE HUMAN SPINE AND IEEE COMPUTER GRAPH APPLICATIONS,US,IEE	ICS AND E INC. NEW YORK, arch 1991 (1991-03-01), 79795	3	A63F G06T
Ρ,Χ	WO 97/14102 A (NA S ;ROSEBOROUGH JAMES TIMOTHY J () 17 Apr * page 19, line 2 - * page 22, line 9 -	B (US); KOSTOLANSKY il 1997 (1997-04-17) line 7 *	1,3,4	,6
	The present search report has b	een drawn up for all claims		
	Place of search The Hague	Date of completion of the search 23 January 2007		Examiner Sindic, Gilles
X : parti Y : parti docu A : tech	ATEGORY OF CITED DOCUMENTS icularly relevant if taken alone icularly relevant if combined with anoth iment of the same category inological background	T : theory or principl E : earlier patent do after the filing dat D : document cited i L : document cited fe	e underlying bument, but p e n the applica or other reas	the invention published on, or ttion ons
	-written disclosure mediate document	& : member of the sa document	ame patent f	amily, corresponding



EUROPEAN SEARCH REPORT

Application Number EP 04 07 6956

Category	Citation of document with ir of relevant passa	dication, where appropriate, ages	Releva to claim		SIFICATION OF THE ICATION (IPC)
Ρ,Χ		Internet: eviews/1996.html>	1		
P,A	* page 5, paragraph * page 6, paragraph	2 *	8,11		
A	PATENT ABSTRACTS OF vol. 1996, no. 10, 31 October 1996 (19 & JP 08 161515 A (N 21 June 1996 (1996- * abstract *	96-10-31) AMCO LTD),	8-11		
A	W0 89/09458 A (STRA 5 October 1989 (198 * page 23, line 28 * page 27, line 28 * claim 5 *	9-10-05) - line 35 *	8-11		HNICAL FIELDS RCHED (IPC)
х	WO 96/25211 A (NAMC (JP)) 22 August 199	 0 LTD ;NIMURA SHINOBU 6 (1996-08-22)	12,14		
A	& US 5 947 823 A (N 7 September 1999 (1 * column 1, line 19 * column 4, line 54	AMCO LTD) 999-09-07) - line 35 * - line 60 * - column 8, line 17 * 6 - line 33 *	13		
х	WO 96/34364 A (SEGA SATOSHI (JP); YAMAS 31 October 1996 (19	15,16, 20-22	,		
A	·	-/	17,27, 28,31	,	
	The present search report has t	een drawn up for all claims	-		
	Place of search	Date of completion of the search	<u> </u>	Exam	iner
	The Hague	23 January 2007		Sindic,	Gilles
X : part Y : part docu A : tech	ATEGORY OF CITED DOCUMENTS icularly relevant if taken alone icularly relevant if oombined with anoth ment of the same category inological background written disclosure mediate document	T : theory or principl E : earlier patent do after the filing da D : document cited f L : document cited f	cument, but p te in the applica or other reaso	bublished on, o tion ons	



EUROPEAN SEARCH REPORT

Application Number EP 04 07 6956

Category	Citation of document with in	ERED TO BE RELEVAN	-	Relevant	CLASSIFICATION OF THE
Jaregory	14 May 1997 (1997-0) * column 16, line 3 * column 18, line 3	EGA ENTERPRISES LTD) 5-14)		o claim	APPLICATION (IPC)
x	PATENT ABSTRACTS OF vol. 1995, no. 10, 30 November 1995 (1 & JP 07 178242 A (S 18 July 1995 (1995- * abstract *	995-11-30) EGA ENTERP LTD),		,16, ,21	
A	pages 14-23, XP00004 ISSN: 0272-1716 * page 17, right-ham	VAL USING PARALLEL ICS AND E INC. NEW YORK, Iy 1987 (1987-07-01),	31 35 5	-28, ,32, ,36	TECHNICAL FIELDS SEARCHED (IPC)
A	US 5 522 018 A (TAK 28 May 1996 (1996-0 * column 22, line 2	5-28)		,25, ,35,36	
	The present search report has b	•			
	Place of search The Hague	Date of completion of the searc 23 January 200		Sin	Examiner dic, Gilles
X : parti Y : parti docu A : tech O : non	ATEGORY OF CITED DOCUMENTS ioularly relevant if taken alone icularly relevant if combined with anoth iment of the same category nological background -written disclosure mediate document	T : theory or pri E : earlier paten after the filing	nciple und t docume g date ted in the ed for oth	erlying the ir nt, but publis application er reasons	nvention hed on, or



Application Number

EP 04 07 6956

CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):

No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:
see sheet B
All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:



LACK OF UNITY OF INVENTION SHEET B

Application Number EP 04 07 6956

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely: 1. claims: 1-7 Animating the eyes of opponent characters ---2. claims: 8-11 Animating efficiently game spectators 3. claims: 12-14 Increasing the realism by taking the time of the day into account ---4. claims: 15-36 Positioning the virtual camera and corresponding rendering ---

EP 1 642 624 A3

ANNEX TO THE EUROPEAN SEARCH REPORT **ON EUROPEAN PATENT APPLICATION NO.**

EP 04 07 6956

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

23-01-2007

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
EP 0758117	A	12-02-1997	BR CN DE DE ES WO JP US	9603888 A 1146818 A 69634526 D1 69634526 T2 2239326 T3 9622581 A1 3781309 B2 5863248 A	07-10-1997 02-04-1997 04-05-2005 23-03-2006 16-09-2005 25-07-1996 31-05-2006 26-01-1999
EP 0714685	A	05-06-1996	CN DE DE ES WO JP US	1129403 A 69523717 D1 69523717 T2 2165422 T3 9535140 A1 3365556 B2 5766079 A	21-08-1996 13-12-2001 08-05-2002 16-03-2002 28-12-1995 14-01-2003 16-06-1998
WO 9714102	A	17-04-1997	AU CA EP JP	7662396 A 2234578 A1 0856174 A1 2000506637 T	30-04-1997 17-04-1997 05-08-1998 30-05-2000
JP 08161515	Α	21-06-1996	JP	3538248 B2	14-06-2004
WO 8909458	A	05-10-1989	AT DE DE EP JP JP	116752 T 68920436 D1 68920436 T2 0427723 A1 3004666 B2 5503379 T	15-01-1995 16-02-1995 24-08-1995 22-05-1993 31-01-2000 03-06-1993
WO 9625211	A	22-08-1996	GB JP JP US	2302250 A 3442181 B2 8215432 A 5947823 A	08-01-1997 02-09-2003 27-08-1996 07-09-1999
US 5947823	A	07-09-1999	GB JP JP WO	2302250 A 3442181 B2 8215432 A 9625211 A1	08-01-1997 02-09-2003 27-08-1996 22-08-1996
WO 9634364	A	31-10-1996	BR CN DE DE EP	9606346 A 1152367 A 69629649 D1 69629649 T2 0773515 A1	02-09-1997 18-06-1997 02-10-2003 17-06-2004 14-05-1997

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

EP 1 642 624 A3

ANNEX TO THE EUROPEAN SEARCH REPORT **ON EUROPEAN PATENT APPLICATION NO.**

EP 04 07 6956

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

23-01-2007

cited	atent document d in search report		Publication date		Patent family member(s)		Publication date
WO S	9634364	A		HK JP US	1014065 3529138 6542155	B2	19-03-200 24-05-200 01-04-200
EP (0773515	A	14-05-1997	BR CN DE HK WO JP US	9606346 1152367 69629649 69629649 1014065 9634364 3529138 6542155	A D1 T2 A1 A1 B2	02-09-199 18-06-199 02-10-200 17-06-200 19-03-200 31-10-199 24-05-200 01-04-200
JP (07178242	A	18-07-1995	JP	3496205	B2	09-02-200
US S	5522018	A	28-05-1996	JP JP	2807608 6203172		08-10-199 22-07-199

FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82