

Serial No.: 08/274,394
Art Unit: 2304

9

Conclusion

9. The following references are cited as being of general interest: Lewis (4,028,725), Lerche (4,910,674), Baird et al. (4,954,837), Fitzpatrick et al. (5,072,396), Ferguson et al. (5,192,208), Pitts (5,208,590), and Wells et al. (5,334,991).

10. All claims are rejected.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Tan Nguyen, whose telephone number is (703) 305-9755. The examiner can normally be reached on Monday-Thursday from 7:30 AM-6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin J. Teska, can be reached on (703) 305-9704. The fax phone number for this Group is (703) 305-9564.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-3800.

TN

TAN NGUYEN
November 06, 1994


KEVIN J. TESKA
SUPERVISORY PATENT EXAMINER
GROUP 2300

TO SEPARATE, HOLD TOP AND BOTTOM EDGES, SNAP-APART AND DISCARD CARBON

09-513,298

FORM PTO-892 (REV. 2-92)	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	SERIAL NO. 08/274,294 2304	GROUP/ART UNIT 2304	ATTACHMENT TO PAPER NUMBER 3
NOTICE OF REFERENCES CITED		APPLICANT(S) MARGOLIN		

U.S. PATENT DOCUMENTS								
	DOCUMENT NO.	DATE	NAME	CLASS	SUB-CLASS	FILING DATE IF APPROPRIATE		
A	4028725	06/77	LEWIS	340	980			
*B	4660157	04/87	BECKWITH ET AL	305	101			
C	4910674	03/90	LERCHE	364	443			
D	4954887	09/90	BAIRD	364	449			
*E	5005148	04/91	BEHENSKY ET AL.	B64	578			
F	5072396	12/91	FITZPATRICK ET AL.	364	450			
G	5192208	03/93	FERGUSON ET AL.	342	169			
H	5208590	05/93	PITTS	340	973			
I	5334991	08/94	WEUS ET AL.	340	705			05/92
J								
K								

FOREIGN PATENT DOCUMENTS									
	DOCUMENT NO.	DATE	COUNTRY	NAME	CLASS	SUB-CLASS	PERTINENT SHTS. DWG. PP. SPEC.		
L									
M									
N									
O									
P									
Q									

OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, Etc.)	
*R	Polhemus, P.O. Box 560, Colchester, VT, Sales brochure for 3D head tracker; Jan 1994
*S	Atari Games Corp. 675 Sycamore Dr., Milpitas, CA 95035, Sales brochure for coin-operated video game with 3D; 1991
*T	Atari Game Corp, 675 Sycamore, Milpitas, CA 95035, Sales brochure for coin-operated video game with 3D polygon-based graphics (Hard Drive) 1989
U	

EXAMINER Jan Nguyen	DATE 11/06/94
------------------------	------------------

A copy of this reference is not being furnished with this office action.
(See Manual of Patent Examining Procedure, section 707.05 (a).)

NOTICE OF DRAFTSPERSON'S PATENT DRAWING REVIEW

PTO Draftpersons review all originally filed drawings regardless of whether they are designated as formal or informal. Additionally, patent Examiners will review the drawings for compliance with the regulations. Direct telephone inquiries concerning this review to the Drawing Review Branch, 703-305-8404.

The drawings filed (insert date) 7/11/94, are
 A. not objected to by the Draftperson under 37 CFR 1.84 or 1.152.
 B. objected to by the Draftperson under 37 CFR 1.84 or 1.152 as indicated below. The Examiner will require submission of new, corrected drawings when necessary. Corrected drawings must be submitted according to the instructions on the back of this Notice.

1. DRAWINGS. 37 CFR 1.84(a): Acceptable categories of drawings:
 Black ink. Color.
 Not black solid lines. Fig(s) _____
 Color drawings are not acceptable until petition is granted.
2. PHOTOGRAPHS. 37 CFR 1.84(b)
 Photographs are not acceptable until petition is granted.
3. GRAPHIC FORMS. 37 CFR 1.84 (d)
 Chemical or mathematical formula not labeled as separate figure. Fig(s) _____
 Group of waveforms not presented as a single figure, using common vertical axis with time extending along horizontal axis. Fig(s) _____
 Individual waveform not identified with a separate letter designation adjacent to the vertical axis. Fig(s) _____
4. TYPE OF PAPER. 37 CFR 1.84(e)
 Paper not flexible, strong, white, smooth, nonshiny, and durable. Sheet(s) _____
 Erasures, alterations, overwritings, interlineations, cracks, creases, and folds not allowed. Sheet(s) _____
5. SIZE OF PAPER. 37 CFR 1.84(f): Acceptable paper sizes:
 21.6 cm. by 35.6 cm. (8 1/2 by 14 inches)
 21.6 cm. by 33.1 cm. (8 1/2 by 13 inches)
 21.6 cm. by 27.9 cm. (8 1/2 by 11 inches)
 21.0 cm. by 29.7 cm. (DIN size A4)
 All drawing sheets not the same size. Sheet(s) _____
 Drawing sheet not an acceptable size. Sheet(s) _____

6. MARGINS. 37 CFR 1.84(g): Acceptable margins:

Paper size				
21.6 cm. X 35.6 cm. (8 1/2 X 14 inches)	21.6 cm. X 33.1 cm. (8 1/2 X 13 inches)	21 cm. X 27.9 cm. (8 1/2 X 11 inches)	21 cm. X 29.7 cm. (DIN Size A4)	
T 5.1 cm. (2")	2.5 cm. (1")	2.5 cm. (1")	2.5 cm.	
L .64 cm. (1/4")	.64 cm. (1/4")	.64 cm. (1/4")	2.5 cm.	
R .64 cm. (1/4")	.64 cm. (1/4")	.64 cm. (1/4")	1.5 cm.	
B .64 cm. (1/4")	.64 cm. (1/4")	.64 cm. (1/4")	1.0 cm.	

Margins do not conform to chart above.
 Sheet(s) _____
 Top (T) Left (L) Right (R) Bottom (B)

7. VIEWS. 37 CFR 1.84(h)
 REMINDER: Specification may require revision to correspond to drawing changes.
 All views not grouped together. Fig(s) _____
 Views connected by projection lines. Fig(s) _____
 Views contain center lines. Fig(s) _____
 Partial views. 37 CFR 1.84(h)(2)
 Separate sheets not linked edge to edge. Fig(s) _____
 View and enlarged view not labeled separately. Fig(s) _____
 Long view relationship between different parts not clear and unambiguous. 37 CFR 1.84(h)(2)(ii) Fig(s) _____
 Sectional views. 37 CFR 1.84(h)(3)
 Hatching not indicated for sectional portions of an object. Fig(s) _____
 Hatching of regularly spaced oblique parallel lines not spaced sufficiently. Fig(s) _____
 Hatching not at substantial angle to surrounding axes or principal lines. Fig(s) _____
 Cross section not drawn same as view with parts in cross section with regularly spaced parallel oblique strokes. Fig(s) _____
 Hatching of juxtaposed different elements not angled in a different way. Fig(s) _____
 Alternate position. 37 CFR 1.84(h)(4)
 A separate view required for a moved position. Fig(s) _____

- Modified forms. 37 CFR 1.84(h)(5)
 Modified forms of construction must be shown in separate views. Fig(s) _____
8. ARRANGEMENT OF VIEWS. 37 CFR 1.84(l)
 View placed upon another view or within outline of another. Fig(s) _____
 Words do not appear in a horizontal, left-to-right fashion when page is either upright or turned so that the top becomes the right side, except for graphs. Fig(s) _____
 9. SCALE. 37 CFR 1.84(k)
 Scale not large enough to show mechanism without crowding when drawing is reduced in size to two-thirds in reproduction. Fig(s) _____
 Indication such as "actual size" or "scale 1/2" not permitted. Fig(s) _____
 Elements of same view not in proportion to each other. Fig(s) _____
 10. CHARACTER OF LINES, NUMBERS, & LETTERS. 37 CFR 1.84(i)
 Lines, numbers & letters not uniformly thick and well defined, clean, durable, and black (except for color drawings). Fig(s) _____
 11. SHADING. 37 CFR 1.84(m)
 Shading used for other than shape of spherical, cylindrical, and conical elements of an object, or for flat parts. Fig(s) _____
 Solid black shading areas not permitted. Fig(s) _____
 12. NUMBERS, LETTERS, & REFERENCE CHARACTERS. 37 CFR 1.84(p)
 Numbers and reference characters not plain and legible. 37 CFR 1.84(p)(1) Fig(s) _____
 Numbers and reference characters used in conjunction with brackets, inverted commas, or enclosed within outlines. 37 CFR 1.84(p)(1) Fig(s) _____
 Numbers and reference characters not oriented in same direction as the view. 37 CFR 1.84(p)(1) Fig(s) _____
 English alphabet not used. 37 CFR 1.84(p)(2) Fig(s) _____
 Numbers, letters, and reference characters do not measure at least .32 cm. (1/8 inch) in height. 37 CFR 1.84(p)(3) Fig(s) 1.2 cm. Points
 13. LEAD LINES. 37 CFR 1.84(q)
 Lead lines cross each other. Fig(s) _____
 Lead lines missing. Fig(s) _____
 Lead lines not as short as possible. Fig(s) _____
 14. NUMBERING OF SHEETS OF DRAWINGS. 37 CFR 1.84(i)
 Number appears in top margin. Fig(s) _____
 Number not larger than reference characters. Fig(s) _____
 Sheets not numbered consecutively, and in Arabic numerals, beginning with number 1. Sheet(s) _____
 15. NUMBER OF VIEWS. 37 CFR 1.84(u)
 Views not numbered consecutively, and in Arabic numerals, beginning with number 1. Fig(s) _____
 View numbers not preceded by the abbreviation Fig. Fig(s) _____
 Single view contains a view number and the abbreviation Fig. Fig(s) _____
 Numbers not larger than reference characters. Fig(s) _____
 16. CORRECTIONS. 37 CFR 1.84(w)
 Corrections not durable and permanent. Fig(s) _____
 17. DESIGN DRAWING. 37 CFR 1.152
 Surface shading shown not appropriate. Fig(s) _____
 Solid black shading not used for color contrast. Fig(s) _____

#4

PATENT

002055.P002



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of:

Jed Margolin

Serial No.: 08/274,394

Filed: July 11, 1994

For: PILOT AID USING SYNTHETIC REALITY

Examiner: T. Nguyen

Art Unit: 2304

SUBMISSION OF FORMAL DRAWINGS

Hon. Commissioner of Patents and Trademarks
Washington, D.C. 20231

RECEIVED
FEB 13 1995
UNITED STATES PATENT AND TRADEMARK OFFICE

Dear Sir:

Enclosed herewith for filing in the above-identified application are 13 sheets of formal drawings.

Respectfully submitted,
BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN

Date: February 8, 1995

Keith G. Askoff
Keith G. Askoff
Reg. No. 33,828
12400 Wilshire Boulevard
Seventh Floor
Los Angeles, California 90025
(408) 720-8598

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail with sufficient postage in an envelope addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231

on February 8, 1995
Date of Deposit

Carolyn C. Cairns
Name of Person Mailing Correspondence
Carolyn C. Cairns 2/18/95
Signature Date

APPROVED	D.G. FIG. 4	
BY	CLASS	SUBCLASS
DRAFTSMAN	364	449

Sheet 1 of 13

08-513,298

5566073

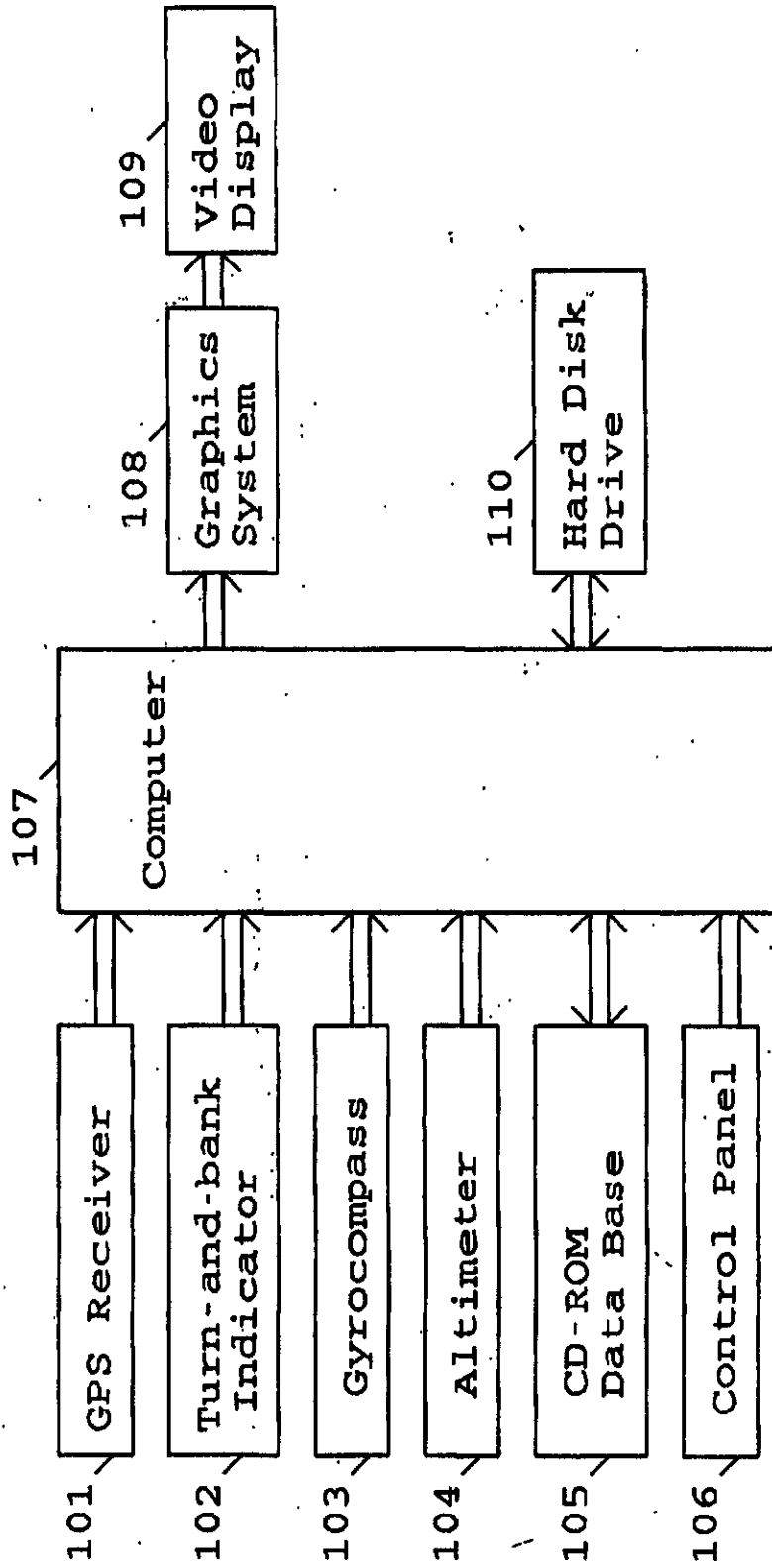


Fig. 1

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

08-513,298

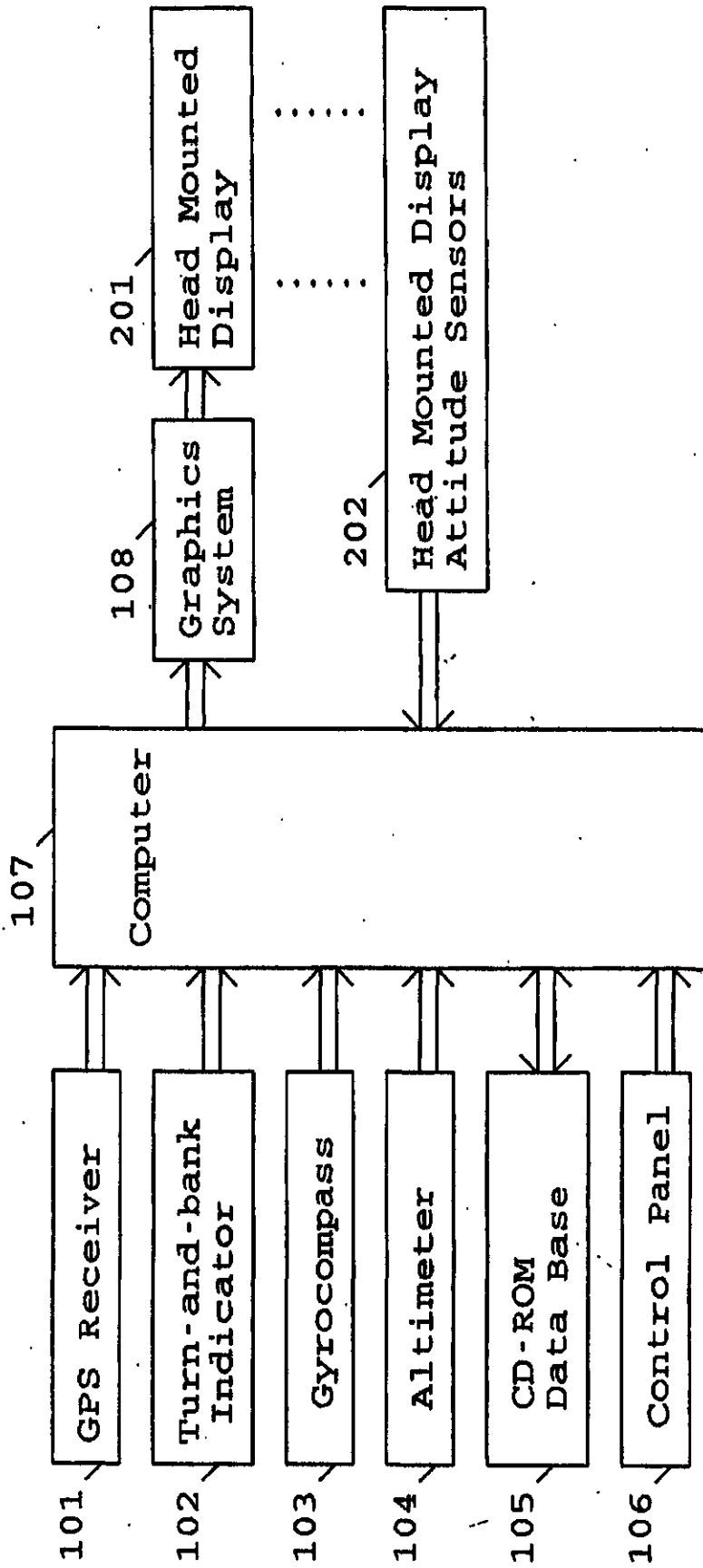


Fig. 2

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

08-513,298

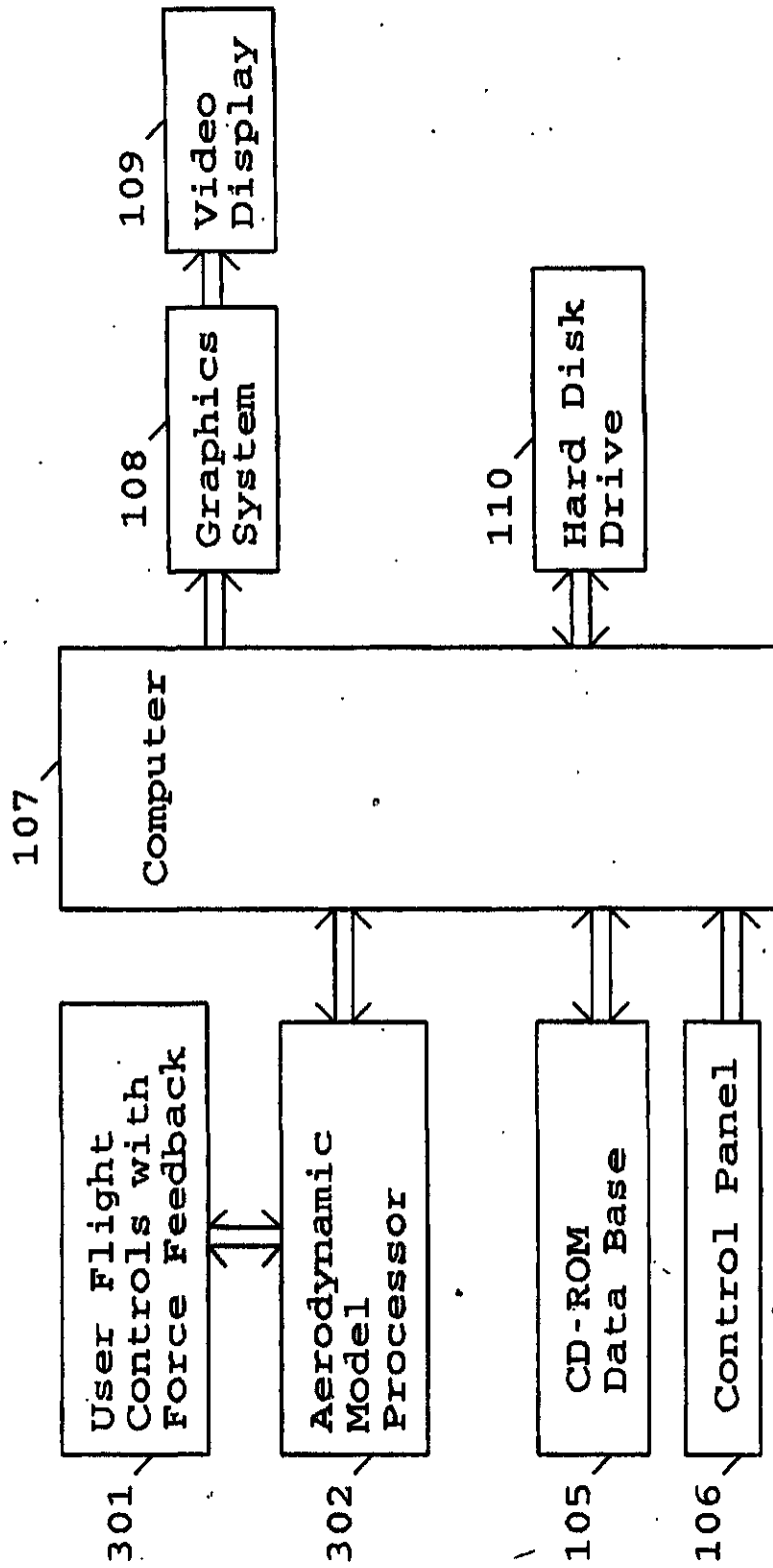


Fig. 3

APPROVED	O.G. FIG. 4	
BY	CLASS	SUBCLASS
DRAFTSMAN	364	449

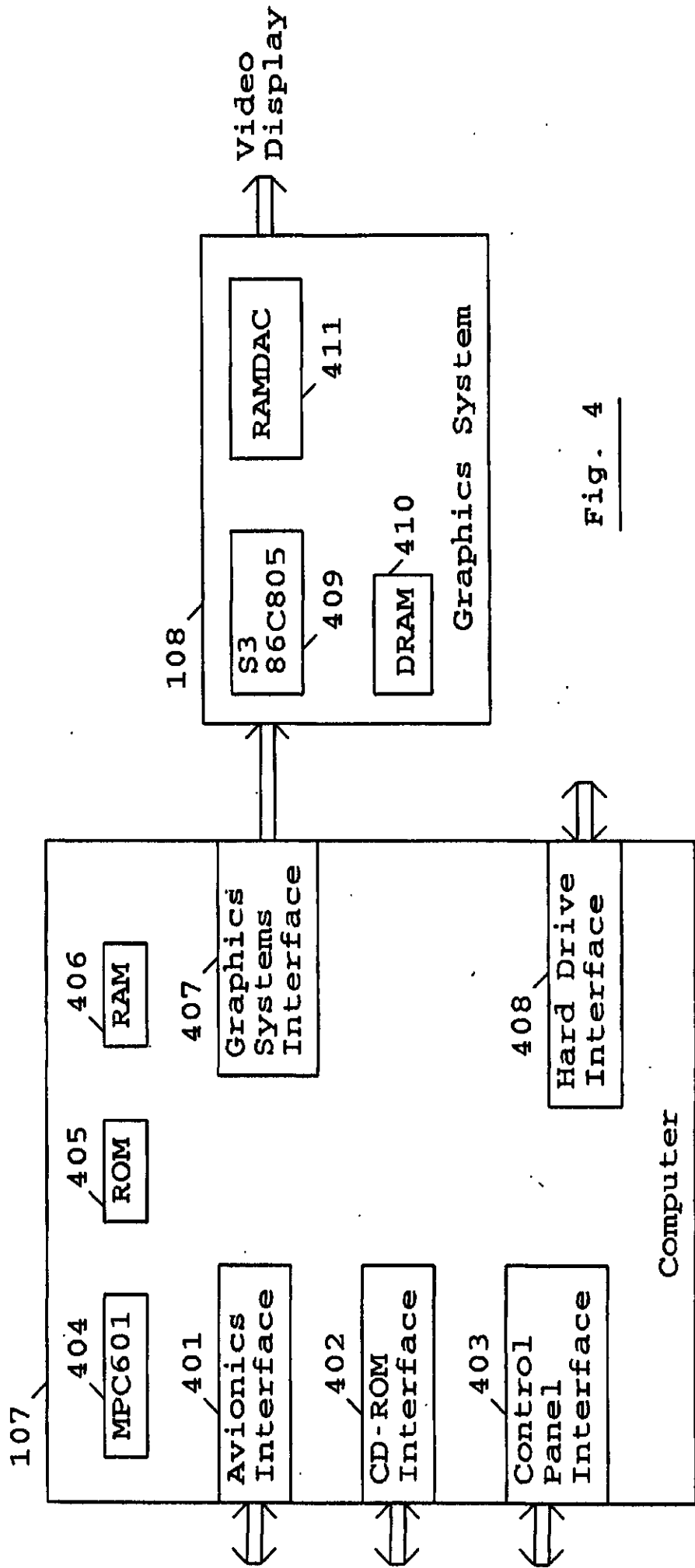


Fig. 4

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

08-513, 29.8

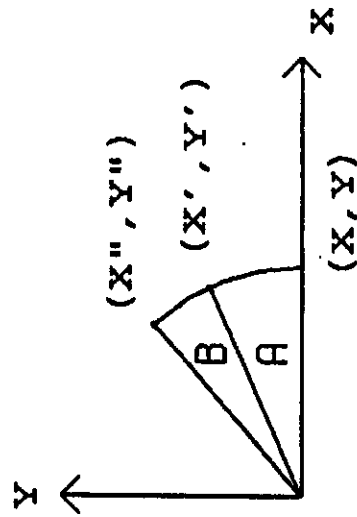


Fig. 5b

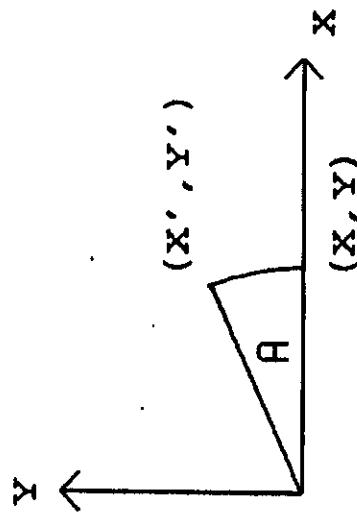


Fig. 5a

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

08-513,298

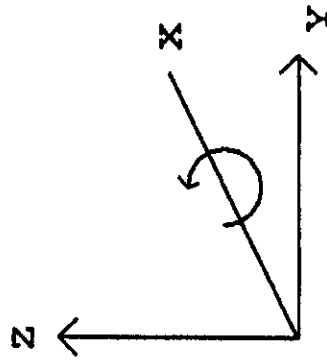


Fig. 6c

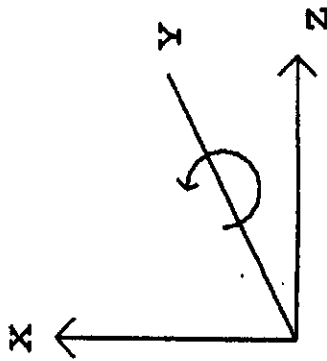


Fig. 6b

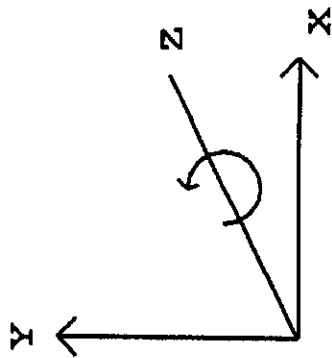


Fig. 6a

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

08-513,298

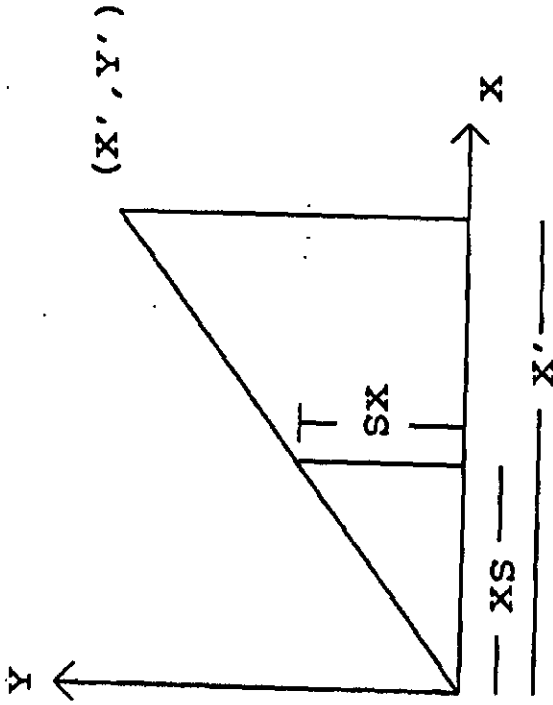


Fig. 7b Top

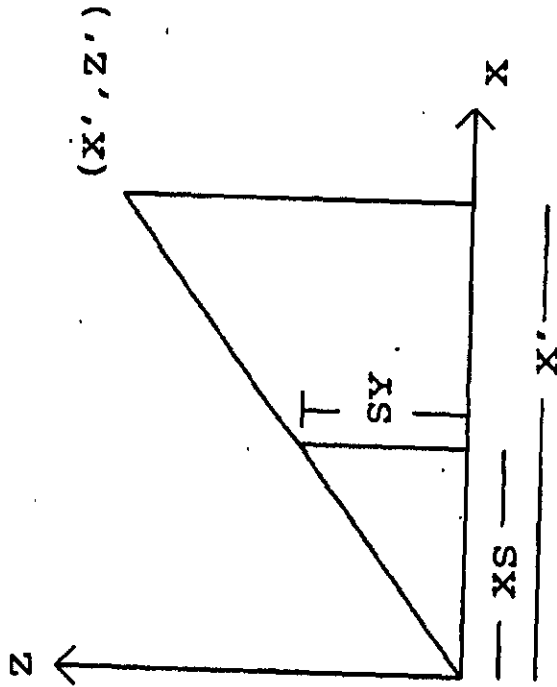


Fig. 7a Side

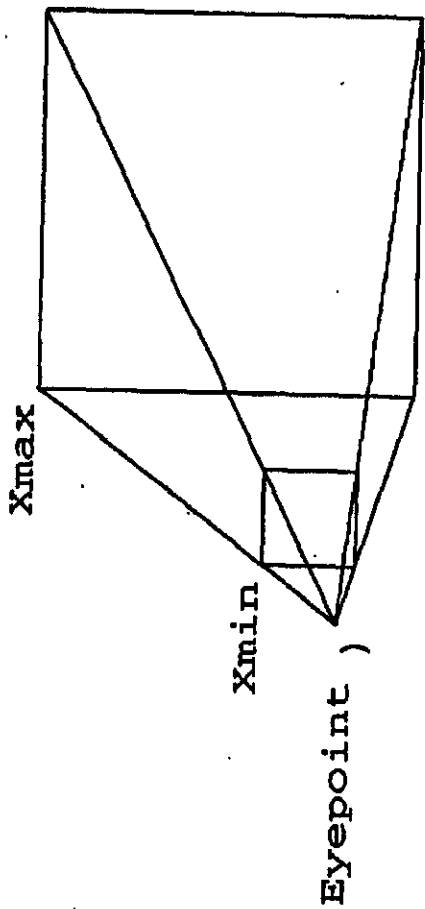


Fig. 8a

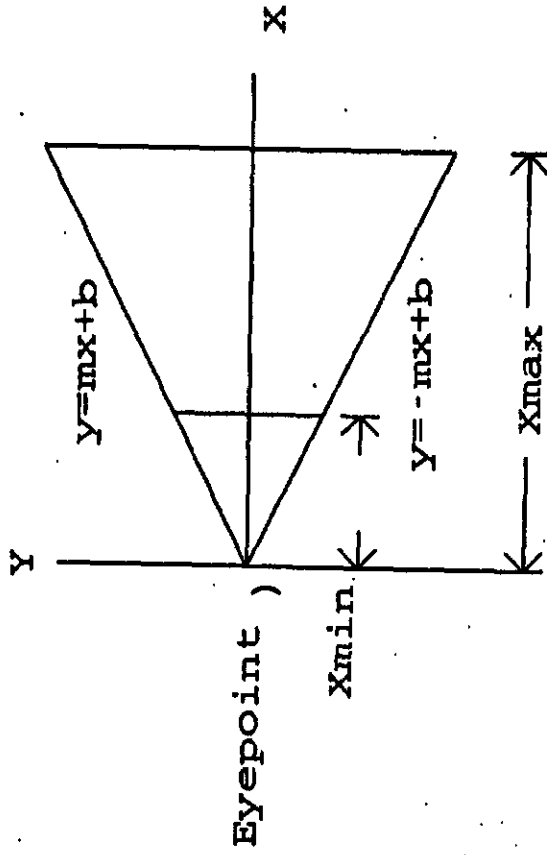


Fig. 8b Top View

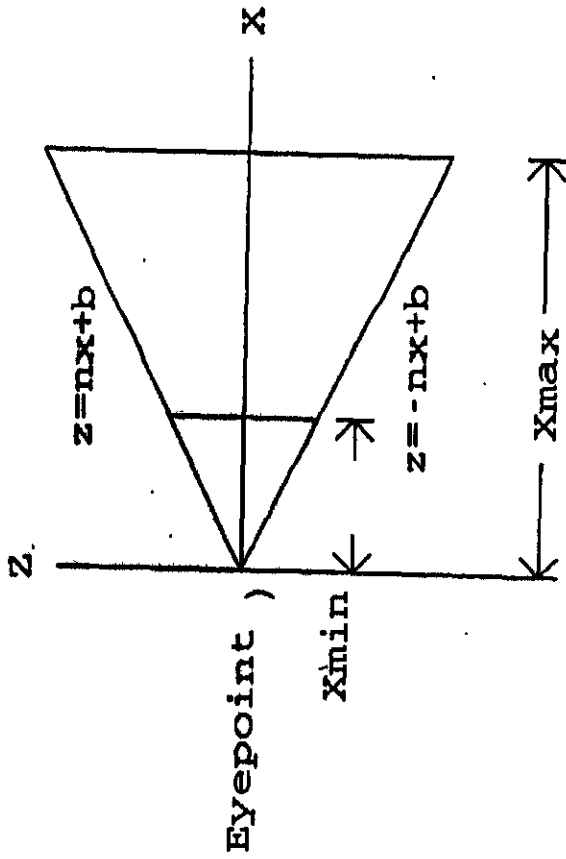


Fig. 8c Side View

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
CRAFTSMAN		

Sheet 9 of 13

06-513,298

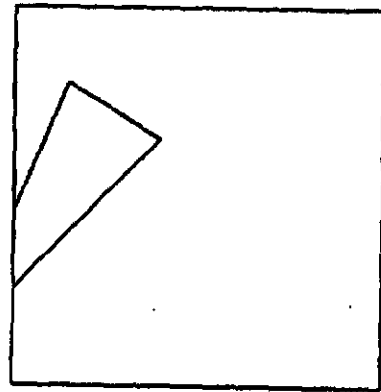


Fig. 9b

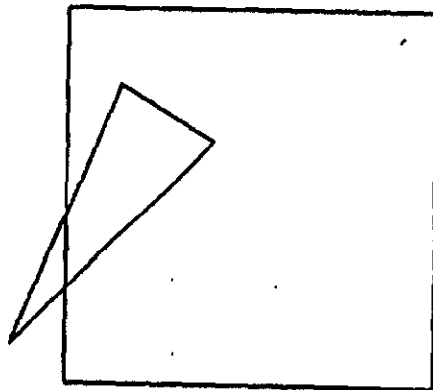


Fig. 9a

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

Sheet 10 of 13

08-513,298

13	23	33
12	22 ↑	32
11	21	31

Fig. 10b

12	22	32
11	21 ↑	31
10	20	30

Fig. 10a

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

08-513,278

13	23	33
12	→ 22	32
11	21	31

Fig. 11a

23	33	43
22	→ 32	42
21	31	41

Fig. 11b

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

08-513,298

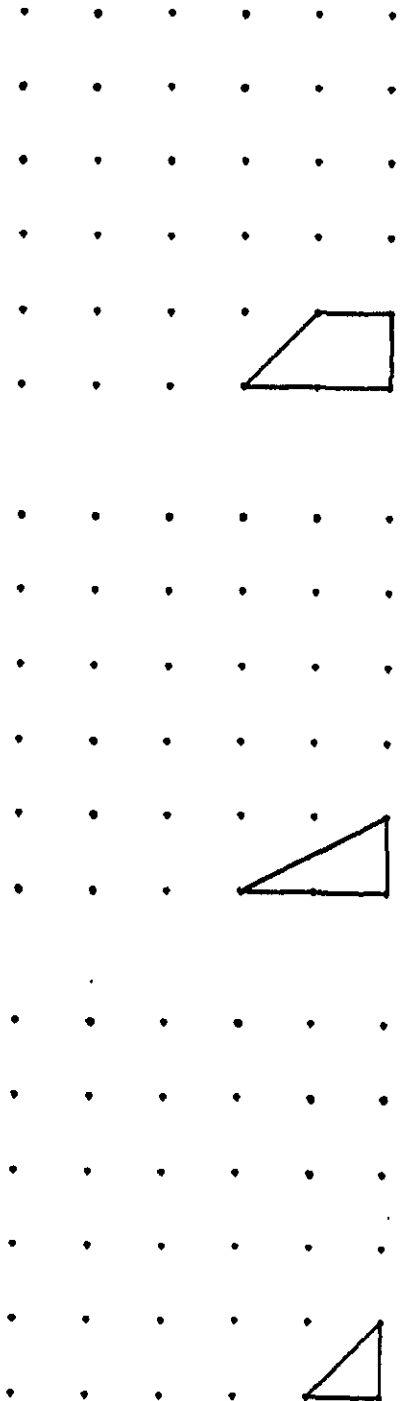


Fig. 12a

Fig. 12b

Fig. 12c

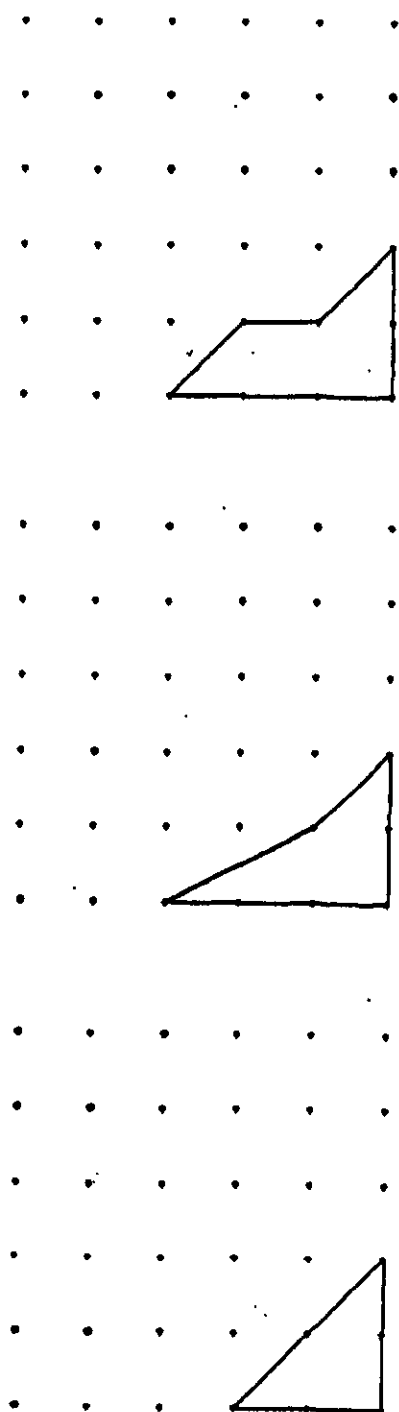


Fig. 12d

Fig. 12e

Fig. 12f

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

08-513,298

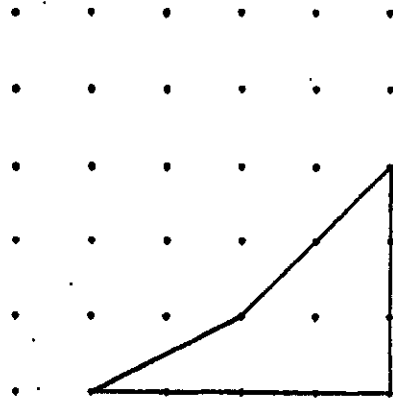


Fig. 13c

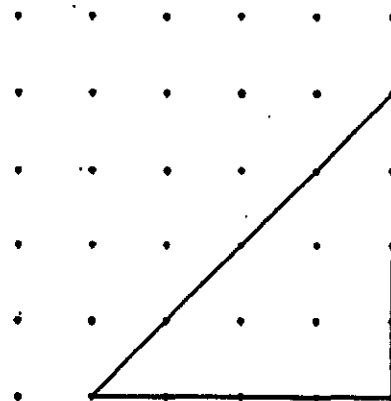


Fig. 13f

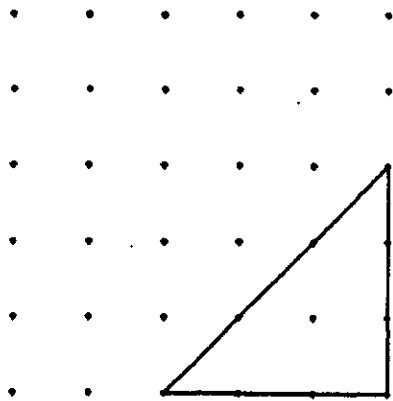


Fig. 13b

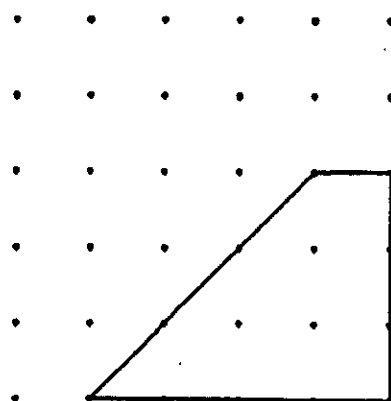


Fig. 13e

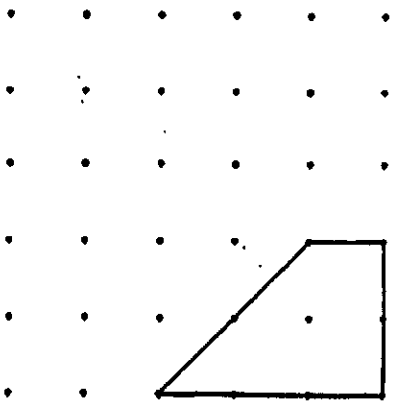


Fig. 13a

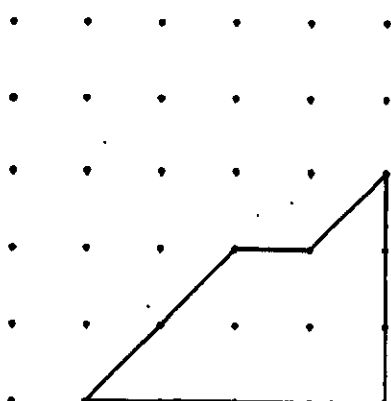


Fig. 13d

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209-203- CR234
PATENT 5/a
el
3-6

002055.P002



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Jed Margolin

Serial No.: 08/274,394

Filed: July 11, 1994

For: PILOT AID USING SYNTHETIC REALITY

Examiner: T. Nguyen

Art Unit: 2304

Commissioner of Patents
and Trademarks
Washington, D.C. 20231

RECEIVED
FEB 03 1995
COMM. OF PAT. & TRADEMARKS OFFICE

AMENDMENT AND RESPONSE

Dear Sir:

In response to the Office Action of November 9, 1994, please enter the following amendments and consider the following remarks.

3/6/95

IN THE TITLE

Please delete the entire title and replace it with:

--PILOT AID USING A SYNTHETIC ENVIRONMENT--

IN THE ABSTRACT

Page 36, lines 1-2, please delete "means for determining" and replace it with:

--way to determine--

090 BA 02/27/95 08274394

090 BA 02/27/95 08274394

1 202
1 203

76.00 CK

209.00 CK

IN THE SPECIFICATION

On page 7, line 12, please delete "service" and replace it with:

--survey--

On page 7, line 15, please delete "service" and replace it with:

--survey--

On page 11, line 9, please delete "12e" and replace it with:

--12f--

On page 11, line 9, please delete "13e" and replace it with:

--13f--

On page 15, line 10, please delete "104" and replace it with:

--106--

On page 16, line 4, please delete "the the" and replace it with:

--to the--

On page 29, line 2, please delete "service" and replace it with:

--survey--

On page 30, line 16, please delete "12e" and replace it with:

--12f--

On page 30, line 17, please delete "13e" and replace it with:

--13f--

IN THE CLAIMS

Please amend claims 1 - 13.

- 5-2
D
G
1. (Once Amended) A pilot aid which uses an aircraft's position and attitude to transform data from a digital data base to present a pilot with a synthesized three dimensional projected view of the world comprising:
 - a position determining system [means] for locating said aircraft's position in three dimensions;
 - a digital data base [means containing polygon] comprising terrain data, said terrain data representing terrain as one or more polygons [and manmade structures];
 - an attitude determining system [means] for determining said aircraft's orientation in three dimensional space;
 - [a control panel means for allowing said pilot to select different operating features;]
 - a computer [means for using said aircraft position data] to access said terrain data according to said aircraft's position and [manmade structure data from said digital data base and using said aircraft orientation data] to transform said terrain [and manmade structure] data to provide three dimensional projected image data according to said aircraft's orientation [operating features selected by said pilot];
 - a display [means] for displaying said three dimensional projected image data.
 2. (Once Amended) The pilot aid [position determining means] of claim 1, wherein said position determining system [means] comprises a standard system for receiving and processing data from the global positioning system.

3. (Once Amended) The pilot aid [attitude determining means] of claim 1, wherein said attitude determining system [means] comprises a standard avionics system.

4. (Once Amended) The pilot aid [digital data base] of claim 1, wherein said digital data base [means] comprises a cd rom disc and cd rom drive.

5. (Once Amended) The pilot aid [control panel means] of claim 1, further comprising a control panel to select one or more operating features [wherein said control panel means selects the functions of pan, tilt, and zoom].

6. (Once Amended) The pilot aid [control panel means] of claim 1, wherein said one or more operating features comprise one or more features selected from the group consisting of panning a viewpoint of said three dimensional projected image, tilting a viewpoint of said three dimensional projected image, zooming a viewpoint of said three dimensional projected image, and providing a three dimensional projected image of a route ahead [control panel means permits said pilot to preview the route ahead].

7. (Once Amended) A pilot aid which uses an aircraft's position and attitude to transform data from a digital data base to present a pilot with a synthesized three dimensional projected view of the world comprising:

a position determining system [means] for locating said aircraft's position in three dimensions;

a digital data base [means containing polygon] comprising terrain data, said terrain data representing terrain as one or more polygons [and manmade structures];

an attitude determining system [means] for determining said aircraft's orientation in three dimensional space;

[a control panel means for allowing said pilot to select different operating features;]

a computer [means for using said aircraft position data] to access said terrain data according to said aircraft's position and [manmade structure data from said digital data base and using said aircraft orientation data] to transform said terrain [and manmade structure] data to provide three dimensional projected image data according to said aircraft's orientation [operating features selected by said pilot];

[a display means for displaying said three dimensional projected image data;]

a mass storage memory for recording said aircraft position data and said aircraft's attitude data for allowing [said aircraft's] a flight of said aircraft over said terrain to be displayed at a later time.

13

8. (Once Amended) The pilot aid [position determining means] of claim 7, wherein said position determining system [means] comprises a standard system for receiving and processing data from the global positioning system.

12

14

8. (Once Amended) The pilot aid [attitude determining means] of claim 7, wherein said attitude determining systems [means] comprises a standard avionics system.

12

15

10. (Once Amended) The pilot aid [digital data base] of claim ~~7~~¹², wherein said digital data base [means] comprises a cd rom and a cd rom drive.

3 sub 3

11. (Once Amended) The pilot aid [control panel means] of claim 7, further comprising a control panel to select one or more operating features [wherein said control panel means selects the functions of pan, tilt, and zoom].

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12. (Once Amended) The pilot aid [control panel means] of claim 11 [7], wherein said one or more operating features comprise one or more features selected from the group consisting of panning a viewpoint of said three dimensional projected image, tilting a viewpoint of said three dimensional projected image, zooming a viewpoint of said three dimensional projected image, providing a three dimensional projected image of a route ahead, and providing a three dimensional projected image of a previous flight [control panel means permits said pilot to preview the route ahead or to review previous flights].

13. (Once Amended) A pilot aid which uses an aircraft's position and attitude to transform data from a digital data base to present a pilot with a synthesized three dimensional projected view of the world comprising:

a position determining system [means] for locating said aircraft's position in three dimensions;

a digital data base [means containing polygon] comprising terrain data, said terrain data representing terrain as one or more polygons [and manmade structures];

[an] a first attitude determining system [means] for determining said aircraft's orientation in three dimensional space;

a head mounted display [means] worn by said pilot of said aircraft;

[an] a second attitude determining system [means] for determining the orientation of said pilot's head in three dimensional space;

[a control panel means for allowing said pilot to select different operating features;]

a computer [means for using said aircraft position data] to access said terrain data according to said aircraft's position and [manmade structure data from said digital data base and using said aircraft orientation data and said pilot head orientation data] to transform said terrain [and manmade structure] data to provide three dimensional projected image data to said head mounted display according to said aircraft's orientation and said pilot head orientation [operating features selected by said pilot].

Please add the following new claims.

14. (New) The pilot aid as described in claim 1 wherein said digital data base further comprises structure data, said structure data representing manmade structures as one or more polygons.

15. (New) The pilot aid as described in claim ¹² wherein said digital data base further comprises structure data, said structure data representing manmade structures as one or more polygons.

16. (New) The pilot aid as described in claim ²³ wherein said digital data base further comprises structure data, said structure data representing manmade structures as one or more polygons.

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17. (New) The pilot aid as described in claim 1 wherein said terrain data is generated from elevation data comprising an array of elevation points, wherein each said polygon representing said terrain defines a plane, wherein in a first region of terrain represented by one or more of said polygons no elevation point within each said polygon is below said plane of each said polygon by a first distance or more.

21

18. (New) The pilot aid as described in claim 7 wherein said terrain data is generated from elevation data comprising an array of elevation points, wherein each said polygon representing said terrain defines a plane, wherein in a first region of terrain represented by one or more of said polygons no elevation point within each said polygon is below said plane of each said polygon by a first distance or more.

19. (New) The pilot aid as described in claim 13 wherein said terrain is generated from elevation data comprising an array of elevation points, wherein each said polygon representing said terrain defines a plane, wherein in a first region of terrain represented by one or more of said polygons no elevation point within each said polygon is below said plane of each said polygon by a first distance or more.

20. (New) The pilot aid as described in claim 17 wherein in a second region of said terrain represented by one or more of said polygons no elevation point within each said polygon is below said plane of each said polygon in said second region by a second distance or more, said second distance different from said first distance.

21. (New) The pilot aid as described in claim 18 wherein in a second region of said terrain represented by one or more of said polygons no elevation point within each said polygon is below said plane of each said polygon in said second region by a second distance or more, said second distance different from said first distance.

22. (New) The pilot aid as described in claim 19 wherein in a second region of said terrain represented by one or more of said polygons no elevation point within each said polygon is below said plane of each said polygon in said second region by a second distance or more, said second distance different from said first distance.

11 ~~23~~. (New) The pilot aid as described in claim ~~17~~ wherein no elevation point within each said polygon in said first region is above said plane of said polygon.

~~22~~ ~~24~~. (New) The pilot aid as described in claim ~~18~~ wherein no elevation point within each said polygon in said first region is above said plane of said polygon.

~~28~~ ~~25~~. (New) The pilot aid as described in claim ~~19~~ wherein no elevation point within each said polygon in said first region is above said plane of said polygon.

~~10~~ ~~26~~. (New) The pilot aid as described in claim ~~20~~ wherein no elevation point within each said polygon in said first region and said second region is above said plane of said polygon.

²¹
~~27.~~ (New) The pilot aid as described in claim ~~21~~²⁰ wherein no elevation point within each said polygon in said first region and said second region is above said plane of said polygon.

²⁷
~~28.~~ (New) The pilot aid as described in claim ~~22~~²⁶ wherein no elevation point within each said polygon in said first region and said second region is above said plane of said polygon.

²⁹
~~29.~~ (New) A method for producing a terrain data base comprising terrain data, said terrain data represented as one or more polygons, said method comprising the steps of:

- providing a plurality of elevation points, each of said plurality of elevation points representing an elevation of a point on a terrain;
- defining a polygon having one or more vertices defined by one or more of said elevation points;
- examining an adjacent one of said plurality of elevation points to determine if expanding said polygon to an expanded polygon to include said adjacent one of said plurality of elevation points causes one or more of said plurality of elevation points within said expanded polygon to be below a plane of said expanded polygon by a first distance or more; and,
- expanding said polygon to include said adjacent one of said plurality of elevation points if none of said elevation points within said expanded polygon is below said plane by said first distance or more.

³⁰
~~30.~~ (New) The method as described in claim 29 wherein said adjacent one of said plurality of elevation points is further examined to determine if one or

more of said plurality of elevation points within said expanded polygon is above said plane of said expanded polygon, and said polygon is expanded if none of said elevation points within said expanded polygon is above said plane of said expanded polygon and if none of said elevation points within said expanded polygon is below said plane by said first distance or more.

31. (New) The method as described in claim 23 wherein one or more additional adjacent ones of said plurality of elevation points are examined, and wherein said polygon is expanded to include said one or more additional ones of said plurality of elevation points which do not cause any of said elevation points within said expanded polygon to be below said plane of said expanded polygon by said first distance or more.

32. (New) The method as described in claim 23 wherein one or more additional adjacent ones of said plurality of elevation points are examined, and wherein said polygon is expanded to include said one or more additional ones of said plurality of elevation points which do not cause any of said elevation points within said expanded polygon to be above said plane of said expanded polygon and do not cause any of said elevation points within said expanded polygon to be below said plane of said expanded polygon by said first distance or more.

33. (New) The method as described in claim 31 wherein said polygon is stored in said terrain data base after all of said elevation points adjacent to said polygon have been examined.

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³⁶
~~34~~ (New) The method as described in claim ~~32~~³⁵ wherein said polygon is stored in said terrain data base after all of said elevation points adjacent to said polygon have been examined.

³⁴
~~35~~ (New) The method as described in claim ~~31~~³² wherein additional polygons are defined, expanded, and added to said terrain database.

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36. (New) A method of using an aircraft's position and attitude to transform data from a digital data base to present a pilot with a synthesized three dimensional projected view of the world comprising:
locating said aircraft's position in three dimensions;
providing a data base comprising terrain data, said terrain data representing terrain as one or more polygons;
determining said aircraft's orientation in three dimensional space;
accessing said terrain data according to said aircraft's position;
transforming said terrain data to provide three dimensional projected image data according to said aircraft's orientation; and,
displaying said three dimensional projected image data.

37. (New) The method of claim 36 further comprising selecting one or more operating features, wherein said one or more operating features comprise one or more features selected from the group consisting of panning a viewpoint of said three dimensional projected image, tilting a viewpoint of said three dimensional projected image, zooming a viewpoint of said three dimensional projected image, and presenting a three dimensional projected image of a route ahead.

38. (New) The method as described in claim 36 wherein said terrain data base is produced by a method comprising the steps of:

providing a plurality of elevation points, each of said plurality of elevation points representing an elevation of a point on a terrain;

defining a polygon having one or more vertices defined by one or more of said elevation points;

examining an adjacent one of said plurality of elevation points to determine if expanding said polygon to an expanded polygon to include said adjacent one of said plurality of elevation points causes one or more of said plurality of elevation points within said expanded polygon to be below a plane of said expanded polygon by a first distance; and,

expanding said polygon to include said adjacent one of said plurality of elevation points if none of said elevation points within said expanded polygon is below said plane by said first distance or more.

39. (New) The method as described in claim 38 wherein said adjacent one of said plurality of elevation points is further examined to determine if one or more of said plurality of elevation points within said expanded polygon is above said plane of said expanded polygon, and said polygon is expanded if none of said elevation points within said expanded polygon is above said plane of said expanded polygon and if none of said elevation points within said expanded polygon is below said plane by said first distance or more.

REMARKS

In the Office Action of November 9, 1994, a new title was required. Applicant has supplied herewith a new title which is descriptive of the invention to which the claims are directed. Further, Applicant has made correction to the abstract as requested. In addition, minor informalities throughout the specification have been corrected. In this regard, Applicant notes that the originally filed Figures contain two Figures labeled 12e, and two Figures labeled 13e. Applicant has re-labeled the second Figure in each case to read 12f, and 13f, respectively, on the corrected formal drawings submitted concurrently herewith, and has corrected the specification accordingly.

Claims 1 - 13 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Applicant has amended the claims, and has provided, below, clarification where requested. Applicant submits that the amendments, and clarification overcome all 35 U.S.C. § 112, second paragraph rejections. However, should the Examiner believe any further § 112 issues remain, any further guidance, including suggested claim language, would be appreciated.

With regard to the phrase "polygon data representing terrain and manmade structure," Applicant has amended the claims to recite that the data base comprises terrain data, wherein the terrain data represents the terrain as one or more polygons. Applicant submits that as described throughout the present specification, the terrain may be represented by a collection of polygons where, for example, an elevation data point may be used as one of the vertices of the polygon. With regard to the phrase "different operating features" Applicant has removed this phrase from the independent claims. Applicant has amended claim 5 to recite that the pilot aid of claim 1 further comprises a control panel to

selected one or more operating features. Further in this regard, Applicant has more clearly stated, in claim 6, that the functions may include panning, tilting, and zooming a viewpoint of the recited three dimensional projected image. Applicant submits that the terms "pan," "tilt," and "zoom" are well known in the film, video, and computer graphics industries. For example, in the present invention pan may mean to rotate the observer's eyepoint around the yaw axis, tilt may mean to rotate the observer's viewpoint around the pitch axis, and zoom may mean to change the magnification or change the angular field of view. This allows the pilot to "look" at any portion of the terrain. See, for example, page 15, lines 10 - 18 of the present specification.

Further, Applicant has amended the claims to recite that the computer accesses the terrain data according to the aircraft's position. Referring to page 12, lines 19 - 26, and Figures 10a, 10b, 11a, and 11b, the computer uses the plane's position, in one embodiment, by accessing the data in blocks, which blocks are dependent upon the aircraft's position as described. Of course, the present invention is not limited to this embodiment, and other methods of accessing terrain data around the aircraft's position may be used. Further, Applicant has amended the claims to recite that the computer transforms the terrain data according to the aircraft's orientation as described, for example, on page 13, lines 1 - 4. The transformation is described in detail, on pages 16 - 28 of the present application.

Claims 1 - 12 were rejected under 35 U.S.C. § 103 as being unpatentable over *Beckwith et al.* in view of *Behensky et al.* or *Atari Game Corporation's Hard Drivin' Brochure*, or *Atari Game Corporation's Steel Talons Brochure*. The Examiner states that *Beckwith et al.* discloses a digital system for producing a real time video display in perspective of terrain over which an aircraft is passing on the basis of compressed digital data stored on a cassette tape. The data is read by the computer to provide a 3-D perspective on the display. The

Examiner states that *Beckwith et al.* does not disclose that the database contain polygon data representing the terrain. The Examiner states that *Behensky et al.* suggests a driving simulator for a video game which includes the road and other terrain which are produced by mathematically transforming a three dimensional polygon database. The Examiner states that the suggestion of *Behensky et al.* in at least column 2 would have motivated one of ordinary skill in the art to combine with the system of *Beckwith et al.* in order to provide a significant reduction of database storage and a larger geographic area can be stored so it is not necessary to generate a database of each mission.

Applicant respectfully submits that there is no teaching or suggestion to combine the references as suggested by the Examiner and that further, a combination of the references would require significant modifications not taught in the references singly or in combination, to arrive at the present invention. Please note that *Beckwith et al.*, like the present invention, is concerned with displaying a representation of actual terrain. There is nothing therein to suggest using the compressed data described therein to construct polygons, nor is there any teaching or suggestion to combine the method therein with anything contained in a driving simulator.

Referring to *Behensky et al.*, note that the polygons described therein are used to represent a fictional universe. The polygons of *Behensky et al.* do not represent real terrain in any manner, but rather are, instead, essentially "building blocks" which may be accessed from the data base to create the fictional scene through which the driver is driving. Although the Examiner states that the suggestion in column 2 in *Behensky et al.*, wherein the use of a visual scene comprising polygons is disclosed, would have motivated one of ordinary skill in the art to combine with the system of *Beckwith et al.* in order to provide a significant reduction of database storage, there is nothing therein to suggest that these

polygons would be useful for representing the terrain of *Beckwith et al.* That is, in *Behensky et al.*, the polygons are disclosed as simply a means to create this fictional, high resolution scene, and there is no suggestion that these visual building blocks be used to represent actual terrain, or how this would be accomplished.

Furthermore, even if the references are combined note that there is no teaching or suggestion of how to modify the combination of *Behensky et al.* and *Beckwith et al.* to arrive at the present invention. Specifically, where, other than the present invention, is there any teaching of constructing polygons based on an array of elevation points? In this regard, note that the data of *Beckwith et al.* from which the perspective view is obtained, comprises grid points several meters apart. As such, this data would be of far too low a resolution to be useful in the system of *Behensky et al.* For example, referring to the *Hard Drivin'* and the *Steel Talons* Brochure, note that such fine details as road markings, signs, etc. are present. These type of details have no use in the system of *Beckwith et al.* In *Beckwith et al.* actual terrain data must be used, and a low resolution perspective view as is provided in *Beckwith et al.* is all that is needed for the purposes of *Beckwith et al.* Note that although *Beckwith et al.* were aware of flight simulation techniques, (column 2, lines 24 - 49) they considered the perspective techniques described therein as being desirable to create a realistic three dimensional view. Thus, *Beckwith et al.* teaches away from the present invention.

Absent the teachings of the present invention, there is nothing in *Beckwith et al.* or *Behensky et al.* that would motivate one of skill in the art to modify the combination of *Beckwith et al.* with *Behensky et al.*, since the compressed data of *Beckwith et al.* appears to be satisfactory for the purposes described therein. For example, note that the Examiner states that *Beckwith et al.* may use these polygons so that it is not necessary to generate a data base of each

mission. However, while a game based on a fictional universe may use a library of polygons to create a display of scenes in that universe, the invention of *Beckwith et al.* must create a perspective view based on the data for the actual terrain. Clearly, there is no teaching in either reference as to how actual terrain would be represented by polygons. Additionally, absent the present invention, there exists no motivation to do so. The only such teaching and motivation comes from the present invention.

Claim 13 was rejected under 35 U.S.C. § 103 as being unpatentable over *Beckwith et al.* and *Behensky et al.*, as applied to claims 1 - 12, and further in view of the sales brochure from the *Polhemus* company. Applicant submits, for the above-described reasons, that the claims are unobvious over the combination of *Beckwith et al.* and *Behensky et al.* Furthermore, note the brochure of *Polhemus* makes no mention of its use in the claimed combination, nor does the combination of references teach or suggest that the head mounted display of *Polhemus* would be useful therein. Thus, Applicant submits that claim 13 is further unobvious over the prior art of record.

Applicant has added new claims 14 - 39. Claims 14 - 16 claim that the data base of claims 1, 7, and 13 further comprises structure data. Claims 17 - 19 claim that each of the polygons defines a plane, wherein no elevation point within a first region represented by the polygons is below the plane of each polygon by a first distance or more. In this way, it can be ensured that the terrain represented by a polygon is sufficiently flat for accurate representation as described generally on pages 29 - 30 of the present specification. Applicant submits that this feature is nowhere taught or suggested in the prior art of record. Claims 20 - 22 claim that no elevation point within a second region of terrain represented by one or more polygons is below the plane of the polygons in the second region by a different distance. In this way, some regions such as those surrounding airports, may be

represented with greater accuracy, again as described on pages 29 - 30.

Claims 23 -28 claim that no elevation point within an expanded polygon is above the plane of the region. Applicant submits that the pilot aid as described in the above-described claims is further unobvious over the prior art of record.

Claims 29 - 35 claim a method of generating the database using elevation points. Applicant submits the claimed method is nowhere taught or suggested anywhere in the prior art of record. Applicant has added claims 36 - 37 which claim a method of presenting a pilot with a synthesized three dimensional projected view of the world. For the reasons discussed in relation to claims 1 - 12, Applicant submits the claimed method is unobvious over the prior art of record. Further, Applicant has added dependent claims 38 - 39 which claim the method of generating the polygons. For the reasons discussed in relation to claims 29 - 35, Applicant submits that these claims are further unobvious over the prior art of record.

For the foregoing reasons, Applicant submits that all objections and rejections have been overcome. Applicant submits that all pending claims are in condition for allowance and allowance of the same is respectfully requested.

Respectfully submitted,
BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN

Date: February 8, 1995

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on February 8, 1995
Date of Deposit

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Name of Person Mailing Correspondence

Carolyn C. Cairns 2/8/95
Signature Date



Attorney's Docket No.: 002055.P002

Patent

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:

Jed Margolin

Serial No.: 08/274,394

Filed: July 11, 1994

For: PILOT AID USING SYNTHETIC REALITY

Examiner: T. Nguyen

Group Art Unit: 2304

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GROUP 2304

Commissioner of
Patents and Trademarks
Washington, D.C. 20231

POWER OF ATTORNEY AND
REVOCAION OF PREVIOUS POWERS

Pursuant to 37 C.F.R. § 1.36, the undersigned sole inventor hereby
revokes all powers of attorney previously given and appoints

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Send all future correspondence to Keith G. Askoff

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(LJV/cak 11/28/94)

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Carvin C. Caines 2/8/95
Signature Date



In re the Application of:

08/274,394

Attorney Docket No: 002055.P002

Filing Date: 7/11/94

Inventors: Jed Margolin

Title: **PILOT AID USING SYNTHETIC REALITY**

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THE HONORABLE COMMISSIONER
OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

Sir: Transmitted herewith is an Amendment in the above-identified application:

- Small entity status of this Application under 37 CFR 1.9 and 1.27 has been established by a verified statement previously submitted.
- A verified statement to establish small entity status under 37 CFR 1.9 and 1.27 is enclosed.
- No additional fee is required.

The fee has been calculated as shown below:

	(Col. 1)		(Col. 2)		(Col. 3)		Small Entity		Other than a Small Entity	
	Claims remaining after amendment		Highest no. previously paid for		Present extra		Rate	Additional fee	Rate	Additional fee
Total Claims:	39	minus	20		19		x \$11.00=	\$209.00	x \$22.00=	\$0.00
Indep. Claims:	5	minus	3		2		x \$38.00=	\$76.00	x \$76.00=	\$0.00
<input type="checkbox"/> First presentation of multiple dependent claim(s)							+ \$120.00	\$0.00	+ \$240.00	\$0.00
**If the difference in Col.2 is less than zero, enter "0" in Col. 3							Total Additional:	\$285.00	Total Additional:	\$0.00

- A check in the amount of \$285.00 is attached for presentation of additional claim(s).
- Applicant hereby Petitions for an Extension of Time of _____ month(s), pursuant to Rule 1.136(a).
- A check in the amount of _____ is attached for processing fees under 37 CFR 1.17.
- Please charge my Deposit Account No. 02-2666 the amount of _____. A duplicate copy of this sheet is enclosed.
- _____
- The Commissioner is hereby authorized to charge payment of the following fees associated with this communication or credit any overpayment to Deposit Account 02-2666.
- Any additional filing fees required under 37 CFR 1.16 for presentation of extra claims.
- Any extension of petition fees under 37 CFR 1.17.

Respectfully submitted,
BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN

Date: February 8, 1995 W. J. O'Neil

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February 8, 1995

Carolyn C. Cairns 2/8/95
Carolyn C. Cairns Date

CP/274,394



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

SERIAL NUMBER	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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08/274,394 07/11/94 MARGOLIN

J
NGUYEN, T EXAMINER

B3M1/0509

ART UNIT PAPER NUMBER

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2304

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DATE MAILED: 05/09/95

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

This application has been examined. Responsive to communication filed on 02/13/95. This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), 0 days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

- 1. Notice of References Cited by Examiner, PTO-892.
- 2. Notice of Draftsman's Patent Drawing Review, PTO-948.
- 3. Notice of Art Cited by Applicant, PTO-1449.
- 4. Notice of Informal Patent Application, PTO-152.
- 5. Information on How to Effect Drawing Changes, PTO-1474.
- 6.

Part II SUMMARY OF ACTION

- 1. Claims 1-39 are pending in the application.
Of the above, claims 29-30 are withdrawn from consideration.
- 2. Claims _____ have been cancelled.
- 3. Claims _____ are allowed.
- 4. Claims 1-28 and 31-39 are rejected.
- 5. Claims _____ are objected to.
- 6. Claims _____ are subject to restriction or election requirement.
- 7. This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.
- 8. Formal drawings are required in response to this Office action.
- 9. The corrected or substitute drawings have been received on _____ Under 37 C.F.R. 1.84 these drawings are acceptable; not acceptable (see explanation or Notice of Draftsman's Patent Drawing Review, PTO-948).
- 10. The proposed additional or substitute sheet(s) of drawings, filed on _____ has (have) been approved by the examiner; disapproved by the examiner (see explanation).
- 11. The proposed drawing correction, filed _____ has been approved; disapproved (see explanation).
- 12. Acknowledgement is made of the claim for priority under 35 U.S.C. 119. The certified copy has been received not been received been filed in parent application, serial no. _____; filed on _____.
- 13. Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
- 14. Other

EXAMINER'S ACTION

Serial No.: 08/274,394
Art Unit: 2304

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Part III DETAILED ACTION

Notice to Applicants

1. This office action is responsive to the amendment filed on February 13, 1995 . As per request, claims 1-13 have been amended. Claims 14-39 have been added. Thus, claims 1-39 are pending.
2. New title has been entered.

Election/Restriction

3. Newly submitted claims 29-30 are directed to an invention that is independent or distinct from the invention originally claimed for the following reason:

Newly added claims 29 and 30 are directed to a method for producing a terrain data based comprising terrain data and said terrain data represented as one or more polygons. However, the original set of claims are directed to a pilot aid which uses an aircraft's position and attitude to transform data from a digital based to present a pilot with a synthesized three dimensional projected view of the world.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution

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on the merits. Accordingly, claims 29-30 are withdrawn from consideration as being directed to a non-elected invention. See 37 C.F.R. § 1.142(b) and M.P.E.P. § 821.03.

Claim Rejections - 35 USC § 112

4. Claim 1-28 and 31-39 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4.1. As per claim 1 (as exemplary of claims 1, 7 and 13), line 7, the phrase "one or more" is vague and indefinite. The word "and" should be added after the phrase "to said aircraft's orientation" on line 17.

4.2. As per claim 5 (as exemplary of claims 5 and 11), line 2, the phrase "one or more operating features" is unclear since they are not defined properly.

4.3. As per claim 6 (as exemplary of claims 6, 12 and 37), the phrases "said one or more operating features" and "the group" on lines 2 and 3, respectively, have no antecedent basis.

4.4. As per newly added claim 17 (as exemplary of claims 17-19), the instant passage on lines 3-6 is unclear as to what the first region of terrain represented. Verification is requested. Furthermore, the phrases "one or more" and "distance

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or more" on lines 5 and 6, respectively, are vague and indefinite.

4.5. As per newly added claim 20 (as exemplary of claims 20-22), similar to the above, it is unclear as to what the second region represented. Moreover, the phrases "one or more" and "distance or more" on lines 2 and 4, respectively, are vague and indefinite.

4.6. As per newly added claims 23 and 26 (as exemplary of claims 23-28), it is unclear as to what the no elevation point means. Clarification is requested.

4.7. As per newly added claim 36, the comma at the end of line 10 should be deleted.

4.8. As per newly added claim 38, lines 5-6, the phrase "one or more vertices defined by one or more of said elevation points" is vague and indefinite. Furthermore, the instant passage on lines 7-14 is unclear as to how to examining an adjacent one of the plurality and how to expanding the polygon to include the adjacent one of the plurality of elevation points. Verification is requested. Moreover (as exemplary of claims 38 and 39), the phrases "one or more" and "distance or more" on lines 9 and 14, respectively, are vague and indefinite.

4.9. The remaining claims, not specifically mentioned, are rejected for incorporating the defects from their respective parent by dependency.

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Art Unit: 2304

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5. The following rejections are based on the examiner's best interpretation of the claims in light of the 35 U.S.C. 112 errors noted above.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

7. Claims 1-12 are rejected under 35 U.S.C. § 103 as being unpatentable over Beckwith et al (4,660,157) in view of Behensky et al. (5,005,148) or a brochure from Atari Game Corp. (Hard Driving') or a brochure from Atari Game Corp. (Steel Talons).

7.1. With respect to claims 1, 5-7, 11-12, 14 and 36-37, Beckwith et al. discloses a digital system for producing a real time video display in perspective of terrain over which an aircraft is passing on the basis of compressed digital data stored on a cassette tape (see at least an abstract). Beckwith

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et al. discloses that the system includes a position determining means for locating the aircraft's position in three dimensions and an attitude determining means for determining the aircraft's orientation in three dimensional space (see at least figure 1 and columns 5 and 6). Beckwith et al. further discloses that the system includes a digital data base means for storing a compressed terrain data (see at least the abstract). Beckwith et al. also discloses a computer means for reading compressed terrain data from the digital data base means in a controlled manner based on the instantaneous geographical of the aircraft as provided by the aircraft navigation computer system, reconstructing the compressed data by suitable processing and writing the reconstructed data into a scene memory, and then providing a 3D perspective on the display (see at least columns 2 and 3).

Beckwith et al. does not explicitly disclose that a digital data base means containing polygon data representing terrain and manmade structures. However, Behensky et al. suggests a driving simulator for a video game which includes the road and other terrain are produced by mathematically transforming a three-dimensional polygon data base (see at least column 2, lines 33-38). The suggestion of Behensky et al. in at least column 2 would have motivated one of ordinary skill in the art to combine with the system of Beckwith et al. in order to provide a significant reduction of data base storage and a larger

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geographic areas can be stored so that it is not necessary to generate a data base of each mission. Similarly, the digital data base means containing polygon data representing terrain and manmade structures is also taught in a brochure from Atari Game Corp. ('Hard Driving') or a brochure from Atari Game Corp. ('Steel Talons'). Thus, because of the motivation set forth above, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teachings of Behensky et al. or the brochure from Atari Game Corp. ('Hard Driving') or the brochure from Atari Game Corp. ('Steel Talons') with the system of Beckwith et al.

7.2. With respect to claims 2-3 and 8-9, Beckwith et al. discloses the claimed invention as discussed above but does not explicitly disclose that the position determining means comprises a standard system for retrieving and processing data from the global positioning system and the attitude determining means comprises a standard avionics systems. However, the use of the standard system for retrieving and processing data from global positioning system and the standard avionics systems are well known effective and efficient means for determining the position and the orientation of the aircraft. For examples, the Maher patent (4,485,383) shows a receiver for receiving global positioning system and the Timothy patent shows a method for determining the orientation of a moving object from a single GPS receiver and producing roll, pitch, and yaw information. It

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would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the global positioning system and the standard avionics system in such a system as taught through Beckwith et al. because it would produce high degree of accuracy in determining the position and orientation of the aircraft including roll, pitch, and yaw information.

7.3. With respect to claims 4 and 10, Beckwith et al. does not specifically disclose that the digital data base means comprises a CD rom disc and CD rom drive. However, the use of CD rom disc and CD rom drive for storing data is well known effective and efficient means for storing any data. It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize CD rom disc and CD rom drive in such a system as taught through Beckwith et al. because it would permit high degree of accuracy in the storing and restoring data, random access to the data so that the requirements for cache storage are reduced.

8. Claim 13 is rejected under 35 U.S.C. § 103 as being unpatentable over Beckwith et al and Behensky et al. as applied to claims 1-12 above, and further in view of the sales brochure from the Polhemus company.

Beckwith et al. and Behensky et al. disclose the claimed invention except for a head mounted display means worn by the pilot and an attitude determining means for determining the

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orientation of the pilot's head in three dimensional space. However, the sales brochure from the Polhemus company suggests the commercial availability of a position and orientation sensor which can be used on a head-mounted display. The suggestion of the Polhemus company would have motivated one of ordinary skill in the art to combine the teaching of Polhemus company with the system of Beckwith et al. in order to allow the pilot to have a complete range of motion to receive a synthesized view of the world, a complete unhindered by the aircraft structure. Thus, because of the motivation set forth above, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teachings in Polhemus's brochure and Beckwith et al. patent.

9. In view of the indefinite state(s) of the claimed invention, no prior art has been applied against the claims 17-28, 31-35 and 38-39. However, applicants are requested to consider the cited references below fully when responding to the office action.

10. All claims are rejected.

11. The following references are cited as being of general interest: Sullivan et al. (4,213,252), Hertz (4,715,005), Dawson et al. (5,179,638) and Nack et al. (5,317,689).

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Art Unit: 2304

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Remarks

12. Applicant's arguments filed on February 13, 1995 have been fully considered but they are not deemed to be persuasive..

13. On page 16, second paragraph, the applicants argue that claims 1-12 are patentable over Beckwith et al. and Behensky et al. because there is no teaching or suggestion to combine the references. It is not necessary that the references actually suggest, expressly or in so many words, the changes or improvements that applicant has made. The test for combining references is what the references as a whole would have suggested to one of ordinary skill in the art. In re Shecler, 168 USPQ 716 (CCPA 1971); In re McLaughlin, 170 USPQ 209 (CCPA 1971); In re Young, 159 USPQ 725 (CCPA 1986).

The Examiner recognizes that references cannot be arbitrarily combined and that there must be some logical reason why one skill in the art would be motivated to make the proposed combination of references. In re Regel 188 USPQ 136 (CCPA 1975). However, there is no requirement that the motivation to make the combination be expressly articulated in one or more of the references; the teaching, suggestion or inference can be found not only in the references but also from knowledge generally available to one of ordinary skill in the art. Ashland Oil v. Delta Resins 227 USPQ 657 (CAFC 1985). The test for combining

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Art Unit: 2304

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references is what the combination of disclosures taken as a whole would suggest to one of ordinary skill in the art. In McLaughlin 170 USPQ 209 (CCPA 1971); In re Rosselet 146 USPQ 183 (CCPA 196). References are evaluated by what they collectively suggest to one versed in the art, rather than by their specific disclosures. In Re Simon, 174 USPQ 114 (CCPA 1972); In Re Richman 165 USPQ 509, 514 (CCPA 1970).

14. On page 16, third paragraph, the applicants argue that the polygon of Behensky et al. do not represent real terrain in any manner, but rather are, instead, "essentially "building blocks" which may be accessed from the data base to create the fictional scene through which the drive is driving. This limitation is not found in the claims. The only recitation is that "data base comprising terrain data, said terrain data representing as one or more polygons". Therefore, the building blocks as taught in Behensky et al. still are considered as the terrain data. Therefore, the rejection under 35 U.S.C. § 103 is considered to be proper.

In addition, the digital data base which comprises terrain data representing as at least one of polygons is well known in the art at the time the invention was made (see at least U.S. patent number 5,192,208 issued to Ferguson et al., for example).

Serial No.: 08/274,394
Art Unit: 2304

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15. On page 17, second paragraph, the applicants argue that there is no teaching of constructing polygon based on an array of elevation points. This limitation is not found in the claims. Claimed subject matter not the specification, is the measure of invention. Disclosure contained in the specification can not be read into the claims for the purpose of avoiding the prior art. In re Sporck, 55 CCPA 743, 386 F.2d 924, 155 USPQ 687 (1986); In re Self, 213 USPQ 1,5 (CCPA 1982); In re Priest, 199 USPQ 11,15 (CCPA 1978).

16. Applicant's amendment necessitated the new grounds of rejection. Accordingly, **THIS ACTION IS MADE FINAL**. See M.P.E.P. § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).

A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 C.F.R. § 1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Tan Nguyen, whose telephone number is (703) 305-9755. The examiner can normally be reached on Monday-Thursday from 7:30 AM-6:00 PM.

Serial No.: 08/274,394
Art Unit: 2304

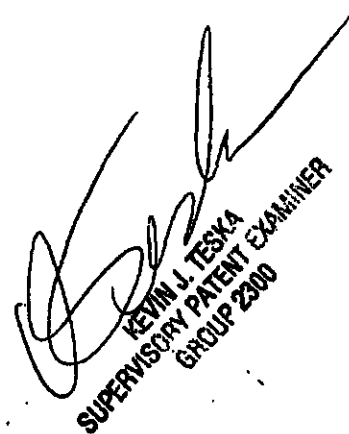
13

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin J. Teska, can be reached on (703) 305-9704. The fax phone number for this Group is (703) 305-9564.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-3800.



TAN NGUYEN
May 04, 1995



KEVIN J. TESKA
SUPERVISORY PATENT EXAMINER
GROUP 2300

TO SEPARATE, HOLD TOP AND BOTTOM EDGES, SNAP-APART AND DISCARD CARBON

08-513,298⁵¹

FORM PTO-892 (REV. 2-82)	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	SERIAL NO. 08/274,394	GROUP/ART UNIT 2304	ATTACHMENT TO PAPER NUMBER 6
NOTICE OF REFERENCES CITED		APPLICANT(S) MARGOLIN		

U.S. PATENT DOCUMENTS

	DOCUMENT NO.	DATE	NAME	CLASS	SUB-CLASS	FILING DATE IF APPROPRIATE
A	4213252	07/80	SULLIVAN ET AL.	364 395	125	
B	4715005	12/87	HEART	364 395	521 125	
C	5179638	01/93	DAWSON ET AL.	395	125	
D	5317689	05/94	NACK ET AL.	395	163	
E						
F						
G						
H						
I						
J						
K						

FOREIGN PATENT DOCUMENTS

	DOCUMENT NO.	DATE	COUNTRY	NAME	CLASS	SUB-CLASS	PERTINENT SHTS. PP.	
							OWG	SPEC.
L								
M								
N								
O								
P								
Q								

OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, Etc.)

R	
S	
T	
U	

EXAMINER Jan Muya	DATE 05/04/95
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* A copy of this reference is not being furnished with this office action:
(See Manual of Patent Examining Procedure, section 707.05 (a).)

08/274,394



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

SERIAL NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKETT NO.
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08/274,394 07/11/94 MARGOLIN

J

NGUYEN, T EXAMINER

JED MARGOLIN
3570 PLEASANT ECHO DRIVE
SAN JOSE CA 95148-1916

B3M1/0707

ART UNIT	PAPER NUMBER
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2304

7

DATE MAILED:

07/07/95

EXAMINER INTERVIEW SUMMARY RECORD

All participants (applicant, applicant's representative, PTO personnel):

- (1) KEITH G. ASKOFF (3) _____
- (2) TAN NGUYEN (4) _____

Date of interview 07/06/95

Type: Telephonic Personal (copy is given to applicant applicant's representative).

Exhibit shown or demonstration conducted: Yes No. If yes, brief description: _____

Agreement was reached with respect to some or all of the claims in question. was not reached.

Claims discussed: 1-39

Identification of prior art discussed: Beckwith et al. (4,660,157), Behensky et al. (5,005,148)

Description of the general nature of what was agreed to if an agreement was reached, or any other comments: The rejections under 35 U.S.C. 112, second paragraph have been discussed. Applicant's representative agreed to amend the claims to overcome the 112's problems and the art rejections. Examiner agreed to reconsider the application upon the discussion and the formal amendment after final.

(A fuller description, if necessary, and a copy of the amendments, if available, which the examiner agreed would render the claims allowable must be attached. Also, where no copy of the amendments which would render the claims allowable is available, a summary thereof must be attached.)

1. It is not necessary for applicant to provide a separate record of the substance of the interview.

Unless the paragraph below has been checked to indicate to the contrary, A FORMAL WRITTEN RESPONSE TO THE LAST OFFICE ACTION IS NOT WAIVED AND MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW (e.g., Items 1-7 on the reverse side of this form). If a response to the last Office action has already been filed, then applicant is given one month from this interview date to provide a statement of the substance of the interview.

- 2. Since the examiner's interview summary above (including any attachments) reflects a complete response to each of the objections, rejections and requirements that may be present in the last Office action, and since the claims are now allowable, this completed form is considered to fulfill the response requirements of the last Office action. Applicant is not relieved from providing a separate record of the substance of the interview unless box 1 above is also checked.

Tan Nguyen
Examiner's Signature



08/2055.P002

PATENT

46/B
nr

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Jed Margolin

Serial No.: 08/274,394

Filed: July 11, 1994

For: PILOT AID USING SYNTHETIC REALITY

DO NOT ENTER
TA 08/02/95

Examiner: T. Nguyen

Art Unit: 2304

RECEIVED
AUG 1 1995
GROUP 2300

Commissioner of Patents and Trademarks
Washington, D.C. 20231

8/2/95

AMENDMENT AND RESPONSE

Dear Sir:

In response to the Office Action of May 9, 1995, please enter the following amendments and consider the following remarks.

IN THE CLAIMS

Please delete claims 29 - 30, without prejudice.

Please amend the following claims.

1. (Twice Amended) A pilot aid which uses an aircraft's position and attitude to transform data from a digital data base to present a pilot with a synthesized three dimensional projected view of the world comprising:

a position determining system for locating said aircraft's position in three dimensions;

For the foregoing reasons, Applicant submits that all objections and rejections have been overcome. Applicant submits that all pending claims are in condition for allowance and allowance of the same is respectfully requested.

Respectfully submitted,
BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN

Date: July 10, 1995

Keith G. Askoff
Keith G. Askoff
Reg. No. 33,828
12400 Wilshire Boulevard
Seventh Floor
Los Angeles, California 90025
(408) 720-8598

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail with sufficient postage in an envelope addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231

on July 10, 1995
Date of Deposit

Carolyn C. Cairns
Name of Person Mailing Correspondence
Carolyn C. Cairns 7/10/95
Signature Date



#9

1995 004055.P002

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE.

In re Application of:

Jed Margolin

Serial No.: 08/274,394

Filed: July 11, 1994

For: PILOT AID USING SYNTHETIC REALITY

Examiner: T. Nguyen

Art Unit: 2304

RECEIVED
AUG 1 1995
GROUP 2300

Commissioner of Patents
and Trademarks
Washington, D.C. 20231

CHANGE OF ADDRESS UNDER 37 C.F.R. § 1.33(d)

Dear Sir:

Pursuant to 37 C.F.R. § 1.33(d) Applicant hereby changes Applicant's
correspondence address as follows:

Keith G. Askoff
BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN
12400 Wilshire Boulevard, 7th Floor
Los Angeles, CA 90025
(408) 720-8598

Please address all future communications to the above address.

Respectfully submitted,
BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN

Date: July 10, 1995

K.G. Askoff
Keith G. Askoff
Reg. No. 33,828
12400 Wilshire Boulevard
Seventh Floor
Los Angeles, California 90025
(408) 720-8598

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail with sufficient postage in an envelope addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231

on July 10, 1995
Date of Deposit

Carolyn C. Cairns
Name of Person Mailing Correspondence

Carolyn C. Cairns 7/10/95
Signature Date

08/274,394



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

SERIAL NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO.
08/274,394	07/11/94	MARGOLIN	J

B3ML/0803

KEITH G. ASKOFF
BLAKELY, SOKOLOFF, TAYLOR AND ZAFMAN
12400 WILSHIRE BOULEVARD, 7TH FLOOR
LOS ANGELES, CA 90025

NGUYEN EXAMINER	
ART UNIT	PAPER NUMBER
2304	10

DATE MAILED: 08/03/95

Below is a communication from the EXAMINER in charge of this application
COMMISSIONER OF PATENTS AND TRADEMARKS

ADVISORY ACTION

THE PERIOD FOR RESPONSE:

- a) is extended to run _____ or continues to run 3.0 months from the date of the final rejection
- b) expires three months from the date of the final rejection or as of the mailing date of this Advisory Action, whichever is later. In no event however, will the statutory period for the response expire later than six months from the date of the final rejection.

Any extension of time must be obtained by filing a petition under 37 CFR 1.136(a), the proposed response and the appropriate fee. The date on which the response, the petition, and the fee have been filed is the date of the response and also the date for the purposes of determining the period of extension and the corresponding amount of the fee. Any extension fee pursuant to 37 CFR 1.17 will be calculated from the date of the originally set shortened statutory period for response or as set forth in b) above.

Appellant's Brief is due in accordance with 37 CFR 1.192(a).

Applicant's response to the final rejection, filed 07/14/95 has been considered with the following effect, but it is not deemed to place the application in condition for allowance:

1. The proposed amendments to the claim and/or specification will not be entered and the final rejection stands because:

- a) There is no convincing showing under 37 CFR 1.116(b) why the proposed amendment is necessary and was not earlier presented.
- b) They raise new issues that would require further consideration and/or search. (See Note).
- c) They raise the issue of new matter. (See Note).
- d) They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal.
- e) They present additional claims without cancelling a corresponding number of finally rejected claims.

NOTE: the significant amendment raises new issue (see lines 6-8 of claims 1, 7, 13 and lines 6-7 of claim 36) that would require further consideration and search.

2. Newly proposed or amended claims _____ would be allowed if submitted in a separately filed amendment cancelling the non-allowable claims.

3. Upon the filing an appeal, the proposed amendment will be entered will not be entered and the status of the claims will be as follows:

Claims allowed: _____
Claims objected to: 29-30
Claims rejected: 1-28 and 31-39

However;

Applicant's response has overcome the following rejection(s): _____

4. The affidavit, exhibit or request for reconsideration has been considered but does not overcome the rejection because _____

5. The affidavit or exhibit will not be considered because applicant has not shown good and sufficient reasons why it was not earlier presented.

The proposed drawing correction has has not been approved by the examiner.

Other

Kevin J. Teska
KEVIN J. TESKA
ADVISORY PATENT EXAMINER
GROUP 2300

PTO-103c (REV. 8-79) SECURITY FILE

274 394

GROUP NO. FILING DATE SERIAL NO. SERIES OF 1970

1. JUL 94

SCREENED BY

AUG 94 07

LICENSE

DATE

DARCOM

NAVY

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CE

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NASA

NSA

APPLICANT INVENTION

DRAWINGS	TOTAL CL'S	IND CL'S	FILING FEE REC.	TRANSACTION	ATTY DK.
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08/274,394

A

11

CLEARED BY
GROUP 220 SECURITY

RECOMMENDATION BY EXPERTS

(Every expert examining this application should indicate an express RECOMMENDATION followed by their SIGNATURE, AGENCY AND DATE)

Could not find anything here that could not be released from a Graphics 101 book. However, the AF would have a definite interest in the material.

P. Day D. Reath
w/ FIGP-1, 513-215-8252

No security recommended, M Jordan,
AF/9A ITRAP, 3 JAN 95

<input type="checkbox"/> DARCOM	<input type="checkbox"/> NAVY	<input type="checkbox"/> AF	<input type="checkbox"/> CE	<input type="checkbox"/> DOE	<input type="checkbox"/> NASA	<input type="checkbox"/> NSA	<input type="checkbox"/> LOG	<input type="checkbox"/> 185	<input type="checkbox"/> OTHER	SCREENED BY _____
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PTO-103c
(rev. 6-79)
SECURITY
FILE

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NASA

NSA

GR. NO.		FILING DATE		SERIAL NO. (SERIES OF 1970)	
		AUG 2 1944		271 394 11 JUL 44	
APPLICANT			INVENTION		
DRAWINGS	TOTAL CL'S	IND CL'S	FILING FEE REC	TRANSACTION	ATTY DK.

ACCESS ACKNOWLEDGEMENT
As Required by
Title 35, United States Code (1952) Section 181

I hereby acknowledge that I have inspected the disclosure of the above identified application for patent in the administration of the law cited above, on behalf of the department or agency which I represent, and promise that any information acquired from said application will not be divulged, disclosed or used for any purpose other than in the administration of the cited law.

NAME	DATE	AGENCY REPRESENTED
<i>J. Beahm</i>	9/23/44	JACP
<i>[Signature]</i>	10/2/44	WL/AM
<i>P. L. Smith</i>	2 Nov 44	WL/EE GP-1
<i>M. Jordan</i>	3 Jan 45	AF/1977 / 577 LMP

1-7-13

PATENT APPLICATION FEE DETERMINATION RECORD
Effective October 1, 1992

Application or Docket Number
08/274394

CLAIMS AS FILED - PART I		SMALL ENTITY	OR	OTHER THAN SMALL ENTITY
(Column 1)	(Column 2)	RATE		RATE
OR	NUMBER FILED			
	NUMBER EXTRA	FEE		FEE
BASIC FEE			OR	
		\$355.00		\$710.00
TOTAL CLAIMS	13 minus 20 = *	x\$11=	OR	x\$22=
INDEPENDENT CLAIMS	3 minus 3 = *	x 37=	OR	x 74=
MULTIPLE DEPENDENT CLAIM PRESENT		+115=	OR	+230=
If the difference in column 1 is less than zero, enter "0" in column 2		TOTAL		TOTAL
		355	OR	

CLAIMS AS AMENDED - PART II					SMALL ENTITY	OR	OTHER THAN SMALL ENTITY
(Column 1)	(Column 2)	(Column 3)	(Column 4)	(Column 5)	RATE		RATE
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	ADDITIONAL FEE		ADDITIONAL FEE
	Total	39	Minus ** 20	= 19	x\$11=	209	x\$22=
	Independent	5	Minus *** 3	= 1	x 37=	76	x 74=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM					+ 115=		+230=
					TOTAL		TOTAL
					ADDIT. FEE		ADDIT. FEE

(Column 1)	(Column 2)	(Column 3)	(Column 4)	(Column 5)	RATE		RATE
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	ADDITIONAL FEE		ADDITIONAL FEE
	Total	37	Minus ** 39	=	x\$11=		x\$22=
	Independent	4	Minus *** 5	=	x 37=		x 74=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM					+ 115=		+ 230=
					TOTAL		TOTAL
					ADDIT. FEE		ADDIT. FEE

(Column 1)	(Column 2)	(Column 3)	(Column 4)	(Column 5)	RATE		RATE
AMENDMENT C	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	ADDITIONAL FEE		ADDITIONAL FEE
	Total		Minus **	=	x\$11=		x\$22=
	Independent		Minus ***	=	x 37=		x 74=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM					+115=		+230=
					TOTAL		TOTAL
					ADDIT. FEE		ADDIT. FEE

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
 ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
 *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
 The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

PAGE DATA ENTRY CODING SHEET

U.S. DEPARTMENT OF COMMERCE
Patent and Trademark Office

1ST EXAMINER 49 DATE 8-10-94
2ND EXAMINER _____ DATE _____

APPLICATION NUMBER 274394 TYPE APPL 1 FILING DATE MONTH 09 DAY 11 YEAR 94 SPECIAL HANDLING GROUP ART UNIT 2614 CLASS 375 SHEETS OF DRAWING 13

TOTAL CLAIMS 13 INDEPENDENT CLAIMS 3 SMALL ENTRY? FILING FEE 355 FOREIGN LICENSE ATTORNEY DOCKET NUMBER _____

CONTINUITY DATA

CONT STATUS CODE	STATUS CODE	PARENT APPLICATION SERIAL NUMBER	PCT APPLICATION SERIAL NUMBER	PCT/FOREIGN APPLICATION SERIAL NUMBER	PARENT PATENT NUMBER	PARENT FILING DATE MONTH DAY YEAR
			P C T /			
			P C T /			
			P C T /			
			P C T /			
			P C T /			

PCT/FOREIGN APPLICATION DATA

FOREIGN PRIORITY CLAIMED	COUNTRY CODE	PCT/FOREIGN APPLICATION SERIAL NUMBER	FOREIGN FILING DATE MONTH DAY YEAR

PATENT APPLICATION SERIAL NO. **08/513298**

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE
FEE RECORD SHEET

210 6W 09/01/95 08513298
1 201 590.00 BK 02055.P002

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64 Attorney's Docket No. 02055.P002

Patent
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

The Commissioner of
Patents and Trademarks
Washington, D.C. 20231
BOX FWC

Prior Application:
Examiner: Nguyen, T.
Art Unit: 2304

RULE 62

Sir: This is a request for filing a file wrapper

Continuation application Divisional application
under 37 C.F.R. § 1.62 of pending prior application serial no. 08/274,394
filed on July 11, 1994
of Jed Margolin
(inventor(s) currently of record for prior application)
for PILOT AID USING SYNTHETIC REALITY
(title)

1. The above-identified prior application in which no payment of the issue fee, abandonment of, or termination of proceedings has occurred is hereby expressly abandoned as of the filing date of this new application. Please use all the contents of the prior application file wrapper, including the drawings, as the basic papers for the new application. No such copy of the prior application is included herewith.

2. The filing fee is calculated below:

CLAIMS NOW PENDING IN THE PRIOR APPLICATION PLUS/MINUS CLAIMS
ADDED/CANCELED BELOW

For:	(Col. 1)		(Col. 2)		SMALL ENTITY		OTHER THAN A SMALL ENTITY	
	No. Filed		No. Extra		Rate	Fee	Rate	Fee
Basic Fee:						\$ 365		\$ 730
Total Claims:	37	-20	*17		x 11	\$ 187	x 22	\$
Indep. Claims:	4	-3	*1		x 38	\$ 38	x 76	\$
	Multiple Dependent Claim(s) Presented				+120	\$	+240	\$
					TOTAL	\$ 590	TOTAL	\$

* If the difference in Col. 1 is less than zero, enter "0" in Col. 2.

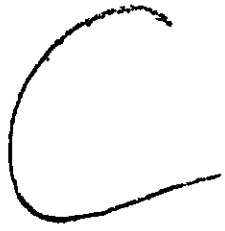
3. A verified statement to establish small entity status under 37 C.F.R. §§ 1.9 and 1.27 is enclosed/ was filed in the pending prior application and such status is still proper and desired. 37 C.F.R. § 1.28(a).

"Express Mail" mailing label number TB806949834US

Date of Deposit August 9, 1995

I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231.

Christine A. Bybee
(Typed or printed name of person mailing paper or fee)
Christine A. Bybee
(Signature of person mailing paper or fee)



- 4. The Commissioner is hereby authorized to charge any fees that may be required, or credit any overpayment, to Deposit Account No. 02-2666. A duplicate copy of this sheet is enclosed.
- 5. A check in the amount of \$590.00 is enclosed for the filing fee.
- 6. A check in the amount of \$ _____ is enclosed for the petition fee pursuant to 37 C.F.R. § 1.17.
- 7. Cancel in this application claims _____ of the prior application before calculating the filing fee (wherein at least one independent claim is retained for filing purposes).
- 8. Please enter the preliminary amendment enclosed before calculating the filing fee.
- 9. Before calculating the filing fee, please enter in the present application the amendment filed on _____ under 37 C.F.R. § 1.116, but unentered, in the parent application.
- 10. Amend the specification by inserting the following before the first sentence on the first page:

(a) - This is a continuation/ _____ divisional of application serial no. 08/274,394, filed July 11, 1994, now abandoned. -

(b) -, which is a _____ continuation/ _____ divisional of application serial no. _____, filed _____

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(list all prior applications)

- 11. It is hereby requested that any request for a convention priority made in the prior application be transferred to this Rule 62 application.
- 12. The prior application is assigned of record to: _____

13. The Power of Attorney in the prior application is to:

 (Name) (Reg. No.)
Edwin H Taylor, Reg. No. 25,129, and certain other listed attorneys or agent(s) of:
BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN
12400 Wilshire Blvd., Seventh Floor
Los Angeles, California 90025
(310) 207-3800

- (a) The Power appears in the original papers of the prior application serial no. _____ filed _____
- (b) The Power does not appear in the original papers, but was filed on February 18, 1995 in prior application serial no. 08/274/394 filed July 11, 1994.
- (c) A new Power has been executed and is attached.
- (d) Recognize as an associate attorney or agent and address all future communications to:

 (Name) (Reg. No.)
BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN
12400 Wilshire Blvd., Seventh Floor
Los Angeles, California 90025
(408) 720-8598
- (e) Address all future communications to the undersigned.

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14. Enclosed is a photocopy of a petition for an extension of time pursuant to 37 C.F.R. § 1.136 concurrently (or previously) submitted under separate cover for the above-referenced prior application.
15. Applicant(s) hereby petition(s) for an extension of time pursuant to Rule 1.136, if needed, for the above-noted prior application. The Commissioner is hereby authorized to charge any extension or petition fee under 37 C.F.R. § 1.17 that may be required for the above-referenced prior application to Deposit Account No. 02-2666. Two photocopies of this document are enclosed for filing in the prior application file and for Deposit Account purposes.
16. The filing of an application under 37 C.F.R § 1.62 will be construed to include a waiver of secrecy under 35 U.S.C. § 122 to the extent that any member of the public who is entitled under the provisions of 37 C.F.R. § 1.14 to access to or information concerning either the prior application or any continuing application filed under the provisions of 37 C.F.R. § 1.62 may be given similar access to, or similar information concerning, the other application(s) in the file wrapper. 37 C.F.R. § 1.62(f).
17. Accompanying this application is a statement requesting deletion of the name(s) of the person or persons who are not inventors of the invention being claimed in the continuation/divisional application. 37 C.F.R. § 1.62(a).

Respectfully submitted,

BLAKELY SOKOLOFF TAYLOR & ZAFMAN

Date: August 9, 1995

By


Keith G. Askoff

12400 Wilshire Boulevard
Seventh Floor
Los Angeles, California 90025
(408) 720-8598

Reg. No. 33,828

- Attorney or Agent of Record
- Associate Attorney or Agent
- Filed Under 37 C.F.R. § 1.34(a)



08/2055.P002

PATENT

13/D
12-4

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Jed Margolin

Serial No.: 08/274,394

Filed: July 11, 1994

For: PILOT AID USING SYNTHETIC REALITY

Examiner: T. Nguyen

Art Unit: 2304

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GROUP 2300

Commissioner of Patents and Trademarks
Washington, D.C. 20231

AMENDMENT AND RESPONSE

Dear Sir:

In response to the Office Action of May 9, 1995, please enter the following amendments and consider the following remarks.

IN THE CLAIMS

Please delete claims 29 - 30, without prejudice.

Please amend the following claims.

1. (Twice Amended) A pilot aid which uses an aircraft's position and attitude to transform data from a digital data base to present a pilot with a synthesized three dimensional projected view of the world comprising:

a position determining system for locating said aircraft's position in three dimensions;

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a digital data base comprising terrain data, said terrain data representing real terrestrial terrain as at least one [or more] polygon[s], said terrain data generated from elevation data of said real terrestrial terrain;

an attitude determining system for determining said aircraft's orientation in three dimensional space;

a computer to access said terrain data according to said aircraft's position and to transform said terrain data to provide three dimensional projected image data according to said aircraft's orientation; and

a display for displaying said three dimensional projected image data.

5. (Twice Amended) The pilot aid of claim 1, further comprising a control panel to select at least one [or more] operating feature[s].

6. (Twice Amended) The pilot aid of claim [1] 5, wherein said at least one [or more] operating feature[s] comprises at least one [or more] feature[s] selected from [the] a group consisting of panning a viewpoint of said three dimensional projected image, tilting a viewpoint of said three dimensional projected image, zooming a viewpoint of said three dimensional projected image, and providing a three dimensional projected image of a route ahead.

7. (Twice Amended) A pilot aid which uses an aircraft's position and attitude to transform data from a digital data base to present a pilot with a synthesized three dimensional projected view of the world comprising:

a position determining system for locating said aircraft's position in three dimensions;

a digital data base comprising terrain data, said terrain data representing real terrestrial terrain as at least one [or more] polygon[s], said terrain data generated from elevation data of said real terrestrial terrain;

an attitude determining system for determining said aircraft's orientation in three dimensional space;

a computer to access said terrain data according to said aircraft's position and to transform said terrain data to provide three dimensional projected image data according to said aircraft's orientation; and

a mass storage memory for recording said aircraft position data and said aircraft's attitude data for allowing a flight of said aircraft over said terrain to be displayed at a later time.

16 ~~21~~ ^{17 12} 11. (Twice Amended) The pilot aid of claim ~~7~~, further comprising a control panel to select at least one [or more] operating feature[s].

17 ~~22~~ ^{21 16} 12. (Once Amended) The pilot aid of claim ~~11~~, wherein said at least one [or more] operating feature[s] comprises at least one [or more] feature[s] selected from [the] a group consisting of panning a viewpoint of said three dimensional projected image, tilting a viewpoint of said three dimensional projected image, zooming a viewpoint of said three dimensional projected image, providing a three dimensional projected image of a route ahead, and providing a three dimensional projected image of a previous flight.

23 ~~25~~ 13. (Once Amended) A pilot aid which uses an aircraft's position and attitude to transform data from a digital data base to present a pilot with a synthesized three dimensional projected view of the world comprising:

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a position determining system for locating said aircraft's position in three dimensions;

a digital data base comprising terrain data, said terrain data representing real terrestrial terrain as at least one [or more] polygon[s], said terrain data generated from elevation data of said real terrestrial terrain;

a first attitude determining system for determining said aircraft's orientation in three dimensional space;

a head mounted display worn by said pilot of said aircraft;

a second attitude determining system for determining the orientation of said pilot's head in three dimensional space; and

a computer to access said terrain data according to said aircraft's position and to transform said terrain data to provide three dimensional projected image data to said head mounted display according to said aircraft's orientation and said pilot head orientation.

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17. (Once Amended) The pilot aid as described in claim 1 wherein said [terrain data is generated from] elevation data [comprising] comprises an array of elevation points, wherein each said polygon representing said terrain defines a plane, wherein in a first region of terrain represented by said at least one [or more of said] polygon[s] no] each elevation point within each said polygon is [below] within a first distance of said plane of each said polygon [by a first distance or more].

19
18. (Once Amended) The pilot aid as described in claim 7 wherein said [terrain data is generated from] elevation data [comprising] comprises an array of elevation points, wherein each said polygon representing said terrain defines a plane, wherein in a first region of terrain represented by said at least one [or more of said] polygon[s]

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no] each elevation point within each said polygon is [below] within a first distance of said plane of each said polygon [by a first distance or more].

~~30~~ 25 ~~26~~ 23
19. (Once Amended) The pilot aid as described in claim ~~18~~ wherein said [terrain is generated from] elevation data [comprising] comprises an array of elevation points, wherein each said polygon representing said terrain defines a plane, wherein in a first region of terrain represented by said at least one [or more of said] polygon[s no] each elevation point within each said polygon is [below] within a first distance of said plane of each said polygon [by a first distance or more].

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20. (Once Amended) The pilot aid as described in claim ~~17~~ wherein in a second region of said terrain represented by said at least one [or more of said] polygon[s no] each elevation point within each said polygon is [below] within a second distance of said plane of each said polygon in said second region [by a second distance or more], said second distance different from said first distance.

~~25~~ 20 19
~~24~~
21. (Once Amended) The pilot aid as described in claim ~~18~~ wherein in a second region of said terrain represented by said at least one [or more of said] polygon[s no] each elevation point within each said polygon is [below] within a second distance of said plane of each said polygon in said second region [by a second distance or more], said second distance different from said first distance.

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22. (Once Amended) The pilot aid as described in claim ~~19~~ wherein in a second region of said terrain represented by said at least one [or more of said] polygon[s no] each elevation point within each said polygon is [below] within a second distance of said plane of each said polygon in said second region [by a second distance or more], said second distance different from said first distance.

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31. (Once Amended) The method as described in claim ~~23~~³¹ wherein at least one [or more] additional adjacent one[s] of said plurality of elevation points [are] is examined, and wherein said polygon is expanded to include said at least one [or more] additional one[s] of said plurality of elevation points [which do] that does not cause any of said elevation points within said expanded polygon not to be [below] within said first distance of said plane of said expanded polygon [by said first distance or more].

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36 31
32. (Once Amended) The method as described in claim ~~26~~³⁵ wherein at least one [or more] additional adjacent one[s] of said plurality of elevation points [are] is examined, and wherein said polygon is expanded to include said at least one [or more] additional one[s] of said plurality of elevation points [which do] that does not cause any of said elevation points within said expanded polygon to be above said plane of said expanded polygon and [do] does not cause any of said elevation points within said expanded polygon not to be [below] within said first distance of said plane of said expanded polygon [by said first distance or more].

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36. (Once Amended) A method of using an aircraft's position and attitude to transform data from a digital data base to present a pilot with a synthesized three dimensional projected view of the world comprising:
locating said aircraft's position in three dimensions;
providing a data base comprising terrain data, said terrain data representing real terrestrial terrain as at least one [or more] polygons, said terrain data generated from elevation data of said real terrestrial terrain;
determining said aircraft's orientation in three dimensional space;
accessing said terrain data according to said aircraft's position;

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transforming said terrain data to provide three dimensional projected image data according to said aircraft's orientation; and[,]

displaying said three dimensional projected image data.

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~~37.~~ (Once Amended) The method of claim ~~36~~²⁹ further comprising selecting at least one [or more] operating feature[s], wherein said at least one [or more] operating feature[s] comprises at least one [or more] feature[s] selected from [the] a group consisting of panning a viewpoint of said three dimensional projected image, tilting a viewpoint of said three dimensional projected image, zooming a viewpoint of said three dimensional projected image, and presenting a three dimensional projected image of a route ahead.

31
~~38.~~ (Once Amended) The method as described in claim ~~36~~²⁹ wherein said terrain data base is produced by a method comprising the steps of:

providing a plurality of elevation points, each of said plurality of elevation points representing an elevation of a point on a terrain;

defining a polygon having at least one [or more vertices] vertex defined by at least one [or more] of said elevation points;

examining an adjacent one of said plurality of elevation points to determine if expanding said polygon to an expanded polygon to include said adjacent one of said plurality of elevation points causes at least one [or more] of said plurality of elevation points within said expanded polygon not to be [below] within a first distance of a plane of said expanded polygon [by a first distance]; and[,]

expanding said polygon to include said adjacent one of said plurality of elevation points if [none] each of said elevation points within said expanded polygon is [below] within said first distance of said plane [by said first distance or more].

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37 ~~38~~ (Once Amended) The method as described in claim ~~38~~³¹ wherein said adjacent one of said plurality of elevation points is further examined to determine if at least one [or more] of said plurality of elevation points within said expanded polygon is above said plane of said expanded polygon, and said polygon is expanded if none of said elevation points within said expanded polygon is above said plane of said expanded polygon and if [none] each of said elevation points within said expanded polygon is [below] within said first distance of said plane by [said first distance or more].

REMARKS

In a telephonic interview on July 7, 1995 regarding the Office Action of May 9, 1995, the Examiner and the undersigned discussed some of the 35 U.S.C. § 112, second paragraph rejections, and the 35 U.S.C. § 103 rejections. In a telephonic interview of July 7, 1995 the Examiner and the undersigned discussed claims 17 and 20, which were not previously examined based on the prior art. The Examiner agreed to withdraw the finality of the Office Action of May 9, 1995.

With respect to the rejection under 35 U.S.C. § 112, second paragraph for the phrase "one or more" as described in paragraphs 4.1, 4.2, 4.3, 4.4, 4.5, and 4.8 of the Office Action, as discussed in the above-referenced telephonic interview, Applicant has amended the claims to recite "at least one" and to make grammatical changes consistent with the amended terminology.

With respect to the suggestion in paragraph 4.1 of the Office Action to add the word "and," Applicant has amended claims 1, 7, and 13 to add the word "and" at the appropriate place. With respect to antecedent basis for "the group" as in claims 6, 12, and 37, as noted in paragraph 4.3 of the Office Action, Applicant has amended claims containing this phrase to read "a group."

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With respect to paragraph 4.4 of the Office Action of May 9, 1995 the Examiner requests verification of the first region of terrain. As described in the specification on, for example, page 30, lines 2 - 14, the number of polygons required to represent a portion of terrain will be dependent upon the definition of flatness (flatness criteria). If the elevation points within a polygon must be within a small distance from the plane of the polygon, more polygons will be required than when the elevation points may be within a greater distance of the plane of the polygon. As described in the specification, regions of high interest (such as airports and surrounding areas) may be represented with polygons having all points within a small distance from the plane of the polygon, while other areas may be represented by polygons having all elevation points within a larger distance from the plane of the polygon. Because the former regions will typically require more polygons, the terrain will be represented more accurately. Thus, for example, the airport may be a first region, while areas removed from the airport may be a second region.

With respect to the phrase "distance or more" in the claims discussed in paragraphs 4.4, 4.5, and 4.8 of the Office Action, Applicant has rephrased the claims. For example, claims 17 - 19 have been amended to recite that each elevation point within each polygon is within a first distance of the plane of the polygon. That is, for example, as described above, the elevation points within a first region, such as an airport, may be within 10 feet of the plane of the polygon. Of course, the invention is not limited to these examples. In claims 20 - 22, Applicant has recited that each elevation point within each polygon in the second region is within a second, different distance from the plane. Again, by way of example, in areas removed from the airport, the elevation points may be required to be within only 50 feet of the plane of the polygon. With respect to claims 31 and 32, Applicant has amended the claims to recite that the polygon is expanded to include the recited at least one addition one of the plurality of elevation points that does not cause any of the elevation points within

the expanded polygon not to be within the first distance of the plane of the polygon. Similar amendments have been made to claims 38 and 39.

With regard to paragraph 4.6 of the Office Action of May 6, 1995, the Examiner requests clarification as to "no elevation point." As described generally above, a criteria may set such that a polygon contains no elevation points that are beyond a certain distance from the plane, or alternatively stated are not within a certain distance. In other words, in a polygon near an airport, no elevation point in the area represented by a polygon is above the plane of the polygon. In this way, a pilot may be ensured that in the real world scene represented by the polygons, no elevation point is above the level of the plane of the polygon.

With respect to paragraph 4.7 of the Office Action, Applicant has, as suggested, deleted the comma.

In paragraph 4.8 of the Office Action, the Examiner asks for verification regarding examining an adjacent one of the plurality of elevation points and expanding the polygon, as in lines 7 - 14 of claim 38. One embodiment of the method of the present invention is described, for example, in conjunction with figures 12A - 12F, and 13A - 13F of the specification. As shown therein, an initial polygon having three points is defined. Next, an adjacent elevation point is selected. A determination is made as to whether the point belongs in the polygon according to the above-discussed flatness criteria. If the expanded polygon meets the flatness criteria, the point is added, as shown in the Figures. If it does not, then the point is not added to the polygon.

Claims 1 - 12 were rejected under 35 U.S.C. § 103 as being unpatentable over *Beckwith et al.* in view of *Behensky et al.* or one of two brochures from *Atari Game Corporation*. In responding to Applicant's arguments, the Examiner states that Applicant's argument regarding the present invention representing real terrain is not found in the claims. Similarly, the Examiner states that constructing the polygon based

on elevation points is not found in the claims. Applicant has amended all independent claims to include the limitations that the terrain data represents real terrestrial terrain and to recite that the terrain data is based on elevation data of the real terrestrial terrain. Applicant submits that these amendments clarify the distinction between the claimed invention and the references applied by the Examiner.

With respect to *Beckwith et al.*, Applicant submits that *Beckwith et al.* does not accurately perform a transformation of elevation points. Rather, *Beckwith et al.* uses a two-dimensional array of elevation points. The data address gives the x, y coordinates of the point, while the data gives the elevation. *Beckwith et al.* does not create a true 3-D scene. Rather, *Beckwith et al.* simply changes direction of data read out to correspond to the plane's orientation. This method creates a very crude representation of the terrain, particularly when, for example, the heading of the plane is not along a row, column, or diagonal of the data.

With reference to *Behensky et al.* and the *Atari brochures*, in contrast to the claimed invention, the references show a scene that consists of a completely made-up universe. In contrast to the claimed invention they do not show polygons based on elevation data of real terrestrial terrain. Furthermore, as described earlier, note that the display is significantly different from what is needed in the present invention. For example, features such as road markings, road signs, vehicles, etc. are present in these references, which are not applicable to the present invention as claimed. Note that the references, even when considered together, do not contain any motivation, either express or implied, that the depiction of the fictional universe therein be used for producing a display of real terrestrial data based on elevation data of the real terrestrial terrain. Furthermore, there is no teaching in the references of how this would be accomplished. Additionally, Applicant submits that it is not obvious that the polygons used for the fictional universe of *Behensky et al.* and the *Atari games* would be useful in the system of *Beckwith et al.* Although the Examiner states that it would

be obvious to combine *Behensky et al.* with the systems of *Beckwith et al.* to provide a reduction of data base storage, there is no such teaching in the references. It is only with the teaching of the present invention, to construct the polygons in the manner described, and to use the described flatness criteria, that one of ordinary skill in the art is enabled to practice the present invention. Absent this teaching, nothing in the references teaches that the polygons of *Behensky et al.* would result in significant reduction of data base storage in other, undisclosed systems. Because there is no such teaching in the references, Applicant submits this assertion must be within the personal knowledge of the Examiner. Therefore, pursuant to 37 C.F.R. § 1.107(b), Applicant respectfully requests an affidavit from the Examiner attesting to the fact that the disclosure of polygons in *Behensky et al.* teaches one of ordinary skill in the art that the use of these polygons to represent data in other systems results in the reduction of data base storage, as *Behensky et al.*, in addition to not teaching the use of polygons for real terrain data, does not teach that the use of polygons would result in a reduction of data base storage. Applicant submits that any such teaching comes only from the present specification.

In conclusion, Applicant has made numerous amendments in an earnest attempt to clear up all 35 U.S.C. § 112, second paragraph issues. Should the examiner believe any 35 U.S.C. § 112 issues remain, Applicant would appreciate a call to the undersigned so that any remaining issues may be dealt with by Examiner's amendment, if possible. Additionally, Applicant has amended the claims to recite that the terrain data represents real terrestrial terrain, and to recite that it is generated from elevation data of the real terrestrial terrain. For the reasons described above, Applicant submits the present invention, as currently claimed, is unobvious over the references of record.

For the foregoing reasons, Applicant submits that all objections and rejections have been overcome. Applicant submits that all pending claims are in condition for allowance and allowance of the same is respectfully requested.

Respectfully submitted,
BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN

Date: July 10, 1995

Keith G. Askoff
Keith G. Askoff
Reg. No. 33,828
12400 Wilshire Boulevard
Seventh Floor
Los Angeles, California 90025
(408) 720-8598

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail with sufficient postage in an envelope addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231

on July 10, 1995
Date of Deposit

Carolyn C. Cairns

Name of Person Mailing Correspondence

Carolyn C. Cairns

Signature

7/10/95

Date



Attorney's Docket No.: 02055.P002

Patent #13

Inventor(s) the Application of: Jed Margolin

Serial No.: 08/274.394

Filed: July 11, 1994

For: PILOT AID USING SYNTHETIC REALITY

(title)

THE COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

SIR: Transmitted herewith is an Amendment for the above application.

Small entity status of this application under 37 C.F.R. §§ 1.9 and 1.27 has been established by a verified statement previously submitted.

A verified statement to establish small entity status under 37 C.F.R. §§ 1.9 and 1.27 is enclosed.

No additional fee is required.

The fee has been calculated as shown below:

	(Col. 1)		(Col. 2)	(Col. 3)
	Claims Remaining After Amd.		Highest No. Previously Paid For	Present Extra
Total Claims	37	Minus	39	-0-
Indep. Claims	4	Minus	5	-0-
First Presentation of Multiple Dependent Claim(s)				

SMALL ENTITY	
Rate	Additional Fee
x11	\$ -0-
x38	\$ -0-
+120	\$ -0-
Total Add. Fee	\$ -0-

OTHER THAN A SMALL ENTITY	
Rate	Additional Fee
x22	\$
x76	\$
+240	\$
Total Add. Fee	\$

* If the entry in Col. 1 is less than the entry in Col. 2, write "0" in Col. 3.

** If the "Highest No. Previously Paid For" IN THIS SPACE is less than 20, write "20" in this space.

*** If the "Highest No. Previously Paid For" IN THIS SPACE is less than 3, write "3" in this space. The "Highest No. Previously Paid For" (Total or Independent) is the highest number found from the equivalent box in Col. 1 of a prior amendment or the number of claims originally filed.

A check in the amount of \$ _____ is attached for presentation of additional claim(s).
 Applicant(s) hereby Petition(s) for an Extension of Time of _____ month(s) pursuant to 37 C.F.R. § 1.136(a).

A check for \$ _____ is attached for processing fees under 37 C.F.R. § 1.17.
 Please charge my Deposit Account No. 02-2666 the amount of \$ _____.

A duplicate copy of this sheet is enclosed.
 The Commissioner is hereby authorized to charge payment of the following fees associated with this communication or credit any overpayment to Deposit Account No. 02-2666 (a duplicate copy of this sheet is enclosed):

- Any additional filing fees required under 37 C.F.R. § 1.16 for presentation of extra claims.
- Any extension or petition fees under 37 C.F.R. § 1.17.

BLAKELY SOKOLOFF TAYLOR & ZAFMAN

Date: July 10, 1995
12400 Wilshire Boulevard
Seventh Floor
Los Angeles, California 90025
(408) 720-8598

Keith G. Askoff
Keith G. Askoff
Reg. No. 33,828

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail with sufficient postage in an envelope addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231

on July 10, 1995
Date of Deposit

Carolyn C. Cairns
Name of Person Mailing Correspondence

Carolyn C. Cairns 7/10/95
Signature Date



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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:

Jed Margolin

Serial No.: 08/513,298

Filed: August 9, 1995

For: PILOT AID USING SYNTHETIC REALITY

Examiner: Not assigned yet

Art Unit: 2304

12-5

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GROUP 2300

Hon. Commissioner of Patents
and Trademarks
Washington, D.C. 20231

PRELIMINARY AMENDMENT

Sir:

IN THE DOCKET NUMBER

Please change the attorney docket number to:

--02055.P002C--

(i. e. add a "C" at the end.)

IN THE CLAIMS

Please enter the amendment mailed on July 10, 1995, submitted under 37 C. F. R. § 1.116, but unentered in the parent application.

REMARKS

Please consider the remarks in the above referenced amendment, submitted but unentered in the parent application.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN

Date: October 18, 1995

10/22/95
Keith G. Askoff
Reg. No. 33,828

12400 Wilshire Boulevard
Seventh Floor
Los Angeles, California 90025-1026
(408) 720-8598

FIRST CLASS CERTIFICATE OF MAILING
(37 C.F.R. § 1.8(a))

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail with sufficient postage in an envelope addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231

on October 18, 1995

Date of Deposit
Edith Fuentes

Name of Person Mailing Correspondence

Edith Fuentes
Signature

10-18-95
Date



Attorney's Docket No.: 02055.P002C

Patent

In re: Application of: Jed Margolin

(inventor(s))

Application No.: 08/513,298

Filed: August 9, 1995

For: PILOT AID USING SYNTHETIC REALITY

RECEIVED

(title)

NOV 07 1995

GROUP 2300

THE COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

SIR: Transmitted herewith is an Amendment for the above application.

Small entity status of this application under 37 C.F.R. §§ 1.9 and 1.27 has been established by a verified statement previously submitted.

A verified statement to establish small entity status under 37 C.F.R. §§ 1.9 and 1.27 is enclosed.

No additional fee is required.

The fee has been calculated as shown below:

	(Col. 1)		(Col. 2)		(Col. 3)	SMALL ENTITY		OTHER THAN A SMALL ENTITY	
	Claims Remaining After Amd.		Highest No. Previously Paid For		Present Extra	Rate	Additional Fee	Rate	Additional Fee
Total Claims	* 37	Minus	** 37		0	x11	\$ 0	x22	\$
Indep. Claims	* 4	Minus	*** 4		0	x39	\$ 0	x78	\$
<input type="checkbox"/> First Presentation of Multiple Dependent Claim(s)						+125	\$ 0	+250	\$
						Total Add. Fee	\$ 0	Total Add. Fee	\$

* If the entry in Col. 1 is less than the entry in Col. 2, write "0" in Col. 3.

** If the "Highest No. Previously Paid For" IN THIS SPACE is less than 20, write "20" in this space.

*** If the "Highest No. Previously Paid For" IN THIS SPACE is less than 3, write "3" in this space. The "Highest No. Previously Paid For" (Total or Independent) is the highest number found from the equivalent box in Col. 1 of a prior amendment or the number of claims originally filed.

A check in the amount of \$ _____ is attached for presentation of additional claim(s).

Applicant(s) hereby Petition(s) for an Extension of Time of _____ month(s) pursuant to 37 C.F.R. § 1.136(a).

A check for \$ _____ is attached for processing fees under 37 C.F.R. § 1.17.

Please charge my Deposit Account No. 02-2666 the amount of \$ _____.

A duplicate copy of this sheet is enclosed.

The Commissioner is hereby authorized to charge payment of the following fees associated with this communication or credit any overpayment to Deposit Account No. 02-2666

(a duplicate copy of this sheet is enclosed):

Any additional filing fees required under 37 C.F.R. § 1.16 for presentation of extra claims.

Any extension or petition fees under 37 C.F.R. § 1.17.

BLAKELY SOKOLOFF TAYLOR & ZAFMAN

Date: October 18, 1995

7/12/95
Keith G. Askoff

12400 Wilshire Boulevard
Seventh Floor
Los Angeles, California 90025
(408) 720-8598

Reg. No. 33,828

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail with sufficient postage in an envelope addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231

on October 18, 1995
Date of Deposit

Edith Fuentes
Name of Person Mailing Correspondence

Edith Fuentes
Signature
10-18-95
Date

(LJV/cak 10/02/95)

08/513,298



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

SERIAL NUMBER	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/513,298	08/09/95	MARGOLIN	J 02055.P002C

B3M1/0122

EDWIN H TAYLOR
BLAKELY SOKOLOFF TAYLOR & ZAFMAN
12400 WILSHIRE BLVD SEVENTH FLOOR
LOS ANGELES CA 90025

NGUYEN, T
EXAMINER *RO*

ART UNIT PAPER NUMBER

2304

15

01/22/96

DATE MAILED:

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

This application has been examined Responsive to communication filed on 10/20/95 This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s); 0 days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

- 1. Notice of References Cited by Examiner, PTO-892.
- 2. Notice of Draftsman's Patent Drawing Review, PTO-948.
- 3. Notice of Art Cited by Applicant, PTO-1449.
- 4. Notice of Informal Patent Application, PTO-152.
- 5. Information on How to Effect Drawing Changes, PTO-1474.
- 6.

Part II SUMMARY OF ACTION

Claims 1-28, 31-39 are pending in the application.

Of the above, claims _____ are withdrawn from consideration.

2. Claims 29-30 have been cancelled.

3. Claims _____ are allowed.

4. Claims 1-28, 31-39 are rejected.

5. Claims _____ are objected to.

6. Claims _____ are subject to restriction or election requirement.

7. This application has been filed with Informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.

8. Formal drawings are required in response to this Office action:

9. The corrected or substitute drawings have been received on _____ Under 37 C.F.R. 1.84 these drawings are acceptable; not acceptable (see explanation or Notice of Draftsman's Patent Drawing Review, PTO-948).

10. The proposed additional or substitute sheet(s) of drawings, filed on _____, has (have) been approved by the examiner; disapproved by the examiner (see explanation).

11. The proposed drawing correction, filed _____, has been approved; disapproved (see explanation).

12. Acknowledgement is made of the claim for priority under 35 U.S.C. 119. The certified copy has been received not been received been filed in parent application; serial no. _____; filed on _____

13. Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.

14. Other

EXAMINER'S ACTION

Serial No.: 08/513,298
Art Unit: 2304

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Part III DETAILED ACTION

Notice to Applicants

1. This office action is responsive to the preliminary amendment filed on October 20, 1995. As per request, the amendment mailed on July 10, 1995 of the parent application, serial number 08/274,394 which was abandoned on October 16, 1995, has been entered.
2. In the amendment filed on July 10, 1995, claims 1, 5-7, 11-13, 17-22, 31-32, 36-39 have been amended. Claims 29-30 have been canceled. Thus, claims 1-28 and 31-39 are pending.
3. The rejections under 35 U.S.C. § 112, second paragraph, have been withdrawn upon the amended claims.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this

Serial No.: 08/513,298
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section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. 17-28, 31-35 and 38-39

5. Claims 1-12, 14-28 and 31-39 are rejected under 35 U.S.C. § 103 as being unpatentable over Beckwith et al (4,660,157) in view of Behensky et al. (5,005,148) or a brochure from Atari Game Corp. (Hard Driving') or a brochure from Atari Game Corp. (Steel Talons) and further in view of Ulrich (an article entitle "Tactical Mapping in Combat Aircraft"), or Jacobs et al. (an article entitle "Fractal Image Compression Using Iterated Transforms Applications To DTED"), or Raymer et al. (Advance Terrain Data Processor), or Patrick (Itars Robust Demonstration System Integration).

5.1. With respect to claims 1, 5-7, 11-12, 14-16 and 36-37, Beckwith et al. discloses a digital system for producing a real time video display in perspective of terrain over which an aircraft is passing on the basis of compressed digital data stored on a cassette tape (see at least an abstract). Beckwith et al. discloses that the system includes a position determining means for locating the aircraft's position in three dimensions and an attitude determining means for determining the aircraft's orientation in three dimensional space (see at least figure 1 and columns 5 and 6). Beckwith et al. further discloses that the system includes a digital data base means for storing a compressed terrain data (see at least the abstract). Beckwith et al. also discloses a computer means for reading compressed

Serial No.: 08/513,298
Art Unit: 2304

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terrain data from the digital data base means in a controlled manner based on the instantaneous geographical of the aircraft as provided by the aircraft navigation computer system, reconstructing the compressed data by suitable processing and writing the reconstructed data into a scene memory, and then providing a 3D perspective on the display (see at least columns 2 and 3).

Beckwith et al. does not explicitly disclose that a digital data base means containing polygon data representing terrain and manmade structures. However, Behensky et al. suggests a driving simulator for a video game which includes the road and other terrain are produced by mathematically transforming a three-dimensional polygon data base (see at least column 2, lines 33-38). The suggestion of Behensky et al. in at least column 2 would have motivated one of ordinary skill in the art to combine with the system of Beckwith et al. in order to provide a significant reduction of data base storage and a larger geographic areas can be stored so that it is not necessary to generate a data base of each mission. Similarly, the digital data base means containing polygon data representing terrain and manmade structures is also taught in a brochure from Atari Game Corp. (Hard Driving') or a brochure from Atari Game Corp. (Steel Talons).

Behensky et al., the brochures of Atari Game Corp. do not explicitly disclose that the terrain data is generated from

Serial No.: 08/513,298
Art Unit: 2304

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elevation data of the real terrestrial terrain. However, the feature is well known and old (see Ulrich, Raymer et al., Jacobs et al., and Patrick, for examples). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Ulrich, Raymer et al., Jacobs et al., and Patrick with the system of Beckwith in order to improve the system for pilot aid by providing displaying large quantities of cartographic and mission data including terrain elevation data and cultural feature data.

Thus, because of the motivation set forth above, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teachings of Behensky et al. or the brochure from Atari Game Corp. (Hard Driving') or the brochure from Atari Game Corp. (Steel Talons) with the system of Beckwith et al., and Ulrich, Raymer et al. or Jacobs et al. or Patrick.

5.2. With respect to claims 2-3 and 8-9, Beckwith et al. discloses the claimed invention as discussed above but does not explicitly disclose that the position determining means comprises a standard system for retrieving and processing data from the global positioning system and the attitude determining means comprises a standard avionics systems. However, the use of the standard system for retrieving and processing data from global positioning system and the standard avionics systems are well known effective and efficient means for determining the

Serial No.: 08/513,298
Art Unit: 2304

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position and the orientation of the aircraft. For examples, the Maher patent (4,485,383) shows a receiver for receiving global positioning system and the Timothy patent shows a method for determining the orientation of a moving object from a single GPS receiver and producing roll, pitch, and yaw information. It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the global positioning system and the standard avionics system in such a system as taught through Beckwith et al. because it would produce high degree of accuracy in determining the position and orientation of the aircraft including roll, pitch, and yaw information.

5.3. With respect to claims 4 and 10, Beckwith et al. does not specifically disclose that the digital data base means comprises a CD rom disc and CD rom drive. However, the use of CD rom disc and CD rom drive for storing data is well known effective and efficient means for storing any data. It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize CD rom disc and CD rom drive in such a system as taught through Beckwith et al. because it would permit high degree of accuracy in the storing and restoring data, random access to the data so that the requirements for cache storage are reduced.

5.4. With respect to claims 17-28, 31-35 and 38-39, both Patrick et al. and Raymer et al. articles disclose the detail about elevation data.

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Art Unit: 2304

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6. Claim 13 is rejected under 35 U.S.C. § 103 as being unpatentable over Beckwith et al and Behensky et al. as applied to claims 1-12 above, and further in view of the sales brochure from the Polhemus company.

Beckwith et al. and Behensky et al. disclose the claimed invention except for a head mounted display means worn by the pilot and an attitude determining means for determining the orientation of the pilot's head in three dimensional space. However, the sales brochure from the Polhemus company suggests the commercial availability of a position and orientation sensor which can be used on a head-mounted display. The suggestion of the Polhemus company would have motivated one of ordinary skill in the art to combine the teaching of Polhemus company with the system of Beckwith et al. in order to allow the pilot to have a complete range of motion to receive a synthesized view of the world, a complete unhindered by the aircraft structure. Thus, because of the motivation set forth above, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teachings in Polhemus's brochure and Beckwith et al. patent.

7. All claims are rejected.

Serial No.: 08/513,298
Art Unit: 2304

8

Remarks

8. Applicant's arguments filed on July 14, 1995 have been fully considered. Upon the amended claims which contain new issue and the further update search, new ground of rejection has been set forth above.

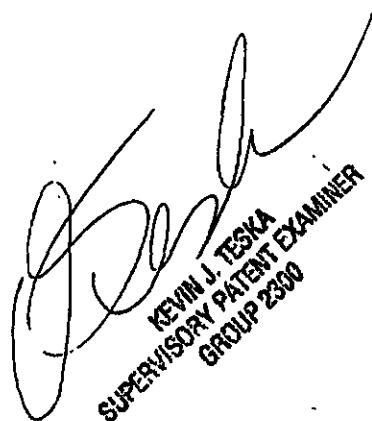
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Tan Nguyen, whose telephone number is (703) 305-9755. The examiner can normally be reached on Monday-Thursday from 7:30 AM-6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin J. Teska, can be reached on (703) 305-9704. The fax phone number for this Group is (703) 305-9564.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-3800.

TN

TAN NGUYEN
December 16, 1995


KEVIN J. TESKA
SUPERVISORY PATENT EXAMINER
GROUP 2300

TO SEPARATE, HOLD TOP AND BOTTOM EDGES, SNAP-APART AND DISCARD CARBON

FORM PTO-892 (REV. 2-92)	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	SERIAL NO. 08/513,289	GROUP/ART UNIT 2304	ATTACHMENT TO PAPER NUMBER 15
NOTICE OF REFERENCES CITED		APPLICANT(S) MARGOLIN		

U.S. PATENT DOCUMENTS						
	DOCUMENT NO.	DATE	NAME	CLASS	SUB-CLASS	FILING DATE IF APPROPRIATE
A						
B						
C						
D						
E						
F						
G						
H						
I						
J						
K						

FOREIGN PATENT DOCUMENTS								
	DOCUMENT NO.	DATE	COUNTRY	NAME	CLASS	SUB-CLASS	PERTINENT SHTS. DWG.	PP. SPEC.
L								
M								
N								
O								
P								
Q								

OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, Etc.)	
R	Ulrich, "Tactical Mapping in Combat Aircraft", IEEE 1988, pp. 74-78
S	Raymer et al. "Advanced Terrain Data Processor", IEEE 1994, pp. 636-639.
T	Patrick et al., "ITars Robust Demonstration System Integration", IEEE 1988, pp. 83-87.
U	Jacobs et al., "Fractal Image Compression Using Iterated Transforms: Applications to DTED", IEEE 1994, pp. 1122-1128

EXAMINER Jan Nguyen	DATE 12/18/95
------------------------	------------------

A copy of this reference is not being furnished with this office action.
(See Manual of Patent Examining Procedure, section 707.05 (a).)

08/513,298

AB



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

SERIAL NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO.
08/513,298	08/09/95	MARGOLIN	

EXAMINER	
NGUYEN, T	
ART UNIT	PAPER NUMBER
	16

B3M1/0315

EDWIN H TAYLOR
BLAKELY SOKOLOFF TAYLOR & ZAFMAN
12400 WILSHIRE BLVD SEVENTH FLOOR
LOS ANGELES CA 90025

DATE MAILED: 03/15/96

EXAMINER INTERVIEW SUMMARY RECORD

All participants (applicant, applicant's representative, PTO personnel):

03/15/96

- (1) DAN DEVAS (3) _____
 (2) TAN NGUYEN (4) _____

Date of interview 03/08/96 and 03/14/96

Type: Telephonic Personal (copy is given to applicant applicant's representative)

Exhibit shown or demonstration conducted: Yes No. If yes, brief description: _____

Agreement was reached with respect to some or all of the claims in question. was not reached.

Claims discussed: _____

Identification of prior art discussed: BENESKY, ULRICH, RAYMER ET AL, JACOBS ET AL, PATRICK

Description of the general nature of what was agreed to if an agreement was reached, or any other comments: the applicant's representative argued that none of the references disclose the terrain data, representing real terrain terrestrial terrain as at least one polygon, is generated from elevation data. Examiner agreed to reconsider the application in light of the argument. However, an written amendment is requested in order for examiner to response.

(A fuller description, if necessary, and a copy of the amendments, if available, which the examiner agreed would render the claims allowable must be attached. Also, where no copy of the amendments which would render the claims allowable is available, a summary thereof must be attached.)

Unless the paragraphs below have been checked to indicate to the contrary, A FORMAL WRITTEN RESPONSE TO THE LAST OFFICE ACTION IS NOT WAIVED AND MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW (e.g., items 1-7 on the reverse side of this form). If a response to the last Office action has already been filed, then applicant is given one month from this interview date to provide a statement of the substance of the interview.

It is not necessary for applicant to provide a separate record of the substance of the interview.

Since the examiner's interview summary above (including any attachments) reflects a complete response to each of the objections, rejections and requirements that may be present in the last Office action, and since the claims are now allowable, this completed form is considered to fulfill the response requirements of the last Office action.

Tan Nguyen
Examiner's Signature

17/E
pl
4-22

02055.P002C

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Jed Margolin Application No.: 08/513,298 Filed: August 9, 1995 For: Pilot Aid Using Synthetic Reality
This is a Continuation of: Serial No: 08/274,394 Filed: July 11, 1994

Examiner: Nguyen, T.

Art Unit: 2304

OFFICIAL

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APR 1 1996

96
4/20/96

Hon. Commissioner of Patents and Trademarks
Washington, D.C. 20231

AMENDMENT AND REMARK

Sir:

This amendment and remark is responsive to the Examiner Interview Summary mailed on March 15, 1996 and the telephonic interview with the Examiner on April 18, 1996. During the interview on April 18, 1996, the Examiner indicated that the application would be allowed if a response was filed with the remark contained below. Although the Examiner and Applicant did not discuss the following amendments, Applicant believes these amendments have no affect on the allowability of this case. If the Examiner determines that these amendments affect the allowability of this case, Applicant requests the Examiner contact the Applicant. Applicant would like to thank the Examiner for the thorough search performed in this case, as well as the Examiner's effort in understanding the invention claimed. Applicant looks forward to receiving the notice of allowance in the next couple of weeks.

I hereby certify that this correspondence is being transmitted by facsimile to the United States Patent and Trademark Office in accordance with 37 CFR § 1.6(d), on the date shown below.

Name: Connie West
 Signature: Connie West
 Date: April 19, 1996

AMENDMENT

In the Claims:

Please replace "23" in line 1 of claim 31 with --38--.

Please replace "23" in line 1 of claim 32 with --38--.

Please delete "by" from the last line of claim 39.

REMARK

Claims 1-28 and 31-39 remain in the application. No claims have been canceled.

Claims 31 and 32 have been amended.

Prior to this amendment, claims 31 and 32 were mistakenly left dependent upon the wrong claim. By this amendment, claims 31 and 32 are now dependent on allowable claim 38. For the Examiner's convenience, Applicant points out that claims 33 and 35 are dependent on claim 31, while claim 34 is dependent on claim 32. If the Examiner determines that these amendments affect the allowability of this case, Applicant requests the Examiner contact the Applicant, who will promptly fix or cancel these claims.

35 U.S.C. §103 rejection, over Beckwith in view of Behensky

The Examiner has rejected Claims 1-12, 14-28, and 31-39 under 35 U.S.C. §103 as being obvious over Beckwith, et al. ("Beckwith") in view of Behensky, et al. ("Behensky") or a brochure from Atari Game Corp. (Hard Driving) or a brochure from Atari Game Corp. (Steel Talons) and further in view of Ulrich, or Jacobs et al., or Raymer et al. or Patrick. As to Beckwith, Behensky, and the two Atari brochures, the Applicant incorporates herein by reference the arguments made in the Response After Final submitted in the parent application on July 10, 1995, and entered in this application by the Preliminary Amendment filed on October 18, 1995. As stated in the Response filed on July 10, 1995, the Beckwith, Behensky, and two Atari Game Corp. brochures, taken individually or in combination, do not teach or make obvious a polygon database

representing real terrestrial terrain where that polygon database was generated from elevation data of real terrestrial terrain (see Claim 1, 7, and 36). As agreed upon by the Examiner and Applicant, Ulrich, Jacobs et al., Raymer et al., and Patrick, taken individually or in combination, also do not teach or make obvious the polygon database contained in claims 1, 7, and 36. Since none of the references cited in this rejection, individually or in combination, teach or make obvious the invention as claimed, Applicant respectfully requests the Examiner allow claims 1, 7, and 36 as agreed upon by the Examiner and Applicant. Although Applicant argues around references cited in this rejection, Applicant does not concede that there is a suggestion to combine these references.

Claims 2-6, 8-12, 14-15, 17-18, 20-21, 23-24, 26-28, 31-35, and 37-39 of Applicant's present invention are each dependent on one of allowable base claims 1, 7, and 36. For at least these reasons, it is respectfully submitted that the rejected claims are allowable over the cited prior art.

35 U.S.C. §103 rejection, over Beckwith in view of Behensky, and further in view of the sales brochure from the Polhemus Company

The Examiner has rejected Claim 13 under 35 U.S.C. §103 as being obvious over Beckwith and Behensky in view of the sales brochure from the Polhemus Company. As previously stated, the Beckwith and Behensky references, taken individually or in combination, do not teach or make obvious a polygon database representing real terrestrial terrain where that polygon database is generated from elevation data of real terrestrial terrain (see Claim 13). As stated in the Office Action mailed January 22, 1996, the sales brochure from the Polhemus Company "suggests the commercial available [sic] of a position and orientation sensor which can be used on a head mounted display". The brochure from Polhemus Company clearly does not teach or make obvious the above-described polygon database. Since none of the references cited in this rejection, individually or in combination, teach or make obvious the invention as claimed, Applicant respectfully

request the Examiner allow claim 13 as agreed upon by the Examiner and Applicant. Although Applicant argues around references cited in this rejection, Applicant does not concede that there is a suggestion to combine these references.

Claims 16, 19, 22, and 25 are each dependent on independent claim 13. For at least these reasons, it is respectfully submitted that these rejected claims are allowable over the cited prior art.

Conclusion

As agreed upon by the Examiner and the Applicant, the rejections have been overcome and the claims are now in condition for allowance. Accordingly, Applicant respectfully requests reconsideration of this application, withdrawal of the objection, and allowance of the claims.

Invitation for a telephone interview

The Examiner is invited to call the undersigned at 408-720-8598 if there remains any issue with allowance of this case.

Charge our Deposit Account

Please charge any shortage to our Deposit Account No. 02-2666.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN

Date: 4/18, 1996


Daniel M. De Vos
Reg. No. 37,813

12400 Wilshire Boulevard
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(408) 720-8598

04/19/96 FRI 09:18 FAX 4087209387

B S T & Z

001

**BLAKELY
SOKOLOFF
TAYLOR &
ZAFMAN**

1279 Oakmead Parkway
Sunnyvale, California 94088
(408) 720-8598 Telephone
(408) 720-9397 Facsimile

A Partnership Including
Law Corporations

Facsimile Transmittal Sheet

#17

Date: 04/19/96

OFFICIAL

URGENT

Deliver to: Tan Nguyen

Fax No. (703) 308-5358

FROM BSTZ:

**From: Daniel De Vos
Operator: Connie West
Page 1 of 5**

To Firm: U.S. PATENT AND TRADEMARK OFFICE

**Phone:
Your Ref: Applic. No.: 08/513,298
Our Ref: 002055.P002C
Title: Pilot Aid Using Synthetic Reality**

08/513,298
9661
002055.P002C

Message:

Enclosed please find an Amendment and Remark responsive to the Examiner Interview Summary mailed on 3-15-96 and the telephonic interview with the Examiner on 4-18-96.

CONFIDENTIALITY NOTE

The documents accompanying this facsimile transmission contain information from the law firm of Blakely Sokoloff Taylor & Zafman which is confidential or privileged. The information is intended to be for the use of the individual or entity named on this transmission sheet. If you are not the intended recipient, be aware that any disclosure, copying, distribution or use of the contents of this faxed information is prohibited. If you have received this facsimile in error, please notify us by telephone immediately so that we can arrange for the retrieval of the original documents at no cost to you.

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08/513,298



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

SERIAL NUMBER 08/513,298	FILING DATE 02/13/95	MARGOLIN NAMED APPLICANT	02055, P0020 ATTORNEY DOCKET NO.
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NGUYEN, T

B3M1/0618

EDWIN H TAYLOR
BLAKELY SOKOLOFF TAYLOR & ZAFMAN
12400 WILSHIRE BLVD SEVENTH FLOOR
LOS ANGELES CA 90025

EXAMINER

ART UNIT	PAPER NUMBER
----------	--------------

06/19/96

DATE MAILED:

NOTICE OF ALLOWABILITY

PART I

- This communication is responsive to the amendment filed on 02/19/96
- All the claims being allowable; PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice Of Allowance And Issue Fee Due or other appropriate communication will be sent in due course.
- The allowed claims are 1-28, 31-39 (now renumbered as 1-37)
- The drawings filed on 02/13/95 are acceptable.
- Acknowledgment is made of the claim for priority under 35 U.S.C. 119. The certified copy has been received, not been received, been filed in parent application Serial No. _____, filed on _____.
- Note the attached Examiner's Amendment.
- Note the attached Examiner Interview Summary Record, PTOL-413.
- Note the attached Examiner's Statement of Reasons for Allowance.
- Note the attached NOTICE OF REFERENCES CITED, PTO-892.
- Note the attached INFORMATION DISCLOSURE CITATION, PTO-1449.

PART II

A SHORTENED STATUTORY PERIOD FOR RESPONSE to comply with the requirements noted below is set to EXPIRE THREE MONTHS FROM THE "DATE MAILED" indicated on this form. Failure to timely comply will result in the ABANDONMENT of this application. Extensions of time may be obtained under the provisions of 37 CFR 1.138(a).

- Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL APPLICATION, PTO-152, which discloses that the oath or declaration is deficient. A SUBSTITUTE OATH OR DECLARATION IS REQUIRED.
- APPLICANT MUST MAKE THE DRAWING CHANGES INDICATED BELOW IN THE MANNER SET FORTH ON THE REVERSE SIDE OF THIS PAPER.
 - Drawing informalities are indicated on the NOTICE RE PATENT DRAWINGS, PTO-946, attached hereto or to Paper No. _____ CORRECTION IS REQUIRED.
 - The proposed drawing correction filed on _____ has been approved by the examiner. CORRECTION IS REQUIRED.
 - Approved drawing corrections are described by the examiner in the attached EXAMINER'S AMENDMENT. CORRECTION IS REQUIRED.
 - Formal drawings are now REQUIRED.

Any response to this letter should include in the upper right hand corner, the following information from the NOTICE OF ALLOWANCE AND ISSUE FEE DUE: ISSUE BATCH NUMBER, DATE OF THE NOTICE OF ALLOWANCE, AND SERIAL NUMBER.

Attachments:

- Examiner's Amendment
- Examiner Interview Summary Record, PTOL-413
- Reasons for Allowance
- Notice of References Cited, PTO-892
- Information Disclosure Citation, PTO-1449
- Notice of Informal Application, PTO-152
- Notice re Patent Drawings, PTO-946
- Listing of Bonded Draftsmen
- Other

Kevin J. Teska
KEVIN J. TESKA
SUPERVISORY PATENT EXAMINER
GROUP 2800

Serial No.: 08/513,298
Art Unit: 2304

2

I. **EXAMINER'S STATEMENT OF REASONS FOR ALLOWANCE**

II. This communication is an Examiner's reasons for allowance in response to application filed on August 09, 1995, assigned serial 08/513,298 and titled "PILOT AIDED USING SYNTHETIC REALITY".

III. The following is an Examiner's statement of reasons for the indication of allowable subject matter:

1. After carefully reviewing the application in light of the prior art of record, the amended claims and additional search of all the possible areas relevant to the present application a set of related prior art have been found, but those prior art references are not deemed strong to make the application unpatentable. Thus, it is found that the application is now in condition for allowance.

2. Although the prior art disclose several claimed limitations, none of the references teach a pilot aid which uses an aircraft's position and attitude to transform data from a digital data base to present a pilot with a synthesized three dimensional projected view of the world which includes a digital data base comprising terrain data representing real terrestrial terrain as at least one polygon and said terrain data generated from elevation data of the real terrestrial terrain (claims 1, 7, 13 and 36).

Serial No.: 08/513,298
Art Unit: 2304

3

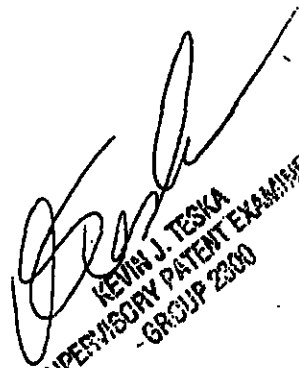
3. The closest references have been found were Beckwith et al., Behensky et al., Ulrich, Jacobs et al., Raymer et al., Patrick. However, taken individually or in combination, they do not teach or make obvious a polygon database representing real terrestrial terrain where that polygon database was generated from elevation data of real terrestrial terrain.

4. Claims 1-28 and 31-39 are allowable over the prior art of record (now renumbered as 1-37).

IV. Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Tan Nguyen, whose telephone number is (703) 305-9755. The examiner can normally be reached on Monday-Thursday from 7:30 AM-6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin J. Teska, can be reached on (703) 305-9704. The fax phone number for this Group is (703) 305-9564.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-3800.


KEVIN J. TESKA
SUPERVISORY PATENT EXAMINER
- GROUP 2300

TAN NGUYEN
June 17, 1996



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

Address: Box ISSUE FEE
COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

B3M1/0618

EDWIN H TAYLOR
BLAKELY SOKOLOFF TAYLOR & ZAFMAN
12400 WILSHIRE BLVD SEVENTH FLOOR
LOS ANGELES CA 90024-3941

NOTICE OF ALLOWANCE
AND ISSUE FEE DUE

- Note attached communication from the Examiner
 This notice is issued in view of applicant's communication filed

SERIES CODE/SERIAL NO.	FILING DATE	TOTAL CLAIMS	EXAMINER AND GROUP ART UNIT	DATE MAILED
08/513,298	08/09/95	51	NGUYEN, T	08/18/96
First Named Applicant: MARGOLIN, JED				

TITLE OF INVENTION: PILOT AID USING SYNTHETIC REALITY

ATTY'S DOCKET NO.	CLASS-SUBCLASS	BATCH NO.	APPLN. TYPE	SMALL ENTITY	FEE DUE	DATE DUE
2	02055.P002C	364-449.000	B1G	UTILITY	YES	\$625.00

THE APPLICATION IDENTIFIES ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED.

THE ISSUE FEE MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED.

HOW TO RESPOND TO THIS NOTICE:

- I. Review the SMALL ENTITY Status shown above. If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:
 - A. If the status is changed, pay twice the amount of the FEE DUE shown above and notify the patent and Trademark Office of the change in status; or
 - B. If the Status is the same, pay the FEE DUE shown above.

If the SMALL ENTITY is shown as NO:
A. Pay FEE DUE shown above, or
B. File verified statement of Small Entity Status before, or with, (pay of 1/2 the FEE DUE shown above)

- II. Part B of this notice should be completed and returned to the Patent and Trademark Office (PTO) with your ISSUE FEE. Even if the ISSUE FEE has already been paid by charge to deposit account, Part B should be completed and returned. If you are charging the ISSUE FEE to your deposit account, Part C of this notice should also be completed and returned.
- III. All communications regarding this application must give series code (or filing date), serial number and batch number. Please direct all communication prior to issuance to Box ISSUE FEE unless advised to contrary.

IMPORTANT REMINDER: Patents Issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B—ISSUE FEE TRANSMITTAL

242-625
561-30JC

MAILING INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE. Blocks 2 through 6 should be completed where appropriate. All further correspondence including the Issue Fee Receipt, the Patent, advance orders and notification of maintenance fees will be mailed to addressee entered in Block 1 unless you direct otherwise, by: (a) specifying a new correspondence address in Block 3 below; or (b) providing the PTO with a separate "FEE ADDRESS" for maintenance fee notifications with the payment of Issue Fee or thereafter. See reverse for Certificate of Mailing.

1. CORRESPONDENCE ADDRESS	2. INVENTOR(S) ADDRESS CHANGE (Complete only if there is a change)
EDWIN H TAYLOR BLAKELY SOKOLOFF TAYLOR & ZAFMAN 12400 WILSHIRE BLVD SEVENTH FLOOR LOS ANGELES CA 90025	INVENTOR'S NAME Street Address City, State and ZIP Code CO-INVENTOR'S NAME Street Address City, State and ZIP Code
	RECEIVED Publishing Division JUL 01 1996 GP
	<input type="checkbox"/> Check if additional changes are on reverse side

RECEIVED
JUN 24 1996

SERIES CODE/SERIAL NO.	FILING DATE	TOTAL CLAIMS	EXAMINER AND GROUP ART UNIT	DATE MAILED
09/513,298	08/09/95	027	NGUYEN, PT. 2384	06/18/96

First Named Applicant: MARGOLIN, JED
TITLE OF INVENTION: PILOT AID USING SYNTHETIC REALITY ENVIRONMENT
ENTERED BY 5/9/95 - OFFICE ACTION IN PARENT CASE (APR 08/214, 994)

ATTY'S DOCKET NO.	CLASS-SUBCLASS	BATCH NO.	APPLN. TYPE	SMALL ENTITY	FEE DUE	DATE DUE
2 02055 P0020	364-449 000	B16	UTILITY	YES	\$425.00	09/18/96

3. Correspondence address change (Complete only if there is a change)	4. For printing on the patent front page, list the names of not more than 3 registered patent attorneys or agents OR, alternatively, the name of a firm having as a member a registered attorney or agent. If no name is listed, no name will be printed.
	Blakely, Sokoloff, Taylor & Zafman

040 WT 07/12/96 08513298 262 \$425.00
040 WT 07/12/96 08513298 300 \$30.00

5. ASSIGNMENT DATA TO BE PRINTED ON THE PATENT (print or type)

(1) NAME OF ASSIGNEE: _____

(2) ADDRESS (CITY & STATE OR COUNTRY): _____

A. This application is NOT assigned.

Assignment previously submitted to the Patent and Trademark Office.

Assignment is being submitted under separate cover. Assignments should be directed to Box ASSIGNMENTS.

PLEASE NOTE: Unless an assignee is identified in Block 5, no assignee data will appear on the patent. Inclusion of assignee data is only appropriate when an assignment has been previously submitted to the PTO or is being submitted under separate cover. Completion of this form is NOT a substitute for filing an assignment.

6a. The following fees are enclosed:
 Issue Fee Advance Order - # of Copies: ten (10)

6b. The following fees should be changed to:
 DEPOSIT ACCOUNT NUMBER: 02-2666
 Issue Fee Advance Order - # of Copies: _____
 Any Delinquencies in Enclosed Fees

The COMMISSIONER OF PATENTS AND TRADEMARKS is requested to apply the Issue Fee to the application identified above.

(Authorized Signatures) _____ (Date) 6/26/96

Doc. No. 37,813

NOTE: The Issue Fee will not be accepted from anyone other than the applicant, a registered attorney or agent, or the assignee or other party in interest as shown by the records of the Patent and Trademark Office.

1. TRANSMIT THIS FORM WITH FEE-CERTIFICATE OF MAILING ON REVERSE.

Certificate of Mailing

Hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to:

Box ISSUE FEE
Commissioner of Patents and Trademarks
Washington, D.C. 20231

RECEIVED
JUN 5 1996

on June 26, 1996

(Date)
BRETHERTON-SOROKOFF, TAYLOR & SYLWAN
LOS ANGELES

Connie West

(Name of person making deposit)

Connie West

(Signature)

6-26-96
(Date)

Note: If this certificate of mailing is used, it can only be used to transmit the Issue Fee. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing.

Burden Hour Statement: This form is estimated to take .2 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Office of Information Systems, Patent and Trademark Office, Washington, D.C. 20231, and to the Office of Information and Regulatory Affairs, Office of Management and Budget, (Project 0651-0033), Washington, D.C. 20503. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner of Patents and Trademarks, Box Issue Fee, Washington, DC 20231.

PART C - CHARGE TO DEPOSIT ACCOUNT

242-625
561-3070

CORRESPONDENCE ADDRESS

EDWIN H. TAYLOR
BLAKELY SOKOLOFF TAYLOR & ZAFMAN
12400 WILSHIRE BLVD SEVENTH FLOOR
LOS ANGELES CA 90025

B3M1/0618

I hereby certify that the correspondence is being deposited with the United States Postal Service at the date and with sufficient postage to be forwarded to the Commissioner of Patents and Trademarks, Washington, D.C. 20530

on June 26, 1996
CONNIE WEST
Name of Person Depositing Correspondence
Commissioner of Patents and Trademarks
Publishing Division

SERIES CODE/SERIAL NO. FILING DATE TOTAL CLAIMS EXAMINER AND GROUP ART. UNIT DATE MAILED

08/513,298 08/29/95 37 NGUYEN T GP 08/18/96

First Named Applicant

MARGOT EN

TITLE OF INVENTION

PILOT AID USING SYNTHETIC REALITY ENVIRONMENT

ENTERED BY 5/9/95 CAROL ALTON
IN PATENT CASE (APP# 08/214,394)

ATTY'S DOCKET NO. CLASS/SUBCLASS BATCH NO. APPL. TYPE SMALL ENTITY FEE DUE DATE DUE

02055-P0020 364-449-000 B16 INTL TTY YES \$625.00 09/18/96

DO NOT USE THIS SPACE

2a. The following fees are enclosed:

Issue Fee Advance Order # of Copies 100

2b. The following fees should be charged to:

DEPOSIT ACCOUNT NUMBER 02-266

Issue Fee Advance Order # of Copies

Any Deficiencies in Enclosed Fees

The COMMISSIONER OF PATENTS AND TRADEMARKS is requested to apply the issue fee to the application identified above.

(Authorized Signature)

Daniel M. De Vos Reg. No. 37,813

NOTE: The issue fee will not be accepted from anyone other than the applicant, a registered attorney or agent, or the assignee or other party in interest as shown by the records of the Patent and Trademark Office.

2- TRANSMIT THIS FORM WITH PART B WHEN AUTHORIZING USE OF A DEPOSIT ACCOUNT

PTO UTILITY GRANT

Paper Number 19

The
United
States
of
America



The Commissioner of Patents
and Trademarks

Has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.

Therefore, this

United States Patent

Grants to the person(s) having title to this patent the right to exclude others from making, using, offering for sale, or selling the invention throughout the United States of America or importing the invention into the United States of America for the term set forth below, subject to the payment of maintenance fees as provided by law.

If this application was filed prior to June 8, 1995, the term of this patent is the longer of seventeen years from the date of grant of this patent or twenty years from the earliest effective U.S. filing date of the application, subject to any statutory extension.

If this application was filed on or after June 8, 1995, the term of this patent is twenty years from the earliest effective U.S. filing date of the application, subject to any statutory extension.

Bruce Lehman

Commissioner of Patents and Trademarks

Cynthia J. Minton
Attest



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office.

ASSISTANT SECRETARY AND COMMISSIONER
OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

CHANGE OF ADDRESS/POWER OF ATTORNEY

FILE LOCATION 9200 SERIAL NUMBER 08513298 PATENT NUMBER 5566073

THE CORRESPONDENCE ADDRESS HAS BEEN CHANGED TO CUSTOMER # 23497

THE FEE ADDRESS HAS BEEN CHANGED TO CUSTOMER # 23497

ON 08/11/00 THE ADDRESS OF RECORD FOR CUSTOMER NUMBER 23497 IS:

JED MARGOLIN
3570 PLEASANT ECHO DRIVE
SAN JOSE CA 95148-1916

PTO INSTRUCTIONS: PLEASE TAKE THE FOLLOWING ACTION WHEN THE CORRESPONDENCE ADDRESS HAS BEEN CHANGED TO CUSTOMER NUMBER: RECORD, ON THE NEXT AVAILABLE CONTENTS LINE OF THE FILE JACKET, 'ADDRESS CHANGE TO CUSTOMER NUMBER'. LINE THROUGH THE OLD ADDRESS ON THE FILE JACKET LABEL AND ENTER ONLY THE 'CUSTOMER NUMBER' AS THE NEW ADDRESS. FILE THIS LETTER IN THE FILE JACKET. WHEN ABOVE CHANGES ARE ONLY TO FEE ADDRESS AND/OR PRACTITIONERS OF RECORD, FILE LETTER IN THE FILE JACKET. THIS FILE IS ASSIGNED TO GAU 2304.

PATENT APPLICATION FEE DETERMINATION RECORD
Effective October 1, 1994

Application or Docket Number

513 298

CLAIMS AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA
BASIC FEE		
TOTAL CLAIMS	37 minus 20 = *	17
INDEPENDENT CLAIMS	4 minus 3 = *	1
MULTIPLE DEPENDENT CLAIM PRESENT		

SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
RATE	FEE		RATE	FEE
	365.00	OR		730.00
x\$11=	1.87	OR	x\$22=	
x38=	38	OR	x76=	
+120=		OR	+240=	
TOTAL	540	OR	TOTAL	

* If the difference in column 1 is less than zero, enter "0" in column 2

CLAIMS AS AMENDED - PART II

AMENDMENT A	(Column 1)	(Column 2)	(Column 3)	(Column 4)
	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	
Total	*	Minus **	=	
Independent	*	Minus ***	=	
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				

SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
x\$11=		OR	x\$22=	
x38=		OR	x76=	
+120=		OR	+240=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

AMENDMENT B	(Column 1)	(Column 2)	(Column 3)	(Column 4)
	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	
Total	*	Minus **	=	
Independent	*	Minus ***	=	
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				

SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
x\$11=		OR	x\$22=	
x38=		OR	x76=	
+120=		OR	+240=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

AMENDMENT C	(Column 1)	(Column 2)	(Column 3)	(Column 4)
	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	
Total	*	Minus **	=	
Independent	*	Minus ***	=	
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				

SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
x\$11=		OR	x\$22=	
x38=		OR	x76=	
+120=		OR	+240=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3
 ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20."
 *** If the Highest Number Previously Paid For IN THIS SPACE is less than 3, enter "3."
 The Highest Number Previously Paid For (Total or Independent) is the highest number found in the appropriate box in column 1.

PACE DATA ENTRY CODING SHEET

U.S. DEPARTMENT OF COMMERCE
Patent and Trademark Office

1ST EXAMINER *S Chapman* DATE 9-13-95
2ND EXAMINER DATE

APPLICATION NUMBER

08/513298

TYPE APPL

2

FILING DATE
MONTH DAY YEAR

08 09 95

SPECIAL HANDLING

0

GROUP ART UNIT

2304

CLASS

364

SHEETS OF DRAWING

13

TOTAL CLAIMS

37

INDEPENDENT CLAIMS

4

SMALL ENTITY?

1

FILING FEE

590

FOREIGN LICENSE

1

ATTORNEY DOCKET NUMBER

0205510802

CONTINUITY DATA

PARENT FILING

CONT STATUS CODE

02

PARENT APPLICATION SERIAL NUMBER

08274394

PCT APPLICATION SERIAL NUMBER

P C T / / /

PARENT PATENT NUMBER

PARENT FILING DATE
MONTH DAY YEAR

07 11 94

PCT/FOREIGN APPLICATION DATA

FOREIGN PRIORITY CLAIMED

COUNTRY CODE

PCT/FOREIGN APPLICATION SERIAL NUMBER

FOREIGN FILING DATE
MONTH DAY YEAR