

EXHIBIT G
(PART 3 OF 3)



THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Rose
10-19-98

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|---|---|---------------------------|
| In re Application |) | <u>PATENT APPLICATION</u> |
| Inventors: Honey, et al. |) | |
| SC/Serial No.: 08/735,020 |) | Art Unit: 2713 |
| Filed: October 22, 1996 |) | Examiner: Britton, H. |
| Title: A METHOD AND APPARATUS FOR ENHANCING THE BROADCAST OF A LIVE EVENT |) | |

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CERTIFICATE OF MAILING UNDER 37 C.F.R. § 1.8

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Burt Magen

Burt Magen, Reg. No. 37,175
Signature Date: October 5, 1998

RESPONSE A TO OFFICE ACTION UNDER 37 C.F.R. § 1.111

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

This RESPONSE A is in reply to the Office Action mailed June 4, 1998.

Amendments

Please amend the above-identified application as follows:

10/13/98

In the Specification,

Please enter the following amendments into the Specification, at the pages and line numbers indicated.

Page 6, line 13: Change "sees" to --see--

Attorney Docket No.: NTGR1006MCF/BBM
bbm/ntgr/1006.037

B

10/13/1998 AIRBORNE 0000162 061325 0875020
01 FC:103 220.00 CH
02 FC:102 328.00 CH

Page 20, line 28: Change "sensor 414" to --sensor 410--

In the Claims,

Please AMEND the claims as indicated below. All pending claims have been reproduced below for the Examiner's convenience.

1. (once amended) A method for enhancing the broadcast of a live event, comprising the steps of:

[capturing] receiving first video [using] from a first camera;

sensing field of view data for said first camera using one or more field of view sensors that do not use pattern recognition; [representing a field of view of said first camera;]

determining a position and orientation of a video image of a target area in [said captured] a frame of said first video, said step of determining a position is at least partially based on recognizing one or more portions of said frame of said first video, [image of said target in said captured video] and step of determining a position is also at least partially based on said field of view data; and

modifying said [captured video data] frame of said first video by enhancing at least a segment of said video image of said target area based on said step of determining a position and orientation.

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cont

2. (once amended) The method according to claim 1, wherein said step of determining a position includes the steps of:

determining a rough estimate of said position of said target area in said captured video using said field of view data; and

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determining a more precise estimate of said position of said target area in said captured video using a pattern recognition technique.

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cont

3x (once amended) The method according to claim 1, further including the step of:
determining whether said target area is within said field of view of said first camera.

4x (once amended) The method according to claim 1, wherein:
the step of determining is also at least partially based on comparing said field of view data
to prestored location data for said target area.

5. The method according to claim 1, wherein:
said step of modifying replaces a first advertisement with a second advertisement.

6. The method according to claim 1, wherein:
said step of modifying replaces an image of a surface in a stadium with an advertisement.

7. The method according to claim 1, wherein:
said step of modifying includes highlighting a portion of a playing field.

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cont

8x (once amended) The method according to claim 1, wherein:
enhancing said video image of said target area does not include replacing said
video image of said target area; and
said method further including the step of accounting for occlusions.]

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9. (once amended) The method according to claim 1, further including the steps of:
[capturing] receiving second video [using] from a second camera, said second video including said target area, said second camera zoomed such that said target area substantially fills most of said second camera's field of view;
detecting an occlusion of said target area in said second video; and
using said detection of said occlusion from said second video to determine where said occlusion is positioned in said first video;
said step of modifying [said first video] does not replace said occlusion.

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10. (once amended) The method according to claim 1, further including the steps of:
storing said target's location before said step of [capturing] receiving; and
storing an unoccluded image of said target area before said step of [capturing] receiving.

11. (once amended) A method according to claim 1, further including the step of:
learning changes to said video image of said target area [image].

12. (once amended) The method according to claim 1, further including the steps of:
comparing said video image of said target area in said captured video with a video image stored in a memory; and
updating said memory to include a revised image of said target area.

13. A method for enhancing the broadcast of a video image of a target at a live event, comprising the steps of:
capturing a frame of video using a first camera;

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sensing an electromagnetic signal transmitted from said target, said electromagnetic signal not being visible to the human eye;

determining a position and orientation of said video image of said target in said frame of video, at least partially based on said electromagnetic signal, and

modifying said video data by enhancing at least a segment of said video image of said target.

14. A method according to claim 13, wherein:

said step of determining includes determining the pixel position of the target in said sensor frame of data.

15. A method according to claim 13, wherein

said electromagnetic signal is an infrared signal.

16. A method according to claim 13, further including the step of:

storing data, based on said electromagnetic signal, that has a value greater than a predetermined threshold.

17. A method according to claim 13, further including the step of:

ignoring data from said electromagnetic signal if sensed during a flash.

18. A method for enhancing the broadcast of a target at a live event, comprising the

steps of:

capturing a first frame of video using a first camera;

capturing a second frame of video using a second camera, said second frame of video including said target;

determining if said target is within said first frame of video;

determining a position and orientation of said target in said first frame of video;

detecting an occlusion of said target in said second frame of video;

determining where said detected occlusion is positioned in said first frame of video at least partially based on said step of detecting; and

modifying said first frame of video by enhancing said target in said first frame of video without enhancing said detected occlusion.

19. A method according to claim 18, wherein:

said second camera is pointed at said target and is located substantially adjacent said first camera;

said step of detecting an occlusion includes comparing at least a portion of said second frame of video to an unoccluded image of said target.

20. A method according to claim 19, wherein:

said second camera is zoomed such that said target fills a substantial portion of said second frame of video.

21. A method according to claim 19, further including the steps of:

storing said unoccluded image of said target prior to said step of capturing said first frame of video; and

updating said stored unoccluded image of said target if lighting conditions change.

~~22. (once amended) A system to be used with a first camera for enhancing the broadcast of a target at a live event, comprising:~~

~~one or more field of view sensors coupled to said first camera such that said one or more field of view sensors can detect field of view data for said first camera [representing said first camera's field of view];~~

~~memory for storing a location of said target; and~~

~~one or more processors, in communication with said memory and said one or more field of view sensors, said one or more processors programmed to determine [whether said target is within the field of view of said camera and to determine] where said target is positioned within a frame of video of said first camera.~~

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~~23. A system according to claim 22, wherein:~~

~~said memory stores data representing a video image of said replacement graphic.~~

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~~24. A system according to claim 22, further including:~~

~~a video modification unit, in communication with said one or more processors, for modifying said frame of video, to enhance at least a section of said video image of said target with a replacement graphic.~~

~~25. A system according to claim 24, wherein:~~

~~said video modification unit is a linear keyer.~~

~~26. A system according to claim 24, wherein:~~

~~said video modification unit is a processor.~~

27. A system according to claim 24, wherein:

said video modification unit highlight a portion of a football field.

28. A system according to claim 24, wherein:

said video modification unit replaces a first billboard with a second billboard.

29. A system according to claim 24, wherein:

said video modification unit adds a first billboard to said frame of video.

30. A system according to claim 22, wherein:

said one or more field of view sensors includes a pan sensor, a tilt sensor and a zoom sensor.

31. A system according to claim 22, further including:

a second camera pointed at said target, in communication with said one or more processors and located substantially adjacent to said first camera.

32. A system according to claim 22, further including:

a video control in communication with said first camera and said one or more processors;

a video mixer in communication with said second camera and said one or more processors;

and

a video delay unit in communication with said video control and said video modification unit.

33. A system for enhancing the broadcast of target at a live event, comprising:

- a plurality of broadcast cameras;
- a plurality of field of view sensors, each sensor coupled to one of said broadcast cameras;
- a multiplexer in communication with said field of view sensors for selectively transmitting a signal from one of said field of view sensors;
- a video delay unit;
- a video control unit in communication with said broadcast cameras, said video control unit selectively transmits to said video delay unit a signal from one of said broadcast cameras;
- a plurality of dedicated cameras with a fixed field of view and pointed at one of said plurality of targets, each dedicated camera located substantially adjacent to a broadcast camera;
- a video mixer in communication with said video control unit and said dedicated camera for selectively transmitting a signal from one of said dedicated cameras, said selected one of said dedicated cameras being substantially adjacent to said selected one of said broadcast cameras;
- memory storing the location of said targets;
- one or more processors, in communication with said memory and said multiplexer, said one or more processors receives said selected signal from said video control unit, said one or more processors programmed to determine whether one of said targets is positioned within the field of view of one of said broadcast cameras and to determine where said one target is within a frame of video of said one broadcast camera;
- a video modification unit, in communication with said one or more processors, for modifying said frame of video to enhance at least a section of said video image of said target with a replacement graphic.

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(once amended) A system, to be used with a first camera, for enhancing the broadcast of a live event, comprising:

- a target including an electromagnetic transmitter, said target being stationary at a location;
- a sensor adapted to receive an electromagnetic signal from said target, said electromagnetic signal is not visible to a human eye;
- a memory [storing the] pre-storing said location of said target prior to said live event;
- one or more processors, in communication with said memory and said sensor, said one or more processors programmed to determine [whether said target is within the field of view of said first camera and to determine] where said target is within a frame of video of said first camera.

~~35~~

A system according to claim 34, further including:

a video modification unit, in communication with said one or more processors, for modifying said frame of video to replace at least a section of said video image of said target with at least a replacement graphic.

~~36~~

A system according to claim 34, wherein:

said electromagnetic signal is an infrared signal.

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(once amended) A method for enhancing the video presentation of a live event, comprising the steps of:

- capturing a first image using a first sensor, said first image including an image of a target area;
- sensing field of view data for said first sensor using one or more field of view sensors that do not use pattern recognition [representing a field of view of said sensor; and]

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determining a position of said image of said target area in said first image by using said field of view data and pattern recognition; and

adding an enhancement to said first image based on said position of said image of said target area in said first image.

³⁵
~~38~~ (once amended) A method according to claim ~~37~~³⁹ wherein:

said step of determining a position of said image of said target area includes the steps of:

determining a range of positions within said first image for finding said image of said target area using said field of view data, and

determining a position of said image of said target area in said first image using pattern recognition, said step of determining a position of said image of said target area in said first image using pattern recognition at least partially based on said step of determining a range.

Page 07

³⁶
~~39~~ (once amended) A method according to claim ~~38~~⁴⁰ further including the steps of:

[modifying said first image; and]

broadcasting said first image after said step of adding, said steps of capturing, [modifying] adding and broadcasting are performed in real time during said live event.

³⁰
~~40~~ (once amended) A method according to claim ~~39~~²⁹ wherein:

said step of determining a position of said image of said target area includes the steps of:

determining an estimate of said position of said image of said target area using said field of view data, and

determining said position of said image of said target area in said first image using pattern recognition and said estimate of said position of said image of said target.

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Please CANCEL claim 41.

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~~42~~ ^{31.} (once amended) A method according to claim ~~37~~ ³⁹ further including the steps of:
[modifying said first image; and]
broadcasting said first image after said step of adding, said steps of capturing, [modifying]
adding and broadcasting are performed in real time during said live event.

Please cancel claims 43 - 45.

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~~46~~ ^{32.} (once amended) A method according to claim ~~37~~ ³⁹ further including the step of:
determining an orientation of said image of said target area in said first video image.

47. A method according to claim 37, wherein:
said field of view data includes pan and tilt data.

48. A method according to claim 37, wherein:
said sensor is a camera.

~~49~~ ^{37.} (once amended) An apparatus for enhancing a broadcast of a live event,
comprising:

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one or more field of view sensors adapted to be coupled to a camera such that said one
or more field of view sensors can detect field of view data without using pattern recognition
[representing said camera's field of view]; and

Handwritten initials and numbers, possibly "D7" and "39".

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a processor in communication with said one or more field of view sensors, said processor receives a first video image from said camera, said first video image includes an image of said target, said processor is programmed to determine a position of said image of said target in said first video image using said field of view data in combination with pattern recognition software.

50. An apparatus according to claim 49, wherein:
said processor further programmed to determine an orientation of said image of said target in said first video image.

51. An apparatus according to claim 49, wherein:
said processor further programmed to modify said first video image.

52. An apparatus according to claim 49, further including:
a keyer in communication with said processor, said keyer receiving said first video image.

53. An apparatus according to claim 49, further including:
means for accounting for occlusions.

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~~54. (new) A method for adding a graphic indication of a first down to a video of a football game during a broadcast of said football game, comprising the steps of:
storing an indication of a location on a football field, said location corresponding to said first down;
finding said location's position in said video; and
adding a line to said video at said location's position in said video.~~

⁵³
~~55~~ (new) A method according to claim ⁴⁹~~54~~ wherein:
said step of adding includes adding said line at an appropriate orientation.

⁵⁴
~~56~~ (new) A method according to claim ⁵³~~55~~ further comprising the step of:
receiving field of view data, said step of adding a line at an appropriate orientation uses
said field of view data to determine said appropriate orientation.

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~~57~~ (new) A method according to claim ⁵³~~55~~, further comprising the step of:
recognizing at least one image in said video, said appropriate orientation is at least
partially based on said step of recognizing.

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~~58~~ (new) A method according to claim ⁵⁴~~56~~, further comprising the step of:
recognizing at least one image in said video, said step of finding is at least partially based
on said step of recognizing.

SUB ^{DB}

~~59~~ (new) A method according to claim ⁵⁴~~56~~, further comprising the steps of:
receiving pan and tilt data; and
recognizing at least one image in said video, said step of finding is at least partially based
on said steps of recognizing at least one image and receiving pan and tilt data.

⁵¹
~~60~~ (new) A method according to claim ⁴⁹~~54~~, further comprising the step of:
manually selecting said location.

⁵¹
~~61~~ (new) A method according to claim ⁴⁸~~54~~ wherein:

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said step of adding said line includes accounting for an occlusion.

~~56.~~
~~62.~~ (new) A method for adding a graphic indication of a first down to a video of a football game during a broadcast of said football game, comprising the steps of:

selecting a position in a first video frame corresponding to a location on a football field representing said first down;

adding a line to said first video frame at said selected position, said step of adding a line includes using a processor to draw said line at a proper orientation in light of said football field's orientation in said first video frame; and

adding lines to successive video frames at positions corresponding to said location on said football field representing said first down, said step of adding lines to successive video frames includes using said processor to draw said lines at proper orientations in light of said football field's orientation in said successive video frames.

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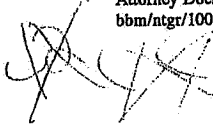
~~57.~~
~~63.~~ (new) A method for enhancing the broadcast of a live event, comprising the steps of:

receiving video from a first camera;

receiving field of view data for said first camera from one or more field of view sensors that do not use pattern recognition;

determining a position of a video image of a target area in a frame of said captured video, said step of determining a position includes recognizing one or more portions of said frame of said captured video and using said field of view data; and

modifying said captured video data by enhancing at least a portion of said video image of said target area, said step of modifying includes accounting for occlusions.

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~~53~~
~~64~~ (new) A method for enhancing the broadcast of a live event, comprising the steps of:

- receiving first video from a first camera;
- receiving pan and tilt data for said first camera;
- determining a position and orientation of a video image of a target area in a frame of said first video, said step of determining uses said pan and tilt data, said step of determining includes recognizing one or more portions of said frame of said first video; and
- modifying said captured video data by enhancing at least a segment of said video image of said target area.

~~13~~
~~65~~ (new) The method according to claim 1, wherein:
said field of view sensors include a pan sensor.

~~14~~
~~66~~ (new) The method according to claim 1, wherein:
said field of view sensors include a pan sensor and a tilt sensor.

~~15~~
~~67~~ (new) The method according to claim 1, further including the steps of:

- receiving additional video from additional cameras;
- receiving field of view data for said additional cameras using one or more field of view sensors that do not use pattern recognition; and
- determining that said first camera has been selected for broadcast.

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Remarks

The above Amendments and these Remarks are in reply to the Office Action mailed June 4, 1998.

Currently claims 1-40, 42 and 46-67 are pending. Claims 18-33 have been allowed, claims 8-12 and 53 are objected to (but otherwise allowable over the art of record), claims 1-7, 13-17, 34-44 and 46-52 are rejected and claims 54-67 are new.

I. Response to Paragraph 1 of the Office Action

Applicants acknowledge and have met their obligations under 37 C.F.R. 1.56.

II. Response to Paragraph 2 of the Office Action

Applicants note the Examiner's quotation of 35 U.S.C. §102.

III. Response to Paragraph 3 of the Office Action

The Examiner rejected claims 1-4, 7, 37-42, 44, and 46-52 under 35 U.S.C. §102(e) as being anticipated by *Hanna, et al.*. Because *Hanna, et al.* does not disclose all the limitations of the above cited claims, Applicants assert that these claims are patentable over the cited art.

One aspect of the present invention that represents an improvement over the prior art is the ability to find the position of a target area in a video using field of view data and pattern recognition, in combination. Applicants' specification discusses using pan, tilt and/or zoom sensors to acquire field of view data. Using field of view data in combination with pattern recognition provides for faster resolution of the target's position than using pattern recognition alone. Claims 1, 37 and 49 have been amended to more clearly recite this feature. For example, claim 1 recites "sensing field of view data for said first camera using one or more field of view

sensors that do not use pattern recognition . . .” The third step of claim 1 recites the step of determining a position of the target area. The step of determining a position is based on the combination of using field of view data and recognizing one or more portions of the video. These limitations are not found in the prior art. Claim 37 includes analogous limitations. Claim 49 has been similarly amended to recite “said one or more field of view sensors can detect field of view data without using pattern recognition.” The processor recited in claim 49 “is programmed to determine a position of said image of said target in said first video image using said field of view data in combination with pattern recognition software.” Thus, claims 1, 37 and 49 all require that the position in the video be found by using both recognition and field of view data, where the field of view data is not based on pattern recognition. These limitations are not disclosed by *Hanna, et al.*

Hanna, et al. includes a technique of:

[Replacing] a first pattern in a video scene where the second pattern by first detecting the first pattern in the video scene and estimating the pose of this detected first pattern with respect to a reference object in the video scene. The second pattern is then geometrically transformed using the pose estimate of the detected first pattern. Finally, the detected first pattern is replaced with a geometrically-transformed second pattern.

[Col. 3, lines 8-14].

Thus, *Hanna, et al.* discloses a means for detecting the first pattern in the video scene using pattern recognition. There is no disclosure of sensing, detecting or using any field of view data that does not use pattern recognition; therefore, *Hanna, et al.* does not disclose all the limitations of independent claims 1, 37 and 49. Because *Hanna, et al.* does not disclose all the limitations of claims 1, 37 and 49, Applicants assert that those claims are patentable over the cited art. By reason of their dependency on the relevant independent claims, Applicants assert that the claims dependent on claims 1, 37 and 49 are also patentable over the cited art. Furthermore,

claims 2, 4, 38 and 40 use field of view data in a manner not used by *Hanna, et al.* Additionally, *Hanna, et al.* does not disclose the use of a keyer.

IV. Response to Paragraph 4 of the Office Action

The Examiner rejected claims 13-17, 34 and 36 under 35 U.S.C. §102(e) as being clearly anticipated by *Honey, et al.* Because *Honey, et al.* does not disclose all the limitations of the cited claims, Applicants assert that these claims are patentable over the cited art.

Claim 13 recites the step of "determining [an] . . . orientation of said video image of said target in said frame of video . . ." *Honey, et al.* does disclose finding an object in three-dimensional space and using that information to find the position of that object's image in a video frame. However, *Honey, et al.* does not disclose the step of determining an orientation. Furthermore, the limitation of determining an orientation is not obvious in light of *Honey, et al.* First, there has been no evidence presented to form a conclusion of obviousness. Second, there is no teaching or suggestion to add technology for determining orientation to the disclosure of *Honey, et al.* Third, the system disclosed in *Honey, et al.* is disclosed to operate without the need for orientation information. Thus, *Honey, et al.* does not disclose or suggest the step of determining an orientation of a target. Therefore, Applicants assert that claim 13 is patentable over the cited art. Because of their dependency on claim 13, Applicants also assert that claims 14-17 are also patentable over the cited art.

Claim 34 has been amended to recite that "said target being stationary at a location . . . a memory pre-storing said location of said target prior to said live event . . ." These limitations are not disclosed by *Honey, et al.* The target disclosed in *Honey, et al.* is a hockey puck which is moving, and is not likely to be stationary. Furthermore, the location of the hockey puck is not stored prior to the live event. In fact, it is not possible to store the location of the hockey puck

prior to the live event because the hockey puck moves during the live event. Thus, the invention recited in claim 34 is significantly different than the system disclosed in *Honey, et al.* Because *Honey, et al.* does not disclose the above quoted limitations, Applicants assert that claim 34 is patentable over the cited art. For reason of its dependency on claim 34, Applicants assert that claim 36 is also patentable over the cited art.

V. Response to Paragraph 5 of the Office Action

Applicants note the Examiner's quotation of 35 U.S.C. §103(a) and the summary of *Graham v. John Deere Co.*, 38 U.S. 1 (1966).

VI. Response to Paragraph 6 of the Office Action

The Examiner rejected claim 35 under 35 U.S.C. §103(a) as being unpatentable over *Honey, et al.* as applied to claim 34 and further in view of *Hanna, et al.* Applicants assert that because claim 34 is patentable over the cited art, that claim 35 is also patentable over the cited art.

VII. Response to Paragraph 7 of the Office Action

The Examiner rejected claims 5 and 6 under 35 U.S.C. §103(a) as being unpatentable over *Hanna, et al.* in view of *Rosser, et al.* Applicants assert that because claim 1 is patentable over the cited art, claims 5 and 6 are also patentable over the cited art.

VIII. Response to Paragraph 8 of the Office Action

The Examiner stated that claims 8-12 and 53 are objected to as being dependent upon rejected claims, but would be allowable if rewritten in independent form including all the limitations of the base claims. Applicants assert that because the base claims are patentable over the cited art, these claims are also patentable over the cited art. Applicants note that many of the claims recited in paragraph 8 of the Office Action include the limitation (in various forms and using various language) that require the system to account for occlusions. In this regard, Applicants have added new claim ⁶³64 which is similar to claim 1 and adds the limitation "said step of modifying includes accounting for occlusions." Applicants assert that the above quoted limitation, as well as other limitations in claim 64, render claim 64 patentable over the cited art.

IX. Response to Paragraph 9 of the Office Action

Applicants have reviewed the prior art of record.

X. Response to Paragraph 10 of the Office Action

The Examiner stated that claims 8-12, 18-33, 45 and 53 are allowable over the art of record.

XI. New Claims

Applicants have added new claims 54-67 to more distinctly claim Applicants' invention. In regard to claims 54 and 62, the cited art does not disclose adding a line to a video of a live football game to graphically indicate a first down. Nor does the prior art disclose the additional limitations that are added by each of the dependent claims. Claim 64 recites the explicit use of pan and tilt data (rather than the general recitation of field of view data) for use when determining

the position and orientation of a video image of a target area in a frame of video. As discussed above, *Hanna, et al.* does not disclose the use of pan and tilt information as recited in claim 64. Claims 65 and 66 recite the explicit use of pan and tilt sensors. Claim 67 recites additional steps to claim 1 which describe the use of multiple cameras.

In view of the above Amendments and Remarks, reconsideration of claims 1-40, 42 and 46-53 is requested and consideration of newly added claims 54-67 is requested.

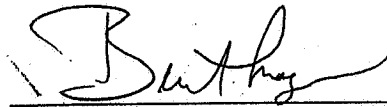
The Commissioner is authorized to charge any underpayment or credit any overpayment to Deposit Account No. 06-1325 for any matter in connection with this Preliminary Amendment.

Respectfully submitted,

Date:

October 5, 1998

By:



Burt Magen
Reg. No. 37,175

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SAU 2713 #

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application

Inventors: Honey, et al.
SC/Serial No.: 08/735,020
Filed: October 22, 1996
Title: A METHOD AND APPARATUS
FOR ENHANCING THE
BROADCAST OF A LIVE EVENT

PATENT APPLICATION

Art Unit: 2713
Examiner: Britton, H.

CERTIFICATE OF MAILING UNDER 37 C.F.R. § 1.8

I hereby certify that this correspondence is being deposited in the United States Postal Service with sufficient postage as first class mail in an envelope addressed to Assistant Commissioner for Patents, Washington, D.C. 20231, on October 5, 1998.

Burt Magen, Reg. No. 37,175
Signature Date: October 5, 1998

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GROUP 2700

RESPONSE A TRANSMITTAL LETTER

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Transmitted with this communication in connection with the above-identified application are the following:

- A Response under 37 C.F.R. §1.111 to the Office Action dated June 4, 1998.
- A Response under 37 C.F.R. §1.116 to the Office Action dated ____.
- A Petition for an Extension of Time under 37 C.F.R. §1.136.

- A Statement pursuant to 37 C.F.R. §1.27 to establish small entity status under 37 C.F.R. §1.9(f).
- An Information Disclosure Statement pursuant to 37 C.F.R. §1.56.

The fee associated with this communication has been calculated as shown below:

- A fee for extension of time for response under 37 C.F.R. §1.136 filed within 1 month after the original time for response of \$110.00 is due.
- A fee of \$240.00 is due for the submission of the accompanying Information Disclosure Statement.
- A fee for addition of claims under 37 C.F.R. §1.17 is due as follows:

| Claims Remaining After Amendment | Highest Previously Paid For | Number Extra | Rate Small Entity/ Other Than Small Entity | | |
|---|-----------------------------|-----------------|--|---|-------|
| Total | | | \$11.00 | | |
| Claims <u>63</u> | <u>53</u> | = <u>10</u> * X | \$22.00 | = | \$220 |
| Independent | | | \$41.00 | | |
| Claims <u>12</u> | <u>8</u> | = <u>4</u> * X | \$82.00 | = | \$328 |
| First Presentation of Multiple Dependent Claim(s) <u> </u> | | | \$135.00 | | |
| | | | \$270.00 | = | \$ |

*If the difference is less than zero, enter "0".

Additional Fee = \$ 548

The total fee required with this communication is \$ 658 and is to be paid as follows:

- Please charge Deposit Account No. 06-1325 in the amount of \$658. A duplicate copy of this authorization is enclosed.
- A check in the amount of \$ is enclosed.

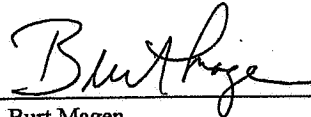
The Commissioner is hereby authorized to charge underpayment of any fees, including the following fees, associated with this communication or credit any overpayment to Deposit Account No. 06-1325. A duplicate copy of this authorization is enclosed.

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

Any patent application processing fees under 37 C.F.R. §1.17 including any applicable fee for extension of time.

Respectfully submitted,

Date: October 5, 1998

By: 
Burt Magen
Reg. No. 37,175

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