Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Claims 1-24 (canceled)

25. (currently amended) A method of playing a game, comprising:
    a. streaming video data and game data;
    b. operating a ~~cellular-based~~ program to display the streamed video data and the game data, wherein the video data and the game data are synchronized ~~based on a delay~~ when displayed; and
    c. preventing users from submitting a response to the game data based on the streaming video data and a lockout signal.

26. (original) The method of claim 25 further comprising receiving a game start signal and starting the game.

27. (original) The method of claim 25 further comprising playing the game by selecting one or more choices related to the streamed video data.

28. (original) The method of claim 25 wherein the streamed video data and the game data are displayed simultaneously.

29. (original) The method of claim 25 wherein the streamed video data and the game data are displayed simultaneously on the same device.

30. (original) The method of claim 25 wherein the streamed video data and the game data are displayed simultaneously on separate devices.

31. (currently amended) The method of claim 25 further comprising collecting scores and reporting performance to participants' ~~cellular phones~~ devices.

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32. (currently amended) The method of claim 25 further comprising prohibiting further game-related input with [[a]] the lockout signal.

33. (original) The method of claim 25 wherein the game data contains graphic information in addition to the streamed video data.

34. (original) The method of claim 33 wherein the graphic information is displayed on the same device using method including crawling information, closed captioned information, a picture in picture or a graphical overlay.

35. (original) The method of claim 25 wherein the streamed video data or the game data is buffered in advance of a scheduled start.

36. (original) The method of claim 25 further comprising transmitting the streamed video data and the game data on a transmission selected from a TCP, UDP, 3G, multicast or broadcast transmission.

37. (original) The method of claim 25 wherein the streamed video data and the game data are synchronously displayed.

Claims 38-61 (canceled)

62. (new) The method of claim 25 wherein the delay represents delay of the game data.

63. (new) The method of claim 25 wherein the video data comprises one or more live events.

64. (new) The method of claim 63 wherein the one or more live events are viewed in person by a person physically attending a location corresponding to the one or more live events, wherein the person initiates the lockout signal based on occurrences in the one or more live events.

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65. (new) The method of claim 63 wherein information related to the one or more live events is received from a physical location corresponding to the one or more live events.

66. (new) The method of claim 63 wherein the lockout signal occurs immediately before competitors in the contest are able to see relevant live action unfold.

67. (new) The method of claim 63 wherein the lockout signal occurs immediately before a scoring chance in the one or more events.

68. (new) The method of claim 63 wherein the lockout signal involves an in-progress play, not during a stoppage, and preventing submitting the response before a critical element of the in-progress play unfolds.

69. (new) The method of claim 63 wherein the lockout signal applies for a limited amount of time.

70. (new) The method of claim 63 wherein the lockout signal applies for an action lasting a limited amount of time.

71. (new) The method of claim 63 wherein the lockout signal involves presenting new odds on an unresolved proposition.

72. (new) A server for synchronizing a game or contest with streaming content comprising:
    a. a memory for storing an application, the application configured for:
        i. transmitting game data for the game or contest to one or more devices on which the game or contest is to be played wherein the game data is to be synchronized with the streaming content at the one or more devices; and
        ii. transmitting a lockout signal to the one or more devices to prevent users from submitting a response to the game or contest based on the streaming content; and
    b. a processing component coupled to the memory, the processing component configured for processing the application.

73. (new) The server of claim 72 wherein determining the amount of delay in the streaming content uses a method of automatic content recognition.

74. (new) The server of claim 72 wherein existing events in the streaming content are used as synchronization points as start points for previously downloaded data files to a mobile client.

75. (new) The server of claim 72 wherein a synchronization point is a visible or audible event located within the streaming content.

76. (new) The server of claim 72 wherein a synchronization point for synchronizing the streaming content and game data is contained in audio or video within the streaming content.

77. (new) The server of claim 72 wherein information is embedded in the streaming content and tracked online in real-time.

78. (new) The server of claim 72 wherein determining the amount of delay in the streaming content includes using a recognizable signal recognizable by a mobile device.

79. (new) The server of claim 72 wherein a plurality of synchronization points are used by a client to continuously check to ensure game data is synchronized with the streaming content.

80. (new) The server of claim 72 wherein inserted audio or video is used to continuously check to ensure game data is synchronized on a client with the streaming content.

81. (new) The server of claim 72 wherein the game or contest comprises one or more live events.

82. (new) The server of claim 81 wherein the one or more live events are viewed in person by a person physically attending a location corresponding to the one or more live events,

wherein the person initiates the lockout signal based on occurrences in the one or more live events.

83. (new) The server of claim 81 wherein information related to the one or more live events is received from a physical location corresponding to the one or more live events.

84. (new) The server of claim 81 wherein the lockout signal occurs immediately before competitors in the contest are able to see relevant live action unfold.

85. (new) The server of claim 81 wherein the lockout signal occurs immediately before a scoring chance in the one or more events.

86. (new) The server of claim 81 wherein the lockout signal involves an in-progress play, not during a stoppage, and preventing submitting the response before a critical element of the in-progress play unfolds.

87. (new) The server of claim 81 wherein the lockout signal applies for a limited amount of time.

88. (new) The server of claim 81 wherein the lockout signal applies for an action lasting a limited amount of time.

89. (new) The server of claim 81 wherein the lockout signal involves presenting new odds on an unresolved proposition.

IN THE SPECIFICATION:

On page 1, please amend the Related Applications section as follows:

Related Application(s):

This Patent Application is a continuation of U.S. Patent Application Ser. No. 16/865,000, filed May 1, 2020, titled "SYNCHRONIZED GAMING AND PROGRAMMING," which is a continuation of U.S. Patent Application Ser. No. 15/886,704, filed February 1, 2018, titled "SYNCHRONIZED GAMING AND PROGRAMMING," which is a continuation of U.S. Patent Application Ser. No. 15/586,198, filed May 3, 2017, titled "SYNCHRONIZED GAMING AND PROGRAMMING," which is a continuation-in-part of U.S. Patent Application Ser. No. 14/172,539, filed February 4, 2014, titled "SYNCHRONIZED GAMING AND PROGRAMMING," which is a divisional of U.S. Patent Application Ser. No. 13/484,129, filed May 30, 2012, titled "SYNCHRONIZED GAMING AND PROGRAMMING" which is a continuation-in-part of U.S. Patent Application Ser. No. 13/403,845, filed February 23, 2012, titled, "A METHODOLOGY FOR EQUALIZING SYSTEMIC LATENCIES IN TELEVISION RECEPTION IN CONNECTION WITH GAMES OF SKILL PLAYED IN CONNECTION WITH LIVE TELEVISION PROGRAMMING" which is a continuation of U.S. Patent Application Ser. No. 11/786,992, filed April 12, 2007, titled, "A METHODOLOGY FOR EQUALIZING SYSTEMIC LATENCIES IN TELEVISION RECEPTION IN CONNECTION WITH GAMES OF SKILL PLAYED IN CONNECTION WITH LIVE TELEVISION PROGRAMMING," which claims priority under 35 U.S.C. §119(e) of the co-owned United States Provisional Patent Application No. 60/791,793, filed April 12, 2006, and titled "A METHODOLOGY FOR EQUALIZING SYSTEMIC LATENCIES IN TELEVISION RECEPTION IN CONNECTION WITH GAMES OF SKILL PLAYED IN CONNECTION WITH LIVE TELEVISION PROGRAMMING" which are also all hereby incorporated by reference in their entireties.

~~This Patent Application~~ The U.S. Patent Application Ser. No. 15/586,198, filed May 3, 2017, titled "SYNCHRONIZED GAMING AND PROGRAMMING," is also a continuation-in-part of U.S. Patent Application Ser. No. 15/332,625, filed October 24, 2016, titled "CELLULAR PHONE GAMES BASED UPON TELEVISION ARCHIVES," which is a continuation of U.S. Patent Application Ser. No. 11/542,335, filed October 2, 2006, titled "CELLULAR PHONE GAMES BASED UPON TELEVISION ARCHIVES," which claims priority under 35 U.S.C. §119(e) of the co-pending, co-owned United States Provisional Patent Application No.

60/723,301, filed October 3, 2005, and entitled "CELLULAR PHONE GAMES BASED UPON TELEVISION ARCHIVES" which are both also hereby incorporated by reference in their entireties.

FanDuel Ex. 1002-0007

PATENT
Attorney Docket No.: AIRP-01054

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	)	Group Art Unit:
David B. Lockton et al.	)	Examiner:
Serial No.:	)	
Filed:	)	**PRELIMINARY AMENDMENT**
For: **SYNCHRONIZED GAMING AND PROGRAMMING**	)	162 N. Wolfe Rd. Sunnyvale, California 94086 (408) 530-9700
	)	Customer No. 28960

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

AMENDMENTS

Please amend the subject application as follows:

Amendments to the Specification begin on page 2 of this paper.

Amendments to the Claims are reflected in the listing of claims which begins on page 4 of this paper.

Remarks/Arguments begin on page 9 of this paper.

FanDuel Ex. 1002-0008

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	)	
	)	
David B. Lockton	)	
	)	**DECLARATION**
Serial No.:	)	
	)	
Filed:	)	162 North Wolfe Road
	)	Sunnyvale, CA 94086
For: **SYNCHRONIZED GAMING AND PROGRAMMING**	)	(408) 530-9700
	)	
	)	Customer No. 28960

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450.

As a below named inventor, I hereby declare that:

IDENTIFICATION OF APPLICATION

This declaration is directed to:

[X] the application filed herewith, including any Preliminary Amendment filed herewith.

[ ] the application identified above.

[ ] the application identified above, as amended by Preliminary Amendment filed herewith.

[ ] the application identified above, and which was amended on _____.

[ ] PCT International Application No.: _____ filed on_____, and amended under PCT Article 19 on _____ (if applicable).

APPLICATION AUTHORIZATION

The above-identified application was made or authorized to be made by me.

INVENTORSHIP STATEMENT

I believe I am the original inventor or an original joint inventor of a claimed invention in the application.

ACKNOWLEDGMENT OF PENALTIES

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

ACKNOWLEDGMENT OF REVIEW OF PAPERS AND DUTY OF CANDOR

I hereby state that I have reviewed and understand the contents of the above-identified application, including the claims, as amended by any amendment specifically referred to above. I acknowledge the duty to disclose information known to me which is material to patentability as defined in 37 C.F.R. § 1.56, including for continuation-in-part applications, material information

which became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.

POWER OF ATTORNEY

I hereby appoint the following as my attorneys with full power of substitution to prosecute this application and transact all business in the Patent and Trademark Office in connection therewith:

Thomas B. Haverstock	32,571	Jonathan O. Owens	37,902
David A. Hill	44,153	Tina T. Wang	64,265
Jack R. Harris (Agent)	51,145	Lucas J. Myslinski	56,418

Please direct all correspondence regarding this application to the following:

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Customer No.: 28960

WARNING

Petitioner /applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available. Petitioner/applicant is advised that documents which form the record of a patent application (such as the PTO/SB/01) are placed into the Privacy Act system of records DEPARTMENT OF COMMERCE, COMMERCE-PAT-7, System name: Patent Application Files. Documents not retained in an application file (such as PTO-2038) are placed in the Privacy Act System of COMMERCE/PAT-TM-10, System name: Deposit Accounts and Electronic Funds Transfer Profiles.

SIGNATURE(S)

Legal Name of Inventor: David B. Lockton
Inventor's Signature: [signature]
Date: May 3, 2017
Residence: Redwood City, CA
Post Office Address: 370 Convention Way, Redwood City, CA 94063

FanDuel Ex. 1002-0010

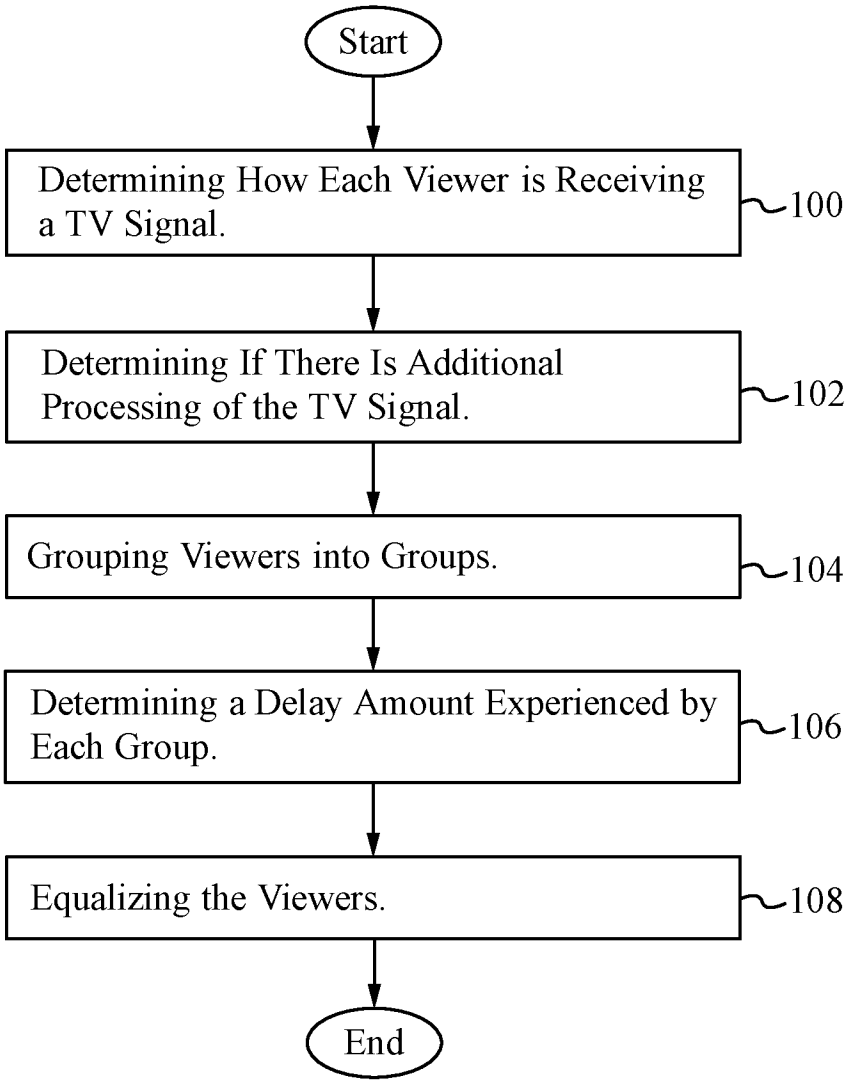

Start
Determining How Each Viewer is Receiving a TV Signal.
100
Determining If There Is Additional Processing of the TV Signal.
102
Grouping Viewers into Groups.
104
Determining a Delay Amount Experienced by Each Group.
106
Equalizing the Viewers.
108
End

Fig. 1

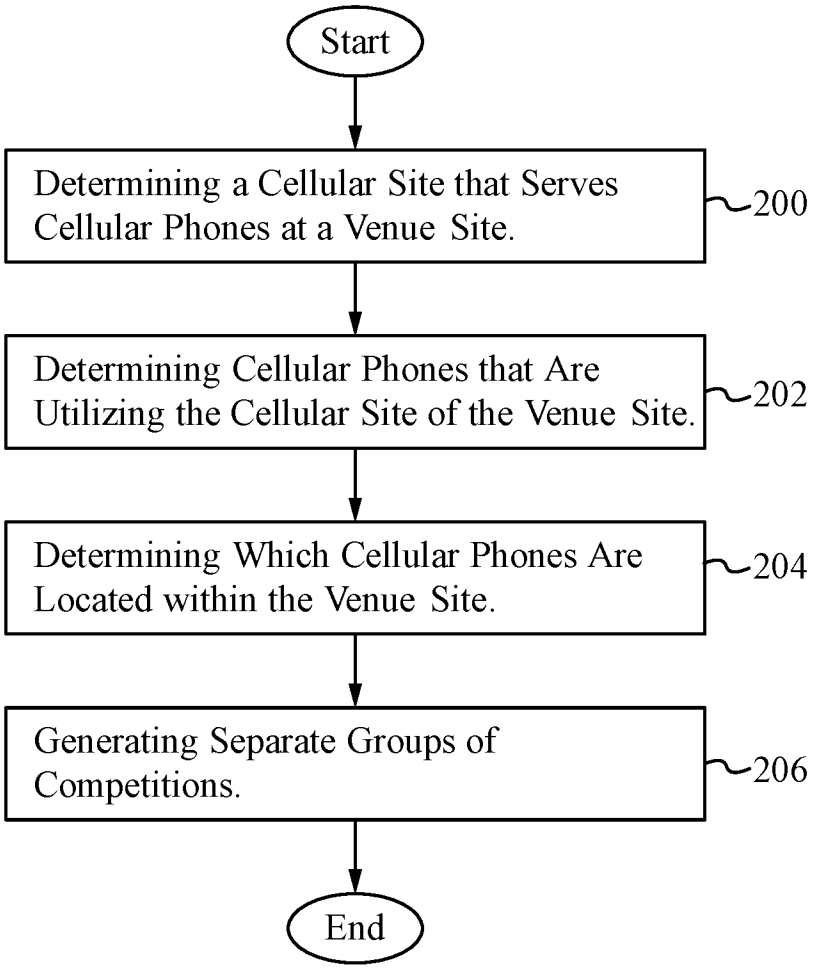

Start
Determining a Cellular Site that Serves Cellular Phones at a Venue Site.
200
Determining Cellular Phones that Are Utilizing the Cellular Site of the Venue Site.
202
Determining Which Cellular Phones Are Located within the Venue Site.
204
Generating Separate Groups of Competitions.
206
End

Fig. 2

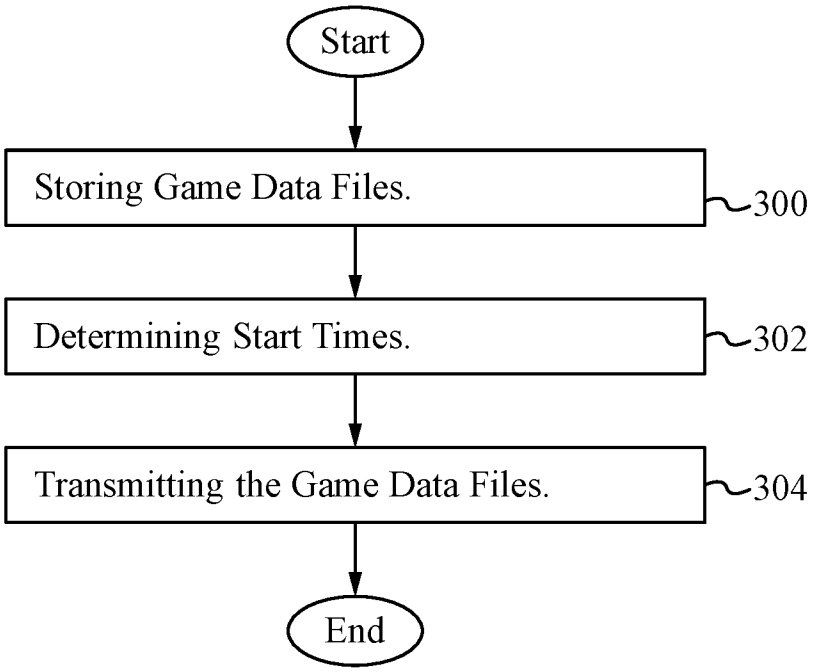

Start
Storing Game Data Files.
300
Determining Start Times.
302
Transmitting the Game Data Files.
304
End

Fig. 3

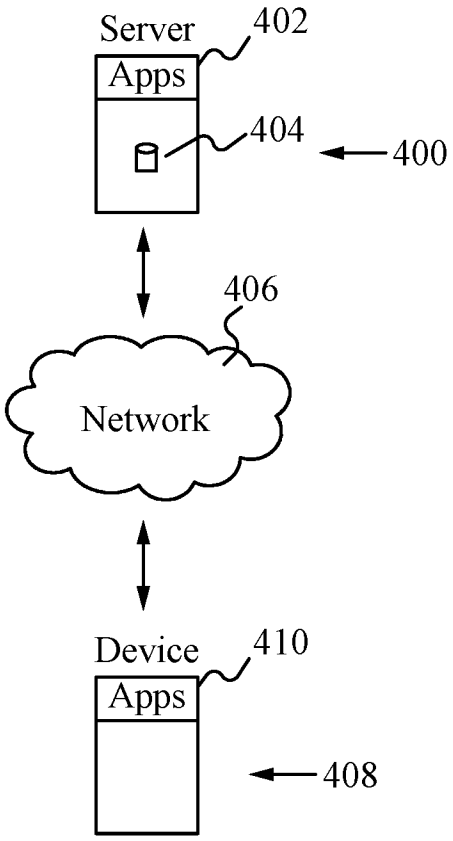


Fig. 4

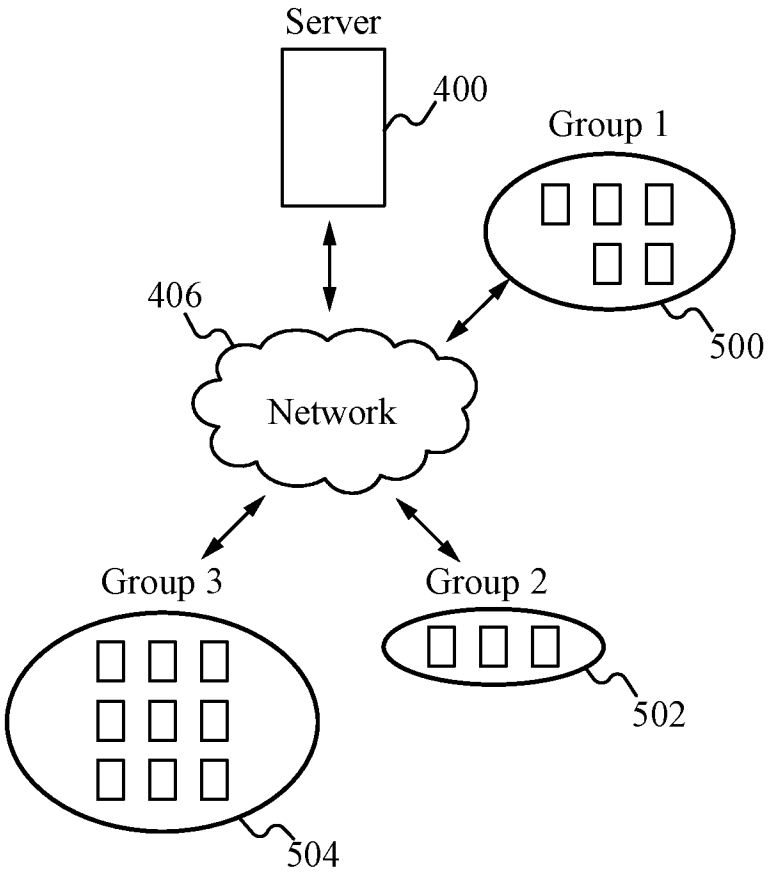


Fig. 5

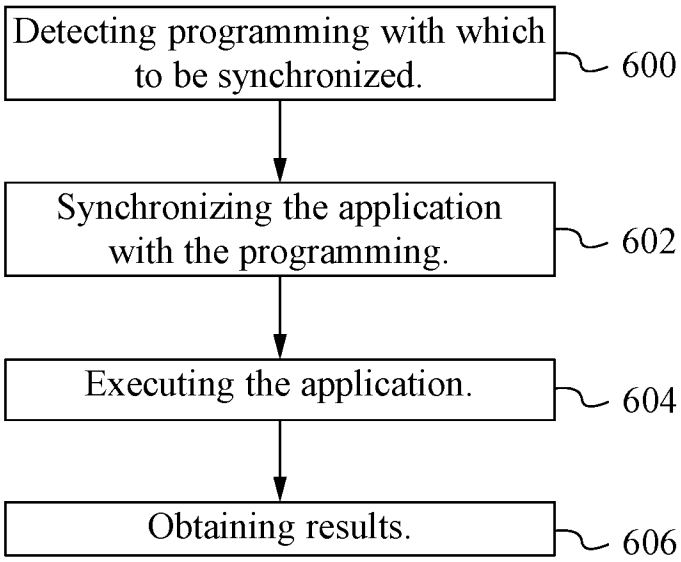

Detecting programming with which to be synchronized.
600
Synchronizing the application with the programming.
602
Executing the application.
604
Obtaining results.
606

Fig. 6

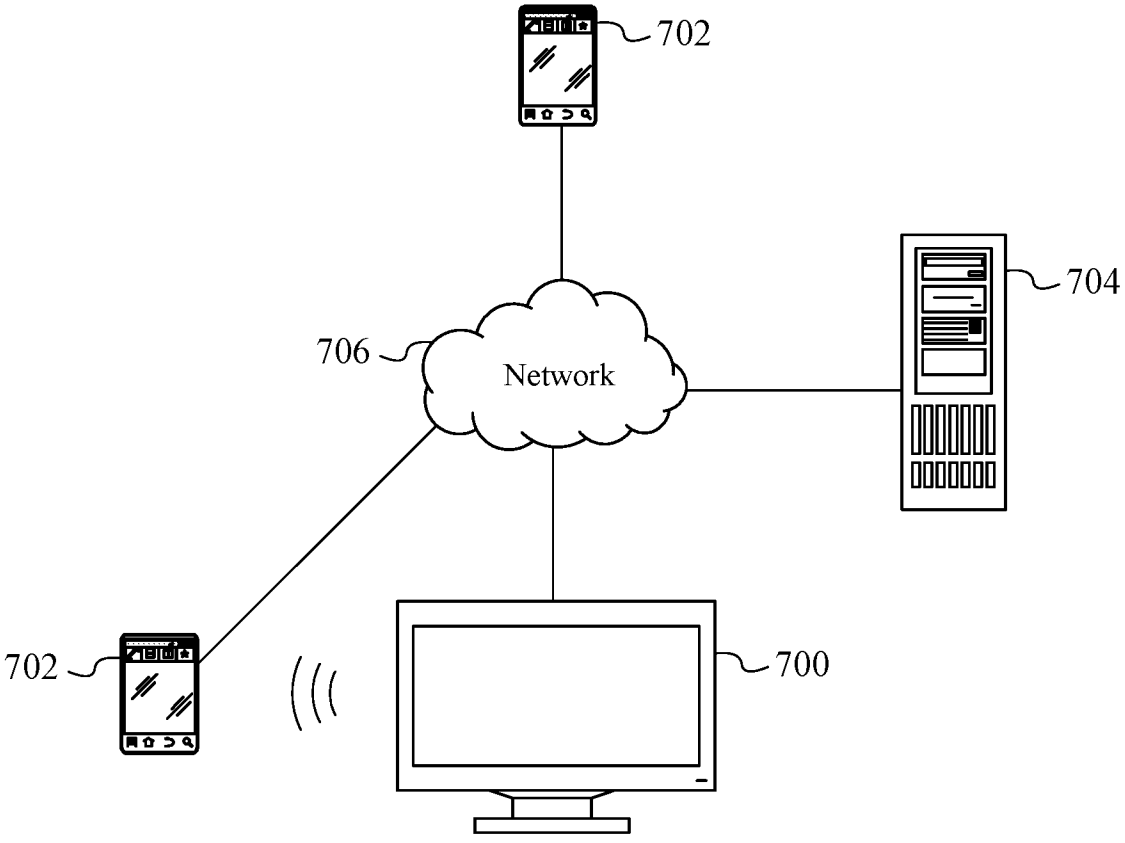

702
704
706
Network
702
700

Fig. 7

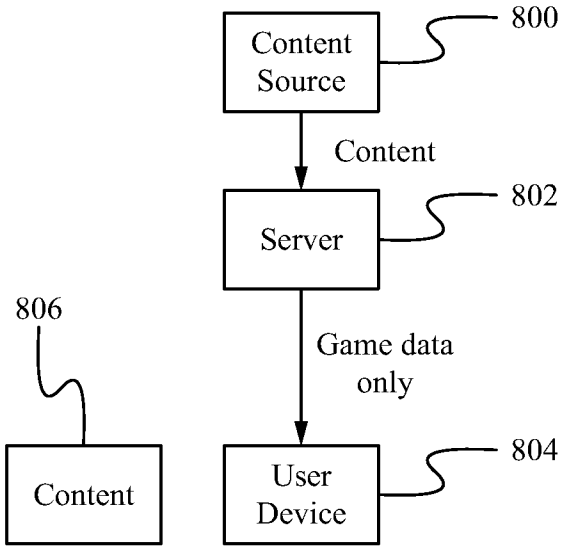

Content Source
800
Content
Server
802
Game data only
806
Content
User Device
804

Fig. 8

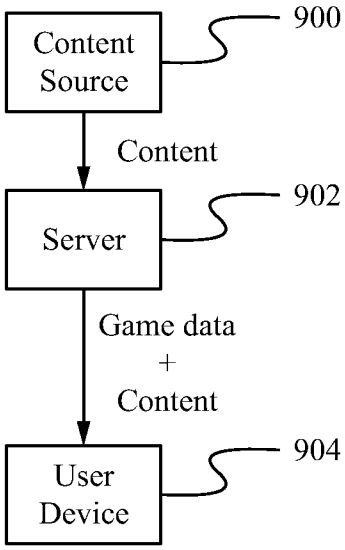

Content Source
900
Content
Server
902
Game data
+
Content
User Device
904

Fig. 9

ABSTRACT

To encourage viewer participation, games, contests and social interactions are able to be synchronized with programming such as television shows or commercials utilizing a second screen such as a cell phone, iPad® or laptop computer. The programming is able to be television programming, Internet programming (e.g. a video displayed on a webpage or mobile device) or any other programming. The gaming is able to be any game such as a game of skill or chance, for example, a scavenger hunt or a treasure hunt.

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CLAIMS

What is claimed is:

1. A method of equalizing effects of latency differences in a real time game of skill or chance or other entertainment programmed in a memory of a device comprising:
   a. receiving streaming content;
   b. determining an amount of delay in the streaming content, wherein a server sends a lockout signal at an appropriate time based on an amount of delay to prevent users from submitting a response to the game of skill or chance based on the streaming content.

2. The method of claim 1 wherein timing of receipt of the streaming content is based on a measurement to determine the amount of delay in receiving the streaming content for users of the streaming content.

3. The method of claim 1 further comprising operating a cellular based program to display game data related to the streaming content.

4. The method of claim 1 wherein determining the amount of delay in the streaming content uses watermarking or fingerprinting, wherein fingerprinting involves monitoring a telecast and comparing the telecast with the streaming content to synchronize game data with the streaming content.

5. The method of claim 1 wherein existing events in the streaming content are used as synchronization points as start points for previously downloaded data files to a mobile client.

FanDuel Ex. 1002-0019

6. The method of claim 1 wherein a synchronization point is a visible or audible event located within the streaming content.

7. The method of claim 1 wherein a synchronization point for synchronizing the streaming content and game data is contained in audio or video within the streaming content.

8. The method of claim 1 wherein an audio or video signal of a measured amount of delay emanating from an event is utilized to determine the delay in the reception of the streamed content.

9. The method of claim 1 wherein information is embedded in the streaming content and tracked online in real-time.

10. The method of claim 1 wherein determining the amount of delay in the streaming content includes using a recognizable signal recognizable by a mobile device.

11. The method of claim 1 wherein a plurality of synchronization points are used by a client to continuously check to ensure game data is synchronized with the streaming content.

12. The method of claim 1 wherein inserted audio or video is used to continuously check to ensure game data is precisely synchronized on a client with the streaming content, wherein the game data is combined with adjusted data for lockouts in a same stream for display on a mobile device as a picture-in-picture or the game data overlaid on the streaming content.

13. The method of claim 1 wherein the game data is combined with adjusted data for lockouts in a same stream for display as a picture-in-picture or the game data overlaid on the streaming content.

14. A device for synchronizing a game or contest with streaming content comprising:
    a. a memory for storing an application, the application configured for:
        i. detecting streaming content with which to be synchronized; and
        ii. presenting the game or contest simultaneously with the streaming content by delaying presentation of game data based on a determined amount of delay in receiving the streaming content; and
    b. a processing component coupled to the memory, the processing component configured for processing the application.

15. The device of claim 14 wherein timing of receipt of the streaming content is compared based on a source of the content and determining the amount of delay in receiving the streaming content from different sources.

16. The device of claim 14 further comprising operating a cellular based program to display game data related to the streaming content.

17. The device of claim 14 wherein determining the amount of delay in the streaming content uses watermarking.

18. The device of claim 14 wherein existing events in the streaming content are used as synchronization points as start points for previously downloaded data files to a mobile client.

FanDuel Ex. 1002-0021

19. The device of claim 14 wherein a synchronization point is a visible or audible event located within the streaming content.

20. The device of claim 14 wherein a synchronization point for synchronizing the streaming content and game data is contained in audio or video within the streaming content.

21. The device of claim 14 wherein information is embedded in the streaming content and tracked online in real-time.

22. The device of claim 14 wherein determining the amount of delay in the streaming content includes using a recognizable signal recognizable by a mobile device.

23. The device of claim 14 wherein a plurality of synchronization points are used by a client to continuously check to ensure game data is synchronized with the streaming content.

24. The device of claim 14 wherein inserted audio or video is used to continuously check to ensure game data is precisely synchronized on a client with the streaming content.

25. A method of playing a game, comprising:
    a. streaming video data and game data; and
    b. operating a cellular-based program to display the streamed video data and the game data, wherein the video data and the game data are synchronized based on a determined amount of delay.

26. The method of claim 25 further comprising receiving a game start signal and starting the game.

27. The method of claim 25 further comprising playing the game by selecting one or more choices related to the streamed video data.

28. The method of claim 25 wherein the streamed video data and the game data are displayed simultaneously.

29. The method of claim 25 wherein the streamed video data and the game data are displayed simultaneously on the same device.

30. The method of claim 25 wherein the streamed video data and the game data are displayed simultaneously on separate devices.

31. The method of claim 25 further comprising collecting scores and reporting performance to participants' cellular phones.

32. The method of claim 25 further comprising prohibiting further game-related input with a lockout signal.

33. The method of claim 25 wherein the game data contains graphic information in addition to the streamed video data.

34. The method of claim 33 wherein the graphic information is displayed on the same device using method including crawling information, closed captioned information, a picture in picture or a graphical overlay.

35. The method of claim 25 wherein the streamed video data or the game data is buffered in advance of a scheduled start.

36. The method of claim 25 further comprising transmitting the streamed video data and the game data on a transmission selected from a TCP, UDP, 3G, multicast or broadcast transmission.

37. The method of claim 25 wherein the streamed video data and the game data are synchronously displayed.

38. A method of synchronizing a game or contest with streaming content comprising:
    a. detecting streaming content with which to be synchronized; and
    b. presenting the game or contest simultaneously with the streaming content by delaying presentation of game data based on a determined amount of delay in receiving the streaming content.

39. The method of claim 38 wherein timing of receipt of the streaming content is compared based on a source of the content and determining the amount of delay in receiving the streaming content from different sources.

40. The method of claim 38 further comprising operating a cellular based program to display game data related to the streaming content.

41. The method of claim 38 wherein determining the amount of delay in the streaming content uses watermarking.

42. The method of claim 38 wherein existing events in the streaming content are used as synchronization points as start points for previously downloaded data files to a mobile client.

43. The method of claim 38 wherein a synchronization point is a visible or audible event located within the streaming content.

44. The method of claim 38 wherein a synchronization point for synchronizing the streaming content and game data is contained in audio or video within the streaming content.

45. The method of claim 38 wherein an audio or video signal of a measured amount of delay emanating from the event is utilized to determine the delay in the reception of the streamed content.

46. The method of claim 38 wherein information is embedded in the streaming content and tracked online in real-time.

47. The method of claim 38 wherein determining the amount of delay in the streaming content includes using a recognizable signal recognizable by a mobile device.

48. The method of claim 38 wherein a plurality of synchronization points are used by a client to continuously check to ensure game data is synchronized with the streaming content.

49. The method of claim 38 wherein inserted audio or video is used to continuously check to ensure game data is precisely synchronized on a client with the streaming content.

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50. A system for synchronizing a game or contest with streaming content comprising:

a. receiving streaming content with which to be synchronized; and

b. combining game data of the game or contest simultaneously with the streaming content by delaying presentation of game data based on a determined amount of delay in receiving the streaming content.

51. The system of claim 50 wherein timing of receipt of the streaming content is compared based on a source of the content and determining the amount of delay in receiving the streaming content from different sources.

52. The system of claim 50 further comprising operating a cellular based program to display the game data related to the streaming content.

53. The system of claim 50 wherein determining the amount of delay in the streaming content uses watermarking.

54. The system of claim 50 wherein existing events in the streaming content are used as synchronization points as start points for previously downloaded data files to a mobile client.

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55. The system of claim 50 wherein a synchronization point is a visible or audible event located within the streaming content.

56. The system of claim 50 wherein a synchronization point for synchronizing the streaming content and the game data is contained in audio or video within the streaming content.

57. The system of claim 50 wherein an audio or video signal of a measured amount of delay emanating from the event is utilized to determine the delay in the reception of the streamed content.

58. The system of claim 50 wherein information is embedded in the streaming content and tracked online in real-time.

59. The system of claim 50 wherein a plurality of synchronization points are used by a client to continuously check to ensure the game data is synchronized with the streaming content.

60. The system of claim 50 wherein inserted audio or video is used to continuously check to ensure the game data is precisely synchronized on a client with the streaming content.

61. The system of claim 50 further comprising sending the combined game data and streaming content to a client device.

FanDuel Ex. 1002-0027

PATENT
Atty. Docket No. AIRP-01023

SYNCHRONIZED GAMING AND PROGRAMMING

Related Application(s):

This Patent Application is a continuation-in-part of U.S. Patent Application Ser. No. 14/172,539, filed February 4, 2014, titled "SYNCHRONIZED GAMING AND PROGRAMMING," which is a divisional of U.S. Patent Application Ser. No. 13/484,129, filed May 30, 2012, titled "SYNCHRONIZED GAMING AND PROGRAMMING" which is a continuation-in-part of U.S. Patent Application Ser. No. 13/403,845, filed February 23, 2012, titled, "A METHODOLOGY FOR EQUALIZING SYSTEMIC LATENCIES IN TELEVISION RECEPTION IN CONNECTION WITH GAMES OF SKILL PLAYED IN CONNECTION WITH LIVE TELEVISION PROGRAMMING" which is a continuation of U.S. Patent Application Ser. No. 11/786,992, filed April 12, 2007, titled, "A METHODOLOGY FOR EQUALIZING SYSTEMIC LATENCIES IN TELEVISION RECEPTION IN CONNECTION WITH GAMES OF SKILL PLAYED IN CONNECTION WITH LIVE TELEVISION PROGRAMMING," which claims priority under 35 U.S.C. §119(e) of the co-owned United States Provisional Patent Application No. 60/791,793, filed April 12, 2006, and titled "A METHODOLOGY FOR EQUALIZING SYSTEMIC LATENCIES IN TELEVISION RECEPTION IN CONNECTION WITH GAMES OF SKILL PLAYED IN CONNECTION WITH LIVE TELEVISION PROGRAMMING" which are also all hereby incorporated by reference in their entireties.

This Patent Application is also a continuation-in-part of U.S. Patent Application Ser. No. 15/332,625, filed October 24, 2016, titled "CELLULAR PHONE GAMES BASED UPON TELEVISION ARCHIVES," which is a continuation of U.S. Patent Application Ser. No. 11/542,335, filed October 2, 2006, titled "CELLULAR PHONE GAMES BASED UPON TELEVISION ARCHIVES," which claims priority under 35 U.S.C. §119(e) of the co-pending, co-owned United States Provisional Patent Application No. 60/723,301, filed October 3, 2005,

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and entitled "CELLULAR PHONE GAMES BASED UPON TELEVISION ARCHIVES" which are both also hereby incorporated by reference in their entireties.

Field of the Invention:

The present invention relates to the field of distributed gaming. More specifically, the present invention relates to the field of distributed gaming utilizing a mobile device.

Background of the Invention:

In the United States alone there are over 230 million registered cellular phones. With the expiration of the U.S. Patent No. 4,592,546 to Fascenda and Lockton, companies are able to now use the cellular phone and other mobile communication devices utilizing a multicast network to control television viewers in games of skill based upon predicting, for example, what the quarterback may call on the next play within a football game. Both prime time and programs syndicated on a market-by-market basis lend themselves to games of skill. In addition, games of skill with a common start time can be conducted simultaneously among cellular phone owners, based on classic card, dice, trivia, and other games. In order to avoid the anti-gaming laws in the various states, the winners must be determined by the relative skill, experience and practice of the player in each discrete game.

U.S. Patent No. 5,813,913 ('913) to Berner and Lockton provides for a central computing system which includes a means of grouping participants having similar skill levels together in simultaneous, but separate, levels of competition playing an identical game. The relative performances are communicated to only those participants competing at the same skill level. The '913 patent also provides for a wireless receiving device to permanently store the specific skill level for each participant for each type of common event such as those based on televised sports or game shows. The '913 patent provides for a telephonic link at the completion of the game to collect information and update the skill level of the participants of a particular game. When a person achieves sufficient points or meets other objective criteria to graduate into another skill

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level, a method is provided for accomplishing this in the central computer and then transmitting an alert to the participant notifying them of their promotion. The '913 patent describes awarding prizes and providing recognition for the members of each discreet skill level in a common game. All users, no matter what level they are on, receive the same number of questions and thus the possibility of earning the same number of points. Thus direct comparisons between users at different levels, although not encouraged are possible. Such comparisons between players of disparate skills can lead to user discouragement.

Games of skill and chance have an intrinsic excitement and entertainment value. Any game is greatly enhanced by a participant's ability to know how their performance compares in relation to other participants and/or to historical performance for the game throughout the contest. As with any game of skill, competition among friends, or with strangers of similar experience, or the ability at ones option, sometimes for an extra consideration, to compete in a separate team or individual contest, offers the opportunity of increased enjoyment and prizes.

Games of skill that rely on participation by watching an event on a television have potential latency issues since television signal reception is not synchronized nationwide. For example, a participant in Texas using a satellite dish network may experience a 3 second delay compared to an individual in California using a cable network. Live streams via the Internet of events utilizing a TV set or other display offer an alternative method of viewing televised events. The signal compression process creates systemic propagation delays that are often significant. Also, there are delays between individuals attending a game live and those watching the game live on television. Furthermore, for taped programs, both those shown to viewers in time zones or those syndicated on a market-by-market basis, there are potential delay issues as experienced with the live broadcasts in addition to other possible differences in timing of the broadcasts. Therefore, to maintain user enjoyment and fairness for all participants, these delays must be neutralized.

Summary of the Invention:

To encourage viewer participation, games, contests and social interactions are able to be synchronized with programming such as television shows or commercials utilizing a second screen such as a cell phone, iPad® or laptop computer. The programming is able to be television programming, Internet programming (e.g. a streamed video displayed on a webpage or mobile device) or any other programming. The gaming is able to be any game such as a game of skill or chance, for example, betting on the outcome of a soccer penalty kick, where legal.

Brief Description of the Drawings:

FIG. 1 illustrates a flowchart of a process of preventing latency issues from giving an advantage to some participants.

FIG. 2 illustrates a flowchart of a process of preventing participants at a live event from having an unfair advantage over participants watching on television.

FIG. 3 illustrates a flowchart of a process of handling latency issues for taped programs.

FIG. 4 illustrates a graphical representation of an embodiment of the present invention.

FIG. 5 illustrates a graphical representation of a network of devices of the present invention.

FIG. 6 illustrates a flowchart of a method of implementing a game synchronized with programming according to some embodiments.

FIG. 7 illustrates a system for implementing a game synchronized with programming according to some embodiments.

FIG. 8 illustrates a system for implementing a game synchronized with programming according to some embodiments.

FIG. 9 illustrates a system for implementing a game synchronized with programming according to some embodiments.

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Detailed Description of the Preferred Embodiment:

United States Provisional Patent Application No. 60/692,356, filed June 20, 2005, and entitled "SYSTEMS AND METHODOLOGIES ENABLING A CELL PHONE BASED SUBSCRIPTION SERVICE OFFERING A VARIETY OF SCHEDULED GAMES IN CONNECTION WITH LIVE TELEVISION PROGRAMMING," is incorporated by reference herein.

Three separate classes of latency issues for the length of time it takes a television signal to reach a viewer in producing real-time entertainment such as games of skill synchronized with television programming are addressed. The latency issues are: 1) systemic propagation delays in the delivery of a television signal to a receiver, 2) arbitrarily imposed delays on a broadcast television signal and 3) variances in precise broadcast times of segments of taped television programs between local and national commercials, sold through syndication to individual television stations.

Systemic Propagation Delays

There are specific challenges facing a service comprised of games or other entertainment played by remote participants utilizing cellular phones or the Internet, in connection with a live or taped telecast. Examples are live baseball, basketball and football games, taped game shows such as Wheel of Fortune™ and Jeopardy™ or other television programming such as predicting the winners of the Oscars. In a game of skill, for example, fair competition necessitates that a fast paced game, based on the unfolding television action has a level playing field for all participants regardless of how they receive their television signal. Propagation delays result from, among other things, the number of satellite hops required to deliver the signal, the method of processing and rebroadcasting the signal after it is received by cable systems head ends or an over the air broadcast television station, and whether or not the signal is further processed for high definition television. Furthermore, digital television recording systems (DVRs) such as TiVo™ are also able to generate delays in the viewing of the picture after receipt via satellite or

cable. These delays are able to result in a difference between the first signal received and the last received of more than several seconds.

People have an unsatisfactory experience and/or others are able to gain a potential competitive advantage from the variances in the exact time one viewer sees an event on their television versus another competitor who receives their television signal through a different delivery path. This is a challenge faced in Europe where over 65 million TV viewers participate in "In Game" wagering on televised sporting events. In the U.S., the 120 million television homes receive their signal either through an over the air broadcast, cable system or via satellite delivery. Each delivery system can impose propagation delays of various time lengths. If the delay between the time a viewer with the least amount of delay and the person receiving the signal with the greatest amount of delay exceeds several seconds, some inequalities in game experience and play are able to result.

One example is a game of skill based upon a football telecast, wherein competitors predict the play that the coaches and/or quarterback call prior to the snap of the ball. The competitor's prediction is based among other things on their observation of the down, distance and the offensive and defensive formations on the field and tendencies of the teams in these situations. Such a game utilizes a "lock out" signal, as described in the U.S. Patent No. 4,592,546 to Fascenda, entitled "Game of Skill Playable by Remote Participants in Conjunction with a Live Event," which is incorporated by reference herein, to prohibit the entry of predictions after the competitor sees the play begin to unfold, at the snap of the ball. The time stamped "lock out" signal is generated by a game producer also viewing the same telecast from a different location. If the game producer is viewing a television signal several seconds before some competitors and generating a time stamp based on that event, an advantage is able to result if the difference in the time stamp and the receipt of the "lock out" signal is more than several seconds earlier in relation to another competitor's television signal which is delayed. During this period of time, for example, on a first or second down situation, a competitor receives the "lock out" just as the quarterback receives the snap and the corresponding television signal at the same time

as the game producer while another competitor with a delayed television signal, receives a "lock out" signal while the quarterback is approaching the line of scrimmage. In another example, if the game producer is viewing a signal after a viewer, a competitor might see the quarterback start to drop back into a "shot gun" formation, making the likelihood of a pass considerably higher. This latter player might have time to change his prediction from, "run" to "pass" before receiving a "lock out" generated at the snap of the ball. A person consistently receiving a "lock out" later than another competitor might, through the course of the game, gain some competitive advantage.

While it is not clear that sufficient enough competitive advantage is gained between a competitor receiving his "lock out" signal precisely at the snap of the ball and one who is locked out a few seconds prior to the snap of the ball, this discrepancy could present the appearance of a playing field that is not level, and one of the primary benefits of the system addressed herein is to ensure the competitors feel they are on equal footing.

The above described issue is solved through a system and method to effectively equalize systemic propagation delay variances to a required level dictated by the demands and rules of a particular game, so that a material competitive advantage is not obtained and the user experience is optimized for all players.

The solution first relies on the determination of how each viewer is receiving their television signal (e.g. via an over the air broadcast in a metropolitan area, via a particular cable system, a particular satellite system, or through an Internet delivered live stream). All subscribers to a particular service provider or who are receiving an over the air broadcast in a specific metropolitan area will receive the signal at their location at the same time. It is also able to be determined if there is further processing of the signal within the homes, office, bar and others, which could further increase the total length of the propagation delay. Examples would be the use of a DVR, such as TiVo™. A variety of methodologies are able to be utilized to determine the time difference between the reception of the television picture being utilized by the

central game production facility where "lock out" signals are generated and each separate group of viewers around the country or around the world.

For this system, the total viewing population for a telecast is divided into segments or blocks of viewers referred to as "cohorts." For example, the 2 million inhabitants of the San Francisco Bay Area would be divided into approximately 1 over the air broadcast, 3 satellite independent providers and several cable "head ends" or central broadcast points serving a "cohort." This information would be gathered at a central game server, and all players registered to play in a particular contest would be assigned to a specific cohort of viewers.

The following are some methodologies for determining the delays experienced by various cohorts who are able to be used in combination or separately.

In one methodology, upon joining the service and prior to initial game play, subscribers and competitors are required to identify the method by which they receive their television signal and identify the cable or satellite service provider and answer questions relative to whether or not they subscribe to an analog or digital high definition service or utilize a DVR. This information is able to be verified by sending questions to their cellular phones concerning commercials, station breaks and the precise time they are viewed or utilizing other information only seen by members of that cohort.

In another methodology, a routine is established upon entry into the game where the individual viewer is asked to mark the precise time a predetermined audio or visual event in the television program occurs, such as the initial kickoff, which would establish the deviation of their receipt of their television picture from the television signal utilized by the game producers. While some viewers might attempt to cheat by delaying their input, the earliest entries from the cohorts in this group would be averaged to establish the accurate delta between the receipt of the telecast by the production crew and those in each discrete sub group of viewers.

In another methodology, the GPS function in the cellular phone is used to determine the physical location of a viewer which is matched to a database of cable lead ends or over the air broadcast stations available to a consumer in that precise location.

In another methodology, employees of the game producer who are members of the subgroups which constitute the competitors/viewers, e.g. a subscriber to Comcast Cable in San Francisco, are utilized by the game service provider. These individuals would provide the current propagation delay information sent to the game server utilizing their identification of a recognizable event they observe on their television set, such as the initial snap of the ball.

In another methodology, an event is streamed via an Internet connection, where a game control system measures the compression caused delay in signal delivery for separate sources and appropriately adjusts the game control data to individually synchronize with the separate sources of the televised event.

In another methodology, audio or video artifacts or information done in cooperation with the television signal provider are inserted which must be immediately responded to by the competitor to verify the source of their television signal or monitored at cooperative viewers' television sets.

In another methodology, the various delays through an automated system linked to the game server, which continuously samples the audio or video track of the underlying satellite, cable or over the air broadcast television signals are established around the country to provide the information of the precise arrival of the underlying television picture.

Utilizing software resident in the game control server, game control data for each set of viewers/competitors of the game in progress who are receiving their television picture through the same source are batched together by the game control server, and the appropriate delay is either time stamped on the game "lock out" signals, or is imposed on the entire data stream so that competitors receiving their television information slightly behind or ahead of others gain no material competitive advantage. Another method is for the game control server to send all the game control data to all of the viewers/competitors of the game at the same time, and the client software is able to delay the presentation of the game data based on the viewers' cohort.

Utilizing these methodologies to measure the delays in each cohort, each cohort of viewers would have artificial time delays on the game control information imposed by the game control server, which would substantially equalize the receipt of "lock out" data relative to the event triggering the "lock out," based on the underlying television programming, for example, the snap of the football. Players receiving the television signals in advance of the one with the slowest receipt of the television signal would receive "lock out" signals slightly delayed or time stamped with a slightly later time as described in U.S. Patent No. 4,592,546. By providing a correspondingly delayed lock out to a viewer receiving their signal later, a potential advantage is mitigated.

Alternatively, this time equalization from cohort to cohort could, for example, involve artificially delaying the transmission of the game control data stream sent to all competitors cell phones or other mobile devices by the appropriate amount of seconds, to sufficiently minimize the advantage a player with a few more seconds of television based information would have. For example, by time stamping the "lock out" signal at an earlier event, such as when the team breaks from the huddle, the chance of some cohorts seeing the actual beginning of the play is eliminated and the discrepancy in propagation delay provides little or no advantage.

Figure 1 illustrates a flowchart of a process of preventing latency issues from giving an advantage to some participants. In the step 100, it is determined how each viewer receives a television signal, where possibilities include an over the air broadcast, a particular cable system or a particular satellite system. In the step 102, it is determined if there is additional processing of the television signal when after the signal enters a viewer/participant's house, office, bar or other location from an item such as a DVR. In the step 104, the viewers/participants are grouped into groups also referred to as cohorts. In the step 106, a delay amount is determined for each group. The delay amount is able to be determined by the one or more methods as described above. In the step 108, the viewers/participants are equalized. The methods of equalization vary, but some examples include time stamping on the game "lock out" signals, imposing a time stamp on the entire data stream so that competitors receiving their television information are slightly

behind or ahead of others gain no material competitive advantage. Another method is for the game control server to send all the game control data to all of the viewers/participants of the game at the same time, and the client software is able to delay the presentation of the game data based on the viewers' group.

Arbitrarily Imposed Delays on the Broadcast of the Signal and the Physically Present Competitor

As a result of the Janet Jackson half time show episode at the 2004 Super Bowl, some networks have announced their intentions to impose up to a 7 second delay on telecasts of live sporting events. More recently an obscenity uttered by a competitor at the conclusion of a live NASCAR race has resulted in another network announcing it may impose a 5-7 second delay on future broadcasts of NASCAR races. These arbitrarily imposed delays are a significantly longer duration than those resulting from the above described propagation delays of the broadcast television or cellular network control information.

A distinct advantage is able to arise for a game player who is physically present at an event being televised which is the basis of a contest of skill in the home, or other location, separate from the live game venue. This is because in certain instances they will receive "lock out" signals generated for competitors among the television viewing audience, particularly if the game producer is not physically present at the venue, but producing by viewing a telecast. This discrepancy would permit prediction entry as much as 7 seconds later than those watching an artificially delayed television picture. This magnitude of delay can result in a significant competitive advantage for the game player who is physically present. For example, a soccer or hockey contest of skill might contain an element where a competitor is given a limited number of opportunities to predict if there will be a "shot on goal" within the next 5 seconds. The 5 second advantage to the competitor physically present would be significant, because the receipt of a lockout signal generated for the huge television audience could occur after a shot had occurred.

In a contest based on a football game, a competitor present at the stadium would receive their "lock out" signals after the play was underway and could often determine whether the play

was a pass or a run prior to receipt of the lockout signal. It is also likely that other live televised events such as The Oscars, Grammy's, beauty contests and other television programming that can support games of skill would impose delays on the telecast for the same or different reasons, also providing the opportunity for a competitive advantage for those who are attending the event in person.

The cellular telephone system currently has methodologies to determine a user's physical location. The 911 emergency laws mandate the cellular systems to have the capability of determining the location of a 911 emergency caller within 150 feet. More sophisticated approaches combine cellular site location technology with geosynchronous positioning satellite capabilities. Companies like Qualcomm™ have implemented various location technologies such as Snaptrack, SnapSmart and Snapcore, which provide a cellular phone's physical location within a matter of yards.

For each televised live event, the physical venue for this event would be known by the organizer of a game of skill in advance. Therefore, it is possible to determine for each contest of skill the specific cellular sites which will serve cellular phone owners physically present at that venue. A methodology is employed to identify all of the cellular phones logging into the game server registering to play the game of skill which are co-located within cellular sites servicing the stadium or auditorium where the televised live event is taking place. A communication methodology between the cellular carrier and the game control computer software contained in the game application resident on a game competitor's phone is able to be used, which would identify the cellular phone physically in the stadium.

Before the start of the contest of skill, the system informs the central computer of the game selected to be played by each competitor, for example, the San Francisco 49ers versus the New York Giants. The central game control server's software would hold current information on the physical location of the stadium of each game, for example, Candlestick Park in South San Francisco, and the cellular sites covering this location. The software resident on the cellular

phone or on the server then identifies the phone as one located physically at the telecast game's venue.

To ensure that potential competitors at the live venue are able to also compete in a contest of skill, the central game server will separate the scoring data and game control data for competitors using these cellular phones in this specific location from the general pool of competitors who are not so located, but watching the game via television. A separate contest is then generated and scored for those competitors who have the advantage of viewing the event live, and a separate prize pool is awarded. This separate game would be produced though the observation of the actual game physically at the venue or through the operation of a non-delayed satellite feed.

If it is ultimately determined that certain groups of television viewers, as opposed to live event attendees, who are competitors in these games of skill are gaining sufficient enough competitive advantage, segregating those players at the extreme ends of the propagation delays, into two or more separate contests with separate sets of prizes, may also be employed as described above. For example, separate contests for satellite viewers versus cable and over the air viewers are able to be generated.

Figure 2 illustrates a flowchart of a process of preventing participants at a live event from having an unfair advantage over participants watching on television. In the step 200, a cellular site that serves cellular phones at a venue site is determined for each contest of skill. For example, if a game of skill is played for a game between the San Francisco 49ers and the Oakland Raiders at Candlestick Park in South San Francisco, a specific cellular site serves the cellular phones in that location. In the step 202, the cellular phones that are utilizing the cellular site of the venue site and are participating in the game of skill for that event are determined. For example, if there are 1,000 cellular phone users in Candlestick Park who register to play in a game of skill involving the 49ers and the Raiders, they are detected by the system. In the step 204, it is determined if the cellular phone is located within the venue site. The determination is made by comparing the current cellular information with information stored on a server

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indicating the location of each venue such as Candlestick Park. Based on the determination in the step 204, separate groups are generated in the step 206. A group is generated for users that are located at the live venue, and a group is generated for those players that are watching live on television. Therefore, the live players who do not experience any delay compete against each other, and television viewers compete with others television viewers who have a delay.

In addition to implementing the above-mentioned solutions to latency issues, additional groups are able to be generated if the delays between signal providers are not resolved. For example, all viewers with satellite television signals compete against each other, and all cable television viewers compete against each other, with no cross competition.

Taped and Syndicated Television Programs

A separate but related latency problem arises in the case of syndicated television shows, which are by necessity pre-taped. Examples are game shows like Wheel of Fortune™ and Jeopardy™. These pre-recorded television game shows are generally syndicated, meaning they are sold to a specific television station on an exclusive lease for the local television market served by the station's signal. The television stations generally air these half hour episodes at various times in "prime time access," which is generally considered between 6-8pm. Therefore, with 3 different time zones in the United States, the start times will differ from market to market. In addition, the precise time each commercial bracketed television show segment that is broadcast is able to vary by a few seconds based on the time each station's engineering personnel starts the show's segments after the insertion of local and national commercials. Thus, for a show like Jeopardy™, there might be over 100 separate slightly different broadcasts from a time standpoint for a single episode of Jeopardy™ on a given day. In addition, these syndicated telecasts can also experience the same propagation delays as described above.

Contests of skill on cellular phones around these syndicated telecasts are produced with the cooperation of the game show producers, and game data files are produced which are precisely time-synchronized to the final video tape of the television game show. These files must

be precisely synchronized and a delay of just a few seconds could give an unfair competitive advantage to a viewer who is receiving their "lock out" signal later than another competitor in a fast paced game like Jeopardy™. The game data files must be synchronized with the television show at the beginning of the program and again as the show returns to the game competition from each commercial break.

This solution addresses the separate, but related problems of synchronizing game data files with the broadcast of prerecorded and syndicated games, entertainment, reality or other television programming that is aired in different time zones at the choice of the purchasing television station. As opposed to live sporting events, the game production for this genre of programming is not done live through real-time observation of the unfolding telecast but is produced in advance with the cooperation of the show producer as a time synchronized file utilizing the final edited for broadcast, television program.

In general, the game data files are divided into separate "segments" which comprise the entire television program and aired between the insertion of national, regional and local advertising. As the television program returns from the opening commercials, the initial game or entertainment segment is launched by the game producer, synchronized to the playing of the television tape, and the data files for this segment would end with the first commercial break. The other game "chapters" are resynchronized as each segment of the telecast resumes from commercial break. The local telecasts might have variations of anywhere from 1 to 5 seconds, or more, resulting from the use of different commercials by different stations, and the variances in the local production by the engineering management of the syndicated telecasts.

A system first determines all of the separate and unique television markets where the cellular phone service will be offered in connection with a syndicated, taped version of an underlying television program, for example, Jeopardy™. Network broadcasts usually air in three separate time zones. This information is available from the shows syndicator, for example, Jeopardy™, the syndicator King World™ or Sony™, the show's licensor. This information is also publicly available through the various television guides. The game production servers hold

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the pre-produced game data files to be broadcast to the cellular phones of the participating subscribers, containing, for example, the correct answers and possibly some intentionally wrong multiple choice answers in the case of Jeopardy™ or other multiple choice based game shows. The server begins the broadcast of its time synchronized files for each discrete telecast of a single television program at a precise start point for each "segment" or chapter. With knowledge of the precise timing of the discrete segments of the broadcast, for each separate syndicated market, the server transmits the pre-recorded files in most cases, at a slightly separate and different time to each viewer who is viewing the telecast in a particular market via a particular broadcast, satellite or cable signal.

The precise start times of the beginning episode of a game show and the start times of the other segments, beginning as the show resumes after a national and local commercial are delivered to the server through various methodologies.

One methodology requires the cooperation of an employee of the game provider based on visual observation of the telecast for that market, or being physically present at the event venue, utilizing a personal computer and the Internet, or by utilizing their local cellular phone, all coupled to the game server.

Another methodology includes utilizing an audio or video recognition system with online access to the broadcast of the underlying television program for each separate market which provides real-time tracking of the television broadcast to the game control server, ensuring the game data file is able to be precisely synchronized to the television picture. Information is also able to be inserted in a Vertical Banking Interval (VBI) of the taped syndicated show and tracked online in real time by the game control server. For remote telecasts and online connection from a remote device, reading data embedded in the VBI via a high speed connection to the central game server is utilized. Utilizing some of the procedures outlined above, the propagation delays in the receipt of the cellular transmissions are also monitored and the game server adjusts the data files containing the "lock outs" to accommodate the systemic delay in the delivery of the game data on the cellular networks.

Another methodology, with the cooperation of the producers of game shows, precise audio or video events in the telecast could either be added to the video, such as a visible count down, or existing events in the telecast identified by the producers as synchronization points which the competitors could utilize as start points for the previously downloaded data files at the press of an appropriate button on their cellular phone. This would trigger the launch of a program previously downloaded to the phone's RAM. Then, time synchronization would be launched.

One more methodology uses an audio signal, possibly sub-audible to humans, which is inserted into the taped audio track recognizable by the audio receiver in a cellular phone which would be utilized to start and/or continually keep the pre-produced data files resident on the cellular phone in synchronization with the telecast.

Figure 3 illustrates a flowchart of a process of handling latency issues for taped programs. In the step 300, pre-produced game data files are stored in servers; preferably, game production servers. The game data files include information required to participate in a game such as questions and answers for a trivia game like Jeopardy™. In the step 302, start times are determined for each discrete telecast of a show. The start times are determined as described above, such as with the cooperation of a game provider employee, utilizing an audio/video recognition system, using a visible count down or a recognizable signal which is able to be recognized by a cellular phone. Other ways of determining start times are possible as well. In the step 304, the game data files are transmitted at appropriate times based on the start times for each separate market. Furthermore, if additional delays are recognized, such as those delays described above, that is able to be accounted for.

Figure 4 illustrates a graphical representation of an embodiment of the present invention. A server 400 contains applications 402 and a storage mechanism 404. The applications 402 include an application to generate and modify game control data. The game control data is eventually transferred to users' cellular phones. If necessary the game control data is synchronized and time-stamped for each group, so that, as described previously, there are no

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unfair advantages for the competitors. A location application stored on the server 400 is able to determine which cellular phones are logged into the server 400 and what their location is. A grouping application is able to separate information such as scoring data and game control data into different groups. The grouping application also separates the cellular phones into groups or cohorts as described above. The storage mechanism 404 is utilized for storing the applications 402 in addition to selections and results. The storage mechanism 404 preferably includes a database for organizing the data including the selections, results, standings and groups amongst other data needed for executing the competitions. The server 400 is part of a network 406. A device 408 couples to the server 400 through the network 406. In some embodiments the network 406 includes the Internet. In some embodiments, the network 406 includes a cellular network. Also, in some embodiments, the network 406 includes both the Internet and a cellular network. The device 408 is preferably a cellular phone. In other embodiments a PDA, a computer, a laptop or any other device capable of communicating with the server 400 is possible. The device 408 stores a variety of applications 410. A game application is stored on the device 408. In some embodiments, software to identify the physical location of the device 408 is stored on the device 408. The device 408 also receives the game control data which ensures no competitors have an unfair advantage using the methodologies described above. Furthermore, the device 408 receives game data which is used to play the games. An example of game data includes Jeopardy™ multiple choice answers. Additional applications are able to be included on the server 400 and on the device 408, as necessary, for smooth operation of the games. Although some of the applications are described separately above, in some embodiments, the applications are included in one large application.

Figure 5 illustrates a graphical representation of a network of devices of the present invention. A server 400 is coupled to many devices through a network 406. The devices are grouped into groups or cohorts as described above. For example, Group 1 of devices 500 includes a set of devices that receive a television signal through cable with a delay time of *x*. Group 2 of devices 502 includes a set of devices that receive a television signal through satellite

with a delay time of *y*. Group 3 of devices 504 includes a set of devices that receive a television signal over the air with a delay time of *z*. Then, based on the delay times of each group, steps need to be taken to ensure these delays do not affect the ability of users to play a game of skill which corresponds to a live event shown on television. As described above, a lockout signal is sent at the appropriate time depending on the delay, or a lockout signal is sent, but included with the lockout signal is information for the lockout not to be implemented until the delay is accounted for. This ensures that users with different delays based on their television signal reception path do not receive advantages or disadvantages. Furthermore, in addition to the delays being related to the type of signal reception path such as cable versus satellite, the delays could also be related to other aspects of the signal reception path such as the location of the receiving television or the type of equipment that one television company uses versus another.

Game Production

In the production process, game data is time synchronized precisely with a video stream, utilizing the game production tool.

When playing, the user selects answers (e.g., 1, 2, 3, or 4 or by pressing on the touchscreen) on his cellular phone to answer the question before a time stamped "lockout" signal contained in the game data is received/triggered, precluding further input. The competitor's score is incremented or decremented by software in the game data, depending on whether the competitor is right or wrong with their selection.

The video content and the separately produced overlying game data are then either combined for streaming or broadcast (e.g., into a single data file, maintained as two data files), or an alternate methodology is utilized to ensure that the content is broadcast simultaneously on a single TCP, UDP, 3G, multicast, broadcast or other transmission, utilizing current data compression capabilities. Any appropriate transmission methodology is utilized, including WiFi. The game data contains graphic information separate from the video of the game, such as the selection options, for example "run," "pass," for a game based on a football broadcast. Separate

digital sound tracks, one from the television programming (including streamed video, for example, television programming streamed over the Internet to a computing device), and one related to the game programming are also able to be combined for a single transmission. In other words, data is able to be either A) downloaded in advance or B) streamed or C) broadcast. The different types of data: 1) video and audio, 2) graphic game play data, 3) audio enhancements, 4) other types of data, are able to be either combined with each other or sent separately. Therefore, users are able to play simultaneously wherein the video, audio and game play data are received by streaming, broadcasting or downloaded using a simultaneous start time. Users are also able to play on demand wherein the video, audio and game play data are received when requested by streaming, broadcasting or downloaded. Users are also able to practice with on demand games where they are not competing against other players. Regardless of how these discreet pieces of information are delivered to the phone, software resident on the phone ensures that the game play data and audio are synchronized with the video archive.

Game Play

Under this methodology, a user on an ad hoc basis, or as a subscriber to a service or charging the required fee to their cellular telephone bill, indicates their desire to participate in a contest based upon the old television program. The contests have a specific start time, displayed on the cellular phone, such as, for example, "1980 Super Bowl game, 3:15 pm," or in an alternative embodiment, the menu on the cellular phone describes a game played at any time by the cellular phone owner by selecting it from a menu on the cellular phone. Upon selecting this game from the menu, the underlying video and data files are streamed or downloaded to the cellular phone, and the video of the underlying telecast sporting event, game show, or other entertainment program, is displayed on the cellular phone utilizing software permanently or temporarily resident on a cellular phone client designed to display full motion video. A record of what games have been played for an individual subscriber is maintained on the service's server to ensure a subscriber always receives a game they have not played before.

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Game Display

The data files which manage the game play, received simultaneously, also utilize software resident on the client for managing the display on the phone's LCD. This game software is able to be a separate "gaming client" or an "all in one" application which addresses the video and game elements, for example for a game based on a streamed broadcast received by the game playing client. The game data graphics are also able to be presented to the player by overlaying the text and symbols over the video content (e.g., television information), or in the alternative, utilize a separate portion of the cellular phone's display for this information, at the option of the producers. An example of this latter approach is the crawling information displayed at the bottom of a television screen containing stock ticker information or the way closed captioning information is displayed on television screens. In the alternative, a picture in picture (PIP) approach is also able to be used to separately display game play information from the underlying video (e.g., streaming video, television footage). In another alternative, the game play information is simply superimposed on top of the video.

Under this invention, the subscriber would play along with the 5- to 15-minute television segment of the game until its conclusion, and would be informed at the end, based upon software resident in the phone, what their total points earned are. In some embodiments, the segments are longer or shorter. By transmitting this game performance information to a central server for compilation, the competition would receive information on how their score relates to the scores achieved by other players of the game. Under an "on demand" game play format, users are able to selectively play against friends, and prizes would generally not be awarded, since the person could play the game as many times as they desire, or obtain the answers from someone who had played.

Games Based on Simultaneous Broadcast Other Than a Live Event

In an alternative embodiment, the combined video and game data files produced by the same methodology described above is able to be simultaneously broadcast to all participants at a

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specific time, such as every 15-minutes, to all of the players who have registered their intention to play a specific game. In this format, these files would be individually streamed, or in the alternative, digitally broadcast, precisely at the same time to all participants. Another approach is to download the data through streaming, broadcast or other downloading technique in advance. Under this approach, the application ensures that the video and game play started at the appropriate time. This is able to be done by signaling a "start" signal to all players.

While game play unfolds in a manner similar to that described in U.S. Patent No. 4,592,546, a significant difference in this invention and the prior art, is that, in some embodiments, all of the information utilized for the game is pre-produced and combined in a single data file, and received simultaneously by all participating cellular phones broadcast or streamed, to be separated and displayed for simultaneous viewing on a cellular phone by the methods described above. In some embodiments, while the games unfold to the participant in virtually the same manner as a game based upon a live telecast of a sporting event or game show, the cellular phone is not utilized as a receiving device for a second mass media communications synchronized with the underlying telecast, but rather is receiving the single data file or stream which contains both the video of the telecast and the game data information. The video and game data is then separated by application software resident on the cellular phone for simultaneous display on a single color LCD display.

Since all players receive the same game data at the same time, cheating among players, possible with on demand games, is not possible, and prizes can be awarded.

Benefits

While there is a large potential demand for games of skill for prizes based upon the live telecast/streaming of sporting events and syndicated game shows, participation in these games is generally limited to prime time or near prime time viewing on week days, and sporting events on the weekends. The explosion in the popularity of cellular games of short duration indicates that the owners of cellular telephones often find 5-10 minutes during the day to participate in

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stimulating entertainment work breaks, while commuting to and from work, sometimes even when they are working, amongst other times. The methodologies described herein provide a new and unique form of entertainment. While based on popular television programming, the games are able to be enjoyed either on demand or several times an hour with scheduled start times, since they are generated from any content such as television content (live or archived). The games are ever changing and are based on programming with a proven huge fan audience. This invention provides the highest quality production value at a fraction of the cost of existing video, computer and cellular games. Other games require the skills of graphic artists and designers, and extensive programming to create full motion 3D graphics in attempt to make games like EA Sports® John Madden Football, or Sony's Jeopardy!® games as close to the actual telecast as possible. This invention repurposes the actual television content with the production values and excitement of the original broadcasts of these events at a fraction of the cost.

In some embodiments, the game data is able to be adjusted such that it is synchronized with a video stream. For example, in cooperation with an originator of a video stream (e.g., NFL), the game data is integrated with a streaming game application, which is a separate application from one for broadcast television. Furthering the example, two applications are available to provide similar but different competitions; a first application for use with a video stream and a second application for use with a television broadcast. The applications are similar in that they present questions and/or selections based on a video, but since the streaming video and the television broadcast may have different latencies, the applications operate slightly differently. In some embodiments, a single application is able to determine how the video content is being received (e.g., streaming versus broadcast), and the application is able to handle the latency differences. In some embodiments, an application determines when a stream is received (e.g., using automatic content recognition, watermarks, fingerprints, or any other analysis), and the application estimates and adjusts for an approximate delay for people in different locations. For example, servers or client devices in different parts of the world determine an amount of delay as described herein, and based on that amount of delay either delay

presentation of a question/selection or perform other gameplay effects to ensure none of the participants of the game have an unfair advantage over other competitors based on the delay. Furthering the example, if users in San Francisco receive a stream 3 seconds after users in New York, then the presentation of a question for the users in New York is delayed 3 seconds, so that they all receive the question at the same time.

To utilize the methods and systems described herein, for the most part, a participant in a game of skill playing on his/her mobile device does not have to perform any different actions when playing a standard game of skill without the methods and systems described herein. The user simply plays as usual except that with the methods and systems described herein, users with faster or slower connections do not receive any advantages or disadvantages. In embodiments which require user input, the user performs an action, such as recognizing an event to synchronize the game with a live or taped event. For game producers, the methods and systems described herein able to be implemented automatically or performed manually. Automation includes technology to automatically determine the start of an event such as automatically detecting the start of a football game. Manual implementation requires a person to watch an event and respond to that event such as watching a football game and noting when the first play occurs in order to synchronize the "lock out" signal appropriately.

In operation, the methods and systems described herein are able to synchronize separate games of skill which have different latencies based on television signal reception differences, random delays and/or other delays. For live events where all of the participants are watching the event on television and participating in a game of skill corresponding to that live event, delays related to the television signal reception differences have to be handled. Television signal reception differences occur because some televisions receive the live event signal via satellite, while others have cable and still others have something else. The signals do not arrive at the participants at the same time. Therefore, to ensure fair competition, participants are separated into groups or cohorts based on delivery system type, location and other parameters that affect the timing of the signal. Then, using a mechanism described above, the delay for each group is

determined. Based on that determined delay, the game of skill is able to be configured with the appropriate timing for a lock out signal, so that each participant has the same amount of time to select an answer and also sees the same amount of the live event as others before the lock out occurs.

For games of skill where there are both participants attending the event live and watching it on television which typically has a few seconds delay, the participants are separated into different competitive groups wherein the attending participants are in one group and the television viewing participants are in another group.

For games of skill using tape recorded events like game shows, the important aspect is ensuring the game of skill corresponds with the televised recorded event. For example, if the game of skill were off by a few seconds, participants could receive multiple choice answers to the wrong questions. Therefore, the methods and systems described herein ensure that the game of skill is synchronized with the taped televised event even when there are different latencies depending on how and where the television signal is being displayed.

Furthermore, although the methods of handling latency have been described above as handling a specific scenario such as delays in television signal reception, the methods are able to be used in conjunction with each other as well. For example, when participants are separated into attending and televised groups because some participants are actually attending an event while others watch it on television, for those watching it on television there will still be issues from location to location and based on the television signal reception, so the latency balancer which handles that aspect of latency is also able to be implemented.

To encourage viewer participation, games, contests and social interactions are able to be synchronized with programming such as television shows or commercials utilizing a second screen such as a cell phone, iPad® or laptop computer. The programming is able to be television programming, Internet programming (e.g. a video displayed on a webpage or mobile device) or any other programming. The gaming is able to be any game such as a game of skill or chance, for example, a scavenger hunt or a treasure hunt.

In some embodiments, the programming and the gaming, contests or social interactions are displayed on a single screen. For example, Google TV™, Apple TV® or another IPTV includes a broadband connection which is capable of connecting to a website which is a companion site to the programming. The display on the television is able to include a Picture-in-Picture (PIP), display space near or around the telecast's picture (e.g., an L-shaped space), graphic overlay, or a split screen. In another example, a two-screen experience includes a wi-fi connection, an open wireless technology (e.g., Bluetooth®) or any other connection from the television to a tablet device such as an iPad®. In some embodiments, a computing device contained within the television couples to a server via the Internet, where the server stores files, displays, graphics, gaming information and/or any other information to be synchronized with the programming, and the application is separately displayed on the same screen for user interaction with the game or contest utilizing a controller for the television.

In a scavenger hunt game, a contest might be based on a member collecting items in a scavenger hunt fashion which appear in TV programs or commercials. The first person or teams to collect all of the items or collecting the most points wins.

In a treasure hunt game, clues to items to collect are given which make sense only upon the viewing of a commercial or program. A viewer enters an item (e.g. from multiple choice options), and the first to accumulate all of the items wins. Hereinafter, all references to a viewer are understood to include a single viewer or a team or teams of viewers. The teams are able to be formed through social networks or on an ad hoc basis. Exemplary formations of teams are able to be found in U.S. Patent No. 8,002,618 which is hereby incorporated by reference in its entirety. For example, teams are able to be formed and then play any game or contest such as a scavenger hunt, treasure hunt or bingo. The players on each team are able to work jointly or separately to collect items and perform other game play actions.

For example, a treasure hunt game based on the entertainment content or TV commercials provides the first item to search for: "Old English Sheep Dog with red collar." The application in the game mode records an input such as a press of a screen or button by a viewer the instant they

observe the dog appear on the TV screen in connection with a participating show or commercial. Executing the required input at this precise time would validate that indeed THE Old English Sheep Dog had been collected. In another version, a score of 1000 points would rapidly be decremented beginning when a treasure hunt object appeared in a TV show or commercial. A rapid input would get 990 points, and someone who had spent time to find their phone might get 450 points for a slower response. The points are decremented incrementally, exponentially or in any other manner.

The viewer receives a prize upon the accumulation of a designated level of points, or in a money contest such as a $1 Million national contest, the first viewer to achieve a designated point's level wins the grand prize.

In another example of a game, a bingo-like game is presented where, instead of letters and numbers being used for a player's board, each player's board includes specific objects, characters, events or other items contained in a commercial, television series, show, event or other programming. The items are each collected by pressing a button within a prescribed amount of time (e.g., 5 seconds) of appearance of the object on the television. The first person to fill the card wins. Filling the card is able to mean filling the card fully or any other bingo-related definition of filling such as achieving a vertical, horizontal or diagonal line. For example, a player's card includes 25 slots, arranged in a 5 x 5, grid with items such as a Ford F-150, a Ford F-250, a Ford Focus, a Ford Mustang, an engine, and twenty other items. When the player watches a Ford commercial, the player sees a Ford Focus. The player then presses a button within the allotted time, and that slot in his board is filled. Each player's board is monitored, and when it is determined that a player has achieved a filled board, the player is declared the winner. In some embodiments, the other players are notified, and the game ends, and in some embodiments, additional winners are able to be determined (e.g. second and third place).

The system implements precise synchronization of a second screen and programming. The synchronization is able to be implemented using any methodology, such as utilizing the

teachings of latencies. Exemplary methodologies for synchronizing have been described herein and any other methodologies of synchronizing are possible.

Figure 6 illustrates a flowchart of a method of implementing a game synchronized with programming according to some embodiments. In the step 600, an application detects programming with which to be synchronized. In the step 602, the application synchronizes with the programming to provide application data such as gaming data. In the step 604, based on user responses, the game is executed. For example, a scavenger hunt game, treasure hunt or other game based on the observation of something contained in a television broadcast game is executed. In some embodiments, in the step 606, scores are tallied, prizes are awarded and/or other results are obtained. In some embodiments, the order of the steps is modified. In some embodiments, fewer or more steps are implemented.

Detection and synchronization are able to be implemented in any manner. The efficacy of the games depend on each player having an opportunity to obtain the maximum number of points achievable by entering their input as soon as possible after the specified item appears on the TV screen. The following provides examples of detection and synchronization. Existing events in the telecast are used as synchronization points or start points for previously downloaded data files to a mobile client, as well as a watermark, fingerprint not detectable by the viewer. A synchronization point is a visible or audible event located within the telecast. A synchronization point for a live telecast is contained in audio or video within the telecast. Information is inserted in a Vertical Blanking Interval (VBI) or digital equivalent of a show and tracked online in real-time. Information is embedded in the telecast and tracked online in real-time. Determining a start time of the telecast includes using a recognizable signal recognizable by a mobile device. A start time of a commercial is delivered using a recognizable signal recognizable by a mobile device. A plurality of synchronization points are used by a client to continuously check to ensure pre-produced data files are synchronized with the telecast. Inserted audio or video is used to continuously check to ensure the pre-produced data files are precisely synchronized on the client with the telecast. Inserted audio or video is used by a client to continuously check to ensure the

pre-produced data files are precisely synchronized on the client with the telecast. The inserted audio or video is used by a server to continuously check to ensure the pre-produced data files are precisely synchronized on the client with the telecast.

In some embodiments, synchronizing includes determining an amount of delay to precisely synchronize between the game stored on a mobile device and the receipt of the program presented on a television (or mobile device through streaming) and substantially equalizing presentation of the game of skill or chance with programming or a commercial contained in a telecast through adjustment for the amount of delay of the telecast (or streaming content). Substantially equalizing includes equalizing receipt of lock out events relative to a televised/streamed event triggering a lock out. Synchronizing includes substantially equalizing a participant delay to ensure the participants each receive the game of skill or chance at substantially the same time. Synchronizing includes determining participant latency based on specific participant latencies and synchronizing the game of skill or chance for each of the participants. Synchronizing includes determining the latencies in receiving a streamed broadcast of an event and synchronizing game data to all recipients of the one or more streamed broadcasts of the event. Synchronizing includes utilizing an audio or video recognition system on a client with online access to the telecast's game control server. Synchronizing includes using added audio or video events in the telecast as synchronization points. A plurality of synchronization points within audio or video are used by software on a client in connection with a server to continuously monitor the telecast/streaming content to ensure the game of skill or chance played on the client is precisely synchronized with the telecast/streaming content. An artifact is inserted into the telecast/streaming content recognizable by an audio receiver in a mobile device which is utilized to start and continually keep the game of skill or chance synchronized with the telecast/streaming content.

Participants include ad hoc or preexisting groups of friends competing in a separate competition in disparate physical locations. The synchronization points are the audio or video data for the telecast/streaming content residing on a server online with a mobile device. The

participants constitute ad hoc or existing groups of geographically dispersed friends participating in a separate game of chance or skill. The participants are ad hoc or previously organized groups of friends competing against each other in a separate contest. Equalizing the participants includes time stamping the amount of delay on game-related data. Establishing the amount of delay is through an automated system which samples an audio or video track of a satellite, cable or over the air broadcast television signal (or streaming content), linked to a game server, to provide information related to a precise arrival of an underlying television picture/streaming content.

Figure 7 illustrates a system for implementing a game synchronized with programming according to some embodiments. The system includes several devices such as a viewing device 700, a secondary device 702, a server device 704 and a network 706. For example, a user views programming on the viewing device 700 (e.g. a television) and participates in a scavenger hunt game on the secondary device 702 (e.g. a smart phone). The game on the secondary device 702 is synchronized with the programming of the viewing device 700. In some embodiments, the synchronization takes place using a program on the secondary device 702, and in some embodiments, the server device 704 is used for synchronization. The network 706 is able to be any network such as the Internet, a cellular network or a combination of networks. Fewer or additional devices are able to be included within the system.

To utilize the synchronized gaming and programming, a user initiates a game which automatically synchronizes with the programming. In some embodiments, the programming initiates the game. For example, a user is watching television and a trigger in the television signal automatically starts the game. The user plays the game as any game would be played. For example, if the user is playing a scavenger hunt game, the user searches/looks for items and indicates when the items are found. If the user is playing a treasure hunt game, the user uses clues to locate an item. Points and/or prizes are awarded based on the timing of the user input/selections (e.g. a faster response receives more points than a slower response).

In operation, the synchronized gaming and programming is able to synchronize programming with a game presented on a second device. In some embodiments, the synchronized gaming and programming is also able to synchronize participants, for example by equalizing the amount of delay or sending a lockout signal at the appropriate time based on the amount of delay.

Although a scavenger hunt and a treasure hunt have been described herein, any other game is able to be played in conjunction with programming.

Figure 8 illustrates a system for implementing a game synchronized with programming according to some embodiments. Content from a content source 800 is received at a game production center such as at a server 802. The content source 800 is able to be a venue (of a sporting event), a device at a venue or a broadcasting company device. The content is able to be received as streaming content or any other audio and/or video coming from the content source 800. For example, the content is able to be received via a television broadcast or an audio feed from a cellular phone present at a venue. A delay in the reception of the content is able to be determined (e.g., measured) as described herein. The delay amount is used to synchronize game data with the content or adjust the game data (e.g., adjust the time the game data is sent or triggered) at the server 802. In some embodiments, only the time-adjusted game data is sent from the server 802 to user devices 804 which display the game data (e.g., on web-connected televisions, laptops). In some embodiments, the user devices 804 only display the game data (without displaying the content), and in some embodiments, the same user devices display the content as well (e.g., smart television displays the game data and the content using overlays, picture-in-picture or another implementation). For example, the user devices 804 which only receive the game data display the game data, and content 806 (e.g., a football game telecast) is displayed on a television or another user device. Other devices are able to be implemented in the system as well. In other embodiments, the user is physically observing a live event, while also receiving the game data.

Figure 9 illustrates a system for implementing a game synchronized with programming according to some embodiments. Content from a content source 900 is received at a game production center such as at a server 902. The content source 900 is able to be a venue (of a sporting event), a device at a venue or a broadcasting company device. The content is able to be received as streaming content or any other audio and/or video coming from the content source 900. For example, the content is able to be received via a television broadcast or an audio feed from a cellular phone present at a venue. A delay in the reception of the content is able to be determined (e.g., measured) as described herein. The delay amount is used to synchronize game data with the content and combine the game data with the content at the server 902. In some embodiments, the synchronized, combined game data and content is sent from the server 902 to user devices 904 which display the game data with the content (e.g., on web-connected televisions, laptops). In some embodiments, the same user devices display the game data with the content (e.g., smart television displays the game data and the content using overlays, picture-in-picture or another implementation). Other devices are able to be implemented in the system as well.

The present invention has been described in terms of specific embodiments incorporating details to facilitate the understanding of principles of construction and operation of the invention. Such reference herein to specific embodiments and details thereof is not intended to limit the scope of the claims appended hereto. It will be readily apparent to one skilled in the art that other various modifications may be made in the embodiment chosen for illustration without departing from the spirit and scope of the invention as defined by the claims.

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REMARKS

This case is a continuation of co-pending U.S. Patent Application Ser. No. 16/865,000, filed on May 1, 2020. The Applicants respectfully request further examination and reconsideration in view of the above preliminary amendment. By this preliminary amendment applicants have amended Claims 25, 31 and 32; added the new Claims 62-89; and canceled Claims 1-24 and 38-61. Accordingly, after the above preliminary amendment Claims 25-37 and 62-89 are now pending.

For the reasons given above, Applicants respectfully submit that all of the pending claims are now in condition for allowance, and allowance at an early date would be greatly appreciated. Should the Examiner have any questions or comments, the Examiner is encouraged to call the undersigned at (408) 530-9700 to discuss the same so that any outstanding issues can be expeditiously resolved.

Respectfully submitted,
HAVERSTOCK & OWENS LLP

Dated: September 29, 2021

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Attorneys for Applicants

PTO/AIA/14 (11-15)
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	AIRP-01054
	Application Number	
Title of Invention	SYNCHRONIZED GAMING AND PROGRAMMING	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

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☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

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Customer Number	28960		
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Application Information:

Title of the Invention	SYNCHRONIZED GAMING AND PROGRAMMING		
Attorney Docket Number	AIRP-01054	**Small Entity Status Claimed**	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	7	**Suggested Figure for Publication (if any)**	

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Title of Invention	SYNCHRONIZED GAMING AND PROGRAMMING	

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
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This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.
When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status			Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Continuation of	16865000	2020-05-01

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	AIRP-01054
	Application Number	
Title of Invention	SYNCHRONIZED GAMING AND PROGRAMMING	

Prior Application Status			Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
16865000	Continuation of	15886704	2018-02-01
Prior Application Status			Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
15886704	Continuation of	15586198	2017-05-03
Prior Application Status			Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
15586198	Continuation in part of	14172539	2014-02-04
Prior Application Status			Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
14172539	Division of	13484129	2012-05-30
Prior Application Status			Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
13484129	Continuation in part of	13403845	2012-02-23
Prior Application Status			Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
13403845	Continuation of	11786992	2007-04-12
Prior Application Status			Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
11786992	Claims benefit of provisional	60791793	2006-04-12
Prior Application Status			Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
15586198	Continuation in part of	15332625	2016-10-24
Prior Application Status			Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
15332625	Continuation of	11542335	2006-10-02

FanDuel Ex. 1002-0063

PTO/AIA/14 (11-15)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	AIRP-01054
	Application Number	
Title of Invention	SYNCHRONIZED GAMING AND PROGRAMMING	

Prior Application Status			Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
11542335	Claims benefit of provisional	60723301	2005-10-03
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button.			Add

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)[i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

			Remove
Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)
Additional Foreign Priority Data may be generated within this form by selecting the **Add** button.			Add

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

PTO/AIA/14 (11-15)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	AIRP-01054
	Application Number	
Title of Invention	SYNCHRONIZED GAMING AND PROGRAMMING	

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

PTO/AIA/14 (11-15)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	AIRP-01054
	Application Number	
Title of Invention	SYNCHRONIZED GAMING AND PROGRAMMING	

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1 — Remove

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

● Assignee	Legal Representative under 35 U.S.C. 117	Joint Inventor
Person to whom the inventor is obligated to assign.	Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here. ☒

Organization Name	Winview, Inc.		
Mailing Address Information For Applicant:			
Address 1	50 Woodside Plaza, Suite 208		
Address 2			
City	Redwood City	**State/Province**	CA
Country	US	Postal Code	94061
Phone Number		Fax Number	
Email Address			

Additional Applicant Data may be generated within this form by selecting the Add button. Add

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

PTO/AIA/14 (11-15)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	AIRP-01054
	Application Number	
Title of Invention	SYNCHRONIZED GAMING AND PROGRAMMING	

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

Remove

If the Assignee or Non-Applicant Assignee is an Organization check here. ☐

Prefix	**Given Name**	Middle Name	**Family Name**	Suffix

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1			
Address 2			
City		**State/Province**	
Country i		Postal Code	
Phone Number		Fax Number	
Email Address			

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button. Add

Signature:

Remove

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). **However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).**

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Jonathan O. Owens/			Date (YYYY-MM-DD)	2021-09-29
First Name	Jonathan	Last Name	Owens	Registration Number	37902

Additional Signature may be generated within this form by selecting the Add button. Add

PTO/AIA/14 (11-15)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	AIRP-01054
	Application Number	
Title of Invention	SYNCHRONIZED GAMING AND PROGRAMMING	

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1 The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3 A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent CooperationTreaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

FanDuel Ex. 1002-0069

PATENT
Attorney Docket No.: AIRP-01054

HAVERSTOCK & OWENS LLP
162 North Wolfe Road
Sunnyvale, CA 94086
(408) 530-9700
Customer No.: 28960

MAIL STOP PATENT APPLICATION
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Anticipated Classification of this Application:
Class: _____ Subclass: _____
Prior Application: 16/865,000
Examiner: Iannuzzi, Peter J.
Art Unit: 3715

TRANSMITTAL OF FILING UNDER 37 C.F.R. § 1.53(b)

Sir:

This is a request for filing a Continuation application under 37 C.F.R. § 1.53(b), of pending prior application Serial No. 16/865,000 filed on May 1, 2020, of David B. Lockton for **SYNCHRONIZED GAMING AND PROGRAMMING**.

CERTIFICATE OF ELECTRONIC TRANSMISSION

I hereby certify that this New Application and the documents referred to are attached are being electronically transmitted to the **United States Patent and Trademark office, Alexandria, Virginia** via EFS-Web on September 29, 2021.

Jonathan O. Owens
(Name of Person E-Filing)

/Jonathan O. Owens/
Signature

1. Copy of Prior Application as Filed Which is Attached

I hereby verify that the attached papers are a true copy of what is shown in my records to be the above identified prior application, including the oath or declaration originally filed. The copy of the papers of prior application as filed which are attached are as follows: 32 page(s) of specification; 9 page(s) of claims; 1 page(s) of abstract; and 7 page(s) of drawings. The original of declaration 2 page(s), power of attorney 1 page(s), original of Assignment 1 page(s), as filed May 1, 2020 in U.S. Patent Application Serial No. 16/865,000.

2. Amendments

X Cancel in this application original claims 1-24 of the prior application before calculating the filing fee.

X A preliminary amendment is enclosed, including changes to the specification, claims, and remarks.

3. Fee Calculation (37 C.F.R. § 1.16)

FEE CALCULATION			Basic Fee	320.00
			Search Fee	700.00
			Examination fee	800.00
			Total	$1,820.00
Application Siz Fee	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $270.00 ($135 for small entity) for each additional 50 sheets or fraction thereof.		Fee = $270.00	
Claims	Number Filed	Number Extra	Rate	0.00
Total Claims	41 - 20 =	21	$100.00	2,100.00
Independent Claims	2 - 3 =	0	$480.00	0.00
Multiple Dependent claim(s), if any			$860.00	
			Filing Fee Calculation	$3920.00

4. X Applicant is entitled to small entity status 50% reduction

TOTAL FEES $1,960.00

FanDuel Ex. 1002-0070

5. Drawings

7 Sheets of drawings are enclosed.

X Formal.

6. Relate Back-35 U.S.C. § 120

X The specification has been amended by inserting before the first line the sentence:

– This Patent Application is a continuation of U.S. Patent Application Ser. No. 16/865,000, filed May 1, 2020, titled "SYNCHRONIZED GAMING AND PROGRAMMING," which is a continuation of U.S. Patent Application Ser. No. 15/886,704, filed February 1, 2018, titled "SYNCHRONIZED GAMING AND PROGRAMMING," which is a continuation of U.S. Patent Application Ser. No. 15/586,198, filed May 3, 2017, titled "SYNCHRONIZED GAMING AND PROGRAMMING," which is a continuation-in-part of U.S. Patent Application Ser. No. 14/172,539, filed February 4, 2014, titled "SYNCHRONIZED GAMING AND PROGRAMMING," which is a divisional of U.S. Patent Application Ser. No. 13/484,129, filed May 30, 2012, titled "SYNCHRONIZED GAMING AND PROGRAMMING" which is a continuation-in-part of U.S. Patent Application Ser. No. 13/403,845, filed February 23, 2012, titled, "A METHODOLOGY FOR EQUALIZING SYSTEMIC LATENCIES IN TELEVISION RECEPTION IN CONNECTION WITH GAMES OF SKILL PLAYED IN CONNECTION WITH LIVE TELEVISION PROGRAMMING" which is a continuation of U.S. Patent Application Ser. No. 11/786,992, filed April 12, 2007, titled, "A METHODOLOGY FOR EQUALIZING SYSTEMIC LATENCIES IN TELEVISION RECEPTION IN CONNECTION WITH GAMES OF SKILL PLAYED IN CONNECTION WITH LIVE TELEVISION PROGRAMMING," which claims priority under 35 U.S.C. §119(e) of the co-owned United States Provisional Patent Application No. 60/791,793, filed April 12, 2006, and titled "A METHODOLOGY FOR EQUALIZING SYSTEMIC LATENCIES IN TELEVISION RECEPTION IN CONNECTION WITH GAMES OF SKILL PLAYED IN CONNECTION WITH LIVE TELEVISION PROGRAMMING" which are also all hereby incorporated by reference in their entireties.
The U.S. Patent Application Ser. No. 15/586,198, filed May 3, 2017, titled "SYNCHRONIZED GAMING AND PROGRAMMING," is also a continuation-in-part of U.S. Patent Application Ser. No. 15/332,625, filed October 24, 2016, titled "CELLULAR PHONE GAMES BASED UPON TELEVISION ARCHIVES," which is a continuation of U.S. Patent Application Ser. No. 11/542,335, filed October 2, 2006, titled "CELLULAR PHONE GAMES BASED UPON TELEVISION ARCHIVES," which claims priority under 35 U.S.C. §119(e) of the co-pending, co-owned United States Provisional Patent Application No. 60/723,301, filed October 3, 2005, and entitled "CELLULAR PHONE GAMES BASED UPON TELEVISION ARCHIVES" which are both also hereby incorporated by reference in their entireties. –

7. Inventorship Statement

(a) With respect to the prior co-pending U.S. application from which this application claims benefit under 35 U.S.C. § 120 the inventor(s) in this application is (are):

X the same.

(b) The inventorship for all the claims in this application is:

X the same.

8. Fee Payment Being Made At This Time

X By e-Filer via RAM

9. Method of Payment of Fees

X E-Filer via RAM charge Credit Card the amount of $ 1,960.00

10. Authorization To Charge Additional Fees

X The Commissioner is hereby authorized to charge any fees or credit any overpayment during the pendency of this application to Account No. 08-1275.

11. Power of Attorney

X The power of attorney in the prior application is to: Jonathan O. Owens HAVERSTOCK & OWENS LLP, 162 North Wolfe Road, Sunnyvale, CA 94086.

a. X The power appears in the original papers as filed on May 1, 2020. A copy is attached.

b. X Address all future communications to: HAVERSTOCK & OWENS LLP
ATTN: Jonathan O. Owens
162 North Wolfe Road
Sunnyvale CA, 94086

FanDuel Ex. 1002-0071

12. Maintenance of Codependency of Prior Application

X This application is a continuation of co-pending Serial No. 16/865,000 filed on May 1, 2020.

13. X Incorporation by Reference
The entire disclosure of the prior application(s), from which a copy of the oath of declaration is supplied under Box 1, is considered to be part of the disclosure of the accompanying application and is hereby incorporated by reference.

I hereby declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Dated: September 29, 2021

By: /Jonathan O. Owens/
Name: Jonathan O. Owens
Registration No.: 37,902

Electronic Acknowledgement Receipt

EFS ID:	43899253
Application Number:	17488674
International Application Number:	
Confirmation Number:	8881
Title of Invention:	SYNCHRONIZED GAMING AND PROGRAMMING
First Named Inventor/Applicant Name:	David B. Lockton
Customer Number:	28960
Filer:	Jonathan O Owens
Filer Authorized By:	
Attorney Docket Number:	AIRP-01054
Receipt Date:	29-SEP-2021
Filing Date:	
Time Stamp:	13:14:28
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$1880
RAM confirmation Number	E20219SD14501177
Deposit Account	081275
Authorized User	Jonathan Owens

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

FanDuel Ex. 1002-0073

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal of New Application	Transmittal_9_29_2021.pdf	58682 c70d7ccc51780219c50ef356bbc6a93b8bcde85f	no	3
Warnings:					
Information:					
2	Application Data Sheet	DataSheet_9_29_2021.pdf	1823370 8aa4d054925fcad55d9351e92d74ffd1c39e1496	no	9
Warnings:					
Information:					
3		Preliminary_Amendment_9_29_2021.pdf	56045 b64ffb81e4f6f537ce77c97f9bf51df142d630ae	yes	9

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Preliminary Amendment	1	8
	Applicant Arguments/Remarks Made in an Amendment	9	9

Warnings:					
Information:					
4		Specification_9_29_2021.pdf	268304 41b672853d4b33bc909dd38750920f75ecc1e669	yes	42

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Specification	1	32
	Claims	33	41

	Abstract		42	42	
Warnings:					
Information:					
5	Drawings-only black and white line drawings	Figures_9_29_2021.pdf	111453 4a699c89d236470b93972d458b61dee835f8a756	no	7
Warnings:					
Information:					
6	Oath or Declaration filed	Declaration_Lockton_9_29_2021.pdf	121380 36448e98271f6d823770090b5dcdb0ff9a953b25	no	2
Warnings:					
Information:					
7	Power of Attorney	POA_9_29_2021.pdf	105782 a97f4442915b375c0505f1490ce8f104b2cda0f1	no	1
Warnings:					
Information:					
8	Assignee showing of ownership per 37 CFR 3.73	Assignment_9_29_2021.pdf	576884 23a6a79792659b8d3add3e4028ab5a48fd962f39	no	1
Warnings:					
Information:					
9	Fee Worksheet (SB06)	fee-info.pdf	46341 a6ab4dde75148ba4d41d174eb302a8f4b4fb52ed	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	3168241		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Electronic Patent Application Fee Transmittal

Application Number:	
Filing Date:	
Title of Invention:	SYNCHRONIZED GAMING AND PROGRAMMING
First Named Inventor/Applicant Name:	David B. Lockton
Filer:	Jonathan O Owens
Attorney Docket Number:	AIRP-01054

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
UTILITY FILING FEE (ELECTRONIC FILING)	4011	1	80	80
UTILITY SEARCH FEE	2111	1	350	350
UTILITY EXAMINATION FEE	2311	1	400	400
Pages:				
Claims:				
CLAIMS IN EXCESS OF 20	2202	21	50	1050
Miscellaneous-Filing:				
Petition:				

FanDuel Ex. 1002-0077

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**1880**

PATENT
Attorney Docket No.: AIRP-01023

ASSIGNMENT

WHEREAS, I, David B. Lockton, hereinafter referred to as "ASSIGNOR", have invented certain new and useful improvements as described and set forth in the below-identified application for United States Letters Patent;

Title of Invention: **SYNCHRONIZED GAMING AND PROGRAMMING**

Date of execution of application:_____Filing Date:_____Serial No.: _____

WHEREAS, Winview, Inc., a corporation of the State of Delaware, located at 370 Convention Way, Redwood City, CA 94063, hereinafter referred to as "ASSIGNEE", is desirous of acquiring the entire right, title and interest in said invention and application and in any Letters Patent which may be granted on the same;

NOW THEREFORE, TO ALL WHOM IT MAY CONCERN: Be it known that, for good and valuable consideration, receipt of which is hereby acknowledged, Assignor has sold, assigned and transferred, and by these presents do sell, assign and transfer unto said Assignee, and Assignee's successors and assigns, all right, title and interest in and to said invention, said application for United States Letters Patent, and any Letters Patent which may hereafter be granted on the same in the United States and all countries throughout the world including any divisions, renewals, continuations in whole or in part, substitutions, conversions, reissues, prolongations or extensions thereof, said interest to be held and enjoyed by said Assignee as fully and exclusively as it would have been held and enjoyed by said Assignor had this assignment and transfer not been made, to the full end and term of any Letters Patent.

Assignor further agrees that he will, without charge to said Assignee, but at Assignee's expense, cooperate with Assignee in the prosecution of said application and/or applications, execute, verify, acknowledge and deliver all such further papers, including applications for Letters Patent and for the reissue thereof, and instruments of assignment and transfer thereof, and will perform such other acts as Assignee lawfully may request, to obtain or maintain Letters Patent for said invention and improvement in any and all countries, and to vest title thereto in said Assignee, or Assignee's successors and assigns.

IN TESTIMONY WHEREOF, Assignor has hereunto signed his name to this assignment on the date indicated below.

David B. Lockton

David B. Lockton

May 5, 2017

Date

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

STATE OF California

COUNTY OF San Mateo

On May 5, 2017 Before me, G. Kelly, a notary public, personally appeared David B. Lockton, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

SEAL

Signature of Notary Public

G. KELLY
Commission # 2059324
Notary Public - California
San Mateo County
My Comm. Expires Feb 28, 2018

PTO/AIA/80 (07-12)
Approved for use through 11/30/2014. OMB 0651-0035
U.S. Patent and Trademark Office; U.S DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(c).

I hereby appoint:

■ Practitioners associated with Customer Number: 28960

OR

☐ Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number

Name	Registration Number

As attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignments documents attached to this form in accordance with 37 CFR 3.73(c).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(c) to:

☐ The address associated with Customer Number:

OR

■	Firm or Individual Name	Haverstock & Owens LLP		
	Address	162 North Wolfe Road		
	City	Sunnyvale	State CA	Zip 94086
	Country	US		
	Telephone	408-530-9700	Email	jowens@hollp.com

Assignee Name and Address: Winview, Inc.
50 Woodside Plaza, Suite 208
Redwood City, CA 94061

A copy of this form, together with a statement under 37 CFR 3.73(c) (Form PTO/AIA/96 or equivalent) is required to be Filed in each application in which this form is used. The statement under 37 CFR 3.73(c) may be completed by one of The practitioners appointed in this form, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

Signature	David B. Lockton	Date	Aug 25 2014
Name	David B. Lockton	Telephone	650 587. 5801
Title	CEO		

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
17/488,674	09/29/2021		1880	AIRP-01054	41	2

CONFIRMATION NO. 8881

28960
HAVERSTOCK & OWENS LLP
162 NORTH WOLFE ROAD
SUNNYVALE, CA 94086

FILING RECEIPT

OC000000129029986

Date Mailed: 10/12/2021

Receipt is acknowledged of this non-provisional utility patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please submit a written request for a corrected Filing Receipt, including a properly marked-up ADS showing the changes with strike-through for deletions and underlining for additions. If you received a "Notice to File Missing Parts" or other Notice requiring a response for this application, please submit any request for correction to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections provided that the request is grantable.

Inventor(s)

David B. Lockton, Redwood City, CA;

Applicant(s)

Winview, Inc., Redwood City, CA;

Power of Attorney: The patent practitioners associated with Customer Number 28960

Domestic Priority data as claimed by applicant

This application is a CON of 16/865,000 05/01/2020 PAT 11154775
which is a CON of 15/886,704 02/01/2018 PAT 10653955
which is a CON of 15/586,198 05/03/2017 PAT 9919210
which is a CIP of 14/172,539 02/04/2014 PAT 9672692
which is a DIV of 13/484,129 05/30/2012 PAT 8705195
which is a CIP of 13/403,845 02/23/2012 PAT 8717701
which is a CON of 11/786,992 04/12/2007 PAT 8149530
which claims benefit of 60/791,793 04/12/2006
and said 15/586,198 05/03/2017
is a CIP of 15/332,625 10/24/2016 PAT 10137369
which is a CON of 11/542,335 10/02/2006 PAT 9511287
which claims benefit of 60/723,301 10/03/2005

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.

FanDuel Ex. 1002-0081

Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 10/12/2021

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 17/488,674**

Projected Publication Date: 01/20/2022

Non-Publication Request: No

Early Publication Request: No
**** SMALL ENTITY ****
Title

SYNCHRONIZED GAMING AND PROGRAMMING

Preliminary Class

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign

FanDuel Ex. 1002-0082

patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

FanDuel Ex. 1002-0083

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The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

FanDuel Ex. 1002-0084

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 17/488,674

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	80		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	350		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	400		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	41 minus 20 =	* 21	x 50 =	1050	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	2 minus 3 =	*	x 240 =	0.00			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	1880		TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT A	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE($)	ADDITIONAL FEE($)		RATE($)	ADDITIONAL FEE($)
AMENDMENT B	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L 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 found in the appropriate box in column 1.

FanDuel Ex. 1002-0085

Electronic Acknowledgement Receipt

EFS ID:	44025041
Application Number:	17488674
International Application Number:	
Confirmation Number:	8881
Title of Invention:	SYNCHRONIZED GAMING AND PROGRAMMING
First Named Inventor/Applicant Name:	David B. Lockton
Customer Number:	28960
Filer:	Jonathan O Owens
Filer Authorized By:	
Attorney Docket Number:	AIRP-01054
Receipt Date:	13-OCT-2021
Filing Date:	29-SEP-2021
Time Stamp:	20:13:06
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	IDS_10_13_2021.pdf	1037443 16de5145263f10c157f54ee47642122c4315acf9	no	4

Warnings:

FanDuel Ex. 1002-0086

Information:	
Total Files Size (in bytes):	1037443

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/08a (03-15)
Approved for use through 07/31/2016. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	17488674
Filing Date	2021-07-29
First Named Inventor	David B. Lockton
Art Unit	
Examiner Name	
Attorney Docket Number	AIRP-01054

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	7185355	B1	2007-02-27	Michael D. Ellis	

If you wish to add additional U.S. Patent citation information please click the Add button. Add

U.S.PATENT APPLICATION PUBLICATIONS Remove

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1					

If you wish to add additional U.S. Published Application citation information please click the Add button. Add

FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1							

If you wish to add additional Foreign Patent Document citation information please click the Add button Add

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Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]

FanDuel Ex. 1002-0088

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17488674
	Filing Date	2021-07-29
	First Named Inventor	David B. Lockton
	Art Unit	
	Examiner Name	
	Attorney Docket Number	AIRP-01054

	1	

If you wish to add additional non-patent literature document citation information please click the Add button Add

EXAMINER SIGNATURE

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

FanDuel Ex. 1002-0089

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	17488674
Filing Date	2021-07-29
First Named Inventor	David B. Lockton
Art Unit	
Examiner Name	
Attorney Docket Number	AIRP-01054

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☒ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Jonathan O. Owens/	Date (YYYY-MM-DD)	2021-10-13
Name/Print	Jonathan O. Owens	Registration Number	37902

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

FanDuel Ex. 1002-0090

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	44092979
Application Number:	17488674
International Application Number:	
Confirmation Number:	8881
Title of Invention:	SYNCHRONIZED GAMING AND PROGRAMMING
First Named Inventor/Applicant Name:	David B. Lockton
Customer Number:	28960
Filer:	Jonathan O Owens
Filer Authorized By:	
Attorney Docket Number:	AIRP-01054
Receipt Date:	21-OCT-2021
Filing Date:	29-SEP-2021
Time Stamp:	17:16:05
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	IDS_10_21_2021.pdf	1037580 9d9955b6e4ce319de6db860f49bf0f3ea6badd58	no	4

Warnings:

FanDuel Ex. 1002-0092

Information:	
Total Files Size (in bytes):	1037580

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/08a (03-15)
Approved for use through 07/31/2016. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	17488674
Filing Date	2021-09-29
First Named Inventor	David B. Lockton
Art Unit	
Examiner Name	
Attorney Docket Number	AIRP-01054

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	6154131	A	2000-11-28	Jones, II; Griffith	

If you wish to add additional U.S. Patent citation information please click the Add button. Add

U.S.PATENT APPLICATION PUBLICATIONS Remove

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20030125109	A1	2003-07-03	Green, MIchael John	
	2	20040015442	A1	2004-01-22	Hmlinen, Timo D.	
	3	20090325716	A1	2009-12-31	Harari, Sagi	

If you wish to add additional U.S. Published Application citation information please click the Add button. Add

FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1							

FanDuel Ex. 1002-0094

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	17488674
Filing Date	2021-09-29
First Named Inventor	David B. Lockton
Art Unit	
Examiner Name	
Attorney Docket Number	AIRP-01054

If you wish to add additional Foreign Patent Document citation information please click the Add button [Add]

NON-PATENT LITERATURE DOCUMENTS [Remove]

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1		

If you wish to add additional non-patent literature document citation information please click the Add button [Add]

EXAMINER SIGNATURE

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

FanDuel Ex. 1002-0095

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17488674
	Filing Date	2021-09-29
	First Named Inventor	David B. Lockton
	Art Unit	
	Examiner Name	
	Attorney Docket Number	AIRP-01054

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☒ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Jonathan O. Owens/	Date (YYYY-MM-DD)	2021-10-21
Name/Print	Jonathan O. Owens	Registration Number	37902

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

FanDuel Ex. 1002-0096

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	44322323
Application Number:	17488674
International Application Number:	
Confirmation Number:	8881
Title of Invention:	SYNCHRONIZED GAMING AND PROGRAMMING
First Named Inventor/Applicant Name:	David B. Lockton
Customer Number:	28960
Filer:	Jonathan O Owens
Filer Authorized By:	
Attorney Docket Number:	AIRP-01054
Receipt Date:	18-NOV-2021
Filing Date:	29-SEP-2021
Time Stamp:	20:03:20
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	IDS_11_18_2021.pdf	1038027 4df95e79713b64aeae8728f6f26c2439e4efab9a	no	5

Warnings:

FanDuel Ex. 1002-0098

Information:	
Total Files Size (in bytes):	1038027

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/08a (03-15)
Approved for use through 07/31/2016. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	17488674
Filing Date	2021-09-29
First Named Inventor	David B. Lockton
Art Unit	
Examiner Name	
Attorney Docket Number	AIRP-01054

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	7909332	B2	2011-03-22	Root	
	2	8002618	B1	2011-08-23	Lockton	
	3	8092306	B2	2012-01-10	Root	
	4	8634943	B2	2014-01-21	Root	
	5	9716918	B1	2017-07-25	Lockton et al.	
	6	10360767	B2	2019-07-23	Russell et al.	
	7	10569175	B2	2020-02-25	Kosai et al.	

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FanDuel Ex. 1002-0100

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17488674
	Filing Date	2021-09-29
	First Named Inventor	David B. Lockton
	Art Unit	
	Examiner Name	
	Attorney Docket Number	AIRP-01054

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20020094869	A1	2002-07-18	Harkham	
	2	20020184624	A1	2002-12-05	Spencer	
	3	20030003997	A1	2003-01-02	Vuong et al.	
	4	20030177504	A1	2003-09-18	Paulo et al.	
	5	20060101492	A1	2006-05-11	Lowcock	
	6	20060205483	A1	2006-09-14	Meyer et al.	
	7	20140309001	A1	2014-10-16	Root	
	8	20150024814	A1	2015-01-22	Root	

If you wish to add additional U.S. Published Application citation information please click the Add button. Add

FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]

FanDuel Ex. 1002-0101

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17488674
	Filing Date	2021-09-29
	First Named Inventor	David B. Lockton
	Art Unit	
	Examiner Name	
	Attorney Docket Number	AIRP-01054

	1						

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NON-PATENT LITERATURE DOCUMENTS Remove

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1		

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EXAMINER SIGNATURE

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

FanDuel Ex. 1002-0102

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17488674
	Filing Date	2021-09-29
	First Named Inventor	David B. Lockton
	Art Unit	
	Examiner Name	
	Attorney Docket Number	AIRP-01054

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Jonathan O. Owens/	Date (YYYY-MM-DD)	2021-11-18
Name/Print	Jonathan O. Owens	Registration Number	37902

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

FanDuel Ex. 1002-0103

Privacy Act Statement

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The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	44353918
Application Number:	17488674
International Application Number:	
Confirmation Number:	8881
Title of Invention:	SYNCHRONIZED GAMING AND PROGRAMMING
First Named Inventor/Applicant Name:	David B. Lockton
Customer Number:	28960
Filer:	Jonathan O Owens
Filer Authorized By:	
Attorney Docket Number:	AIRP-01054
Receipt Date:	23-NOV-2021
Filing Date:	29-SEP-2021
Time Stamp:	14:34:49
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	IDS_11_23_2021.pdf	1037469 2d43c78fa4fd48ff888a33e5df9b613305043105	no	4

Warnings:

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Information:	
Total Files Size (in bytes):	1037469

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/08a (03-15)
Approved for use through 07/31/2016. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	17488674
Filing Date	2021-09-29
First Named Inventor	David B. Lockton
Art Unit	
Examiner Name	
Attorney Docket Number	AIRP-01054

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1					

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U.S.PATENT APPLICATION PUBLICATIONS Remove

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20060160597	A1	2006-07-20	Robert J. Wright	
	2	20190143225	A1	2019-05-16	Ofer Baazov	

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FanDuel Ex. 1002-0107

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17488674
	Filing Date	2021-09-29
	First Named Inventor	David B. Lockton
	Art Unit	
	Examiner Name	
	Attorney Docket Number	AIRP-01054

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
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FanDuel Ex. 1002-0108

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	17488674
Filing Date	2021-09-29
First Named Inventor	David B. Lockton
Art Unit	
Examiner Name	
Attorney Docket Number	AIRP-01054

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

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See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Jonathan O. Owens/	Date (YYYY-MM-DD)	2021-11-23
Name/Print	Jonathan O. Owens	Registration Number	37902

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	17488674
Filing Date	2021-09-29
First Named Inventor	David B. Lockton
Art Unit	
Examiner Name	
Attorney Docket Number	AIRP-01054

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Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	4141548		1979-02-27	Everton	
	2	4270755		1981-06-02	Willhide et al.	
	3	4496148		1985-01-29	Morstain et al.	
	4	4592546		1986-06-03	Fascenda et al.	
	5	4816904		1989-03-28	McKenna et al.	
	6	5013038		1991-05-07	Luvenberg	
	7	5035422		1991-07-30	Berman	
	8	5073931		1991-12-17	Audebert et al.	

FanDuel Ex. 1002-0111

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17488674
	Filing Date	2021-09-29
	First Named Inventor	David B. Lockton
	Art Unit	
	Examiner Name	
	Attorney Docket Number	AIRP-01054

	9	5083271		1992-01-21	Thatcher et al.	
	10	5083800		1992-01-28	Lockton	
	11	5120076		1992-06-09	Luxenberg et al.	
	12	5213337		1993-05-25	Sherman	
	13	5227874		1993-07-13	Von Kohorn	
	14	5263723		1993-11-23	Pearson et al.	
	15	5283734		1994-02-01	Von Kohorn	
	16	5343236		1994-08-30	Koppe et al.	
	17	5343239		1994-08-30	Lappington et al.	
	18	5462275		1995-10-31	Lowe et al.	
	19	5479492		1995-12-26	Hofstee et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17488674
	Filing Date	2021-09-29
	First Named Inventor	David B. Lockton
	Art Unit	
	Examiner Name	
	Attorney Docket Number	AIRP-01054

	20	5553120		1996-09-03	Katz	
	21	5566291		1996-10-15	Boulton et al.	
	22	5585975		1996-12-17	Bliss	
	23	5586257		1996-12-17	Perlman	
	24	5589765		1996-12-31	Ohmart et al.	
	25	5643088		1997-07-01	Vaughn et al.	
	26	5663757	A	1997-09-02	Morales, Fernando	
	27	5759101		1998-06-02	Won Kohom	
	28	5761606		1998-06-02	Wolzien	
	29	5762552		1998-06-09	Voung et al.	
	30	5764275		1998-06-09	Lappington et al.	

FanDuel Ex. 1002-0113

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17488674
	Filing Date	2021-09-29
	First Named Inventor	David B. Lockton
	Art Unit	
	Examiner Name	
	Attorney Docket Number	AIRP-01054

	31	5813913		1998-09-29	Berner et al.	
	32	5818438		1998-10-06	Howe et al.	
	33	5838774		1998-11-17	Weiser, Jr.	
	34	5860862		1999-01-19	Junkin	
	35	5870683		1999-09-29	Wells et al.	
	36	5916024		1999-06-29	Von Kohorn	
	37	5970143		1999-10-19	Schneier et al.	
	38	5971854		1999-10-26	Pearson et al.	
	39	5987440		1999-11-16	O'Neil et al.	
	40	6009458		1999-12-28	Hawkins et al.	
	41	6016337		2000-01-18	Pykalisto	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17488674
	Filing Date	2021-09-29
	First Named Inventor	David B. Lockton
	Art Unit	
	Examiner Name	
	Attorney Docket Number	AIRP-01054

	42	6117013		2000-09-12	Elba	
	43	6126543		2000-10-03	Friedman	
	44	6174237	B1	2001-01-16	Stephenson	
	45	6182084	B1	2001-01-30	Cockrell et al.	
	46	6193610	B1	2001-02-27	Junkin	
	47	6222642	B1	2001-04-24	Farrell et al.	
	48	6233736	B1	2001-05-15	Wolzien	
	49	6251017	B1	2001-06-26	Leason et al.	
	50	6293868		2001-09-25	Bernard	
	51	6312336	B1	2001-11-06	Handelman et al.	
	52	6411969		2002-06-25	Tam	

FanDuel Ex. 1002-0115

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17488674
	Filing Date	2021-09-29
	First Named Inventor	David B. Lockton
	Art Unit	
	Examiner Name	
	Attorney Docket Number	AIRP-01054

	53	6416414		2002-07-09	Stadelmann	
	54	6425828	B2	2002-07-30	Walker et al.	
	55	6434398		2002-08-13	Inselberg	
	56	6470180	B1	2002-10-22	Kotzin et al.	
	57	6524189	B1	2003-02-25	Rautila	
	58	6527641	B1	2003-03-04	Sinclair et al.	
	59	6530082	B1	2003-03-04	Del Sesto et al.	
	60	6578068	B1	2003-06-10	Bowma-Amuah	
	61	6594098	B1	2003-07-12	Sutardja	
	62	6610953	B1	2003-08-26	Tao et al.	
	63	6648760	B1	2003-11-18	Nicastro	

FanDuel Ex. 1002-0116

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17488674
	Filing Date	2021-09-29
	First Named Inventor	David B. Lockton
	Art Unit	
	Examiner Name	
	Attorney Docket Number	AIRP-01054

	64	6659860	B1	2003-12-09	Yamamoto et al.	
	65	6659872	B1	2003-12-09	Kaufman et al.	
	66	6690661	B1	2004-02-10	Agarwal et al.	
	67	6718350	B1	2004-04-06	Karbowski	
	68	6752396	B2	2004-06-22	Smith	
	69	6758754	B1	2004-07-06	Lavanchy et al.	
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	71	6760595	B2	2004-07-06	Insellberg	
	72	6763377	B1	2004-07-13	Balknap et al.	
	73	6766524	B1	2004-07-20	Matheny et al.	
	74	6774926	B1	2004-08-10	Ellis et al.	

FanDuel Ex. 1002-0117

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17488674
	Filing Date	2021-09-29
	First Named Inventor	David B. Lockton
	Art Unit	
	Examiner Name	
	Attorney Docket Number	AIRP-01054

	75	6785561	B1	2004-08-31	Kim	
	76	6801380	B1	2004-10-05	Saturdja	
	77	6807675		2004-10-19	Millard et al.	
	78	6806889	B1	2004-10-19	Malaure et al.	
	79	6811482	B2	2004-11-02	Letovsky	
	80	6817947	B2	2004-11-16	Tanskanen	
	81	6824469	B2	2004-11-30	Allibhoy et al.	
	82	6840861	B2	2005-01-11	Jordan et al.	
	83	6846239	B2	2005-01-25	Washio	
	84	6857122	B1	2005-02-15	Takeda et al.	
	85	6863610	B2	2005-03-08	Vancraeynest	

FanDuel Ex. 1002-0118

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17488674
	Filing Date	2021-09-29
	First Named Inventor	David B. Lockton
	Art Unit	
	Examiner Name	
	Attorney Docket Number	AIRP-01054

	86	6871226	B1	2005-03-22	Ensley et al.	
	87	6873610	B1	2005-03-29	Noever	
	88	6884172	B1	2005-04-26	Lloyd et al.	
	89	6887159	B2	2005-05-03	Leen et al.	
	90	6893347	B1	2005-05-17	Zilliacus et al.	
	91	6942574	B1	2005-09-13	LeMay et al.	
	92	6960088	B1	2005-11-01	Long	
	93	7035653	B2	2006-04-25	Simon et al.	
	94	7116310	B1	2006-10-06	Evans et al.	
	95	7125336	B2	2006-10-24	Anttila et al.	
	96	7169050	B1	2007-01-30	Tyler	

FanDuel Ex. 1002-0119

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17488674
	Filing Date	2021-09-29
	First Named Inventor	David B. Lockton
	Art Unit	
	Examiner Name	
	Attorney Docket Number	AIRP-01054

	97	7192352	B2	2007-03-20	Walker et al.	
	98	7194758		2007-03-20	Waki et al.	
	99	7240093	B1	2007-07-03	Danieli et al.	
	100	7244181	B2	2007-07-17	Wang et al.	
	101	7254605	B1	2007-08-07	Strum	
	102	7288027	B2	2007-10-30	Overton	
	103	7347781	B2	2008-03-25	Schultz	
	104	7351149		2008-04-01	Simon et al.	
	105	7379705	B1	2008-05-27	Rados et al.	
	106	7502610	B2	2009-03-10	Maher	
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FanDuel Ex. 1002-0120

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17488674
	Filing Date	2021-09-29
	First Named Inventor	David B. Lockton
	Art Unit	
	Examiner Name	
	Attorney Docket Number	AIRP-01054

	108	7562134	B1	2009-07-04	Fingerhut et al.	
	109	7630986	B1	2009-12-08	Herz et al.	
	110	7753789	B2	2010-07-13	Walker et al.	
	111	7780528	B2	2010-08-24	Hirayama, Tomoshi	
	112	7907211	B2	2011-03-15	Oostveen et al.	
	113	7976389	B2	2011-07-12	Cannon et al.	
	114	8006314	B2	2011-08-23	Wold	
	115	8028315	B1	2011-09-27	Barber, David	
	116	8082150	B2	2011-12-20	Wold	
	117	8086445	B2	2011-12-27	Wold et al.	
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FanDuel Ex. 1002-0121

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17488674
	Filing Date	2021-09-29
	First Named Inventor	David B. Lockton
	Art Unit	
	Examiner Name	
	Attorney Docket Number	AIRP-01054

	119	8109827	B2	2012-02-07	Cahill et al.	
	120	8176518	B1	2012-05-08	Junkin et al.	
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	127	5119295	A	1992-06-01	Shashi B. Kapur	
	128	5256863	A	1993-10-01	William L. Ferguson	
	129	5327485	B1	1994-07-01	Frank Leaden	

FanDuel Ex. 1002-0122

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17488674
	Filing Date	2021-09-29
	First Named Inventor	David B. Lockton
	Art Unit	
	Examiner Name	
	Attorney Docket Number	AIRP-01054

	130	5417424	A	1995-05-01	Guy B. Snowden	
	131	5628684	A	1997-05-01	Jean-Etienne	
	132	6267670	B1	2001-07-01	Jay S. Walker	
	133	6373462	B1	2002-04-01	Jun Pan	
	134	6888929	B1	2005-05-01	Michael J. Saylor	
	135	6898762	B2	2005-05-24	Ellis et al.	
	136	7753772	B1	2010-07-01	Jay S. Walker	
	137	8149530	B1	2012-04-03	Lockton et al.	
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FanDuel Ex. 1002-0123

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17488674
	Filing Date	2021-09-29
	First Named Inventor	David B. Lockton
	Art Unit	
	Examiner Name	
	Attorney Docket Number	AIRP-01054

	141	9076303	B1	2015-07-07	Park	
	142	5638113		1997-06-10	Lappington	
	143	66117755	B1	2003-08-26	John R. Coffee	
	144	6816628		2004-11-09	Sarachik et al.	
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	146	6908389	B1	2005-06-21	Puskala, Teemu	
	147	6944228		2005-09-13	Dakss et al.	
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	149	7076434		2006-07-11	Newman et al.	
	150	7085552		2006-08-01	Buckley	
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FanDuel Ex. 1002-0124

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17488674
	Filing Date	2021-09-29
	First Named Inventor	David B. Lockton
	Art Unit	
	Examiner Name	
	Attorney Docket Number	AIRP-01054

	152	7120924		2006-10-10	Katcher et al.	
	153	7191447		2007-03-13	Ellis et al.	
	154	7228349		2007-06-05	Barone, Jr. et al.	
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	156	7249367		2007-07-24	Bove, Jr. et al.	
	157	7260782		2007-08-21	Wallace et al.	

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Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20010004609		2001-06-21	Walker et al.	
	2	20010005670	A1	2001-06-28	Lahtinen	
	3	20010020298	A1	2001-09-06	Rector, Jr. et al.	

FanDuel Ex. 1002-0125

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17488674
	Filing Date	2021-09-29
	First Named Inventor	David B. Lockton
	Art Unit	
	Examiner Name	
	Attorney Docket Number	AIRP-01054

	4	20010036272	A1	2001-11-01	Hirayama, Tomoshi	
	5	20020010789	A1	2002-01-24	Lord	
	6	20020029381	A1	2002-03-07	Inselberg	
	7	20020054088	A1	2002-05-09	Tanskanen et al.	
	8	20020055385	A1	2002-05-09	Otsu	
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	10	20020059623	A1	2002-05-16	Rodriguez et al.	
	11	20020078176	A1	2002-06-20	Nomura et al.	
	12	20020103696	A1	2002-08-01	Huang et al.	
	13	20020108125	A1	2002-08-08	Joao	
	14	20020108127	A1	2002-08-08	Lew et al.	

FanDuel Ex. 1002-0126

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17488674
	Filing Date	2021-09-29
	First Named Inventor	David B. Lockton
	Art Unit	
	Examiner Name	
	Attorney Docket Number	AIRP-01054

	15	20020115488	A1	2002-08-22	Berry et al.	
	16	20020124247	A1	2002-09-05	Houghton	
	17	20020132614	A1	2002-09-19	Vanlujit et al.	
	18	20020133827	A1	2002-09-19	Newman et al.	
	19	20020157002	A1	2002-10-24	Messerges et al.	
	20	20020159576	A1	2002-10-31	Adams	
	21	20020162031	A1	2002-10-31	Levin et al.	
	22	20020177483	A1	2002-11-28	Cannon	
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FanDuel Ex. 1002-0127

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17488674
	Filing Date	2021-09-29
	First Named Inventor	David B. Lockton
	Art Unit	
	Examiner Name	
	Attorney Docket Number	AIRP-01054

	26	20030069828	A1	2003-04-10	Blazey et al.	
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17488674
	Filing Date	2021-09-29
	First Named Inventor	David B. Lockton
	Art Unit	
	Examiner Name	
	Attorney Docket Number	AIRP-01054

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17488674
	Filing Date	2021-09-29
	First Named Inventor	David B. Lockton
	Art Unit	
	Examiner Name	
	Attorney Docket Number	AIRP-01054

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17488674
	Filing Date	2021-09-29
	First Named Inventor	David B. Lockton
	Art Unit	
	Examiner Name	
	Attorney Docket Number	AIRP-01054

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17488674
	Filing Date	2021-09-29
	First Named Inventor	David B. Lockton
	Art Unit	
	Examiner Name	
	Attorney Docket Number	AIRP-01054

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17488674
	Filing Date	2021-09-29
	First Named Inventor	David B. Lockton
	Art Unit	
	Examiner Name	
	Attorney Docket Number	AIRP-01054

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17488674
	Filing Date	2021-09-29
	First Named Inventor	David B. Lockton
	Art Unit	
	Examiner Name	
	Attorney Docket Number	AIRP-01054

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17488674
	Filing Date	2021-09-29
	First Named Inventor	David B. Lockton
	Art Unit	
	Examiner Name	
	Attorney Docket Number	AIRP-01054

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17488674
	Filing Date	2021-09-29
	First Named Inventor	David B. Lockton
	Art Unit	
	Examiner Name	
	Attorney Docket Number	AIRP-01054

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17488674
	Filing Date	2021-09-29
	First Named Inventor	David B. Lockton
	Art Unit	
	Examiner Name	
	Attorney Docket Number	AIRP-01054

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	134	20020144273	A1	2002-10-03	Reto	
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17488674
	Filing Date	2021-09-29
	First Named Inventor	David B. Lockton
	Art Unit	
	Examiner Name	
	Attorney Docket Number	AIRP-01054

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	137	20070093296	A1	2007-04-01	Joseph M. Asher	
	138	20070219856	A1	2007-09-20	Ahmad -Taylor	
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	1	2252021	CA		1998-11-18	Two Way TV Limited		

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17488674
	Filing Date	2021-09-29
	First Named Inventor	David B. Lockton
	Art Unit	
	Examiner Name	
	Attorney Docket Number	AIRP-01054

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	3	2279069	CA		1999-07-28	Two Way TV Limited		
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17488674
	Filing Date	2021-09-29
	First Named Inventor	David B. Lockton
	Art Unit	
	Examiner Name	
	Attorney Docket Number	AIRP-01054

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	1	Two Way TV Patent and Filing Map "www.twowaytv.com/version4/technologies/tech_patents.asp	
	2	'Ark 4.0 Standard Edition, Technical Overview 'www.twowaytv.com/version4/technologies/tech_ark_professionals.asp	

FanDuel Ex. 1002-0140

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17488674
	Filing Date	2021-09-29
	First Named Inventor	David B. Lockton
	Art Unit	
	Examiner Name	
	Attorney Docket Number	AIRP-01054

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	First Named Inventor	David B. Lockton
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	Attorney Docket Number	AIRP-01054

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	Application Number	17488674
	Filing Date	2021-09-29
	First Named Inventor	David B. Lockton
	Art Unit	
	Examiner Name	
	Attorney Docket Number	AIRP-01054

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Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

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See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Jonathan O. Owens/	Date (YYYY-MM-DD)	2021-12-28
Name/Print	Jonathan O. Owens	Registration Number	37902

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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(Not for submission under 37 CFR 1.99)

Application Number	17488674
Filing Date	2021-09-29
First Named Inventor	David B. Lockton
Art Unit	
Examiner Name	
Attorney Docket Number	AIRP-01054

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	1	7283830		2007-10-16	Buckley	
	2	7343617		2008-03-11	Kartcher et al.	
	3	7367042		2008-04-29	Dakss et al.	
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17488674
	Filing Date	2021-09-29
	First Named Inventor	David B. Lockton
	Art Unit	
	Examiner Name	
	Attorney Docket Number	AIRP-01054

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	10	9069651	B2	2015-06-30	David Barber	
	11	9289692	B2	2016-03-22	David Barber	
	12	9556991	B2	2017-01-31	Masayoshi Furuya	
	13	9716918	B1	2017-07-25	Lockton et al.	
	14	9878243	B2	2018-01-30	Lockton et al.	
	15	9901820	B2	2018-02-27	Lockton et al.	
	16	RE39818	E	2007-09-04	Slifer	
	17	5618232		1997-04-08	Martin	
	18	6104815		2008-08-15	Alcorn et al.	
	19	6287199		2001-09-11	McKeown et al.	

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	20	6884166	B1	2005-04-26	Leen et al.	
	21	6899628	B2	2005-05-31	Leen et al.	
	22	7029394	B2	2006-04-18	Leen et al.	
	23	7035626	B2	2006-04-25	Luciano, Jr.	
	24	7144011	B2	2006-12-05	Asher et al.	
	25	7233922	B2	2007-06-19	Asher et al.	
	26	7341517	B2	2008-03-11	Asher et al.	
	27	7452273	B2	2008-11-18	Amaitis et al.	
	28	7534169	B2	2009-05-19	Amaitis et al.	
	29	7693781	B2	2010-04-06	Asher et al.	
	30	7711628	B2	2010-05-04	Davie et al.	

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	31	7835961	B2	2010-11-16	Davie et al.	
	32	7926810	B2	2011-04-19	Fisher et al.	
	33	7937318	B2	2011-05-03	Davie et al.	
	34	8025565	B2	2011-09-27	Leen et al.	
	35	8086510	B2	2011-12-27	Amaitis et al.	
	36	8092303	B2	2012-01-10	Amaitis et al.	
	37	8105141	B2	2011-01-31	Leen et al.	
	38	8128474	B2	2012-03-06	Amaitis et al.	
	39	8147313	B2	2012-04-03	Amaitis et al.	
	40	8186682	B2	2012-05-29	Amaitis et al.	
	41	8204808	B2	2012-06-19	Amaitis et al.	

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	42	8240669	B2	2012-08-14	Asher et . al.	
	43	8246048	B2	2012-08-21	Amaitis et al.	
	44	8267403	B2	2012-09-18	Fisher et al.	
	45	8342924	B2	2013-01-01	Leen et al.	
	46	8342942	B2	2013-01-01	Amaitis et al.	
	47	8397257	B1	2013-03-12	David Barber	
	48	8465021	B2	2013-06-18	Asher et al.	
	49	8473393	B2	2013-06-25	Davie et al.	
	50	8474819	B2	2013-07-02	Asher et al.	
	51	8535138	B2	2013-09-17	Amaitis et al.	
	52	85368563	B2	2013-09-17	David Barber	

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	53	8543487	B2	2013-09-24	Asher et al.	
	54	8556691	B2	2013-10-15	Leen et al.	
	55	8585490	B2	2013-11-19	Amaitis et al.	
	56	8641511	B2	2014-02-04	Ginsberg et al.	
	57	8672751	B2	2014-03-18	Leen et al.	
	58	8708789	B2	2014-04-29	Asher et al.	
	59	8727352	B2	2014-05-20	Amaitis et al.	
	60	8734227	B2	2014-05-27	Leen et al.	
	61	8771058	B2	2014-07-08	Alderucci et al.	
	62	8805732	B2	2014-08-12	Davie et al.	
	63	8814664	B2	2014-08-26	Amaitis et al.	

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	64	9069651	B2	2015-06-30	David Barber	
	65	9111417	B2	2015-08-18	Leen et al.	
	66	9289692	B2	2016-03-22	David Barber	
	67	9306952	B2	2016-04-05	Burman et al.	
	68	9355518	B2	2016-05-31	Amaitis et al.	
	69	9406189	B2	2016-08-02	Scott et al.	
	70	9536396	B2	2017-01-03	Amaitis et al.	
	71	9805549	B2	2017-10-31	Asher et al.	
	72	9881337	B2	2018-01-30	Jaycob et al.	
	73	10089815	B2	2018-10-02	Asher et al.	
	74	10096210	B2	2018-10-09	Amaitis et al.	

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	75	4918603		1990-04-17	Hughes et al.	
	76	5018736		1991-05-28	Pearson et al.	
	77	5636920		1997-06-10	Shur et al.	
	78	5794210		1998-08-11	Goldhaber et al.	
	79	5846132		1998-12-08	Junkin	
	80	5848397		1998-12-08	Marsh et al.	
	81	6015344		2019-04-06	Kelly et al.	
	82	6110041		2000-08-29	Walker et al.	
	83	6135881		2000-10-24	Abbott et al.	
	84	6371855	B1	2002-04-16	Gavriloff	
	85	6837789	B2	2005-01-04	Garahi et al.	

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	86	6837791	B1	2005-01-04	McNutt et al.	
	87	7001279	B1	2006-02-21	Barber et al.	
	88	7058592	B1	2006-06-06	Heckerman et al.	
	89	7136871	B2	2006-11-14	Ozer et al.	
	90	7614944	B1	2009-11-10	Hughes et al.	
	91	7699707	B2	2010-04-20	Bahou	
	92	8002618	B1	2011-08-23	Lockton et al.	
	93	8376855	B2	2013-02-19	Lockton et al.	
	94	8622798	B2	2014-01-07	Lockton et al.	
	95	8699168	B2	2014-04-15	Lockton et al.	
	96	8705195	B2	2014-04-22	Lockton	

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	97	8717701	B2	2014-05-06	Lockton et al.	
	98	8737004	B2	2014-05-27	Lockton et al.	
	99	8738694	B2	2014-05-27	Huske et al.	
	100	8780482	B2	2014-07-15	Lockton et al.	
	101	8813112	B1	2014-08-14	Cibula et al.	
	102	8817408	B2	2014-08-26	Lockton et al.	
	103	8837072	B2	2014-09-16	Lockton et al.	
	104	8870639	B2	2014-10-28	Lockton et al.	
	105	8935715	B2	2015-01-13	Cibula et al.	
	106	9056251	B2	2015-06-16	Lockton	
	107	9067143	B2	2015-06-30	Lockton et al.	

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	108	9205339	B2	2015-12-08	Cibula et al.	
	109	9233293	B2	2016-01-12	Lockton	
	110	9258601	B2	2016-02-09	Lockton et al.	
	111	9270789	B2	2016-02-23	Huske et al.	
	112	9314686	B2	2016-04-19	Lockton	
	113	9314701	B2	2016-04-19	Lockton et al.	
	114	9457272	B2	2016-10-04	Lockton et al.	
	115	9498724	B2	2016-11-22	Lockton et al.	
	116	9501904	B2	2016-11-22	Lockton	
	117	9504922	B2	2016-11-29	Lockton et al.	
	118	9511287	B2	2016-12-06	Lockton et al.	

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	119	9526991	B2	2016-12-27	Lockton et al.	
	120	9604140	B2	2017-03-28	Lockton et al.	
	121	9652937	B2	2017-05-16	Lockton	
	122	9662576	B2	2017-05-30	Lockton et al.	
	123	9662577	B2	2017-05-30	Lockton et al.	
	124	9672692	B2	2017-06-06	Lockton	
	125	9687738	B2	2017-06-27	Lockton et al.	
	126	9687739	B2	2017-06-27	Lockton et al.	
	127	9707482	B2	2017-07-18	Lockton et al.	
	128	9724603	B2	2017-08-08	Lockton et al.	
	129	9744453	B2	2017-08-29	Lockton et al.	

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	130	9821233	B2	2017-11-21	Lockton et al.	
	131	9908053	B2	2018-03-06	Lockton et al.	
	132	9919210	B2	2018-03-20	Lockton	
	133	9919211	B2	2018-03-20	Lockton et al.	
	134	9919221	B2	2018-03-20	Lockton et al.	
	135	9978217	B2	2018-05-22	Lockton	
	136	9993730	B2	2018-06-12	Lockton et al.	
	137	9999834	B2	2018-06-19	Lockton et al.	
	138	10052557	B2	2018-08-21	Lockton et al.	
	139	10137369	B2	2018-11-27	Lockton et al.	
	140	10150031	B2	2018-12-11	Lockton et al.	

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	141	10165339	B	2018-12-25	Huske et al.	
	142	10186116	B2	2019-01-22	Lockton	
	143	10195526	B2	2019-02-05	Lockton et al.	
	144	10226698	B1	2019-03-12	Lockton et al.	
	145	10226705	B2	2019-03-12	Lockton et al.	
	146	10232270	B2	2019-03-19	Lockton et al.	
	147	RE39818	E	2007-09-04	Slifer	
	148	4918603		1990-04-17	Hughes et al.	
	149	5018736		1991-05-28	Pearson et al.	
	150	5618232		1997-04-08	Martin	
	151	5636920		1997-06-10	Shur et al.	

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	152	5794210		1998-08-11	Goldhaber et al.	
	153	5846132		1998-12-08	Junkin	
	154	5848397		1998-12-08	Marsh et al.	
	155	6015344		2000-01-18	Kelly et al.	
	156	6104815		2001-09-11	Alcorn et al.	
	157	6110041		2000-08-29	Walker et al.	
	158	6135881		2000-10-24	Abbott et al.	
	159	6287199	B1	2001-09-11	Alcorn et al.	
	160	6371855	B1	2002-04-16	Gravriloff	
	161	6837789	B2	2005-01-04	Garahi et al.	
	162	6837791	B1	2005-01-04	McNutt et al.	

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	163	7001279	B1	2006-02-21	Barber et al.	
	164	7058592	B1	2006-06-06	Herckerman et al.	
	165	7136871	B2	2006-11-14	Ozer et al.	
	166	7614944	B1	2009-11-10	Hughes et al	

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Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20010013125		2001-08-09	Kitsukawa et al.	
	2	20010032333		2001-10-18	Flickinger	
	3	20020095333		2002-07-18	Jokinen et al.	
	4	20020097983		2002-07-25	Wallace et al.	
	5	20020099709		2002-07-25	Wallace	

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	6	20020100063		2002-07-25	Herigstad et al.	
	7	20020105535		2002-08-08	Wallace et al.	
	8	20020108112		2002-08-08	Wallace et al.	
	9	20020112249		2002-08-15	Hendricks et al.	
	10	20020133817		2002-09-19	Markel	
	11	20020198050		2002-12-26	Patchen	
	12	20030115152		2003-06-19	Flaherty	
	13	20030189668		2003-10-09	Newman et al.	
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	15	20040073915		2004-04-15	Dureau	
	16	20040107138		2004-06-03	Maggio	

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	17	20040190779		2004-09-30	Sarachik et al.	
	18	20040216161		2004-10-28	Barone , Jr. et al.	
	19	20030195807		2003-10-16	Frank S. Maggio	
	20	20040056897		2004-03-25	Takeyuki Ueda	
	21	20040216171		2004-10-28	Barone, Jr. et al.	
	22	20040152517		2004-08-05	Haedisty, Yon	
	23	20050005303		2005-01-06	Barone, Jr. et al.	
	24	20050144102		2005-06-30	Oliver Ashby Johnson	
	25	20050177861		2005-08-11	Ma et al.	
	26	20050003878		2005-06-06	Kim Updike	
	27	20050283800		2005-12-22	Ellis et al.	

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	28	20050288080		2005-12-29	Lockton et al.	
	29	20060183547		2006-08-17	Mace Mc Monigle	
	30	20060217198		2006-09-28	Thor C. Johnson	
	31	20060053390		2006-03-09	Gariepy-Viles	
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	34	20060256868		2006-11-16	Westerman	
	35	20060269120		2006-11-30	Nehmadi et al.	
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	37	20070013547		2007-01-18	John A. Boaz	
	38	20070183744		2007-08-09	Michiaki Koizumi	

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	39	20070028272		2007-02-01	Lockton	
	40	20070054695		2007-03-08	Huske et al.	
	41	20070078009		2007-04-05	Lockton et al.	
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	43	20070222652		2007-09-27	Cattone et al.	
	44	20070086465		2007-04-19	Paila et al.	
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	46	20080013927		2008-01-17	Kelly et al.	
	47	20080066129		2008-03-13	Katcher et al.	
	48	20080051201		2018-02-28	Vito Lore	
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	51	20090103892		2009-04-23	Kazuhiko Hirayama	
	52	20090094632		2009-04-09	Newman et al.	
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	54	20090264188		2009-10-22	Thomas E. Soukup	
	55	20110053681		2011-03-03	Justin Edward Goldman	
	56	20110081958		2011-04-07	Mark E. Herman	
	57	20120115585		2012-05-10	Justin Edward Goldman	
	58	20120157178		2012-06-21	David B. Lockton	
	59	20160023116		2016-01-28	Christopher S. Wire	
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	62	20040162124	A1	2004-08-19	Barton et al.	
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	64	20110306428	A1	2011-12-15	Lockton et al.	
	65	20120058808	A1	2012-03-08	Lockton	
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	68	20130079081	A1	2013-03-28	Lockton et al.	
	69	20130079092	A	2013-03-28	Lockton et al.	
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	73	20130079151	A1	2013-03-28	Lockton et al.	
	74	20130196774	A1	2013-08-01	Lockton et al.	
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	90	20150258452	A1	2015-09-17	Lockton et al.	
	91	20150238839	A1	2015-08-27	Lockton	
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	93	20160049049	A1	2016-02-18	Lockton	

FanDuel Ex. 1002-0168

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17488674
	Filing Date	2021-09-29
	First Named Inventor	David B. Lockton
	Art Unit	
	Examiner Name	
	Attorney Docket Number	AIRP-01054

	94	20160054872	A1	2016-02-25	Cibula et al.	
	95	20160082357	A1	2016-03-24	Lockton	
	96	20160121208	A1	2016-05-05	Lockton et al.	
	97	20160134947	A1	2016-05-12	Huske et al.	
	98	20160361647	A1	2016-12-15	Lockton et al.	
	99	20160375362	A1	2016-12-29	Lockton et al.	
	100	20170036110	A1	2017-02-09	Lockton et al.	
	101	20170036117	A1	2017-02-09	Lockton et al.	
	102	20170043259	A1	2017-02-16	Lockton et al.	
	103	20170053498	A1	2017-02-23	Lockton	
	104	20170065891	A1	2017-03-09	Lockton et al.	

FanDuel Ex. 1002-0169

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17488674
	Filing Date	2021-09-29
	First Named Inventor	David B. Lockton
	Art Unit	
	Examiner Name	
	Attorney Docket Number	AIRP-01054

	105	20170221314	A1	2017-08-03	Lockton	
	106	20170225071	A1	2017-08-10	Lockton et al.	
	107	20170225072	A1	2017-08-10	Lockton et al.	
	108	20170232340	A1	2017-08-17	Lockton	
	109	20170252649	A1	2017-09-07	Lockton et al.	
	110	20170259173	A1	2017-09-14	Lockton et al.	
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17488674
	Filing Date	2021-09-29
	First Named Inventor	David B. Lockton
	Art Unit	
	Examiner Name	
	Attorney Docket Number	AIRP-01054

	116	20180104582	A1	2018-04-19	Lockton et al.	
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	125	20180300988	A1	2018-10-18	Lockton	
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FanDuel Ex. 1002-0171

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17488674
	Filing Date	2021-09-29
	First Named Inventor	David B. Lockton
	Art Unit	
	Examiner Name	
	Attorney Docket Number	AIRP-01054

	127	20190054375	A1	2019-02-21	Lockton et al.	
	128	20190060750	A1	2019-02-28	Lockton et al.	
	129	20020046099	A1	2002-04-18	Frengut et al.	
	130	20020059094	A1	2002-05-16	Hosea et al.	
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	133	20030088648	A1	2003-05-08	Gilles Bellaton	
	134	20100107194	A1	2010-04-29	McKissick et al.	

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FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	2006004855	WO		2006-01-12	Airplay Network, Inc.		

FanDuel Ex. 1002-0172

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17488674
	Filing Date	2021-09-29
	First Named Inventor	David B. Lockton
	Art Unit	
	Examiner Name	
	Attorney Docket Number	AIRP-01054

	2	2006004856	WO		2006-01-12	Airplay Network, Inc.		
	3	2007002284	WO		2007-01-04	Airplay Network, Inc.		
	4	2007016575	WO		2007-02-08	Airplay Network, Inc.		
	5	2007041667	WO		2007-04-12	Airplay Network, Inc.		

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Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
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EXAMINER SIGNATURE

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

FanDuel Ex. 1002-0173

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	17488674
Filing Date	2021-09-29
First Named Inventor	David B. Lockton
Art Unit	
Examiner Name	
Attorney Docket Number	AIRP-01054

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Jonathan O. Owens/	Date (YYYY-MM-DD)	2021-12-28
Name/Print	Jonathan O. Owens	Registration Number	37902

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

FanDuel Ex. 1002-0174

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	44621357
Application Number:	17488674
International Application Number:	
Confirmation Number:	8881
Title of Invention:	SYNCHRONIZED GAMING AND PROGRAMMING
First Named Inventor/Applicant Name:	David B. Lockton
Customer Number:	28960
Filer:	Jonathan O Owens
Filer Authorized By:	
Attorney Docket Number:	AIRP-01054
Receipt Date:	28-DEC-2021
Filing Date:	29-SEP-2021
Time Stamp:	13:08:14
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	IDS_12_28_2021_A.pdf	620905 6a64e0c252add2a8e69ec82a388db9207b6de9b0	no	34

Warnings:

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4	Foreign Reference	CA2252021.pdf	1543558 ca4d38a2cacbf61217ce48c51cf234dc5c40ec4f	no	20
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5	Foreign Reference	CA2252074.pdf	3455234 c6e33ed75037413577720d35f9561972d8c377a04	no	24
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6	Foreign Reference	CA2279069.pdf	3244098 c8bae1823646f08518899bbeed30014e294d423a	no	25
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7	Foreign Reference	CA2287617.pdf	1693376 6cf4f9cc36acc36d5505502b3dcdc19c34923341	no	18
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9	Foreign Reference	GB2364485.pdf	611899 7f6c07511b821d23e76c4cd8c18dcc5bc3c371c1	no	9
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18	Foreign Reference	WO00165743A1.pdf	2158564 73a705ea97701db756effa10bc5a43984810df70	no	53
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46	Other Reference-Patent/App/Search documents	Other6C.pdf	13156330 124585c4420cbf116c6a4047b1bb5c0a3dabfd07	no	19
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Information:					
			Total Files Size (in bytes):	101142405	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION CONCERNING
TRANSMITTAL OF COPY OF INTERNATIONAL
PRELIMINARY REPORT ON PATENTABILITY
(CHAPTER I OF THE PATENT COOPERATION TREATY)

(PCT Rule 44bis.1(c))

To:

OWENS, Jonathan O.
162 North Wolfe Road
Sunnyvale, California 94086
ÉTATS-UNIS D'AMÉRIQUE

Date of mailing *(day/month/year)* 22 April 2021 (22.04.2021)		
Applicant's or agent's file reference AIRP-02101WO		IMPORTANT NOTICE
International application No. PCT/US2019/054859	International filing date *(day/month/year)* 04 October 2019 (04.10.2019)	Priority date *(day/month/year)* 08 October 2018 (08.10.2018)
Applicant WINVIEW, INC.		

The International Bureau *transmits* herewith a copy of the international preliminary report on patentability (Chapter I of the Patent Cooperation Treaty)

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Miki Kobayashi e-mail pct.team8@wipo.int Telephone No. +41 22 338 74 08

Form PCT/IB/326 (revised January 2020)

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44*bis*)

Applicant's or agent's file reference AIRP-02101WO	FOR FURTHER ACTION	See Item 4 below
International application No. PCT/US2019/054859	International filing date *(day/month/year)* 04 October 2019 (04.10.2019)	Priority date *(day/month/year)* 08 October 2018 (08.10.2018)
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237		
Applicant WINVIEW, INC.		

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 *bis*.1(a).

2. This REPORT consists of a total of 18 sheets, including this cover sheet.

   In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

☒	Box No. I	Basis of the report
☐	Box No. II	Priority
☐	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
☒	Box No. IV	Lack of unity of invention
☒	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
☐	Box No. VI	Certain documents cited
☐	Box No. VII	Certain defects in the international application
☐	Box No. VIII	Certain observations on the international application

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44*bis*.3(c) and 93*bis*.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44*bis*.2).

	Date of issuance of this report 08 April 2021 (08.04.2021)
The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Miki Kobayashi e-mail pct.team8@wipo.int

Form PCT/IB/373 (revised January 2020)

FanDuel Ex. 1002-0185

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To: JONATHAN O. OWENS
162 NORTH WOLFE ROAD
SUNNYVALE, CA 94086

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*: 04 FEB 2020

Applicant's or agent's file reference: AIRP-02101WO

FOR FURTHER ACTION: See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US2019/054859	04 October 2019	08 October 2018

International Patent Classification (IPC) or both national classification and IPC
IPC(8) - G07F 17/32; A63F 9/24; A63F 13/828; G06F 19/00; G06Q 99/00 (2020.01)
CPC - G07F 17/3286; A63F 13/828; G07F 17/3244; G07F 17/3276 (2020.01)

Applicant: WINVIEW, INC.

1. This opinion contains indications relating to the following items:

- [x] Box No. I Basis of the opinion
- [ ] Box No. II Priority
- [ ] Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- [x] Box No. IV Lack of unity of invention
- [x] Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement
- [ ] Box No. VI Certain documents cited
- [ ] Box No. VII Certain defects in the international application
- [ ] Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/US	Date of completion of this opinion	Authorized officer
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, VA 22313-1450 Facsimile No. 571-273-8300	23 January 2020	Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/237 (cover sheet) (January 2015)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2019/054859

Box No. I Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of:
   - [x] the international application in the language in which it was filed.
   - [ ] a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. [ ] This opinion has been established taking into account the rectification of an obvious mistake authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a)).

3. [ ] With regard to any nucleotide and/or amino acid sequence disclosed in the international application, this opinion has been established on the basis of a sequence listing:
   - a. [ ] forming part of the international application as filed:
     - [ ] in the form of an Annex C/ST.25 text file.
     - [ ] on paper or in the form of an image file.
   - b. [ ] furnished together with the international application under PCT Rule 13*ter*.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.
   - c. [ ] furnished subsequent to the international filing date for the purposes of international search only:
     - [ ] in the form of an Annex C/ST.25 text file (Rule 13*ter*.1(a)).
     - [ ] on paper or in the form of an image file (Rule 13*ter*.1(b) and Administrative Instructions, Section 713).

4. [ ] In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

FanDuel Ex. 1002-0187

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2019/054859

Box No. IV Lack of unity of invention

1. ☒ In response to the invitation (Form PCT/ISA/206) to pay additional fees the applicant has, within the applicable time limit:

☐ paid additional fees.

☐ paid additional fees under protest and, where applicable, the protest fee.

☐ paid additional fees under protest but the applicable protest fee was not paid.

☒ not paid additional fees.

2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose not to invite the applicant to pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rule 13.1, 13.2 and 13.3 is

☐ complied with.

☒ not complied with for the following reasons:

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claims 1-53 and 62-79, drawn to a method programmed in a non-transitory memory of a device for interaction with televised events comprising: providing one or more real-time skill game propositions.

Group II, claims 54-61, drawn to a method programmed in a non-transitory memory of a device comprising: acquiring reactions from a plurality of bettors to one or more propositions.

The inventions listed as Groups I-II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the special technical feature of the Group I invention: providing one or more real-time skill game propositions; receiving selections to the one or more real-time skill game propositions relating to the events; and providing odds for one or more in-Play live betting propositions based on a measured response to the selections to the one or more real-time skill game propositions as claimed therein is not present in the invention of Group II. The special technical feature of the Group II invention: acquiring reactions from a plurality of bettors to one or more propositions, one or more odds, or any combination thereof; adjusting the one or more odds based for the one or more propositions based on the reactions; and generating one or more future propositions, one or more future odds, or any combination thereof based on the reactions as claimed therein is not present in the invention of Group I.

Groups I and II lack unity of invention because even though the inventions of these groups require the technical feature of providing one or more odds for one or more betting propositions, this technical feature is not a special technical feature as it does not make a contribution over the prior art.

Specifically, US 2009/0186676 to Amaitis et al. teaches providing one or more odds for one or more betting propositions (Paras. [0282-0286]).

Since none of the special technical features of the Group I or II inventions are found in more than one of the inventions, unity of invention is lacking.

4. Consequently, this opinion has been established in respect of the following parts of the international application:

☐ all parts.

☒ the parts relating to claims Nos. 1-53, 62-79

Form PCT/ISA/237 (Box No. IV) (January 2015)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2019/054859

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	see claims below	YES
	Claims	1-6, 9, 10, 13-15, 18-20, 23, 24, 27-34, 37, 38, 41, 62, 63, 66, 67, 72	NO
Inventive step (IS)	Claims	None	YES
	Claims	1-53, 62-79	NO
Industrial applicability (IA)	Claims	1-53, 62-79	YES
	Claims	None	NO

2. Citations and explanations:

Claims 1-6, 9, 10, 13-15, 18-20, 23, 24, 27-34, 37, 38, 41, 62, 63, 66, 67, and 72 lack novelty under PCT Article 33(2) as being anticipated by Theodosopoulos.

Regarding claim 1, Theodosopoulos discloses a method programmed in a non-transitory memory of a device (the functions described may be implemented in hardware, software, firmware, or any combination thereof. If implemented in software, the functions may be stored on or transmitted over as one or more instructions or code on a computer readable medium, para 0121) for interaction with televised events (the platform displays sporting event information including different bet types waged based on a predefined entry fee, and updates the sporting event information in real time in response to in-play activities associated with the live sporting event (i.e. interaction with televised events), para 0041) comprising:
providing one or more real-time skill game propositions (An in-play sports betting platform will typically offer players options to make wages using a variety of different types of bets familiar to experienced players, para 0004, the platform displays sporting event information including different bet types waged based on a predefined entry fee, and updates the sporting event information in real time in response to in-play activities associated with the live sporting event (i.e. providing one or more real-time skill game propositions), para 0041);
receiving selections to the one or more real-time skill game propositions relating to the events (betting system platform 12 may be generally operable to manage bets 26 received from clients 14 via communication network 18. Each bet 26 is defined by one or more bet parameters 28 such as the identity of the user 20 who placed the bet 26, a unit stake 29 of the bet 26, the time the bet was placed, the game associated with the bet, the particular type of bet, and one or more selected finishing positions 31, para 0077. Once a decision is detected indicating the user desire to place a particular bet, once again, the platform confirms that the bet amount is within allowed limits or available balances for the tournament, and if so, the bet is placed (i.e. receiving selections to the one or more real-time skill game propositions relating to the events), para 0113); and
providing odds for one or more in-Play live betting propositions based on a measured response to the selections to the one or more real-time skill game propositions (the odds are changing in real-time according to the share of total exchange each of the possible outcomes have received taking into account the return rate of the bookmaker offering the bet, para 0025, an improved fixed odds betting platform for making in-play sports betting wages, para 0039, A leaderboard automatically calculates the winnings of the wager pool of players and displays, in real time, the current leaders, in terms of winnings, during the tournament. The leaderboard updates automatically during the tournament to reflect changes in leaderboard standings in response to placed bets settlement and clearing, as well as in response to real time changes in odds of still pending bets (i.e. providing odds for one or more in-Play live betting propositions based on a measured response to the selections to the one or more real-time skill game propositions), para 0043, Once a bet is placed, the player remains online if he so chooses and continues to be served real-time, up to date betting and leaderboard statistics allowing him to better manage his bets, adding to them if need be, based not only on what's happening on the field, but as importantly, based on what other tournament players are doing, para 0114).

Regarding claim 2, Theodosopoulos further discloses further comprising developing the one or more real-time skill game propositions (each bet is assigned to one of a number of sporting events. Funds associated with each bet are included in a wager pool associated with the sporting event to which that bet is assigned. The outcome of each bet is determined based at least in part on the results of the sporting event to which that bet is assigned, such as, for example, whether one or the other team (or a particular soccer player on the field) will get a goal, how many, and/or in which half (i.e. developing the one or more real-time skill game propositions). For each winning bet, a payout is determined from the wager pool associated with the sporting event the winning bet was assigned, para 0056)

Regarding claim 3, Theodosopoulos further discloses that developing the odds for one or more real-time live betting propositions comprises utilizing artificial intelligence or analytics to automatically acquire real time statistical information from the concurrent real time skill contest (Due to the sheer volume and variety of "in-play" bets available with fixed odds betting, bets are typically set by electronic algorithms designed to account for a large number of variables and events as they occur, in real time. The same algorithms are designed to statistically guesstimate a result and convert this result into a risk-reward outcome for each bet (i.e. utilizing analytics to automatically acquire real time statistical information from the concurrent real time skill contest), para 0004, Once a bet is placed, the player remains online if he so chooses and continues to be served real-time, up to date betting and leaderboard statistics allowing him to better manage his bets, adding to them if need be, based not only on what's happening on the field, but as importantly, based on what other tournament players are doing, para 0114)

FanDuel Ex. 1002-0189

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2019/054859

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Regarding claim 4, Theodosopoulos further discloses that providing the one or more real-time skill game propositions comprises displaying the one or more real-time skill game propositions simultaneously with an underlying broadcast of an event (displaying sporting event information including different bet types that can be waged on the basis of the predefined entry fee, and updating the sporting event information in real time in response to in play activities associated with the live sporting event; simultaneously making available for display leaderboard information including information about the bets waged on by those on the leaderboard, claim 1, combining competition tournament play with live in-sports betting, but at the same time employing leaderboards in a totally new and clever way, para 0058).

Regarding claim 5, Theodosopoulos further discloses that receiving the selections to the one or more real-time skill game propositions includes receiving input from end user devices (the betting system platform is configured for access by a web browser from a client device of the player, claim 3, screenshots generated by the betting system platform and displayed on a local client device to provide game explanations, para 0049).

Regarding claim 6, Theodosopoulos further discloses further comprising real-time processing the selections to the one or more real-time skill game propositions (the platform displays sporting event information including different bet types waged based on a predefined entry fee, and updates the sporting event information in real time in response to in-play activities associated with the live sporting event, para 0041).

Regarding claim 9, Theodosopoulos further discloses further comprising providing the one or more in-Play betting propositions (each bet is assigned to one of a number of sporting events. Funds associated with each bet are included in a wager pool associated with the sporting event to which that bet is assigned. The outcome of each bet is determined based at least in part on the results of the sporting event to which that bet is assigned, such as, for example, whether one or the other team (or a particular soccer player on the field) will get a goal, how many, and/or in which half. For each winning bet, a payout is determined from the wager pool associated with the sporting event the winning bet was assigned, para 0066).

Regarding claim 10, Theodosopoulos further discloses that an in-Play betting proposition is presented initially without the odds, and then after the information related to real-time skill game propositions is received and processed, the odds are presented (A leaderboard automatically calculates the winnings of the wager pool of players and displays, in real time, the current leaders, in terms of winnings, during the tournament. The leaderboard updates automatically during the tournament to reflect changes in leaderboard standings in response to placed bets settlement and clearing, as well as in response to real time changes in odds of still pending bets, para 0043, As a first step, the platform retrieves and displays (via an initial home screen) up to date in-play sports betting tournaments. The home screen may show all relevant tournaments including recently cleared tournaments, late registration available tournaments, as well as open tournaments, para 0107).

Regarding claim 13, Theodosopoulos further discloses that the one or more real-time skill game propositions are related to one or more occurrences (Due to the sheer volume and variety of "in-play" bets available with fixed odds betting, bets are typically set by electronic algorithms designed to account for a large number of variables and events as they occur, in real time, para 0004, The outcome of each bet is determined based at least in part on the results of the sporting event to which that bet is assigned, such as, for example, whether one or the other team (or a particular soccer player on the field) will get a goal, how many, and/or in which half. For each winning bet, a payout is determined from the wager pool associated with the sporting event the winning bet was assigned, para 0066).

Regarding claim 14, Theodosopoulos discloses a system comprising:
a skill game server device (Each communication network 18 and 22 may include one or more servers, routers, switches, repeaters, backbones, links and/or any other appropriate type of communication devices coupled by links such as wireline, optical, wireless, or other appropriate links, para 0071) configured to provide real-time skill game propositions (each bet is assigned to one of a number of sporting events. Funds associated with each bet are included in a wager pool associated with the sporting event to which that bet is assigned. The outcome of each bet is determined based at least in part on the results of the sporting event to which that bet is assigned, such as, for example, whether one or the other team (or a particular soccer player on the field) will get a goal, how many, and/or in which half [i.e. provide real-time skill game propositions]. For each winning bet, a payout is determined from the wager pool associated with the sporting event the winning bet was assigned, para 0066); and
a real-time sports betting server device (Each communication network 18 and 22 may include one or more servers, routers, switches, repeaters, backbones, links and/or any other appropriate type of communication devices coupled by links such as wireline, optical, wireless, or other appropriate links, para 0071) configured to receive responses related to the real-time skill game propositions from the skill game server device and provide in-Play betting propositions (displaying sporting event information including different bet types that can be waged on the basis of the predefined entry fee, and updating the sporting event information in real time in response to in play activities associated with the live sporting event; simultaneously making available for display leaderboard information including information about the bets waged on by those on the leaderboard, claim 1, combining competition tournament play with live in-sports betting, but at the same time employing leaderboards in a totally new and clever way [i.e. receive responses related to the real-time skill game propositions from the skill game server device and provide in-Play betting propositions], para 0058), wherein odds for the in-Play proposition is determined based on the information received by the server related to the real-time response to the same skill game proposition (the odds are changing in real-time according to the share of total exchange each of the possible outcomes have received taking into account the return rate of the bookmaker offering the bet, para 0025, an improved fixed odds betting platform for making in-play sports betting wages, para 0039, A leaderboard automatically calculates the winnings of the wager pool of players and displays, in real time, the current leaders, in terms of winnings, during the tournament. The leaderboard updates automatically during the tournament to reflect changes in leaderboard standings in response to placed bets settlement and clearing, as well as in response to real time changes in odds of still pending bets [i.e. odds for the in-Play proposition is determined based on the information received by the server related to the real-time response to the same skill game proposition], para 0043, Once a bet is placed, the player remains online if he so chooses and continues to be served real-time, up to date betting and leaderboard statistics allowing him to better manage his bets, adding to them if need be, based not only on what's happening on the field, but as importantly, based on what other tournament players are doing, para 0114).

FanDuel Ex. 1002-0190

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2019/054859

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Regarding claim 15, Theodosopoulos further discloses that the skill game server device is further configured for developing the one or more real-time skill game propositions (each bet is assigned to one of a number of sporting events. Funds associated with each bet are included in a wager pool associated with the sporting event to which that bet is assigned. The outcome of each bet is determined based at least in part on the results of the sporting event to which that bet is assigned, such as, for example, whether one or the other team (or a particular soccer player on the field) will get a goal, how many, and/or in which half (i.e. developing the one or more real-time skill game propositions). For each winning bet, a payout is determined from the wager pool associated with the sporting event the winning bet was assigned, para 0066).

Regarding claim 16, Theodosopoulos further discloses that the sports betting server device is further configured for providing the one or more real-time skill game propositions which comprises displaying the one or more real-time skill game propositions simultaneously with an underlying broadcast of an event (displaying sporting event information including different bet types that can be waged on the basis of the predefined entry fee, and updating the sporting event information in real time in response to in play activities associated with the live sporting event; simultaneously making available for display leaderboard information including information about the bets waged on by those on the leaderboard, claim 1, combining competition tournament play with live in-sports betting, but at the same time employing leaderboards in a totally new and clever way, para 0058).

Regarding claim 19, Theodosopoulos further discloses that receiving the selections to the one or more real-time skill game propositions includes receiving input from end user devices (the betting system platform is configured for access by a web browser from a client device of the player, claim 3, screenshots generated by the betting system platform and displayed on a local client device to provide game explanations, para 0049).

Regarding claim 20, Theodosopoulos further discloses that the sports betting server device is further configured for simultaneous processing of the selections to the one or more real-time skill game propositions (the platform displays sporting event information including different bet types waged based on a predefined entry fee, and updates the sporting event information in real time in response to in-play activities associated with the live sporting event, para 0041).

Regarding claim 23, Theodosopoulos further discloses that the sports betting server device is further configured for providing the same one or more in-Play betting propositions through receipt of real time data from the skill game operator game server (each bet is assigned to one of a number of sporting events. Funds associated with each bet are included in a wager pool associated with the sporting event to which that bet is assigned. The outcome of each bet is determined based at least in part on the results of the sporting event to which that bet is assigned, such as, for example, whether one or the other team (or a particular soccer player on the field) will get a goal, how many, and/or in which half. For each winning bet, a payout is determined from the wager pool associated with the sporting event the winning bet was assigned, para 0066).

Regarding claim 24, Theodosopoulos further discloses that an in-Play betting proposition is presented initially without the odds, and then after the information related to real-time skill game propositions is received, the odds are presented (A leaderboard automatically calculates the winnings of the wager pool of players and displays, in real time, the current leaders, in terms of winnings, during the tournament. The leaderboard updates automatically during the tournament to reflect changes in leaderboard standings in response to placed bets settlement and clearing, as well as in response to real time changes in odds of still pending bets, para 0043, As a first step, the platform retrieves and displays (via an initial home screen) up to date in-play sports betting tournaments. The home screen may show all relevant tournaments including recently cleared tournaments, late registration available tournaments, as well as open tournaments, para 0107).

Regarding claim 27, Theodosopoulos further discloses that the real-time skill game propositions are related to one or more occurrences (Due to the sheer volume and variety of "in-play" bets available with fixed odds betting, bets are typically set by electronic algorithms designed to account for a large number of variables and events as they occur, in real time, para 0004, The outcome of each bet is determined based at least in part on the results of the sporting event to which that bet is assigned, such as, for example, whether one or the other team (or a particular soccer player on the field) will get a goal, how many, and/or in which half. For each winning bet, a payout is determined from the wager pool associated with the sporting event the winning bet was assigned, para 0066).

Regarding claim 28, Theodosopoulos further discloses that data generated by the real-time sports betting server is sent to the skill game server to enable more controlled, faster and more predictable odds-setting procedures to provide entertainment in addition to skill game odds (the platform displays sporting event information including different bet types waged based on a predefined entry fee, and updates the sporting event information in real time in response to in-play activities associated with the live sporting event, para 0041).

FanDuel Ex. 1002-0191

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2015/054859

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Regarding claim 29, Theodosopoulos discloses a server device (Each communication network 15 and 32 may include one or more servers, routers, switches, repeaters, backbones, links and/or any other appropriate type of communication devices coupled by links such as wireline, optical, wireless, or other appropriate links, para 0071) comprising:
a memory configured for storing an application in connection with observation of a competition (Betting system platform 12 may include a processor 50 coupled to a memory 52 and is generally operable to manage bets 26 received from users 20 of clients 14. Processor 50 is generally operable to execute various algorithms or calculations to determine various data such as game inputs 34, bet results 40, pool values 53 of each wager pool 30, and payouts 42 [i.e. observation of a competition], para 0078, Computer-readable media includes both computer storage media and communication media including any medium that facilitates transfer of a computer program from one place to another [i.e. a memory configured for storing an application], para 0121), the application configured for:
providing one or more real-time skill game propositions (each bet is assigned to one of a number of sporting events. Funds associated with each bet are included in a wager pool associated with the sporting event to which that bet is assigned. The outcome of each bet is determined based at least in part on the results of the sporting event to which that bet is assigned, such as, for example, whether one or the other team (or a particular soccer player on the field) will get a goal, how many, and/or in which half [i.e. provide real-time skill game propositions]. For each winning bet, a payout is determined from the wager pool associated with the sporting event the winning bet was assigned, para 0066);
receiving selections to the one or more real-time skill game propositions (displaying sporting event information including different bet types that can be waged on the basis of the predefined entry fee, and updating the sporting event information in real time in response to in play activities associated with the live sporting event; simultaneously making available for display leaderboard information including information about the bets waged on by those on the leaderboard, claim 1, combining competition tournament play with live in-sports betting, but at the same time employing leaderboards in a totally new and clever way [i.e. receiving selections to the one or more real-time skill game propositions], para 0058); and
providing odds for one or more in-Play propositions based on the selections to the one or more real-time skill game propositions (the odds are changing in real-time according to the share of total exchange each of the possible outcomes have received taking into account the return rate of the bookmaker offering the bet, para 0025, an improved fixed odds betting platform for making in-play sports betting wages, para 0039, A leaderboard automatically calculates the winnings of the wager pool of players and displays, in real time, the current leaders, in terms of winnings, during the tournament. The leaderboard updates automatically during the tournament to reflect changes in leaderboard standings in response to placed bets settlement and clearing, as well as in response to real time changes in odds of still pending bets [i.e. providing odds for one or more in-Play propositions based on the selections to the one or more real-time skill game propositions], para 0043, Once a bet is placed, the player remains online if he so chooses and continues to be served real-time, up to date betting and leaderboard statistics allowing him to better manage his bets, adding to them if need be, based not only on what's happening on the field, but as importantly, based on what other tournament players are doing, para 0114); and
a processor configured for processing the application (Betting system platform 12 may include a processor 50 coupled to a memory 52 and is generally operable to manage bets 26 received from users 20 of clients 14. Processor 50 is generally operable to execute various algorithms or calculations to determine various data such as game inputs 34, bet results 40, pool values 53 of each wager pool 30, and payouts 42, para 0078, Computer-readable media includes both computer storage media and communication media including any medium that facilitates transfer of a computer program from one place to another, para 0121).

Regarding claim 30, Theodosopoulos further discloses that the application is further configured for developing the one or more real-time skill game propositions (each bet is assigned to one of a number of sporting events. Funds associated with each bet are included in a wager pool associated with the sporting event to which that bet is assigned. The outcome of each bet is determined based at least in part on the results of the sporting event to which that bet is assigned, such as, for example, whether one or the other team (or a particular soccer player on the field) will get a goal, how many, and/or in which half [i.e. developing the one or more real-time skill game propositions]. For each winning bet, a payout is determined from the wager pool associated with the sporting event the winning bet was assigned, para 0066).

Regarding claim 31, Theodosopoulos further discloses that developing the one or more real-time skill game propositions comprises utilizing artificial intelligence or analytics to automatically acquire statistical information (Due to the sheer volume and variety of "in-play" bets available with fixed odds betting, bets are typically set by electronic algorithms designed to account for a large number of variables and events as they occur, in real time. The same algorithms are designed to statistically guess/estimate a result and convert this result into a risk-reward outcome for each bet [i.e. utilizing analytics to automatically acquire real time statistical information from the concurrent real time skill contest], para 0004, Once a bet is placed, the player remains online if he so chooses and continues to be served real-time, up to date betting and leaderboard statistics allowing him to better manage his bets, adding to them if need be, based not only on what's happening on the field, but as importantly, based on what other tournament players are doing, para 0114).

Regarding claim 32, Theodosopoulos further discloses that providing the one or more real-time skill game propositions comprises displaying the one or more real-time skill game propositions simultaneously with an underlying broadcast of an event (displaying sporting event information including different bet types that can be waged on the basis of the predefined entry fee, and updating the sporting event information in real time in response to in play activities associated with the live sporting event; simultaneously making available for display leaderboard information including information about the bets waged on by those on the leaderboard, claim 1, combining competition tournament play with live in-sports betting, but at the same time employing leaderboards in a totally new and clever way, para 0058).

Regarding claim 33, Theodosopoulos further discloses that receiving the selections to the one or more real-time skill game propositions includes receiving input from end user devices (the betting system platform is configured for access by a web browser from a client device of the player, claim 3, screenshots generated by the betting system platform and displayed on a local client device to provide game explanations, para 0049).

FanDuel Ex. 1002-0192

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2019/054859

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Regarding claim 34, Theodosopoulos further discloses that the application is further configured for processing the selections to the one or more real-time skill game propositions (the platform displays sporting event information including different bet types waged based on a predefined entry fee, and updates the sporting event information in real time in response to in-play activities associated with the live sporting event, para 0041).

Regarding claim 37, Theodosopoulos further discloses that the application is further configured for providing the one or more In-Play propositions (each bet is assigned to one of a number of sporting events. Funds associated with each bet are included in a wager pool associated with the sporting event to which that bet is assigned. The outcome of each bet is determined based at least in part on the results of the sporting event to which that bet is assigned, such as, for example, whether one or the other team (or a particular soccer player on the field) will get a goal, how many, and/or in which half. For each winning bet, a payout is determined from the wager pool associated with the sporting event the winning bet was assigned, para 0066).

Regarding claim 38, Theodosopoulos further discloses that an in-Play proposition is presented initially without the odds, and then after the information related to real-time skill game propositions is received, the odds are presented (A leaderboard automatically calculates the winnings of the wager pool of players and displays, in real time, the current leaders, in terms of winnings, during the tournament. The leaderboard updates automatically during the tournament to reflect changes in leaderboard standings in response to placed bets settlement and clearing, as well as in response to real time changes in odds of still pending bets, para 0043, As a first step, the platform retrieves and displays (via an initial home screen) up to date in-play sports betting tournaments. The home screen may show all relevant tournaments including recently cleared tournaments, late registration available tournaments, as well as open tournaments, para 0107).

Regarding claim 41, Theodosopoulos further discloses that the one or more real-time skill game propositions are related to one or more occurrences (Due to the sheer volume and variety of "in-play" bets available with fixed odds betting, bets are typically set by electronic algorithms designed to account for a large number of variables and events as they occur, in real time, para 0004, The outcome of each bet is determined based at least in part on the results of the sporting event to which that bet is assigned, such as, for example, whether one or the other team (or a particular soccer player on the field) will get a goal, how many, and/or in which half. For each winning bet, a payout is determined from the wager pool associated with the sporting event the winning bet was assigned, para 0066).

Regarding claim 62, Theodosopoulos discloses a method comprising:
providing one or more sports betting propositions while an event is in progress (each bet is assigned to one of a number of sporting events. Funds associated with each bet are included in a wager pool associated with the sporting event to which that bet is assigned. The outcome of each bet is determined based at least in part on the results of the sporting event to which that bet is assigned, such as, for example, whether one or the other team (or a particular soccer player on the field) will get a goal, how many, and/or in which half [i.e. providing one or more sports betting propositions while an event is in progress]. For each winning bet, a payout is determined from the wager pool associated with the sporting event the winning bet was assigned, para 0066); and
providing odds for the one or more sports betting propositions utilizing results to one or more predictions made in real-time to a same one or more propositions presented to users in a game of skill being played concurrently with the event (the odds are changing in real-time according to the share of total exchange each of the possible outcomes have received taking into account the return rate of the bookmaker offering the bet, para 0025, an improved fixed odds betting platform for making in-play sports betting wages, para 0039, A leaderboard automatically calculates the winnings of the wager pool of players and displays, in real time, the current leaders, in terms of winnings, during the tournament. The leaderboard updates automatically during the tournament to reflect changes in leaderboard standings in response to placed bets settlement and clearing, as well as in response to real time changes in odds of still pending bets [i.e. providing odds for the one or more sports betting propositions utilizing results to one or more predictions made in real-time to a same one or more propositions presented to users in a game of skill being played concurrently with the event], para 0043, Once a bet is placed, the player remains online if he so chooses and continues to be served real-time, up to date betting and leaderboard statistics allowing him to better manage his bets, adding to them if need be, based not only on what's happening on the field, but as importantly, based on what other tournament players are doing, para 0114).

Regarding claim 63, Theodosopoulos further discloses that the odds are provided by a live sports betting operator (the odds are changing in real-time according to the share of total exchange each of the possible outcomes have received taking into account the return rate of the bookmaker offering the bet, para 0025, an improved fixed odds betting platform for making in-play sports betting wages, para 0039, A leaderboard automatically calculates the winnings of the wager pool of players and displays, in real time, the current leaders, in terms of winnings, during the tournament. The leaderboard updates automatically during the tournament to reflect changes in leaderboard standings in response to placed bets settlement and clearing, as well as in response to real time changes in odds of still pending bets, para 0043, Once a bet is placed, the player remains online if he so chooses and continues to be served real-time, up to date betting and leaderboard statistics allowing him to better manage his bets, adding to them if need be, based not only on what's happening on the field, but as importantly, based on what other tournament players are doing, para 0114).

Regarding claim 66, Theodosopoulos further discloses further comprising receiving selections to the one or more sports betting propositions including receiving input from end user devices (the betting system platform is configured for access by a web browser from a client device of the player, claim 3, screenshots generated by the betting system platform and displayed on a local client device to provide game explanations, para 0049).

Regarding claim 67, Theodosopoulos further discloses further comprising processing the selections to the one or more sports betting propositions (the platform displays sporting event information including different bet types waged based on a predefined entry fee, and updates the sporting event information in real time in response to in-play activities associated with the live sporting event, para 0041).

FanDuel Ex. 1002-0193

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
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Regarding claim 72, Theodosopoulos further discloses that the one or more sports betting propositions are related to one or more occurrences (Due to the sheer volume and variety of "in-play" bets available with fixed odds betting, bets are typically set by electronic algorithms designed to account for a large number of variables and events as they occur, in real time, para 0004. The outcome of each bet is determined based at least in part on the results of the sporting event to which that bet is assigned, such as, for example, whether one or the other team (or a particular soccer player on the field) will get a goal, how many, and/or in which half. For each winning bet, a payout is determined from the wager pool associated with the sporting event the winning bet was assigned, para 0086).

Claims 7, 8, 21, 22, 35, 36, 42, 43, 45-50, 53, 68, and 69 lack an inventive step under PCT Article 33(3) as being obvious over Theodosopoulos in view of Pinnacle.

Regarding claim 7, Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that processing includes determining percentages of the selections. However, Pinnacle is in the field of monitoring line movement (pg 2 para 1) and teaches that processing includes determining percentages of the selections (If there was a higher percentage of bets placed on Pittsburgh (say 75%), theoretically the line would move to Pittsburgh -7.5 or higher as the bookmaker would want more bettors to bet on the Packers and thus make them a more attractive option, pg 3 para 2, Betting percentages for different markets are widely available to the public on various online platforms (and from bookmakers themselves). This data can be tracked with records made of where RLM has been 'predictive' of the final outcome. In other words, where the line moved in favour of the winning team despite the bet percentage being higher on the other (losing) side, pg 3 para 5). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Pinnacle for the purpose of adjusting the odds in an effort to balance the book (Pinnacle pg 2 para 2).

Regarding claim 8, modified Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that providing the odds for one or more in-Play live betting propositions includes adjusting previously determined odds based on the percentages of the concurrent skill game selections. However, Pinnacle teaches that providing the odds for one or more in-Play live betting propositions includes adjusting previously determined odds based on the percentages of the concurrent skill game selections (Bookmakers offer odds on a particular sports match in the hope of attracting an equal amount of money on both sides of the market and make a profit by applying a margin to the odds they offer. If they get uneven "action" (amount of money bet) on a game, they will most likely adjust the odds (increase one side to attract money and shorten the other make it less attractive) in an effort to balance the book and reduce their liability, pg 2 para 2, If there was a higher percentage of bets placed on Pittsburgh (say 75%), theoretically the line would move to Pittsburgh -7.5 or higher as the bookmaker would want more bettors to bet on the Packers and thus make them a more attractive option, pg 3 para 2, Betting percentages for different markets are widely available to the public on various online platforms (and from bookmakers themselves). This data can be tracked with records made of where RLM has been 'predictive' of the final outcome. In other words, where the line moved in favour of the winning team despite the bet percentage being higher on the other (losing) side, pg 3 para 5). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Pinnacle for the purpose of adjusting the odds in an effort to balance the book (Pinnacle pg 2 para 2).

Regarding claim 21, Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that processing includes determining the percentages of the alternative selections to the propositions. However, Pinnacle teaches that processing includes determining the percentages of the alternative selections to the propositions (If there was a higher percentage of bets placed on Pittsburgh (say 75%), theoretically the line would move to Pittsburgh -7.5 or higher as the bookmaker would want more bettors to bet on the Packers and thus make them a more attractive option, pg 3 para 2, Betting percentages for different markets are widely available to the public on various online platforms (and from bookmakers themselves). This data can be tracked with records made of where RLM has been 'predictive' of the final outcome. In other words, where the line moved in favour of the winning team despite the bet percentage being higher on the other (losing) side, pg 3 para 5). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Pinnacle for the purpose of adjusting the odds in an effort to balance the book (Pinnacle pg 2 para 2).

Regarding claim 22, modified Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that the sports betting server device is further configured for providing the odds for one or more in-Play betting propositions including adjusting previously determined odds based on the percentages of the concurrent selections by the skill contest competitors. However, Pinnacle teaches that the sports betting server device is further configured for providing the odds for one or more in-Play betting propositions including adjusting previously determined odds based on the percentages of the concurrent selections by the skill contest competitors (Bookmakers offer odds on a particular sports match in the hope of attracting an equal amount of money on both sides of the market and make a profit by applying a margin to the odds they offer. If they get uneven "action" (amount of money bet) on a game, they will most likely adjust the odds (increase one side to attract money and shorten the other make it less attractive) in an effort to balance the book and reduce their liability, pg 2 para 2, If there was a higher percentage of bets placed on Pittsburgh (say 75%), theoretically the line would move to Pittsburgh -7.5 or higher as the bookmaker would want more bettors to bet on the Packers and thus make them a more attractive option, pg 3 para 2, Betting percentages for different markets are widely available to the public on various online platforms (and from bookmakers themselves). This data can be tracked with records made of where RLM has been 'predictive' of the final outcome. In other words, where the line moved in favour of the winning team despite the bet percentage being higher on the other (losing) side, pg 3 para 5). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Pinnacle for the purpose of adjusting the odds in an effort to balance the book (Pinnacle pg 2 para 2).

FanDuel Ex. 1002-0194

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Regarding claim 35, Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that processing includes determining percentages of the competitor's selections. However, Pinnacle teaches that processing includes determining percentages of the competitor's selections (If there was a higher percentage of bets placed on Pittsburgh (say 75%), theoretically the line would move to Pittsburgh -7.5 or higher as the bookmaker would want more bettors to bet on the Packers and thus make them a more attractive option, pg 3 para 2, Betting percentages for different markets are widely available to the public on various online platforms (and from bookmakers themselves). This data can be tracked with records made of where RLM has been 'predictive' of the final outcome. In other words, where the line moved in favour of the winning team despite the bet percentage being higher on the other (losing) side, pg 3 para 5). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Pinnacle for the purpose of adjusting the odds in an effort to balance the book (Pinnacle pg 2 para 2).

Regarding claim 36, modified Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that providing the odds for one or more In-Play propositions includes real-time adjustment of previously recommended odds based on analysis of the percentages of the selections by the skill game competitors. However, Pinnacle teaches that providing the odds for one or more in-Play propositions includes real-time adjustment of previously recommended odds based on analysis of the percentages of the selections by the skill game competitors (Bookmakers offer odds on a particular sports match in the hope of attracting an equal amount of money on both sides of the market and make a profit by applying a margin to the odds they offer. If they get uneven "action" (amount of money bet) on a game, they will most likely adjust the odds (increase one side to attract money and shorten the other make it less attractive) in an effort to balance the book and reduce their liability, pg 2 para 2, If there was a higher percentage of bets placed on Pittsburgh (say 75%), theoretically the line would move to Pittsburgh -7.5 or higher as the bookmaker would want more bettors to bet on the Packers and thus make them a more attractive option, pg 3 para 2, Betting percentages for different markets are widely available to the public on various online platforms (and from bookmakers themselves). This data can be tracked with records made of where RLM has been 'predictive' of the final outcome. In other words, where the line moved in favour of the winning team despite the bet percentage being higher on the other (losing) side, pg 3 para 5). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Pinnacle for the purpose of adjusting the odds in an effort to balance the book (Pinnacle pg 2 para 2).

Regarding claim 42, Theodosopoulos discloses a method programmed in a non-transitory memory of a device (Betting system platform 12 may include a processor 50 coupled to a memory 52 and is generally operable to manage bets 26 received from users 20 of clients 14. Processor 50 is generally operable to execute various algorithms or calculations to determine various data such as game inputs 34, bet results 40, pool values 53 of each wager pool 30, and payouts 42, para 0078, Computer-readable media includes both computer storage media and communication media including any medium that facilitates transfer of a computer program from one place to another, para 0121) comprising:
providing one or more real-time skill game propositions in connection with a live event (each bet is assigned to one of a number of sporting events. Funds associated with each bet are included in a wager pool associated with the sporting event to which that bet is assigned. The outcome of each bet is determined based at least in part on the results of the sporting event to which that bet is assigned, such as, for example, whether one or the other team (or a particular soccer player on the field) will get a goal, how many, and/or in which half [i.e. providing one or more real-time skill game propositions in connection with a live event]. For each winning bet, a payout is determined from the wager pool associated with the sporting event the winning bet was assigned, para 0066);
receiving selections to the one or more real-time skill game propositions (displaying sporting event information including different bet types that can be waged on the basis of the predefined entry fee, and updating the sporting event information in real time in response to in play activities associated with the live sporting event, simultaneously making available for display leaderboard information including information about the bets waged on by those on the leaderboard, claim 1, combining competition tournament play with live in-sports betting, but at the same time employing leaderboards in a totally new and clever way [i.e. receiving selections to the one or more real-time skill game propositions], para 0058), and
providing a second set of odds for the one or more In-Play live betting propositions based on analysis of the first set of odds and the selections to the one or more real-time skill game propositions (the odds are changing in real-time according to the share of total exchange each of the possible outcomes have received taking into account the return rate of the bookmaker offering the bet, para 0025, an improved fixed odds betting platform for making in-play sports betting wages, para 0039, A leaderboard automatically calculates the winnings of the wager pool of players and displays, in real time, the current leaders, in terms of winnings, during the tournament. The leaderboard updates automatically during the tournament to reflect changes in leaderboard standings in response to placed bets settlement and clearing, as well as in response to real time changes in odds of still pending bets [i.e. providing a second set of odds for the one or more In-Play live betting propositions based on analysis of the first set of odds and the selections to the one or more real-time skill game propositions], para 0043, Once a bet is placed, the player remains online if he so chooses and continues to be served real-time, up to date betting and leaderboard statistics allowing him to better manage his bets, adding to them if need be, based not only on what's happening on the field, but as importantly, based on what other tournament players are doing, para 0114).
Theodosopoulos does not specifically disclose providing a first set of odds for one or more In-Play live betting propositions based on an expert panel or a subset of viewers of the live event.
However, Pinnacle teaches providing a first set of odds for one or more In-Play live betting propositions based on an expert panel or a subset of viewers of the live event (Equally important as the money (not just the number of bets) placed on each side of the market is where that money comes from. Bookmakers will pay closer attention to the bets placed by customers who are known to be very knowledgeable about what they are betting on (sometimes referred to as "sharps") when assessing the market and deciding whether to adjust the odds or not [i.e. providing a first set of odds for one or more In-Play live betting propositions based on an expert panel of the live event], pg 2 para 3). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Pinnacle for the purpose of adjusting the odds in an effort to balance the book (Pinnacle pg 2 para 2).

FanDuel Ex. 1002-0195

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

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Regarding claim 43, modified Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that the subset of competitors is selected based on previous results. However, Pinnacle teaches that the subset of competitors is selected based on previous results (Equally important as the money (not just the number of bets) placed on each side of the market is where that money comes from. Bookmakers will pay closer attention to the bets placed by customers who are known to be very knowledgeable about what they are betting on (sometimes referred to as "sharps") when assessing the market and deciding whether to adjust the odds or not, pg 2 para 3, if a bettor who is known to regularly beat the NFL markets has a $5,000 bet on a game, the bookmaker may decide to adjust the odds accordingly based on this information, pg 2 para 5). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Pinnacle for the purpose of adjusting the odds in an effort to balance the book (Pinnacle pg 2 para 2).

Regarding claim 45, modified Theodosopoulos discloses the invention above, and Theodosopoulos further discloses that providing the one or more real-time skill game propositions comprises displaying the one or more real-time skill game propositions simultaneously with an underlying broadcast of an event (displaying sporting event information including different bet types that can be waged on the basis of the predefined entry fee, and updating the sporting event information in real time in response to in-play activities associated with the live sporting event; simultaneously making available for display leaderboard information including information about the bets waged on by those on the leaderboard, claim 1, combining competition tournament play with live in-sports betting, but at the same time employing leaderboards in a totally new and clever way, para 0058).

Regarding claim 46, modified Theodosopoulos discloses the invention above, and Theodosopoulos further discloses that receiving the selections to the one or more real-time skill game propositions includes receiving input from end user devices (the betting system platform is configured for access by a web browser from a client device of the player, claim 3, screenshots generated by the betting system platform and displayed on a local client device to provide game explanations, para 0049).

Regarding claim 47, modified Theodosopoulos discloses the invention above, and Theodosopoulos further discloses further comprising processing the selections to the one or more real-time skill game propositions (the platform displays sporting event information including different bet types waged based on a predefined entry fee, and updates the sporting event information in real time in response to in-play activities associated with the live sporting event, para 0041).

Regarding claim 48, modified Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that processing includes determining percentages of the selections. However, Pinnacle teaches that processing includes determining percentages of the selections (If there was a higher percentage of bets placed on Pittsburgh (say 75%), theoretically the line would move to Pittsburgh -7.5 or higher as the bookmaker would want more bettors to bet on the Packers and thus make them a more attractive option, pg 3 para 2, Betting percentages for different markets are widely available to the public on various online platforms (and from bookmakers themselves). This data can be tracked with records made of where RLM has been 'predictive' of the final outcome. In other words, where the line moved in favour of the winning team despite the bet percentage being higher on the other (losing) side, pg 3 para 5). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Pinnacle for the purpose of adjusting the odds in an effort to balance the book (Pinnacle pg 2 para 2).

Regarding claim 49, modified Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that providing the second set of odds for the one or more In-Play live betting propositions includes adjusting previously determined odds based on the percentages of the concurrent skill game selections. However, Pinnacle teaches that providing the second set of odds for the one or more In-Play live betting propositions includes adjusting previously determined odds based on the percentages of the concurrent skill game selections (Bookmakers offer odds on a particular sports match in the hope of attracting an equal amount of money on both sides of the market and make a profit by applying a margin to the odds they offer. If they get uneven "action" (amount of money bet) on a game, they will most likely adjust the odds (increase one side to attract money and shorten the other make it less attractive) in an effort to balance the book and reduce their liability, pg 2 para 2, If there was a higher percentage of bets placed on Pittsburgh (say 75%), theoretically the line would move to Pittsburgh -7.5 or higher as the bookmaker would want more bettors to bet on the Packers and thus make them a more attractive option, pg 3 para 2, Betting percentages for different markets are widely available to the public on various online platforms (and from bookmakers themselves). This data can be tracked with records made of where RLM has been 'predictive' of the final outcome. In other words, where the line moved in favour of the winning team despite the bet percentage being higher on the other (losing) side, pg 3 para 5). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Pinnacle for the purpose of adjusting the odds in an effort to balance the book (Pinnacle pg 2 para 2).

Regarding claim 50, modified Theodosopoulos discloses the invention above, and Theodosopoulos further discloses further comprising providing the one or more In-Play live betting propositions (each bet is assigned to one of a number of sporting events. Funds associated with each bet are included in a wager pool associated with the sporting event to which that bet is assigned. The outcome of each bet is determined based at least in part on the results of the sporting event to which that bet is assigned, such as, for example, whether one or the other team (or a particular soccer player on the field) will get a goal, how many, and/or in which half. For each winning bet, a payout is determined from the wager pool associated with the sporting event the winning bet was assigned, para 0066).

Regarding claim 53, modified Theodosopoulos discloses the invention above, and Theodosopoulos further discloses that the one or more real-time skill game propositions are related to one or more occurrences (Due to the sheer volume and variety of "in-play" bets available with fixed odds betting, bets are typically set by electronic algorithms designed to account for a large number of variables and events as they occur, in real time, para 0004, The outcome of each bet is determined based at least in part on the results of the sporting event to which that bet is assigned, such as, for example, whether one or the other team (or a particular soccer player on the field) will get a goal, how many, and/or in which half. For each winning bet, a payout is determined from the wager pool associated with the sporting event the winning bet was assigned, para 0066).

FanDuel Ex. 1002-0196

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

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Regarding claim 68, Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that processing includes determining percentages of the selections. However, Pinnacle teaches that processing includes determining percentages of the selections (If there was a higher percentage of bets placed on Pittsburgh (say 75%), theoretically the line would move to Pittsburgh -7.5 or higher as the bookmaker would want more bettors to bet on the Packers and thus make them a more attractive option, pg 3 para 2, Betting percentages for different markets are widely available to the public on various online platforms (and from bookmakers themselves). This data can be tracked with records made of where RLM has been 'predictive' of the final outcome. In other words, where the line moved in favour of the winning team despite the bet percentage being higher on the other (losing) side, pg 3 para 5). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Pinnacle for the purpose of adjusting the odds in an effort to balance the book (Pinnacle pg 2 para 2).

Regarding claim 69, modified Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that providing the odds for the one or more sports betting propositions includes adjusting previously determined odds based on the percentages of responses to the concurrent skill game selections. However, Pinnacle teaches that providing the odds for the one or more sports betting propositions includes adjusting previously determined odds based on the percentages of responses to the concurrent skill game selections (Bookmakers offer odds on a particular sports match in the hope of attracting an equal amount of money on both sides of the market and make a profit by applying a margin to the odds they offer. If they get uneven "action" (amount of money bet) on a game, they will most likely adjust the odds (increase one side to attract money and shorten the other make it less attractive) in an effort to balance the book and reduce their liability, pg 2 para 2. If there was a higher percentage of bets placed on Pittsburgh (say 75%), theoretically the line would move to Pittsburgh -7.5 or higher as the bookmaker would want more bettors to bet on the Packers and thus make them a more attractive option, pg 3 para 2, Betting percentages for different markets are widely available to the public on various online platforms (and from bookmakers themselves). This data can be tracked with records made of where RLM has been 'predictive' of the final outcome. In other words, where the line moved in favour of the winning team despite the bet percentage being higher on the other (losing) side, pg 3 para 5). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Pinnacle for the purpose of adjusting the odds in an effort to balance the book (Pinnacle pg 2 para 2).

Claims 11, 25, 39, and 70 lack an inventive step under PCT Article 33(3) as being obvious over Theodosopoulos in view of Gambling Commission (hereinafter Gambling).

Regarding claim 11, Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that the one or more real-time skill game propositions are related to a live esports tournament. However, Gambling is in the field of gambling (pg 1 para 1) and teaches that the one or more real-time skill game propositions are related to a live esports tournament (Applying the existing regulatory framework allows for proportionate control of the risks associated with betting on eSports, pg 1 para 4, As live and competitive spectator events, eSports are an attractive proposition for licensed gambling operators to offer bets on the outcome of matches, events and leagues, pg 2 para 7, to win an eSports contest or tournament, pg 10 para 7). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Gambling for the purpose of allowing for proportionate control of the risks associated with betting on eSports (Gambling pg 1 para 4).

Regarding claim 25, Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that the real-time skill game propositions are related to a live esports tournament. However, Gambling teaches that the real-time skill game propositions are related to a live esports tournament (Applying the existing regulatory framework allows for proportionate control of the risks associated with betting on eSports, pg 1 para 4, As live and competitive spectator events, eSports are an attractive proposition for licensed gambling operators to offer bets on the outcome of matches, events and leagues, pg 2 para 7, to win an eSports contest or tournament, pg 10 para 7). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Gambling for the purpose of allowing for proportionate control of the risks associated with betting on eSports (Gambling pg 1 para 4).

Regarding claim 39, Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that the one or more real-time skill game propositions are related to a live esports tournament. However, Gambling teaches that the one or more real-time skill game propositions are related to a live esports tournament (Applying the existing regulatory framework allows for proportionate control of the risks associated with betting on eSports, pg 1 para 4, As live and competitive spectator events, eSports are an attractive proposition for licensed gambling operators to offer bets on the outcome of matches, events and leagues, pg 2 para 7, to win an eSports contest or tournament, pg 10 para 7). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Gambling for the purpose of allowing for proportionate control of the risks associated with betting on eSports (Gambling pg 1 para 4).

Regarding claim 70, Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that the one or more sports betting propositions are related to a live esports tournament. However, Gambling teaches that the one or more sports betting propositions are related to a live esports tournament (Applying the existing regulatory framework allows for proportionate control of the risks associated with betting on eSports, pg 1 para 4, As live and competitive spectator events, eSports are an attractive proposition for licensed gambling operators to offer bets on the outcome of matches, events and leagues, pg 2 para 7, to win an eSports contest or tournament, pg 10 para 7). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Gambling for the purpose of allowing for proportionate control of the risks associated with betting on eSports (Gambling pg 1 para 4).

FanDuel Ex. 1002-0197

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Continuation of:

Claims 12, 26, 40, and 71 lack an inventive step under PCT Article 33(3) as being obvious over Theodosopoulos in view of Asher et al. (hereinafter Asher).

Regarding claim 12, Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that the one or more real-time skill game propositions are related to one or more non-athletic, televised events. However, Asher is in the field of gambling and financial instruments (para 0002) and teaches that the one or more real-time skill game propositions are related to one or more non-athletic, televised events (facilitate betting on the combined outcomes of a plurality of predefined probabilistic events, para 0007, numerous other events may form the basis for financial instruments 76, including events associated with the financial markets, television shows, and even the weather, para 0025, with respect to television shows, the events might involve whether or not a first participant of a reality-based television show will select a second participant of the show for marriage, to remain on the show, to be excluded from the show, or to otherwise be involved in the show. In another example, the events might involve the performance of a participant with respect to voting by viewers of the show. In particular, the events might involve whether a participant will receive the most or fewest votes by the viewership during a predetermined voting period; whether a participant will receive a certain number or percentage of votes by the viewership during a predetermined voting period; whether a first participant will receive more or less votes than a second participant during a predetermined voting period; or voting on whether an incident, occurrence, or happening should take place on the show. In other examples, the events might involve whether or not a participant of a game-show will answer a question correctly, win a prize, or otherwise succeed or fail on the show, para 0028). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Asher for the purpose of facilitating betting on the combined outcomes of a plurality of predefined probabilistic events (Asher para 0007).

Regarding claim 26, Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that the real-time skill game propositions are related to one or more non-athletic, televised events. However, Asher teaches that the real-time skill game propositions are related to one or more non-athletic, televised events (facilitate betting on the combined outcomes of a plurality of predefined probabilistic events, para 0007, numerous other events may form the basis for financial instruments 76, including events associated with the financial markets, television shows, and even the weather, para 0025, with respect to television shows, the events might involve whether or not a first participant of a reality-based television show will select a second participant of the show for marriage, to remain on the show, to be excluded from the show, or to otherwise be involved in the show. In another example, the events might involve the performance of a participant with respect to voting by viewers of the show. In particular, the events might involve whether a participant will receive the most or fewest votes by the viewership during a predetermined voting period; whether a participant will receive a certain number or percentage of votes by the viewership during a predetermined voting period; whether a first participant will receive more or less votes than a second participant during a predetermined voting period; or voting on whether an incident, occurrence, or happening should take place on the show. In other examples, the events might involve whether or not a participant of a game-show will answer a question correctly, win a prize, or otherwise succeed or fail on the show, para 0028). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Asher for the purpose of facilitating betting on the combined outcomes of a plurality of predefined probabilistic events (Asher para 0007).

Regarding claim 40, Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that the one or more real-time skill game propositions are related to one or more non-athletic, televised events. However, Asher teaches that the one or more real-time skill game propositions are related to one or more non-athletic, televised events (facilitate betting on the combined outcomes of a plurality of predefined probabilistic events, para 0007, numerous other events may form the basis for financial instruments 76, including events associated with the financial markets, television shows, and even the weather, para 0025, with respect to television shows, the events might involve whether or not a first participant of a reality-based television show will select a second participant of the show for marriage, to remain on the show, to be excluded from the show, or to otherwise be involved in the show. In another example, the events might involve the performance of a participant with respect to voting by viewers of the show. In particular, the events might involve whether a participant will receive the most or fewest votes by the viewership during a predetermined voting period; whether a participant will receive a certain number or percentage of votes by the viewership during a predetermined voting period; whether a first participant will receive more or less votes than a second participant during a predetermined voting period; or voting on whether an incident, occurrence, or happening should take place on the show. In other examples, the events might involve whether or not a participant of a game-show will answer a question correctly, win a prize, or otherwise succeed or fail on the show, para 0028). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Asher for the purpose of facilitating betting on the combined outcomes of a plurality of predefined probabilistic events (Asher para 0007).

Regarding claim 71, Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that the one or more sports betting propositions are related to one or more non-athletic, televised events. However, Asher teaches that the one or more sports betting propositions are related to one or more non-athletic, televised events (facilitate betting on the combined outcomes of a plurality of predefined probabilistic events, para 0007, numerous other events may form the basis for financial instruments 76, including events associated with the financial markets, television shows, and even the weather, para 0025, with respect to television shows, the events might involve whether or not a first participant of a reality-based television show will select a second participant of the show for marriage, to remain on the show, to be excluded from the show, or to otherwise be involved in the show. In another example, the events might involve the performance of a participant with respect to voting by viewers of the show. In particular, the events might involve whether a participant will receive the most or fewest votes by the viewership during a predetermined voting period; whether a participant will receive a certain number or percentage of votes by the viewership during a predetermined voting period; whether a first participant will receive more or less votes than a second participant during a predetermined voting period; or voting on whether an incident, occurrence, or happening should take place on the show. In other examples, the events might involve whether or not a participant of a game-show will answer a question correctly, win a prize, or otherwise succeed or fail on the show, para 0028). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Asher for the purpose of facilitating betting on the combined outcomes of a plurality of predefined probabilistic events (Asher para 0007).

FanDuel Ex. 1002-0198

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2019/054859

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Claims 16, 17, and 65 lack an inventive step under PCT Article 33(3) as being obvious over Theodosopoulos in view of Uplay1.

Regarding claim 16, Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose developing the one or more real-time skill game propositions comprises utilizing analytical software including artificial intelligence to automatically acquire statistical information utilized by human game producers to provide propositions and set accompanying odds. However, Uplay1 is in the field of wagering (para 0003) and teaches that developing the one or more real-time skill game propositions comprises utilizing analytical software including artificial intelligence to automatically acquire statistical information utilized by human game producers to provide propositions and set accompanying odds (a networked wagering ecosystem 100 comprising an Odds Management Server ("OMS") 102 associated with an Odds Management Service located and licensed to do business in jurisdiction 111. OMS 102 may generate these odds based on user input, i.e., management of OMS 102, and/or autonomously, for example by a processor programmed with Artificial Intelligence, such as IBM's Watson. Initial odds may be set using detailed data, statistics and historical information about past events related to the future events, such as player statistics, team statistics, etc., para 0037). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Uplay1 for the purpose of providing pre-match and in-match sports wagering (Uplay1 para 0003).

Regarding claim 17, modified Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that a database and real-time data from the competitors' responses to the propositions in the skill games are processed by dedicated computers running programs utilizing, artificial intelligence and machine learning to generate an archival database continually utilized by the live sports betting system to improve performance in odds setting accuracy. However, Uplay1 teaches that a database and real-time data from the competitors' responses to the propositions in the skill games are processed by dedicated computers running programs utilizing, artificial intelligence and machine learning to generate an archival database continually utilized by the live sports betting system to improve performance in odds setting accuracy (a networked wagering ecosystem 100 comprising an Odds Management Server ("OMS") 102 associated with an Odds Management Service located and licensed to do business in jurisdiction 111. OMS 102 may generate these odds based on user input, i.e., management of OMS 102, and/or autonomously, for example by a processor programmed with Artificial Intelligence, such as IBM's Watson. Initial odds may be set using detailed data, statistics and historical information about past events related to the future events, such as player statistics, team statistics, etc., para 0037, System 100 eliminates this risk and shifts it to management of OMS 102, who is better able to tolerate imbalances from a single LBS 106, as OMS 102 receives wagers from many other Licensed Book Servers ("LBS") 106's located in gaming market 110, as well as other wagering/gaming markets. OMS 102 provides odds of certain future events normally unavailable to LBS 106, or on events where LBS 106 may risk low liquidity (i.e., for inPlay wagers, or foreign-based wagers), and LBS 106 offers these wagering opportunities to its customers (i.e., punters), in exchange for a guaranteed fee from OMS 102, para 0041. OMS 102 may transmit the odds and bet limits to Licensed Odds Disseminator Server ("LODS") 104 via a web feed, such as RSS or similar technology that provides frequently updated data content securely to LODS 104 to either be relayed to LBS 106 or stored along with the data received from other OMSs 102 in a memory or database. If the data is stored in a database, LODS 104 may sort it by game/event, by wagering odds and/or by bet limits and relay the sorted data to LBS 106 for selection and offering to a plurality of punters, para 0042). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Uplay1 for the purpose of providing pre-match and in-match sports wagering (Uplay1 para 0003).

Regarding claim 65, Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose further comprising developing the odds for the one or more sports betting propositions comprises utilizing artificial intelligence to automatically acquire real time statistical information from a concurrent real time skill contest. However, Uplay1 teaches developing the odds for the one or more sports betting propositions comprises utilizing artificial intelligence to automatically acquire real time statistical information from a concurrent real time skill contest (a networked wagering ecosystem 100 comprising an Odds Management Server ("OMS") 102 associated with an Odds Management Service located and licensed to do business in jurisdiction 111. OMS 102 may generate these odds based on user input, i.e., management of OMS 102, and/or autonomously, for example by a processor programmed with Artificial Intelligence, such as IBM's Watson. Initial odds may be set using detailed data, statistics and historical information about past events related to the future events, such as player statistics, team statistics, etc., para 0037). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Uplay1 for the purpose of providing pre-match and in-match sports wagering (Uplay1 para 0003).

Claim 44 lacks an inventive step under PCT Article 33(3) as being obvious over Theodosopoulos in view of Pinnacle and Uplay1.

Regarding claim 44, modified Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose further comprising developing the second set of odds for the one or more In-Play live betting propositions comprises utilizing artificial intelligence to automatically acquire real time statistical information from a concurrent real time skill contest. However, Uplay1 teaches developing the second set of odds for the one or more In-Play live betting propositions comprises utilizing artificial intelligence to automatically acquire real time statistical information from a concurrent real time skill contest (a networked wagering ecosystem 100 comprising an Odds Management Server ("OMS") 102 associated with an Odds Management Service located and licensed to do business in jurisdiction 111 OMS 102 may generate these odds based on user input, i.e., management of OMS 102, and/or autonomously, for example by a processor programmed with Artificial Intelligence, such as IBM's Watson. Initial odds may be set using detailed data, statistics and historical information about past events related to the future events, such as player statistics, team statistics, etc., para 0037). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Uplay1 for the purpose of providing pre-match and in-match sports wagering (Uplay1 para 0003).

FanDuel Ex. 1002-0199

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2019/054859

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Claim 51 lacks an inventive step under PCT Article 33(3) as being obvious over Theodosopoulos in view of Pinnacle and Gambling Commission (hereinafter Gambling).

Regarding claim 51, modified Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that the one or more real-time skill game propositions are related to a live esports tournament. However, Gambling teaches that the one or more real-time skill game propositions are related to a live esports tournament (Applying the existing regulatory framework allows for proportionate control of the risks associated with betting on eSports, pg 1 para 4, As live and competitive spectator events, eSports are an attractive proposition for licensed gambling operators to offer bets on the outcome of matches, events and leagues, pg 2 para 7, to win an eSports earnest or tournament, pg 10 para 7). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Gambling for the purpose of allowing for proportionate control of the risks associated with betting on eSports (Gambling pg 1 para 4).

Claim 52 lacks an inventive step under PCT Article 33(3) as being obvious over Theodosopoulos in view of Pinnacle and Asher et al. (hereinafter Asher).

Regarding claim 52, modified Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that the one or more real-time skill game propositions are related to one or more non-athletic, televised events. However, Asher teaches that the one or more real-time skill game propositions are related to one or more non-athletic, televised events (facilitate betting on the combined outcomes of a plurality of predefined probabilistic events, para 0007, numerous other events may form the basis for financial instruments 76, including events associated with the financial markets, television shows, and even the weather, para 0025, with respect to television shows, the events might involve whether or not a first participant of a reality-based television show will select a second participant of the show for marriage, to remain on the show, to be excluded from the show, or to otherwise be involved in the show. In another example, the events might involve the performance of a participant with respect to voting by viewers of the show. In particular, the events might involve whether a participant will receive the most or fewest votes by the viewership during a predetermined voting period; whether a participant will receive a certain number or percentage of votes by the viewership during a predetermined voting period; whether a first participant will receive more or less votes than a second participant during a predetermined voting period; or voting on whether an incident, occurrence, or happening should take place on the show. In other examples, the events might involve whether or not a participant of a game-show will answer a question correctly, win a prize, or otherwise succeed or fail on the show, para 0028). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Asher for the purpose of facilitating betting on the combined outcomes of a plurality of predefined probabilistic events (Asher para 0007).

Claims 64 and 73-79 lack an inventive step under PCT Article 33(3) as being obvious over Theodosopoulos in view of Sipko et al. (hereinafter Sipko).

Regarding claim 64, Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that collective responses by users or a sample of users to the one or more odds are presented to sports bettors and their bets placed in response to the adjusted odds are used to train a betting system to continually refine and optimize financial returns of a sports betting provider. However, Sipko is in the field of modelling of professional tennis matches (abstract) and teaches that collective responses by users or a sample of users to the one or more odds are presented to sports bettors and their bets placed in response to the adjusted odds are used to train a betting system to continually refine and optimize financial returns of a sports betting provider (trained an artificial neural network (ANN) using the match surface and several features of both players (winning percentages on first serve, second serve, return, break points, etc.) as training parameters, claim an accuracy of about 75% in predicting the matches in the Grand Slam tournaments in 2007 and 2008, pg 2 para 1, We find that our most profitable machine learning model generates a 4.35% return on investment, an improvement of approximately 75% over the current state-of-the-art stochastic models. This shows that a machine learning approach is is well worth pursuing, pg 2 para 2, Our goal is to predict the most accurate probabilities for the outcomes of matches, optimising for the greatest ROI degrades the quality of the predictions, We aim to obtain a distribution of predicted probabilities that is similar to the distribution of true probabilities, pg 41 para 2, We use odds from the bookmaker Pinnacle1 for all ROI calculations. According to comparisons of different bookmakers2, Pinnacle offers the best payout on almost all events, so the odds will give us a realistic ROI estimate. After removing 55% of the matches based on uncertainty, our test set contains 6315 ATP matches with Pinnacle odds, played during the years 2013-2014, pg 46 para 3). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Sipko for the purpose of using historical player performance across a wide variety of statistics to predict match outcomes (Sipko abstract).

FanDuel Ex. 1002-0200

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2019/054859

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
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Regarding claim 73, Theodosopoulos discloses a method comprising:
providing one or more real-time skill game propositions in connection with a live event (each bet is assigned to one of a number of sporting events. Funds associated with each bet are included in a wager pool associated with the sporting event to which that bet is assigned. The outcome of each bet is determined based at least in part on the results of the sporting event to which that bet is assigned, such as, for example, whether one or the other team (or a particular soccer player on the field) will get a goal, how many, and/or in which half [i.e. providing one or more real-time skill game propositions in connection with a live event]. For each winning bet, a payout is determined from the wager pool associated with the sporting event the winning bet was assigned, para 0086);
providing a first set of odds for one or more in-Play live betting propositions (Sporting event information 66 includes various information regarding sporting events scheduled to occur at each sporting event location 44, such as the type of the sporting event, the names of the players, expected odds of goals based on historical information, the scheduled time for the start of the event, and an approximate duration of the event, for example. Each pool host 16 may communicate sporting event information 66 to betting system platform 12 at various times. For example, in certain embodiments, each pool host 16 may communicate sporting event information 66 to betting system platform 12 at the beginning of each day [i.e. providing a first set of odds for one or more in-Play live betting propositions] and send real-time or substantially real-time updates for such sporting event information 66 to betting system platform 12 throughout the day and night, para 0075);
receiving selections to the one or more real-time skill game propositions (displaying sporting event information including different bet types that can be waged on the basis of the predefined entry fee, and updating the sporting event information in real time in response to in play activities associated with the live sporting event; simultaneously making available for display leaderboard information including information about the bets waged on by those on the leaderboard, claim 1, combining competition tournament play with live in-sports betting, but at the same time employing leaderboards in a totally new and clever way [i.e. receiving selections to the one or more real-time skill game propositions], para 0058); and
providing a second set of odds for the one or more in-Play live betting propositions based on analysis of the first set of odds and the selections to the one or more real-time skill game propositions (the odds are changing in real-time according to the share of total exchange each of the possible outcomes have received taking into account the return rate of the bookmaker offering the bet, para 0035, an improved fixed odds betting platform for making in-play sports betting wages, para 0039. A leaderboard automatically calculates the winnings of the wager pool of players and displays, in real time, the current leaders, in terms of winnings, during the tournament. The leaderboard updates automatically during the tournament to reflect changes in leaderboard standings in response to placed bets settlement and clearing, as well as in response to real time changes in odds of still pending bets [i.e. providing a second set of odds for the one or more in-Play live betting propositions based on analysis of the first set of odds and the selections to the one or more real-time skill game propositions], para 0043, Once a bet is placed, the player remains online if he so chooses and continues to be served real-time, up to date betting and leaderboard statistics allowing him to better manage his bets, adding to them if need be, based not only on what's happening on the field, but as importantly, based on what other tournament players are doing, para 0114).
Theodosopoulos does not specifically disclose training and adjusting algorithms to improve accuracy of providing the first set of odds and the second set of odds.
However, Sipko teaches training and adjusting algorithms to improve accuracy of providing the first set of odds and the second set of odds (trained an artificial neural network (ANN) using the match surface and several features of both players (winning percentages on first serve, second serve, return, break points, etc.) as training parameters, claim an accuracy of about 75% in predicting the matches in the Grand Slam tournaments in 2007 and 2008, pg 2 para 1, We find that our most profitable machine learning model generates a 4.35% return on investment, an improvement of approximately 75% over the current state-of-the-art stochastic models. This shows that a machine learning approach is is well worth pursuing, pg 2 para 2, Our goal is to predict the most accurate probabilities for the outcomes of matches, optimising for the greatest ROI degrades the quality of the predictions. We aim to obtain a distribution of predicted probabilities that is similar to the distribution of true probabilities, pg 41 para 2, We use odds from the bookmaker Pinnacle1 for all ROI calculations. According to comparisons of different bookmakers2, Pinnacle offers the best payout on almost all events, so the odds will give us a realistic ROI estimate. After removing 50% of the matches based on uncertainty, our test set contains 6315 ATP matches with Pinnacle odds, played during the years 2013-2014 [i.e. training and adjusting algorithms to improve accuracy of providing odds], pg 48 para 3). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Sipko for the purpose of using historical player performance across a wide variety of statistics to predict match outcomes (Sipko abstract).

Regarding claim 74, modified Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that training and adjusting the algorithms includes acquiring reactions to the first set of odds, the second set of odds or any combination thereof. However, Sipko teaches that training and adjusting the algorithms includes acquiring reactions to the first set of odds, the second set of odds or any combination thereof (The training of the model consists of optimising the parameters β so that the model gives the best reproduction of match outcomes for the training data. This is done by minimising the logistic loss function (equation 2.7), which gives a measure of the error of the model in predicting outcomes of matches used for training, pg 10 para 1). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Sipko for the purpose of using historical player performance across a wide variety of statistics to predict match outcomes (Sipko abstract).

Regarding claim 75, modified Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that training and adjusting the algorithms includes recalculating the second set of odds based on the reactions. However, Sipko teaches that training and adjusting the algorithms includes recalculating the second set of odds based on the reactions (Our neural network generates a return on investment of 4.35% when in competition with the betting market, an improvement of about 75%, abstract, we train a logistic regression model on the constructed dataset. Seeking further improvement, we train two higher-order models (logistic regression with interaction features and an artificial neural network), pg 2 para 2, Feature selection is the process of selecting a subset of all available features to use within a model. The main motivation for applying this technique to tennis match prediction is the possibility of improving prediction accuracy through the removal of irrelevant features, pg 28 para 3). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Sipko for the purpose of using historical player performance across a wide variety of statistics to predict match outcomes (Sipko abstract).

FanDuel Ex. 1002-0201

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2019/054859

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Regarding claim 76, modified Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose further comprising comparing the results from the one or more skill game propositions to the responses. However, Sipko teaches further comprising comparing the results from the one or more skill game propositions to the responses (trained a three-layer feed-forward ANN for match prediction with the backpropagation algorithm. Several different networks with different sets of input features were trained and compared. The best-performing network had 27 input nodes, representing features of both players and the match, and had an average accuracy of about 75% in predicting the outcomes of matches in the 2007 and 2008 Grand Slam tournaments, pg 11 para 6, As evaluating subsets using ROI previously failed to generalise well, we only use logistic loss to compare different subsets, pg 36 para 6). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Sipko for the purpose of using historical player performance across a wide variety of statistics to predict match outcomes (Sipko abstract).

Regarding claim 77, modified Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose further comprising utilizing the comparison of the results and the responses to optimize the algorithms. However, Sipko teaches further comprising utilizing the comparison of the results and the responses to optimize the algorithms (Using the resulting dataset, we develop and optimise models based on two machine learning algorithms: logistic regression and artificial neural networks, abstract, they used a 1-dimensional feature space x = (rankdiff), and optimised β1 so that the function σ(β1 ·rankdiff) gave the best predictions for the training data, pg 10 para 5). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Sipko for the purpose of using historical player performance across a wide variety of statistics to predict match outcomes (Sipko abstract).

Regarding claim 78, modified Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that training and adjusting the algorithms includes using machine learning. However, Sipko teaches that training and adjusting the algorithms includes using machine learning (We propose a supervised machine learning approach that uses historical player performance across a wide variety of statistics to predict match outcomes, abstract). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Sipko for the purpose of using historical player performance across a wide variety of statistics to predict match outcomes (Sipko abstract).

Regarding claim 79, modified Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that training and adjusting the algorithms includes using neural networks. However, Sipko teaches that training and adjusting the algorithms includes using neural networks (Using the resulting dataset, we develop and optimise models based on two machine learning algorithms: logistic regression and artificial neural networks, abstract). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Sipko for the purpose of using historical player performance across a wide variety of statistics to predict match outcomes (Sipko abstract).

Claims 1-53 and 62-79 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry

FanDuel Ex. 1002-0202

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To: JONATHAN O. OWENS
162 NORTH WOLFE ROAD
SUNNYVALE, CA 94086

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT AND THE WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

Applicant's or agent's file reference AIRP-02101WO	Date of mailing *(day/month/year)* **FOR FURTHER ACTION** See paragraphs 1 and 4 below
International application No. PCT/US2019/054859	International filing date *(day/month/year)* 04 October 2019
Applicant WINVIEW, INC.	

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

   Filing of amendments and statement under Article 19:
   The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

   When? The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.

   How? Directly to the International Bureau of WIPO preferably through ePCT or on paper to, 34 chemin des Colombettes 1211 Geneva 20, Switzerland, Facsimile No.: +41 22 338 82 70

   For more detailed instructions, see *PCT Applicant's Guide*, International Phase, paragraphs 9.004 – 9.011.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.

3. ☐ **With regard to any protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:
   - ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with any request to forward the texts of both the protest and the decision thereon to the designated Offices.
   - ☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Reminders**

   The applicant may **submit comments on an informal basis on the written opinion of the International Searching Authority** to the International Bureau. These comments will be made available to the public after international publication. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established.

   Shortly after the expiration of **18 months from the priority date, the international application will be published** by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau before the completion of the technical preparations for international publication (Rules 90*bis*.1 and 90*bis*.3).

   Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase **until 30 months** from the priority date (in some Offices even later); otherwise, the applicant must, **within 20 months** from the priority date, perform the prescribed acts for **entry into the national phase** before those designated Offices. In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months. For details about the applicable time limits, Office by Office, see www.wipo.int/pct/en/texts/time_limits.html and the *PCT Applicant's Guide*, National Chapters.

   Within **22 months from the priority date, the applicant may request that a supplementary international search be carried out** by a different International Searching Authority that offers this service (Rule 45*bis*.1). The procedure for requesting supplementary international search is described in the *PCT Applicant's Guide*, International Phase, paragraphs 8.006-8.032.

Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, VA 22313-1450 Facsimile No. 571-273-8300	Authorized officer Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 Telephone No. PCT OSP: 571-272-7774

Form PCT/ISA/220 (July 2017)

FanDuel Ex. 1002-0203

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To: JONATHAN O. OWENS
162 NORTH WOLFE ROAD
SUNNYVALE, CA 94086

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT AND THE WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

	Date of mailing *(day/month/year)* 04 FEB 2020
Applicant's or agent's file reference AIRP-02101WO	**FOR FURTHER ACTION** See paragraphs 1 and 4 below
International application No. PCT/US2019/054859	International filing date *(day/month/year)* 04 October 2019
Applicant WINVIEW, INC.	

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

   Filing of amendments and statement under Article 19:
   The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

   When? The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.

   How? Directly to the International Bureau of WIPO preferably through ePCT or on paper to, 34 chemin des Colombettes 1211 Geneva 20, Switzerland, Facsimile No.: +41 22 338 82 70

   For more detailed instructions, see *PCT Applicant's Guide*, International Phase, paragraphs 9.004 – 9.011.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.

3. ☐ **With regard to any protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:
   ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with any request to forward the texts of both the protest and the decision thereon to the designated Offices.
   ☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Reminders**

   The applicant may **submit comments on an informal basis on the written opinion of the International Searching Authority** to the International Bureau. These comments will be made available to the public after international publication. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established.

   Shortly after the expiration of **18 months from the priority date, the international application will be published** by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau before the completion of the technical preparations for international publication (Rules 90*bis*.1 and 90*bis*.3).

   Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase **until 30 months** from the priority date (in some Offices even later); otherwise, the applicant must, **within 20 months** from the priority date, perform the prescribed acts for **entry into the national phase** before those designated Offices. In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months. For details about the applicable time limits, Office by Office, see www.wipo.int/pct/en/texts/time_limits.html and the *PCT Applicant's Guide*, National Chapters.

   Within **22 months from the priority date, the applicant may request that a supplementary international search be carried out** by a different International Searching Authority that offers this service (Rule 45*bis*.1). The procedure for requesting supplementary international search is described in the *PCT Applicant's Guide*, International Phase, paragraphs 8.006-8.032.

Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, VA 22313-1450 Facsimile No. 571-273-8300	Authorized officer Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 Telephone No. PCT OSP: 571-272-7774

Form PCT/ISA/220 (July 2017)

FanDuel Ex. 1002-0204

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference AIRP-02101WO	FOR FURTHER ACTION	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US2019/054859	International filing date *(day/month/year)* 04 October 2019	(Earliest) Priority Date *(day/month/year)* 08 October 2018
Applicant WINVIEW, INC.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 5 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

   a. With regard to the **language**, the international search was carried out on the basis of:

   ☒ the international application in the language in which it was filed.

   ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

   b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).

   c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (see Box No. II).

3. ☒ **Unity of invention is lacking** (see Box No. III).

4. With regard to the **title**,

   ☒ the text is approved as submitted by the applicant.

   ☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

   ☒ the text is approved as submitted by the applicant.

   ☐ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

   a. the figure of the **drawings** to be published with the abstract is Figure No. 5

   ☒ as suggested by the applicant.

   ☐ as selected by this Authority, because the applicant failed to suggest a figure.

   ☐ as selected by this Authority, because this figure better characterizes the invention.

   b. ☐ none of the figures is to be published with the abstract.

FanDuel Ex. 1002-0205

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2019/054859

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:
See extra sheet(s).

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
1-53, 62-79

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.

☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.

☐ No protest accompanied the payment of additional search fees.

FanDuel Ex. 1002-0206

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2019/054859

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - G07F 17/32; A63F 9/24; A63F 13/828; G06F 19/00; G06Q 99/00 (2020.01)
CPC - G07F 17/3288; A63F 13/828; G07F 17/3244; G07F 17/3276 (2020.01)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
See Search History document

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC - 463/12; 463/25 (keyword delimited)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
See Search History document

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2017/0103615 A1 (THEODOSOPOULOS) 13 April 2017 (13.04.2017) entire document	1-6, 9, 10, 13-15, 18-20, 23, 24, 27-34, 37, 38, 41, 62, 63, 66, 67, 72
Y		7, 8, 11, 12, 16, 17, 21, 22, 25, 26, 35, 36, 39, 40, 42-53, 64, 65, 68-71, 73-79
Y	PINNACLE. "The basics of reverse line movement." 19 January 2018 (19.01.2018) Retrieved on 22 January 2020 (22.01.2020) from <https://www.pinnacle.com/en/betting-articles/educational/basics-of-reverse-line-movement/QAH26XGGQQS7M3GD> entire document	7, 8, 21, 22, 35, 36, 42-53, 68, 69
Y	GAMBLING COMMISSION. "Virtual currencies, eSports and social casino gaming – position paper." March 2017 (03.2017) Retrieved on 22 January 2020 (22.01.2020) from <https://www.gamblingcommission.gov.uk/PDF/Virtual-currencies-eSports-and-social-casino-gaming.pdf> entire document	11, 25, 39, 51, 70
Y	US 2004/0210507 A1 (ASHER et al) 21 October 2004 (21.10.2004) entire document	12, 26, 40, 52, 71
Y	US 2017/0243438 A1 (UPLAY1) 24 August 2017 (24.08.2017) entire document	16, 17, 44, 66

☒ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
23 January 2020	04 FEB 2020

Name and mailing address of the ISA/US	Authorized officer
Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, VA 22313-1450 Facsimile No. 571-273-8300	Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/210 (second sheet) (January 2015)

FanDuel Ex. 1002-0207

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2019/054859

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	SIPKO et al. "Machine learning for the prediction of professional tennis matches." In: MEng computing-final year project, Imperial College London. 15 June 2015 (15.06.2015) Retrieved on 22 January 2020 (22.01.2020) from <https://www.doc.ic.ac.uk/teaching/distinguished-projects/2015/m.sipko.pdf> entire document	64, 73-79
A	US 2009/0186676 A1 (AMAITIS et al.) 23 July 2009 (23.07.2009) entire document	1-53, 62-79
A	US 2015/0238873 A1 (GAMBLIT GAMING, LLC) 27 August 2015 (27.08.2015) entire document	1-53, 62-79
A	WINVIEW GAME PRODUCER. "Live TV Sports Play Along App WinView Games Announces Sponsorship With PepsiCo To Start This Holiday Season." In: Winview Games. 21 December 2016 (21.12.2016) Retrieved on 21 January 2020 (21.01.2020) from <https://www.winviewgames.com/press-releases/live-tv-sports-play-along-app-winview-games-announces-sponsorship-pepsico-start-holiday-season/> entire document	1-53, 62-79

FanDuel Ex. 1002-0208

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2019/054859

Continued from Box No. III Observations where unity of invention is lacking

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claims 1-53 and 62-79, drawn to a method programmed in a non-transitory memory of a device for interaction with televised events comprising: providing one or more real-time skill game propositions.

Group II, claims 54-61, drawn to a method programmed in a non-transitory memory of a device comprising: acquiring reactions from a plurality of bettors to one or more propositions.

The inventions listed as Groups I-II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the special technical feature of the Group I invention: providing one or more real-time skill game propositions; receiving selections to the one or more real-time skill game propositions relating to the events; and providing odds for one or more in-Play live betting propositions based on a measured response to the selections to the one or more real-time skill game propositions as claimed therein is not present in the invention of Group II. The special technical feature of the Group II invention: acquiring reactions from a plurality of bettors to one or more propositions, one or more odds, or any combination thereof; adjusting the one or more odds based for the one or more propositions based on the reactions; and generating one or more future propositions, one or more future odds, or any combination thereof based on the reactions as claimed therein is not present in the invention of Group I.

Groups I and II lack unity of invention because even though the inventions of these groups require the technical feature of providing one or more odds for one or more betting propositions, this technical feature is not a special technical feature as it does not make a contribution over the prior art.

Specifically, US 2009/0186676 to Amaitis et al. teaches providing one or more odds for one or more betting propositions (Paras. [0282-0286]).

Since none of the special technical features of the Group I or II inventions are found in more than one of the inventions, unity of invention is lacking.

FanDuel Ex. 1002-0209

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To: JONATHAN O. OWENS
162 NORTH WOLFE ROAD
SUNNYVALE, CA 94086

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)* 04 FEB 2020

Applicant's or agent's file reference
AIRP-02101WO

FOR FURTHER ACTION
See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US2019/054859	04 October 2019	08 October 2018

International Patent Classification (IPC) or both national classification and IPC
IPC(8) - G07F 17/32; A63F 9/24; A63F 13/828; G06F 19/00; G06Q 99/00 (2020.01)
CPC - G07F 17/3288; A63F 13/828; G07F 17/3244; G07F 17/3276 (2020.01)

Applicant WINVIEW, INC.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☒ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/US	Date of completion of this opinion	Authorized officer
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, VA 22313-1450 Facsimile No. 571-273-8300	23 January 2020	Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/237 (cover sheet) (January 2015)

FanDuel Ex. 1002-0210

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2019/054869

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:

   ☒ the international application in the language in which it was filed.

   ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a)).

3. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing:

   a. ☐ forming part of the international application as filed:

      ☐ in the form of an Annex C/ST.25 text file.

      ☐ on paper or in the form of an image file.

   b. ☐ furnished together with the international application under PCT Rule 13*ter*.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.

   c. ☐ furnished subsequent to the international filing date for the purposes of international search only:

      ☐ in the form of an Annex C/ST.25 text file (Rule 13*ter*.1(a)).

      ☐ on paper or in the form of an image file (Rule 13*ter*.1(b) and Administrative Instructions, Section 713).

4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

FanDuel Ex. 1002-0211

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2019/054659

Box No. IV Lack of unity of invention

1. ☒ In response to the invitation (Form PCT/ISA/206) to pay additional fees the applicant has, within the applicable time limit:

   ☐ paid additional fees.

   ☐ paid additional fees under protest and, where applicable, the protest fee.

   ☐ paid additional fees under protest but the applicable protest fee was not paid.

   ☒ not paid additional fees.

2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose not to invite the applicant to pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rule 13.1, 13.2 and 13.3 is

   ☐ complied with.

   ☒ not complied with for the following reasons:

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claims 1-53 and 62-79, drawn to a method programmed in a non-transitory memory of a device for interaction with televised events comprising: providing one or more real-time skill game propositions.

Group II, claims 54-61, drawn to a method programmed in a non-transitory memory of a device comprising: acquiring reactions from a plurality of bettors to one or more propositions.

The inventions listed as Groups I-II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the special technical feature of the Group I invention: providing one or more real-time skill game propositions; receiving selections to the one or more real-time skill game propositions relating to the events; and providing odds for one or more In-Play live betting propositions based on a measured response to the selections to the one or more real-time skill game propositions as claimed therein is not present in the invention of Group II. The special technical feature of the Group II invention: acquiring reactions from a plurality of bettors to one or more propositions, one or more odds, or any combination thereof; adjusting the one or more odds based for the one or more propositions based on the reactions; and generating one or more future propositions, one or more future odds, or any combination thereof based on the reactions as claimed therein is not present in the invention of Group I.

Groups I and II lack unity of invention because even though the inventions of these groups require the technical feature of providing one or more odds for one or more betting propositions, this technical feature is not a special technical feature as it does not make a contribution over the prior art.

Specifically, US 2009/0186678 to Amaitis et al. teaches providing one or more odds for one or more betting propositions (Paras. [0282-0286]).

Since none of the special technical features of the Group I or II inventions are found in more than one of the inventions, unity of invention is lacking.

4. Consequently, this opinion has been established in respect of the following parts of the international application:

   ☐ all parts.

   ☒ the parts relating to claims Nos. 1-53, 62-79

FanDuel Ex. 1002-0212

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2019/054859

Box No. V **Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	see claims below	YES
	Claims	1-6, 9, 10, 13-15, 18-20, 23, 24, 27-34, 37, 38, 41, 62, 63, 66, 67, 72	NO
Inventive step (IS)	Claims	None	YES
	Claims	1-53, 62-79	NO
Industrial applicability (IA)	Claims	1-53, 62-79	YES
	Claims	None	NO

2. Citations and explanations:

Claims 1-6, 9, 10, 13-15, 18-20, 23, 24, 27-34, 37, 38, 41, 62, 63, 66, 67, and 72 lack novelty under PCT Article 33(2) as being anticipated by Theodosopoulos.

Regarding claim 1, Theodosopoulos discloses a method programmed in a non-transitory memory of a device (the functions described may be implemented in hardware, software, firmware, or any combination thereof. If implemented in software, the functions may be stored on or transmitted over as one or more instructions or code on a computer readable medium, para 0121) for interaction with televised events (the platform displays sporting event information including different bet types waged based on a predefined entry fee, and updates the sporting event information in real time in response to in-play activities associated with the live sporting event [i.e. interaction with televised events], para 0041) comprising:
providing one or more real-time skill game propositions (An in-play sports betting platform will typically offer players options to make wages using a variety of different types of bets familiar to experienced players, para 0004, the platform displays sporting event information including different bet types waged based on a predefined entry fee, and updates the sporting event information in real time in response to in-play activities associated with the live sporting event [i.e. providing one or more real-time skill game propositions], para 0041);
receiving selections to the one or more real-time skill game propositions relating to the events (betting system platform 12 may be generally operable to manage bets 26 received from clients 14 via communication network 18. Each bet 26 is defined by one or more bet parameters 28 such as the identity of the user 20 who placed the bet 26, a unit stake 29 of the bet 26, the time the bet was placed, the game associated with the bet, the particular type of bet, and one or more selected finishing positions 31, para 0077, Once a decision is detected indicating the user desire to place a particular bet, once again, the platform confirms that the bet amount is within allowed limits or available balances for the tournament, and if so, the bet is placed [i.e. receiving selections to the one or more real-time skill game propositions relating to the events], para 0113); and
providing odds for one or more In-Play live betting propositions based on a measured response to the selections to the one or more real-time skill game propositions (the odds are changing in real-time according to the share of total exchange each of the possible outcomes have received taking into account the return rate of the bookmaker offering the bet, para 0025, an improved fixed odds betting platform for making in-play sports betting wages, para 0039, A leaderboard automatically calculates the winnings of the wager pool of players and displays, in real time, the current leaders, in terms of winnings, during the tournament. The leaderboard updates automatically during the tournament to reflect changes in leaderboard standings in response to placed bets settlement and clearing, as well as in response to real time changes in odds of still pending bets [i.e. providing odds for one or more In-Play live betting propositions based on a measured response to the selections to the one or more real-time skill game propositions], para 0043, Once a bet is placed, the player remains online if he so chooses and continues to be served real-time, up to date betting and leaderboard statistics allowing him to better manage his bets, adding to them if need be, based not only on what's happening on the field, but as importantly, based on what other tournament players are doing, para 0114).

Regarding claim 2, Theodosopoulos further discloses further comprising developing the one or more real-time skill game propositions (each bet is assigned to one of a number of sporting events. Funds associated with each bet are included in a wager pool associated with the sporting event to which that bet is assigned. The outcome of each bet is determined based at least in part on the results of the sporting event to which that bet is assigned, such as, for example, whether one or the other team (or a particular soccer player on the field) will get a goal, how many, and/or in which half [i.e. developing the one or more real-time skill game propositions]. For each winning bet, a payout is determined from the wager pool associated with the sporting event the winning bet was assigned, para 0066).

Regarding claim 3, Theodosopoulos further discloses that developing the odds for one or more real-time live betting propositions comprises utilizing artificial intelligence or analytics to automatically acquire real time statistical information from the concurrent real time skill contest (Due to the sheer volume and variety of "in-play" bets available with fixed odds betting, bets are typically set by electronic algorithms designed to account for a large number of variables and events as they occur, in real time. The same algorithms are designed to statistically guesstimate a result and convert this result into a risk-reward outcome for each bet [i.e. utilizing analytics to automatically acquire real time statistical information from the concurrent real time skill contest], para 0004, Once a bet is placed, the player remains online if he so chooses and continues to be served real-time, up to date betting and leaderboard statistics allowing him to better manage his bets, adding to them if need be, based not only on what's happening on the field, but as importantly, based on what other tournament players are doing, para 0114).

FanDuel Ex. 1002-0213

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Regarding claim 4, Theodosopoulos further discloses that providing the one or more real-time skill game propositions comprises displaying the one or more real-time skill game propositions simultaneously with an underlying broadcast of an event (displaying sporting event information including different bet types that can be waged on the basis of the predefined entry fee, and updating the sporting event information in real time in response to in play activities associated with the live sporting event; simultaneously making available for display leaderboard information including information about the bets waged on by those on the leaderboard, claim 1, combining competition tournament play with live in-sports betting, but at the same time employing leaderboards in a totally new and clever way, para 0058).

Regarding claim 5, Theodosopoulos further discloses that receiving the selections to the one or more real-time skill game propositions includes receiving input from end user devices (the betting system platform is configured for access by a web browser from a client device of the player, claim 3, screenshots generated by the betting system platform and displayed on a local client device to provide game explanations, para 0049).

Regarding claim 6, Theodosopoulos further discloses further comprising real-time processing the selections to the one or more real-time skill game propositions (the platform displays sporting event information including different bet types waged based on a predefined entry fee, and updates the sporting event information in real time in response to in-play activities associated with the live sporting event, para 0041).

Regarding claim 9, Theodosopoulos further discloses further comprising providing the one or more In-Play betting propositions (each bet is assigned to one of a number of sporting events. Funds associated with each bet are included in a wager pool associated with the sporting event to which that bet is assigned. The outcome of each bet is determined based at least in part on the results of the sporting event to which that bet is assigned, such as, for example, whether one or the other team (or a particular soccer player on the field) will get a goal, how many, and/or in which half. For each winning bet, a payout is determined from the wager pool associated with the sporting event the winning bet was assigned, para 0066).

Regarding claim 10, Theodosopoulos further discloses that an in-Play betting proposition is presented initially without the odds, and then after the information related to real-time skill game propositions is received and processed, the odds are presented (A leaderboard automatically calculates the winnings of the wager pool of players and displays, in real time, the current leaders, in terms of winnings, during the tournament. The leaderboard updates automatically during the tournament to reflect changes in leaderboard standings in response to placed bets settlement and clearing, as well as in response to real time changes in odds of still pending bets, para 0043, As a first step, the platform retrieves and displays (via an initial home screen) up to date in-play sports betting tournaments. The home screen may show all relevant tournaments including recently cleared tournaments, late registration available tournaments, as well as open tournaments, para 0107).

Regarding claim 13, Theodosopoulos further discloses that the one or more real-time skill game propositions are related to one or more occurrences (Due to the sheer volume and variety of "in-play" bets available with fixed odds betting, bets are typically set by electronic algorithms designed to account for a large number of variables and events as they occur, in real time, para 0004, The outcome of each bet is determined based at least in part on the results of the sporting event to which that bet is assigned, such as, for example, whether one or the other team (or a particular soccer player on the field) will get a goal, how many, and/or in which half. For each winning bet, a payout is determined from the wager pool associated with the sporting event the winning bet was assigned, para 0066).

Regarding claim 14, Theodosopoulos discloses a system comprising:
a skill game server device (Each communication network 18 and 22 may include one or more servers, routers, switches, repeaters, backbones, links and/or any other appropriate type of communication devices coupled by links such as wireline, optical, wireless, or other appropriate links, para 0071) configured to provide real-time skill game propositions (each bet is assigned to one of a number of sporting events. Funds associated with each bet are included in a wager pool associated with the sporting event to which that bet is assigned. The outcome of each bet is determined based at least in part on the results of the sporting event to which that bet is assigned, such as, for example, whether one or the other team (or a particular soccer player on the field) will get a goal, how many, and/or in which half [i.e. provide real-time skill game propositions]. For each winning bet, a payout is determined from the wager pool associated with the sporting event the winning bet was assigned, para 0066); and
a real-time sports betting server device (Each communication network 18 and 22 may include one or more servers, routers, switches, repeaters, backbones, links and/or any other appropriate type of communication devices coupled by links such as wireline, optical, wireless, or other appropriate links, para 0071) configured to receive responses related to the real-time skill game propositions from the skill game server device and provide In-Play betting propositions (displaying sporting event information including different bet types that can be waged on the basis of the predefined entry fee, and updating the sporting event information in real time in response to in play activities associated with the live sporting event; simultaneously making available for display leaderboard information including information about the bets waged on by those on the leaderboard, claim 1, combining competition tournament play with live in-sports betting, but at the same time employing leaderboards in a totally new and clever way [i.e. receive responses related to the real-time skill game propositions from the skill game server device and provide In-Play betting propositions], para 0058), wherein odds for the in-Play proposition is determined based on the information received by the server related to the real-time response to the same skill game proposition (the odds are changing in real-time according to the share of total exchange each of the possible outcomes have received taking into account the return rate of the bookmaker offering the bet, para 0025, an improved fixed odds betting platform for making in-play sports betting wages, para 0039, A leaderboard automatically calculates the winnings of the wager pool of players and displays, in real time, the current leaders, in terms of winnings, during the tournament. The leaderboard updates automatically during the tournament to reflect changes in leaderboard standings in response to placed bets settlement and clearing, as well as in response to real time changes in odds of still pending bets [i.e. odds for the In-Play proposition is determined based on the information received by the server related to the real-time response to the same skill game proposition], para 0043, Once a bet is placed, the player remains online if he so chooses and continues to be served real-time, up to date betting and leaderboard statistics allowing him to better manage his bets, adding to them if need be, based not only on what's happening on the field, but as importantly, based on what other tournament players are doing, para 0114).

FanDuel Ex. 1002-0214

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Regarding claim 15, Theodosopoulos further discloses that the skill game server device is further configured for developing the one or more real-time skill game propositions (each bet is assigned to one of a number of sporting events. Funds associated with each bet are included in a wager pool associated with the sporting event to which that bet is assigned. The outcome of each bet is determined based at least in part on the results of the sporting event to which that bet is assigned, such as, for example, whether one or the other team (or a particular soccer player on the field) will get a goal, how many, and/or in which half [i.e. developing the one or more real-time skill game propositions]. For each winning bet, a payout is determined from the wager pool associated with the sporting event the winning bet was assigned, para 0066).

Regarding claim 18, Theodosopoulos further discloses that the sports betting server device is further configured for providing the one or more real-time skill game propositions which comprises displaying the one or more real-time skill game propositions simultaneously with an underlying broadcast of an event (displaying sporting event information including different bet types that can be waged on the basis of the predefined entry fee, and updating the sporting event information in real time in response to in play activities associated with the live sporting event; simultaneously making available for display leaderboard information including information about the bets waged on by those on the leaderboard, claim 1, combining competition tournament play with live in-sports betting, but at the same time employing leaderboards in a totally new and clever way, para 0058).

Regarding claim 19, Theodosopoulos further discloses that receiving the selections to the one or more real-time skill game propositions includes receiving input from end user devices (the betting system platform is configured for access by a web browser from a client device of the player, claim 3, screenshots generated by the betting system platform and displayed on a local client device to provide game explanations, para 0049).

Regarding claim 20, Theodosopoulos further discloses that the sports betting server device is further configured for simultaneous processing of the selections to the one or more real-time skill game propositions (the platform displays sporting event information including different bet types waged based on a predefined entry fee, and updates the sporting event information in real time in response to in-play activities associated with the live sporting event, para 0041).

Regarding claim 23, Theodosopoulos further discloses that the sports betting server device is further configured for providing the same one or more In-Play betting propositions through receipt of real time data from the skill game operator game server (each bet is assigned to one of a number of sporting events. Funds associated with each bet are included in a wager pool associated with the sporting event to which that bet is assigned. The outcome of each bet is determined based at least in part on the results of the sporting event to which that bet is assigned, such as, for example, whether one or the other team (or a particular soccer player on the field) will get a goal, how many, and/or in which half. For each winning bet, a payout is determined from the wager pool associated with the sporting event the winning bet was assigned, para 0066).

Regarding claim 24, Theodosopoulos further discloses that an In-Play betting proposition is presented initially without the odds, and then after the information related to real-time skill game propositions is received, the odds are presented (A leaderboard automatically calculates the winnings of the wager pool of players and displays, in real time, the current leaders, in terms of winnings, during the tournament. The leaderboard updates automatically during the tournament to reflect changes in leaderboard standings in response to placed bets settlement and clearing, as well as in response to real time changes in odds of still pending bets, para 0043, As a first step, the platform retrieves and displays (via an initial home screen) up to date in-play sports betting tournaments. The home screen may show all relevant tournaments including recently cleared tournaments, late registration available tournaments, as well as open tournaments, para 0107).

Regarding claim 27, Theodosopoulos further discloses that the real-time skill game propositions are related to one or more occurrences (Due to the sheer volume and variety of "in-play" bets available with fixed odds betting, bets are typically set by electronic algorithms designed to account for a large number of variables and events as they occur, in real time, para 0004, The outcome of each bet is determined based at least in part on the results of the sporting event to which that bet is assigned, such as, for example, whether one or the other team (or a particular soccer player on the field) will get a goal, how many, and/or in which half. For each winning bet, a payout is determined from the wager pool associated with the sporting event the winning bet was assigned, para 0066).

Regarding claim 28, Theodosopoulos further discloses that data generated by the real-time sports betting server is sent to the skill game server to enable more controlled, faster and more predictable odds-setting procedures to provide entertainment in addition to skill game odds (the platform displays sporting event information including different bet types waged based on a predefined entry fee, and updates the sporting event information in real time in response to in-play activities associated with the live sporting event, para 0041).

FanDuel Ex. 1002-0215

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Regarding claim 29, Theodosopoulos discloses a server device (Each communication network 18 and 22 may include one or more servers, routers, switches, repeaters, backbones, links and/or any other appropriate type of communication devices coupled by links such as wireline, optical, wireless, or other appropriate links, para 0071) comprising:
a memory configured for storing an application in connection with observation of a competition (Betting system platform 12 may include a processor 50 coupled to a memory 52 and is generally operable to manage bets 26 received from users 20 of clients 14. Processor 50 is generally operable to execute various algorithms or calculations to determine various data such as game inputs 34, bet results 40, pool values 53 of each wager pool 30, and payouts 42 [i.e. observation of a competition], para 0078, Computer-readable media includes both computer storage media and communication media including any medium that facilitates transfer of a computer program from one place to another [i.e. a memory configured for storing an application], para 0121), the application configured for:
providing one or more real-time skill game propositions (each bet is assigned to one of a number of sporting events. Funds associated with each bet are included in a wager pool associated with the sporting event to which that bet is assigned. The outcome of each bet is determined based at least in part on the results of the sporting event to which that bet is assigned, such as, for example, whether one or the other team (or a particular soccer player on the field) will get a goal, how many, and/or in which half [i.e. provide real-time skill game propositions]. For each winning bet, a payout is determined from the wager pool associated with the sporting event the winning bet was assigned, para 0066);
receiving selections to the one or more real-time skill game propositions (displaying sporting event information including different bet types that can be waged on the basis of the predefined entry fee, and updating the sporting event information in real time in response to in play activities associated with the live sporting event; simultaneously making available for display leaderboard information including information about the bets waged on by those on the leaderboard, claim 1, combining competition tournament play with live in-sports betting, but at the same time employing leaderboards in a totally new and clever way [i.e. receiving selections to the one or more real-time skill game propositions], para 0056); and
providing odds for one or more In-Play propositions based on the selections to the one or more real-time skill game propositions (the odds are changing in real-time according to the share of total exchange each of the possible outcomes have received taking into account the return rate of the bookmaker offering the bet, para 0025, an improved fixed odds betting platform for making in-play sports betting wages, para 0039, A leaderboard automatically calculates the winnings of the wager pool of players and displays, in real time, the current leaders, in terms of winnings, during the tournament. The leaderboard updates automatically during the tournament to reflect changes in leaderboard standings in response to placed bets settlement and clearing, as well as in response to real time changes in odds of still pending bets [i.e. providing odds for one or more In-Play propositions based on the selections to the one or more real-time skill game propositions], para 0043. Once a bet is placed, the player remains online if he so chooses and continues to be served real-time, up to date betting and leaderboard statistics allowing him to better manage his bets, adding to them if need be, based not only on what's happening on the field, but as importantly, based on what other tournament players are doing, para 0114); and
a processor configured for processing the application (Betting system platform 12 may include a processor 50 coupled to a memory 52 and is generally operable to manage bets 26 received from users 20 of clients 14. Processor 50 is generally operable to execute various algorithms or calculations to determine various data such as game inputs 34, bet results 40, pool values 53 of each wager pool 30, and payouts 42, para 0078, Computer-readable media includes both computer storage media and communication media including any medium that facilitates transfer of a computer program from one place to another, para 0121).

Regarding claim 30, Theodosopoulos further discloses that the application is further configured for developing the one or more real-time skill game propositions (each bet is assigned to one of a number of sporting events. Funds associated with each bet are included in a wager pool associated with the sporting event to which that bet is assigned. The outcome of each bet is determined based at least in part on the results of the sporting event to which that bet is assigned, such as, for example, whether one or the other team (or a particular soccer player on the field) will get a goal, how many, and/or in which half [i.e. developing the one or more real-time skill game propositions]. For each winning bet, a payout is determined from the wager pool associated with the sporting event the winning bet was assigned, para 0066).

Regarding claim 31, Theodosopoulos further discloses that developing the one or more real-time skill game propositions comprises utilizing artificial intelligence or analytics to automatically acquire statistical information (Due to the sheer volume and variety of "in-play" bets available with fixed odds betting, bets are typically set by electronic algorithms designed to account for a large number of variables and events as they occur, in real time. The same algorithms are designed to statistically guesstimate a result and convert this result into a risk-reward outcome for each bet [i.e. utilizing analytics to automatically acquire real time statistical information from the concurrent real time skill contest], para 0004, Once a bet is placed, the player remains online if he so chooses and continues to be served real-time, up to date betting and leaderboard statistics allowing him to better manage his bets, adding to them if need be, based not only on what's happening on the field, but as importantly, based on what other tournament players are doing, para 0114).

Regarding claim 32, Theodosopoulos further discloses that providing the one or more real-time skill game propositions comprises displaying the one or more real-time skill game propositions simultaneously with an underlying broadcast of an event (displaying sporting event information including different bet types that can be waged on the basis of the predefined entry fee, and updating the sporting event information in real time in response to in play activities associated with the live sporting event; simultaneously making available for display leaderboard information including information about the bets waged on by those on the leaderboard, claim 1, combining competition tournament play with live in-sports betting, but at the same time employing leaderboards in a totally new and clever way, para 0056).

Regarding claim 33, Theodosopoulos further discloses that receiving the selections to the one or more real-time skill game propositions includes receiving input from end user devices (the betting system platform is configured for access by a web browser from a client device of the player, claim 3, screenshots generated by the betting system platform and displayed on a local client device to provide game explanations, para 0049).

FanDuel Ex. 1002-0216

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2019/054859

Supplemental Box

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Regarding claim 34, Theodosopoulos further discloses that the application is further configured for processing the selections to the one or more real-time skill game propositions (the platform displays sporting event information including different bet types waged based on a predefined entry fee, and updates the sporting event information in real time in response to in-play activities associated with the live sporting event, para 0041).

Regarding claim 37, Theodosopoulos further discloses that the application is further configured for providing the one or more In-Play propositions (each bet is assigned to one of a number of sporting events. Funds associated with each bet are included in a wager pool associated with the sporting event to which that bet is assigned. The outcome of each bet is determined based at least in part on the results of the sporting event to which that bet is assigned, such as, for example, whether one or the other team (or a particular soccer player on the field) will get a goal, how many, and/or in which half. For each winning bet, a payout is determined from the wager pool associated with the sporting event the winning bet was assigned, para 0066).

Regarding claim 38, Theodosopoulos further discloses that an In-Play proposition is presented initially without the odds, and then after the information related to real-time skill game propositions is received, the odds are presented (A leaderboard automatically calculates the winnings of the wager pool of players and displays, in real time, the current leaders, in terms of winnings, during the tournament. The leaderboard updates automatically during the tournament to reflect changes in leaderboard standings in response to placed bets settlement and clearing, as well as in response to real time changes in odds of still pending bets, para 0043, As a first step, the platform retrieves and displays (via an initial home screen) up to date in-play sports betting tournaments. The home screen may show all relevant tournaments including recently cleared tournaments, late registration available tournaments, as well as open tournaments, para 0107).

Regarding claim 41, Theodosopoulos further discloses that the one or more real-time skill game propositions are related to one or more occurrences (Due to the sheer volume and variety of "in-play" bets available with fixed odds betting, bets are typically set by electronic algorithms designed to account for a large number of variables and events as they occur, in real time, para 0004, The outcome of each bet is determined based at least in part on the results of the sporting event to which that bet is assigned, such as, for example, whether one or the other team (or a particular soccer player on the field) will get a goal, how many, and/or in which half. For each winning bet, a payout is determined from the wager pool associated with the sporting event the winning bet was assigned, para 0066).

Regarding claim 62, Theodosopoulos discloses a method comprising:
providing one or more sports betting propositions while an event is in progress (each bet is assigned to one of a number of sporting events. Funds associated with each bet are included in a wager pool associated with the sporting event to which that bet is assigned. The outcome of each bet is determined based at least in part on the results of the sporting event to which that bet is assigned, such as, for example, whether one or the other team (or a particular soccer player on the field) will get a goal, how many, and/or in which half [i.e. providing one or more sports betting propositions while an event is in progress]. For each winning bet, a payout is determined from the wager pool associated with the sporting event the winning bet was assigned, para 0066); and
providing odds for the one or more sports betting propositions utilizing results to one or more predictions made in real-time to a same one or more propositions presented to users in a game of skill being played concurrently with the event (the odds are changing in real-time according to the share of total exchange each of the possible outcomes have received taking into account the return rate of the bookmaker offering the bet, para 0025, an improved fixed odds betting platform for making in-play sports betting wages, para 0039, A leaderboard automatically calculates the winnings of the wager pool of players and displays, in real time, the current leaders, in terms of winnings, during the tournament. The leaderboard updates automatically during the tournament to reflect changes in leaderboard standings in response to placed bets settlement and clearing, as well as in response to real time changes in odds of still pending bets [i.e. providing odds for the one or more sports betting propositions utilizing results to one or more predictions made in real-time to a same one or more propositions presented to users in a game of skill being played concurrently with the event], para 0043, Once a bet is placed, the player remains online if he so chooses and continues to be served real-time, up to date betting and leaderboard statistics allowing him to better manage his bets, adding to them if need be, based not only on what's happening on the field, but as importantly, based on what other tournament players are doing, para 0114).

Regarding claim 63, Theodosopoulos further discloses that the odds are provided by a live sports betting operator (the odds are changing in real-time according to the share of total exchange each of the possible outcomes have received taking into account the return rate of the bookmaker offering the bet, para 0025, an improved fixed odds betting platform for making in-play sports betting wages, para 0039, A leaderboard automatically calculates the winnings of the wager pool of players and displays, in real time, the current leaders, in terms of winnings, during the tournament. The leaderboard updates automatically during the tournament to reflect changes in leaderboard standings in response to placed bets settlement and clearing, as well as in response to real time changes in odds of still pending bets, para 0043, Once a bet is placed, the player remains online if he so chooses and continues to be served real-time, up to date betting and leaderboard statistics allowing him to better manage his bets, adding to them if need be, based not only on what's happening on the field, but as importantly, based on what other tournament players are doing, para 0114).

Regarding claim 66, Theodosopoulos further discloses further comprising receiving selections to the one or more sports betting propositions including receiving input from end user devices (the betting system platform is configured for access by a web browser from a client device of the player, claim 3, screenshots generated by the betting system platform and displayed on a local client device to provide game explanations, para 0049).

Regarding claim 67, Theodosopoulos further discloses further comprising processing the selections to the one or more sports betting propositions (the platform displays sporting event information including different bet types waged based on a predefined entry fee, and updates the sporting event information in real time in response to in-play activities associated with the live sporting event, para 0041).

FanDuel Ex. 1002-0217

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2019/054859

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Regarding claim 72, Theodosopoulos further discloses that the one or more sports betting propositions are related to one or more occurrences (Due to the sheer volume and variety of "in-play" bets available with fixed odds betting, bets are typically set by electronic algorithms designed to account for a large number of variables and events as they occur, in real time, para 0004, The outcome of each bet is determined based at least in part on the results of the sporting event to which that bet is assigned, such as, for example, whether one or the other team (or a particular soccer player on the field) will get a goal, how many, and/or in which half. For each winning bet, a payout is determined from the wager pool associated with the sporting event the winning bet was assigned, para 0066).

Claims 7, 8, 21, 22, 35, 36, 42, 43, 45-50, 53, 68, and 69 lack an inventive step under PCT Article 33(3) as being obvious over Theodosopoulos in view of Pinnacle.

Regarding claim 7, Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that processing includes determining percentages of the selections. However, Pinnacle is in the field of monitoring line movement (pg 2 para 1) and teaches that processing includes determining percentages of the selections (If there was a higher percentage of bets placed on Pittsburgh (say 75%), theoretically the line would move to Pittsburgh -7.5 or higher as the bookmaker would want more bettors to bet on the Packers and thus make them a more attractive option, pg 3 para 2, Betting percentages for different markets are widely available to the public on various online platforms (and from bookmakers themselves). This data can be tracked with records made of where RLM has been 'predictive' of the final outcome. In other words, where the line moved in favour of the winning team despite the bet percentage being higher on the other (losing) side, pg 3 para 5). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Pinnacle for the purpose of adjusting the odds in an effort to balance the book (Pinnacle pg 2 para 2).

Regarding claim 8, modified Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that providing the odds for one or more In-Play live betting propositions includes adjusting previously determined odds based on the percentages of the concurrent skill game selections. However, Pinnacle teaches that providing the odds for one or more In-Play live betting propositions includes adjusting previously determined odds based on the percentages of the concurrent skill game selections (Bookmakers offer odds on a particular sports match in the hope of attracting an equal amount of money on both sides of the market and make a profit by applying a margin to the odds they offer. If they get uneven "action" (amount of money bet) on a game, they will most likely adjust the odds (increase one side to attract money and shorten the other make it less attractive) in an effort to balance the book and reduce their liability, pg 2 para 2, If there was a higher percentage of bets placed on Pittsburgh (say 75%), theoretically the line would move to Pittsburgh -7.5 or higher as the bookmaker would want more bettors to bet on the Packers and thus make them a more attractive option, pg 3 para 2, Betting percentages for different markets are widely available to the public on various online platforms (and from bookmakers themselves). This data can be tracked with records made of where RLM has been 'predictive' of the final outcome. In other words, where the line moved in favour of the winning team despite the bet percentage being higher on the other (losing) side, pg 3 para 5). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Pinnacle for the purpose of adjusting the odds in an effort to balance the book (Pinnacle pg 2 para 2).

Regarding claim 21, Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that processing includes determining the percentages of the alternative selections to the propositions. However, Pinnacle teaches that processing includes determining the percentages of the alternative selections to the propositions (If there was a higher percentage of bets placed on Pittsburgh (say 75%), theoretically the line would move to Pittsburgh -7.5 or higher as the bookmaker would want more bettors to bet on the Packers and thus make them a more attractive option, pg 3 para 2, Betting percentages for different markets are widely available to the public on various online platforms (and from bookmakers themselves). This data can be tracked with records made of where RLM has been 'predictive' of the final outcome. In other words, where the line moved in favour of the winning team despite the bet percentage being higher on the other (losing) side, pg 3 para 5). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Pinnacle for the purpose of adjusting the odds in an effort to balance the book (Pinnacle pg 2 para 2).

Regarding claim 22, modified Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that the sports betting server device is further configured for providing the odds for one or more In-Play betting propositions including adjusting previously determined odds based on the percentages of the concurrent selections by the skill contest competitors. However, Pinnacle teaches that the sports betting server device is further configured for providing the odds for one or more In-Play betting propositions including adjusting previously determined odds based on the percentages of the concurrent selections by the skill contest competitors (Bookmakers offer odds on a particular sports match in the hope of attracting an equal amount of money on both sides of the market and make a profit by applying a margin to the odds they offer. If they get uneven "action" (amount of money bet) on a game, they will most likely adjust the odds (increase one side to attract money and shorten the other make it less attractive) in an effort to balance the book and reduce their liability, pg 2 para 2, If there was a higher percentage of bets placed on Pittsburgh (say 75%), theoretically the line would move to Pittsburgh -7.5 or higher as the bookmaker would want more bettors to bet on the Packers and thus make them a more attractive option, pg 3 para 2, Betting percentages for different markets are widely available to the public on various online platforms (and from bookmakers themselves). This data can be tracked with records made of where RLM has been 'predictive' of the final outcome. In other words, where the line moved in favour of the winning team despite the bet percentage being higher on the other (losing) side, pg 3 para 5). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Pinnacle for the purpose of adjusting the odds in an effort to balance the book (Pinnacle pg 2 para 2).

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Regarding claim 35, Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that processing includes determining percentages of the competitor's selections. However, Pinnacle teaches that processing includes determining percentages of the competitor's selections (If there was a higher percentage of bets placed on Pittsburgh (say 75%), theoretically the line would move to Pittsburgh -7.5 or higher as the bookmaker would want more bettors to bet on the Packers and thus make them a more attractive option, pg 3 para 2, Betting percentages for different markets are widely available to the public on various online platforms (and from bookmakers themselves). This data can be tracked with records made of where RLM has been 'predictive' of the final outcome. In other words, where the line moved in favour of the winning team despite the bet percentage being higher on the other (losing) side, pg 3 para 5). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Pinnacle for the purpose of adjusting the odds in an effort to balance the book (Pinnacle pg 2 para 2).

Regarding claim 36, modified Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that providing the odds for one or more In-Play propositions includes real-time adjustment of previously recommended odds based on analysis of the percentages of the selections by the skill game competitors. However, Pinnacle teaches that providing the odds for one or more In-Play propositions includes real-time adjustment of previously recommended odds based on analysis of the percentages of the selections by the skill game competitors (Bookmakers offer odds on a particular sports match in the hope of attracting an equal amount of money on both sides of the market and make a profit by applying a margin to the odds they offer. If they get uneven "action" (amount of money bet) on a game, they will most likely adjust the odds (increase one side to attract money and shorten the other make it less attractive) in an effort to balance the book and reduce their liability, pg 2 para 2, If there was a higher percentage of bets placed on Pittsburgh (say 75%), theoretically the line would move to Pittsburgh -7.5 or higher as the bookmaker would want more bettors to bet on the Packers and thus make them a more attractive option, pg 3 para 2, Betting percentages for different markets are widely available to the public on various online platforms (and from bookmakers themselves). This data can be tracked with records made of where RLM has been 'predictive' of the final outcome. In other words, where the line moved in favour of the winning team despite the bet percentage being higher on the other (losing) side, pg 3 para 5). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Pinnacle for the purpose of adjusting the odds in an effort to balance the book (Pinnacle pg 2 para 2).

Regarding claim 42, Theodosopoulos discloses a method programmed in a non-transitory memory of a device (Betting system platform 12 may include a processor 50 coupled to a memory 52 and is generally operable to manage bets 26 received from users 20 of clients 14. Processor 50 is generally operable to execute various algorithms or calculations to determine various data such as game inputs 34, bet results 40, pool values 53 of each wager pool 30, and payouts 42, para 0078, Computer-readable media includes both computer storage media and communication media including any medium that facilitates transfer of a computer program from one place to another, para 0121) comprising:
providing one or more real-time skill game propositions in connection with a live event (each bet is assigned to one of a number of sporting events. Funds associated with each bet are included in a wager pool associated with the sporting event to which that bet is assigned. The outcome of each bet is determined based at least in part on the results of the sporting event to which that bet is assigned, such as, for example, whether one or the other team (or a particular soccer player on the field) will get a goal, how many, and/or in which half [i.e. providing one or more real-time skill game propositions in connection with a live event]. For each winning bet, a payout is determined from the wager pool associated with the sporting event the winning bet was assigned, para 0066);
receiving selections to the one or more real-time skill game propositions (displaying sporting event information including different bet types that can be waged on the basis of the predefined entry fee, and updating the sporting event information in real time in response to in play activities associated with the live sporting event; simultaneously making available for display leaderboard information including information about the bets waged on by those on the leaderboard, claim 1, combining competition tournament play with live in-sports betting, but at the same time employing leaderboards in a totally new and clever way [i.e. receiving selections to the one or more real-time skill game propositions], para 0058); and
providing a second set of odds for the one or more In-Play live betting propositions based on analysis of the first set of odds and the selections to the one or more real-time skill game propositions (the odds are changing in real-time according to the share of total exchange each of the possible outcomes have received taking into account the return rate of the bookmaker offering the bet, para 0026, an improved fixed odds betting platform for making in-play sports betting wages, para 0039, A leaderboard automatically calculates the winnings of the wager pool of players and displays, in real time, the current leaders, in terms of winnings, during the tournament. The leaderboard updates automatically during the tournament to reflect changes in leaderboard standings in response to placed bets settlement and clearing, as well as in response to real time changes in odds of still pending bets [i.e. providing a second set of odds for the one or more In-Play live betting propositions based on analysis of the first set of odds and the selections to the one or more real-time skill game propositions], para 0043, Once a bet is placed, the player remains online if he so chooses and continues to be served real-time, up to date betting and leaderboard statistics allowing him to better manage his bets, adding to them if need be, based not only on what's happening on the field, but as importantly, based on what other tournament players are doing, para 0114).
Theodosopoulos does not specifically disclose providing a first set of odds for one or more In-Play live betting propositions based on an expert panel or a subset of viewers of the live event.
However, Pinnacle teaches providing a first set of odds for one or more In-Play live betting propositions based on an expert panel or a subset of viewers of the live event (Equally important as the money (not just the number of bets) placed on each side of the market is where that money comes from. Bookmakers will pay closer attention to the bets placed by customers who are known to be very knowledgeable about what they are betting on (sometimes referred to as "sharps") when assessing the market and deciding whether to adjust the odds or not [i.e. providing a first set of odds for one or more In-Play live betting propositions based on an expert panel of the live event], pg 2 para 3). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Pinnacle for the purpose of adjusting the odds in an effort to balance the book (Pinnacle pg 2 para 2).

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Regarding claim 43, modified Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that the subset of competitors is selected based on previous results. However, Pinnacle teaches that the subset of competitors is selected based on previous results (Equally important as the money (not just the number of bets) placed on each side of the market is where that money comes from. Bookmakers will pay closer attention to the bets placed by customers who are known to be very knowledgeable about what they are betting on (sometimes referred to as "sharps") when assessing the market and deciding whether to adjust the odds or not, pg 2 para 3, If a bettor who is known to regularly beat the NFL markets has a $5,000 bet on a game, the bookmaker may decide to adjust the odds accordingly based on this information, pg 2 para 5). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Pinnacle for the purpose of adjusting the odds in an effort to balance the book (Pinnacle pg 2 para 2).

Regarding claim 45, modified Theodosopoulos discloses the invention above, and Theodosopoulos further discloses that providing the one or more real-time skill game propositions comprises displaying the one or more real-time skill game propositions simultaneously with an underlying broadcast of an event (displaying sporting event information including different bet types that can be waged on the basis of the predefined entry fee, and updating the sporting event information in real time in response to in play activities associated with the live sporting event; simultaneously making available for display leaderboard information including information about the bets waged on by those on the leaderboard, claim 1, combining competition tournament play with live in-sports betting, but at the same time employing leaderboards in a totally new and clever way, para 0058).

Regarding claim 46, modified Theodosopoulos discloses the invention above, and Theodosopoulos further discloses that receiving the selections to the one or more real-time skill game propositions includes receiving input from end user devices (the betting system platform is configured for access by a web browser from a client device of the player, claim 3, screenshots generated by the betting system platform and displayed on a local client device to provide game explanations, para 0049).

Regarding claim 47, modified Theodosopoulos discloses the invention above, and Theodosopoulos further discloses further comprising processing the selections to the one or more real-time skill game propositions (the platform displays sporting event information including different bet types waged based on a predefined entry fee, and updates the sporting event information in real time in response to in-play activities associated with the live sporting event, para 0041).

Regarding claim 48, modified Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that processing includes determining percentages of the selections. However, Pinnacle teaches that processing includes determining percentages of the selections (If there was a higher percentage of bets placed on Pittsburgh (say 75%), theoretically the line would move to Pittsburgh -7.5 or higher as the bookmaker would want more bettors to bet on the Packers and thus make them a more attractive option, pg 3 para 2, Betting percentages for different markets are widely available to the public on various online platforms (and from bookmakers themselves). This data can be tracked with records made of where RLM has been 'predictive' of the final outcome. In other words, where the line moved in favour of the winning team despite the bet percentage being higher on the other (losing) side, pg 3 para 5). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Pinnacle for the purpose of adjusting the odds in an effort to balance the book (Pinnacle pg 2 para 2).

Regarding claim 49, modified Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that providing the second set of odds for the one or more In-Play live betting propositions includes adjusting previously determined odds based on the percentages of the concurrent skill game selections. However, Pinnacle teaches that providing the second set of odds for the one or more In-Play live betting propositions includes adjusting previously determined odds based on the percentages of the concurrent skill game selections (Bookmakers offer odds on a particular sports match in the hope of attracting an equal amount of money on both sides of the market and make a profit by applying a margin to the odds they offer. If they get uneven "action" (amount of money bet) on a game, they will most likely adjust the odds (increase one side to attract money and shorten the other make it less attractive) in an effort to balance the book and reduce their liability, pg 2 para 2, If there was a higher percentage of bets placed on Pittsburgh (say 75%), theoretically the line would move to Pittsburgh -7.5 or higher as the bookmaker would want more bettors to bet on the Packers and thus make them a more attractive option, pg 3 para 2, Betting percentages for different markets are widely available to the public on various online platforms (and from bookmakers themselves). This data can be tracked with records made of where RLM has been 'predictive' of the final outcome. In other words, where the line moved in favour of the winning team despite the bet percentage being higher on the other (losing) side, pg 3 para 5). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Pinnacle for the purpose of adjusting the odds in an effort to balance the book (Pinnacle pg 2 para 2).

Regarding claim 50, modified Theodosopoulos discloses the invention above, and Theodosopoulos further discloses further comprising providing the one or more In-Play live betting propositions (each bet is assigned to one of a number of sporting events. Funds associated with each bet are included in a wager pool associated with the sporting event to which that bet is assigned. The outcome of each bet is determined based at least in part on the results of the sporting event to which that bet is assigned, such as, for example, whether one or the other team (or a particular soccer player on the field) will get a goal, how many, and/or in which half. For each winning bet, a payout is determined from the wager pool associated with the sporting event the winning bet was assigned, para 0066).

Regarding claim 53, modified Theodosopoulos discloses the invention above, and Theodosopoulos further discloses that the one or more real-time skill game propositions are related to one or more occurrences (Due to the sheer volume and variety of "in-play" bets available with fixed odds betting, bets are typically set by electronic algorithms designed to account for a large number of variables and events as they occur, in real time, para 0004, The outcome of each bet is determined based at least in part on the results of the sporting event to which that bet is assigned, such as, for example, whether one or the other team (or a particular soccer player on the field) will get a goal, how many, and/or in which half. For each winning bet, a payout is determined from the wager pool associated with the sporting event the winning bet was assigned, para 0066).

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Regarding claim 68, Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that processing includes determining percentages of the selections. However, Pinnacle teaches that processing includes determining percentages of the selections (If there was a higher percentage of bets placed on Pittsburgh (say 75%), theoretically the line would move to Pittsburgh -7.5 or higher as the bookmaker would want more bettors to bet on the Packers and thus make them a more attractive option, pg 3 para 2, Betting percentages for different markets are widely available to the public on various online platforms (and from bookmakers themselves). This data can be tracked with records made of where RLM has been 'predictive' of the final outcome. In other words, where the line moved in favour of the winning team despite the bet percentage being higher on the other (losing) side, pg 3 para 5). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Pinnacle for the purpose of adjusting the odds in an effort to balance the book (Pinnacle pg 2 para 2).

Regarding claim 69, modified Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that providing the odds for the one or more sports betting propositions includes adjusting previously determined odds based on the percentages of responses to the concurrent skill game selections. However, Pinnacle teaches that providing the odds for the one or more sports betting propositions includes adjusting previously determined odds based on the percentages of responses to the concurrent skill game selections (Bookmakers offer odds on a particular sports match in the hope of attracting an equal amount of money on both sides of the market and make a profit by applying a margin to the odds they offer. If they get uneven "action" (amount of money bet) on a game, they will most likely adjust the odds (increase one side to attract money and shorten the other make it less attractive) in an effort to balance the book and reduce their liability, pg 2 para 2, if there was a higher percentage of bets placed on Pittsburgh (say 75%), theoretically the line would move to Pittsburgh -7.5 or higher as the bookmaker would want more bettors to bet on the Packers and thus make them a more attractive option, pg 3 para 2, Betting percentages for different markets are widely available to the public on various online platforms (and from bookmakers themselves). This data can be tracked with records made of where RLM has been 'predictive' of the final outcome. In other words, where the line moved in favour of the winning team despite the bet percentage being higher on the other (losing) side, pg 3 para 5). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Pinnacle for the purpose of adjusting the odds in an effort to balance the book (Pinnacle pg 2 para 2).

Claims 11, 25, 39, and 70 lack an inventive step under PCT Article 33(3) as being obvious over Theodosopoulos in view of Gambling Commission (hereinafter Gambling).

Regarding claim 11, Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that the one or more real-time skill game propositions are related to a live esports tournament. However, Gambling is in the field of gambling (pg 1 para 1) and teaches that the one or more real-time skill game propositions are related to a live esports tournament (Applying the existing regulatory framework allows for proportionate control of the risks associated with betting on eSports, pg 1 para 4, As live and competitive spectator events, eSports are an attractive proposition for licensed gambling operators to offer bets on the outcome of matches, events and leagues, pg 2 para 7, to win an eSports contest or tournament, pg 10 para 7). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Gambling for the purpose of allowing for proportionate control of the risks associated with betting on eSports (Gambling pg 1 para 4).

Regarding claim 25, Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that the real-time skill game propositions are related to a live esports tournament. However, Gambling teaches that the real-time skill game propositions are related to a live esports tournament (Applying the existing regulatory framework allows for proportionate control of the risks associated with betting on eSports, pg 1 para 4, As live and competitive spectator events, eSports are an attractive proposition for licensed gambling operators to offer bets on the outcome of matches, events and leagues, pg 2 para 7, to win an eSports contest or tournament, pg 10 para 7). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Gambling for the purpose of allowing for proportionate control of the risks associated with betting on eSports (Gambling pg 1 para 4).

Regarding claim 39, Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that the one or more real-time skill game propositions are related to a live esports tournament. However, Gambling teaches that the one or more real-time skill game propositions are related to a live esports tournament (Applying the existing regulatory framework allows for proportionate control of the risks associated with betting on eSports, pg 1 para 4, As live and competitive spectator events, eSports are an attractive proposition for licensed gambling operators to offer bets on the outcome of matches, events and leagues, pg 2 para 7, to win an eSports contest or tournament, pg 10 para 7). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Gambling for the purpose of allowing for proportionate control of the risks associated with betting on eSports (Gambling pg 1 para 4).

Regarding claim 70, Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that the one or more sports betting propositions are related to a live esports tournament. However, Gambling teaches that the one or more sports betting propositions are related to a live esports tournament (Applying the existing regulatory framework allows for proportionate control of the risks associated with betting on eSports, pg 1 para 4, As live and competitive spectator events, eSports are an attractive proposition for licensed gambling operators to offer bets on the outcome of matches, events and leagues, pg 2 para 7, to win an eSports contest or tournament, pg 10 para 7). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Gambling for the purpose of allowing for proportionate control of the risks associated with betting on eSports (Gambling pg 1 para 4).

FanDuel Ex. 1002-0221

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
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Supplemental Box

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Continuation of:

Claims 12, 26, 40, and 71 lack an inventive step under PCT Article 33(3) as being obvious over Theodosopoulos in view of Asher et al. (hereinafter Asher).

Regarding claim 12, Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that the one or more real-time skill game propositions are related to one or more non-athletic, televised events. However, Asher is in the field of gambling and financial instruments (para 0002) and teaches that the one or more real-time skill game propositions are related to one or more non-athletic, televised events (facilitate betting on the combined outcomes of a plurality of predefined probabilistic events, para 0007, numerous other events may form the basis for financial instruments 76, including events associated with the financial markets, television shows, and even the weather, para 0025, with respect to television shows, the events might involve whether or not a first participant of a reality-based television show will select a second participant of the show for marriage, to remain on the show, to be excluded from the show, or to otherwise be involved in the show. In another example, the events might involve the performance of a participant with respect to voting by viewers of the show. In particular, the events might involve whether a participant will receive the most or fewest votes by the viewership during a predetermined voting period; whether a participant will receive a certain number or percentage of votes by the viewership during a predetermined voting period; whether a first participant will receive more or less votes than a second participant during a predetermined voting period; or voting on whether an incidant, occurrence, or happening should take place on the show. In other examples, the events might involve whether or not a participant of a game-show will answer a question correctly, win a prize, or otherwise succeed or fail on the show, para 0028). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Asher for the purpose of facilitating betting on the combined outcomes of a plurality of predefined probabilistic events (Asher para 0007).

Regarding claim 26, Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that the real-time skill game propositions are related to one or more non-athletic, televised events. However, Asher teaches that the real-time skill game propositions are related to one or more non-athletic, televised events (facilitate betting on the combined outcomes of a plurality of predefined probabilistic events, para 0007, numerous other events may form the basis for financial instruments 76, including events associated with the financial markets, television shows, and even the weather, para 0025, with respect to television shows, the events might involve whether or not a first participant of a reality-based television show will select a second participant of the show for marriage, to remain on the show, to be excluded from the show, or to otherwise be involved in the show. In another example, the events might involve the performance of a participant with respect to voting by viewers of the show. In particular, the events might involve whether a participant will receive the most or fewest votes by the viewership during a predetermined voting period; whether a participant will receive a certain number or percentage of votes by the viewership during a predetermined voting period; whether a first participant will receive more or less votes than a second participant during a predetermined voting period; or voting on whether an incident, occurrence, or happening should take place on the show. In other examples, the events might involve whether or not a participant of a game-show will answer a question correctly, win a prize, or otherwise succeed or fail on the show, para 0028). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Asher for the purpose of facilitating betting on the combined outcomes of a plurality of predefined probabilistic events (Asher para 0007).

Regarding claim 40, Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that the one or more real-time skill game propositions are related to one or more non-athletic, televised events. However, Asher teaches that the one or more real-time skill game propositions are related to one or more non-athletic, televised events (facilitate betting on the combined outcomes of a plurality of predefined probabilistic events, para 0007, numerous other events may form the basis for financial instruments 76, including events associated with the financial markets, television shows, and even the weather, para 0025, with respect to television shows, the events might involve whether or not a first participant of a reality-based television show will select a second participant of the show for marriage, to remain on the show, to be excluded from the show, or to otherwise be involved in the show. In another example, the events might involve the performance of a participant with respect to voting by viewers of the show. In particular, the events might involve whether a participant will receive the most or fewest votes by the viewership during a predetermined voting period; whether a participant will receive a certain number or percentage of votes by the viewership during a predetermined voting period; whether a first participant will receive more or less votes than a second participant during a predetermined voting period; or voting on whether an incident, occurrence, or happening should take place on the show. In other examples, the events might involve whether or not a participant of a game-show will answer a question correctly, win a prize, or otherwise succeed or fail on the show, para 0028). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Asher for the purpose of facilitating betting on the combined outcomes of a plurality of predefined probabilistic events (Asher para 0007).

Regarding claim 71, Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that the one or more sports betting propositions are related to one or more non-athletic, televised events. However, Asher teaches that the one or more sports betting propositions are related to one or more non-athletic, televised events (facilitate betting on the combined outcomes of a plurality of predefined probabilistic events, para 0007, numerous other events may form the basis for financial instruments 76, including events associated with the financial markets, television shows, and even the weather, para 0025, with respect to television shows, the events might involve whether or not a first participant of a reality-based television show will select a second participant of the show for marriage, to remain on the show, to be excluded from the show, or to otherwise be involved in the show. In another example, the events might involve the performance of a participant with respect to voting by viewers of the show. In particular, the events might involve whether a participant will receive the most or fewest votes by the viewership during a predetermined voting period; whether a participant will receive a certain number or percentage of votes by the viewership during a predetermined voting period; whether a first participant will receive more or less votes than a second participant during a predetermined voting period; or voting on whether an incident, occurrence, or happening should take place on the show. In other examples, the events might involve whether or not a participant of a game-show will answer a question correctly, win a prize, or otherwise succeed or fail on the show, para 0028). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Asher for the purpose of facilitating betting on the combined outcomes of a plurality of predefined probabilistic events (Asher para 0007).

FanDuel Ex. 1002-0222

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
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Supplemental Box

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Claims 16, 17, and 65 lack an inventive step under PCT Article 33(3) as being obvious over Theodosopoulos in view of Uplay1.

Regarding claim 16, Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose developing the one or more real-time skill game propositions comprises utilizing analytical software including artificial intelligence to automatically acquire statistical information utilized by human game producers to provide propositions and set accompanying odds. However, Uplay1 is in the field of wagering (para 0003) and teaches that developing the one or more real-time skill game propositions comprises utilizing analytical software including artificial intelligence to automatically acquire statistical information utilized by human game producers to provide propositions and set accompanying odds (a networked wagering ecosystem 100 comprising an Odds Management Server ("OMS") 102 associated with an Odds Management Service located and licensed to do business in jurisdiction 111. OMS 102 may generate these odds based on user input, i.e., management of OMS 102, and/or autonomously, for example by a processor programmed with Artificial Intelligence, such as IBM's Watson. Initial odds may be set using detailed data, statistics and historical information about past events related to the future events, such as player statistics, team statistics, etc., para 0037). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Uplay1 for the purpose of providing pre-match and in-match sports wagering (Uplay1 para 0003).

Regarding claim 17, modified Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that a database and real-time data from the competitors' responses to the propositions in the skill games are processed by dedicated computers running programs utilizing, artificial intelligence and machine learning to generate an archival database continually utilized by the live sports betting system to improve performance in odds setting accuracy. However, Uplay1 teaches that a database and real-time data from the competitors' responses to the propositions in the skill games are processed by dedicated computers running programs utilizing, artificial intelligence and machine learning to generate an archival database continually utilized by the live sports betting system to improve performance in odds setting accuracy (a networked wagering ecosystem 100 comprising an Odds Management Server ("OMS") 102 associated with an Odds Management Service located and licensed to do business in jurisdiction 111. OMS 102 may generate these odds based on user input, i.e., management of OMS 102, and/or autonomously, for example by a processor programmed with Artificial Intelligence, such as IBM's Watson. Initial odds may be set using detailed data, statistics and historical information about past events related to the future events, such as player statistics, team statistics, etc., para 0037, System 100 eliminates this risk and shifts it to management of OMS 102, who is better able to tolerate imbalances from a single LBS 106, as OMS 102 receives wagers from many other Licensed Book Servers ("LBS") 106's located in gaming market 110, as well as other wagering/gaming markets. OMS 102 provides odds of certain future events normally unavailable to LBS 106, or on events where LBS 106 may risk low liquidity (i.e., for inPlay wagers, or foreign-based wagers), and LBS 106 offers these wagering opportunities to its customers (i.e., punters), in exchange for a guaranteed fee from OMS 102, para 0041, OMS 102 may transmit the odds and bet limits to Licensed Odds Disseminator Server ("LODS") 104 via a web feed, such as RSS or similar technology that provides frequently-updated data content securely to LODS 104 to either be relayed to LBS 106 or stored along with the data received from other OMSs 102 in a memory or database. If the data is stored in a database, LODS 104 may sort it by game/event, by wagering odds and/or by bet limits and relay the sorted data to LBS 106 for selection and offering to a plurality of punters, para 0042). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Uplay1 for the purpose of providing pre-match and in-match sports wagering (Uplay1 para 0003).

Regarding claim 65, Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose further comprising developing the odds for the one or more sports betting propositions comprises utilizing artificial intelligence to automatically acquire real time statistical information from a concurrent real time skill contest. However, Uplay1 teaches developing the odds for the one or more sports betting propositions comprises utilizing artificial intelligence to automatically acquire real time statistical information from a concurrent real time skill contest (a networked wagering ecosystem 100 comprising an Odds Management Server ("OMS") 102 associated with an Odds Management Service located and licensed to do business in jurisdiction 111. OMS 102 may generate these odds based on user input, i.e., management of OMS 102, and/or autonomously, for example by a processor programmed with Artificial Intelligence, such as IBM's Watson. Initial odds may be set using detailed data, statistics and historical information about past events related to the future events, such as player statistics, team statistics, etc., para 0037). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Uplay1 for the purpose of providing pre-match and in-match sports wagering (Uplay1 para 0003).

Claim 44 lacks an inventive step under PCT Article 33(3) as being obvious over Theodosopoulos in view of Pinnacle and Uplay1.

Regarding claim 44, modified Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose further comprising developing the second set of odds for the one or more in-Play live betting propositions comprises utilizing artificial intelligence to automatically acquire real time statistical information from a concurrent real time skill contest. However, Uplay1 teaches developing the second set of odds for the one or more in-Play live betting propositions comprises utilizing artificial intelligence to automatically acquire real time statistical information from a concurrent real time skill contest (a networked wagering ecosystem 100 comprising an Odds Management Server ("OMS") 102 associated with an Odds Management Service located and licensed to do business in jurisdiction 111. OMS 102 may generate these odds based on user input, i.e., management of OMS 102, and/or autonomously, for example by a processor programmed with Artificial Intelligence, such as IBM's Watson. Initial odds may be set using detailed data, statistics and historical information about past events related to the future events, such as player statistics, team statistics, etc., para 0037). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Uplay1 for the purpose of providing pre-match and in-match sports wagering (Uplay1 para 0003).

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WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2019/054859

Supplemental Box

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Claim 51 lacks an inventive step under PCT Article 33(3) as being obvious over Theodosopoulos in view of Pinnacle and Gambling Commission (hereinafter Gambling).

Regarding claim 51, modified Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that the one or more real-time skill game propositions are related to a live esports tournament. However, Gambling teaches that the one or more real-time skill game propositions are related to a live esports tournament (Applying the existing regulatory framework allows for proportionate control of the risks associated with betting on eSports, pg 1 para 4, As live and competitive spectator events, eSports are an attractive proposition for licensed gambling operators to offer bets on the outcome of matches, events and leagues, pg 2 para 7, to win an eSports contest or tournament, pg 10 para 7). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Gambling for the purpose of allowing for proportionate control of the risks associated with betting on eSports (Gambling pg 1 para 4).

Claim 52 lacks an inventive step under PCT Article 33(3) as being obvious over Theodosopoulos in view of Pinnacle and Asher et al. (hereinafter Asher).

Regarding claim 52, modified Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that the one or more real-time skill game propositions are related to one or more non-athletic, televised events. However, Asher teaches that the one or more real-time skill game propositions are related to one or more non-athletic, televised events (facilitate betting on the combined outcomes of a plurality of predefined probabilistic events, para 0007, numerous other events may form the basis for financial instruments 76, including events associated with the financial markets, television shows, and even the weather, para 0025, with respect to television shows, the events might involve whether or not a first participant of a reality-based television show will select a second participant of the show for marriage, to remain on the show, to be excluded from the show, or to otherwise be involved in the show. In another example, the events might involve the performance of a participant with respect to voting by viewers of the show. In particular, the events might involve whether a participant will receive the most or fewest votes by the viewership during a predetermined voting period; whether a participant will receive a certain number or percentage of votes by the viewership during a predetermined voting period; whether a first participant will receive more or less votes than a second participant during a predetermined voting period; or voting on whether an incident, occurrence, or happening should take place on the show. In other examples, the events might involve whether or not a participant of a game-show will answer a question correctly, win a prize, or otherwise succeed or fail on the show, para 0028). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Asher for the purpose of facilitating betting on the combined outcomes of a plurality of predefined probabilistic events (Asher para 0007).

Claims 64 and 73-79 lack an inventive step under PCT Article 33(3) as being obvious over Theodosopoulos in view of Sipko et al. (hereinafter Sipko).

Regarding claim 64, Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that collective responses by users or a sample of users to the one or more odds are presented to sports bettors and their bets placed in response to the adjusted odds are used to train a betting system to continually refine and optimize financial returns of a sports betting provider. However, Sipko is in the field of modelling of professional tennis matches (abstract) and teaches that collective responses by users or a sample of users to the one or more odds are presented to sports bettors and their bets placed in response to the adjusted odds are used to train a betting system to continually refine and optimize financial returns of a sports betting provider (trained an artificial neural network (ANN) using the match surface and several features of both players (winning percentages on first serve, second serve, return, break points, etc.) as training parameters, claim an accuracy of about 75% in predicting the matches in the Grand Slam tournaments in 2007 and 2008, pg 2 para 1, We find that our most profitable machine learning model generates a 4.35% return on investment, an improvement of approximately 75% over the current stateof-the-art stochastic models. This shows that a machine learning approach is is well worth pursuing, pg 2 para 2, Our goal is to predict the most accurate probabilities for the outcomes of matches, optimising for the greatest ROI degrades the quality of the predictions. We aim to obtain a distribution of predicted probabilities that is similar to the distribution of true probabilities, pg 41 para 2, We use odds from the bookmaker Pinnacle1 for all ROI calculations. According to comparisons of different bookmakers2, Pinnacle offers the best payout on almost all events, so the odds will give us a realistic ROI estimate. After removing 50% of the matches based on uncertainty, our test set contains 6315 ATP matches with Pinnacle odds, played during the years 2013-2014, pg 46 para 3). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Sipko for the purpose of using historical player performance across a wide variety of statistics to predict match outcomes (Sipko abstract).

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WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2019/054859

Supplemental Box

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Regarding claim 73, Theodosopoulos discloses a method comprising:
providing one or more real-time skill game propositions in connection with a live event (each bet is assigned to one of a number of sporting events. Funds associated with each bet are included in a wager pool associated with the sporting event to which that bet is assigned. The outcome of each bet is determined based at least in part on the results of the sporting event to which that bet is assigned, such as, for example, whether one or the other team (or a particular soccer player on the field) will get a goal, how many, and/or in which half [i.e. providing one or more real-time skill game propositions in connection with a live event]. For each winning bet, a payout is determined from the wager pool associated with the sporting event the winning bet was assigned, para 0066);
providing a first set of odds for one or more In-Play live betting propositions (Sporting event information 66 includes various information regarding sporting events scheduled to occur at each sporting event location 44, such as the type of the sporting event, the names of the players, expected odds of goals based on historical information, the scheduled time for the start of the event, and an approximate duration of the event, for example. Each pool host 16 may communicate sporting event information 66 to betting system platform 12 at various times. For example, in certain embodiments, each pool host 16 may communicate sporting event information 66 to betting system platform 12 at the beginning of each day [i.e. providing a first set of odds for one or more In-Play live betting propositions] and send real-time or substantially real-time updates for such sporting event information 66 to betting system platform 12 throughout the day and night, para 0075);
receiving selections to the one or more real-time skill game propositions (displaying sporting event information including different bet types that can be waged on the basis of the predefined entry fee, and updating the sporting event information in real time in response to in play activities associated with the live sporting event; simultaneously making available for display leaderboard information including information about the bets waged on by those on the leaderboard, claim 1, combining competition tournament play with live in-sports betting, but at the same time employing leaderboards in a totally new and clever way [i.e. receiving selections to the one or more real-time skill game propositions], para 0058); and
providing a second set of odds for the one or more In-Play live betting propositions based on analysis of the first set of odds and the selections to the one or more real-time skill game propositions (the odds are changing in real-time according to the share of total exchange each of the possible outcomes have received taking into account the return rate of the bookmaker offering the bet, para 0025, an improved fixed odds betting platform for making in-play sports betting wages, para 0039, A leaderboard automatically calculates the winnings of the wager pool of players and displays, in real time, the current leaders, in terms of winnings, during the tournament. The leaderboard updates automatically during the tournament to reflect changes in leaderboard standings in response to placed bets settlement and clearing, as well as in response to real time changes in odds of still pending bets [i.e. providing a second set of odds for the one or more In-Play live betting propositions based on analysis of the first set of odds and the selections to the one or more real-time skill game propositions], para 0043, Once a bet is placed, the player remains online if he so chooses and continues to be served real-time, up to date betting and leaderboard statistics allowing him to better manage his bets, adding to them if need be, based not only on what's happening on the field, but as importantly, based on what other tournament players are doing, para 0114).
Theodosopoulos does not specifically disclose training and adjusting algorithms to improve accuracy of providing the first set of odds and the second set of odds.
However, Sipko teaches training and adjusting algorithms to improve accuracy of providing the first set of odds and the second set of odds (trained an artificial neural network (ANN) using the match surface and several features of both players (winning percentages on first serve, second serve, return, break points, etc.) as training parameters, claim an accuracy of about 75% in predicting the matches in the Grand Slam tournaments in 2007 and 2008, pg 2 para 1, We find that our most profitable machine learning model generates a 4.35% return on investment, an improvement of approximately 75% over the current stateof-the-art stochastic models. This shows that a machine learning approach is is well worth pursuing, pg 2 para 2, Our goal is to predict the most accurate probabilities for the outcomes of matches, optimising for the greatest ROI degrades the quality of the predictions. We aim to obtain a distribution of predicted probabilities that is similar to the distribution of true probabilities, pg 41 para 2, We use odds from the bookmaker Pinnacle1 for all ROI calculations. According to comparisons of different bookmakers2, Pinnacle offers the best payout on almost all events, so the odds will give us a realistic ROI estimate. After removing 50% of the matches based on uncertainty, our test set contains 6315 ATP matches with Pinnacle odds, played during the years 2013-2014 [i.e. training and adjusting algorithms to improve accuracy of providing odds], pg 46 para 3). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Sipko for the purpose of using historical player performance across a wide variety of statistics to predict match outcomes (Sipko abstract).

Regarding claim 74, modified Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that training and adjusting the algorithms includes acquiring reactions to the first set of odds, the second set of odds or any combination thereof. However, Sipko teaches that training and adjusting the algorithms includes acquiring reactions to the first set of odds, the second set of odds or any combination thereof (The training of the model consists of optimising the parameters β so that the model gives the best reproduction of match outcomes for the training data. This is done by minimising the logistic loss function (equation 2.7), which gives a measure of the error of the model in predicting outcomes of matches used for training, pg 10 para 1). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Sipko for the purpose of using historical player performance across a wide variety of statistics to predict match outcomes (Sipko abstract).

Regarding claim 75, modified Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that training and adjusting the algorithms includes recalculating the second set of odds based on the reactions. However, Sipko teaches that training and adjusting the algorithms includes recalculating the second set of odds based on the reactions (Our neural network generates a return on investment of 4.35% when in competition with the betting market, an improvement of about 75%, abstract, we train a logistic regression model on the constructed dataset. Seeking further improvement, we train two higher-order models (logistic regression with interaction features and an artificial neural network), pg 2 para 2, Feature selection is the process of selecting a subset of all available features to use within a model. The main motivation for applying this technique to tennis match prediction is the possibility of improving prediction accuracy through the removal of irrelevant features, pg 28 para 3). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Sipko for the purpose of using historical player performance across a wide variety of statistics to predict match outcomes (Sipko abstract).

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Regarding claim 76, modified Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose further comprising comparing the results from the one or more skill game propositions to the responses. However, Sipko teaches further comprising comparing the results from the one or more skill game propositions to the responses (trained a three-layer feed-forward ANN for match prediction with the backpropagation algorithm. Several different networks with different sets of input features were trained and compared. The best-performing network had 27 input nodes, representing features of both players and the match, and had an average accuracy of about 75% in predicting the outcomes of matches in the 2007 and 2008 Grand Slam tournaments, pg 11 para 6, As evaluating subsets using ROI previously failed to generalise well, we only use logistic loss to compare different subsets, pg 36 para 6). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Sipko for the purpose of using historical player performance across a wide variety of statistics to predict match outcomes (Sipko abstract).

Regarding claim 77, modified Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose further comprising utilizing the comparison of the results and the responses to optimize the algorithms. However, Sipko teaches further comprising utilizing the comparison of the results and the responses to optimize the algorithms (Using the resulting dataset, we develop and optimise models based on two machine learning algorithms: logistic regression and artificial neural networks, abstract, they used a 1-dimensional feature space $x \propto (\text{rankdiff})$, and optimised $\beta 1$ so that the function $\sigma(\beta 1 \cdot \text{rankdiff})$ gave the best predictions for the training data, pg 10 para 5). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Sipko for the purpose of using historical player performance across a wide variety of statistics to predict match outcomes (Sipko abstract).

Regarding claim 78, modified Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that training and adjusting the algorithms includes using machine learning. However, Sipko teaches that training and adjusting the algorithms includes using machine learning (We propose a supervised machine learning approach that uses historical player performance across a wide variety of statistics to predict match outcomes, abstract). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Sipko for the purpose of using historical player performance across a wide variety of statistics to predict match outcomes (Sipko abstract).

Regarding claim 79, modified Theodosopoulos discloses the invention above, but Theodosopoulos did not disclose that training and adjusting the algorithms includes using neural networks. However, Sipko teaches that training and adjusting the algorithms includes using neural networks (Using the resulting dataset, we develop and optimise models based on two machine learning algorithms: logistic regression and artificial neural networks, abstract). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Theodosopoulos with the teachings of Sipko for the purpose of using historical player performance across a wide variety of statistics to predict match outcomes (Sipko abstract).

Claims 1-53 and 62-79 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.

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(54) Title: SYSTEM AND METHOD FOR SYNCHRONIZING ONLINE ACTIVITIES WITH BROADCAST PROGRAMMING

(57) Abstract: A system allows large numbers of users to engage in on-line, multi-user shows that are synchronized to broadcasts of prerecorded or live shows and also simultaneously aggregates user input from such shows and feeds it back into the broadcast. First, a user launches client application on an Internet-accessible platform. The client application connects to a multi-user server system. This multi-user server system allows all of the concurrent users to engage in a single multi-user, on-line activity that can run independently or in synchronization with a broadcast. The multi-user server system is also capable of running numerous on-line activities simultaneously, each of which can be synchronized to a separate broadcast. As the users interact with the on-line activities, the multi-user server system can aggregate data relating to the users or their actions, save this data in a database, and feed this back into the broadcast. The multi-user server system also includes the ability to send messages to all the users or specific groups of users, adjust the synchronization of the on-line shows, schedule on-line shows, and create scripts for running the shows in synchronization with the broadcasts.

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SYSTEM AND METHOD FOR SYNCHRONIZING ONLINE ACTIVITIES WITH BROADCAST PROGRAMMING

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to systems for synchronizing broadcast media transmissions with other forms of communication. More specifically, it relates to systems which allow a large number of broadcast media recipients to engage in on-line activities that are synchronized to transmissions of the broadcast medium -- television, radio, Internet or any other type of broadcasts, while simultaneously aggregating user input and feeding it back into the broadcast transmission.

2. Background of the Related Art

Radio and television broadcasting have revolutionized the way that information and entertainment are distributed in the 20th century and have become truly ubiquitous. Nearing the end of the 20th century, the development of the Internet and the World Wide Web have provided the opportunity to bring a new, powerful technology for providing information and entertainment via a worldwide network of computers to tens of millions of users.

By tightly integrating the user experience of broadcasting and the Internet, it would be possible to create new shows and content that would greatly extend the capabilities of both media. Tightly coordinated on-line / on-air programming could be used for a wide variety of content types, including game shows, news / opinion shows, sports, entertainment, education shows, children's programming, and advertisements. Additionally, if such integration could

support the simultaneous coordinated activities of a very large numbers of users, it would further extend the creative possibilities and support the development of robust on-line / on-air communities. Finally, this system could be capable of driving real-time information back into the broadcast in order to "close the loop" and fully integrate the coordinated user experience.

However, there is a challenge imposed by such an environment. The deployment of systems using enhanced set-top boxes and cable system head-end equipment is delayed by a fractious standards battle and the reluctance of broadcasters and cable system operators to invest in potentially soon-to-be obsolete technology. Meanwhile, there is a huge pent-up demand for combined Internet / broadcast programming, as evidenced by the millions of users who simultaneously access the Internet on a personal computer while watching television (estimated by one study to be 18 million households) without any content or shows being created to support that activity.

A system which uses innovative software technology and content delivery methods is needed to achieve the tight broadcast / Internet integration so many users desire. This system must do so in a manner that allows rapid deployment as well as adaptability to future developments in cable television and broadband delivery systems.

This system should achieve its tight coordination with broadcasts at the broadcast control and Internet server level in order to avoid the fractured and technically uncertain environment presented by attempting to deploy content using other cable television, satellite or broadband-based technologies. The client application design should support being deployed on a wide range of client devices, from current personal computers to devices not yet built. The client / server design should provide a tight synchronization for the users' on-line / on-air experience no matter what variations they may experience in network latency and bandwidth. Multi-user server

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capabilities must be included to support the simultaneous response of very large numbers of users in coordination with the broadcasts. The server system should be able to aggregate, track, archive and report on the simultaneous multi-user activities while storing the data and user profiles in a database. In addition, the system should drive real-time information and graphics back into the broadcast to fully complete the "loop" for the users' on-line / on-air experience. Finally, this system must be robust, reliable and scalable to meet the real-world demands of broadcasters.

SUMMARY OF THE INVENTION

The present invention has been made with the above problems of the prior art in mind, and it is an object of the present invention to provide a method and system by which large numbers of users engage in on-line, multi-user shows that are synchronized to television, radio, Internet or any other type of broadcasts, while simultaneously aggregating user input and feeding it back into the broadcast.

According to a first aspect of the present invention, this object is achieved by providing a system in which a user first launches a client application which is either downloaded from the Internet or pre-installed on the user's Internet access device. The client application is based on a set of Application Programming Interface (API) modules which are created as part of the system and designed to be easily deployed on a wide range of Internet access devices. These devices can be Internet-enabled personal computers, enhanced set-top box devices, wireless devices, Internet access appliances or any other devices that support a programming language and standard Internet communication protocols.

Next, the client application connects to a multi-user server system. This multi-user server system allows all of the concurrent users to engage in a single multi-user, on-line activity

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that can run independently or in synchronization with a broadcast. The multi-user server system is also capable of running numerous on-line activities simultaneously, each of which can be synchronized to a separate broadcast. These on-line activities can be integrated with virtually every type of content, both pre-recorded and live shows, including but not limited to news / opinion shows, sports, drama, comedies, game shows and advertisements. The on-line activities include all types of multi-user and single-user applications, including, but not limited to, chat, games, opinion polling, interactive commercials, and e-commerce. The client / server system provides a tight synchronization for the on-line / on-air content, which accommodates variations in the Internet network's and user's connection latency and bandwidth.

As the users interact with the on-line activities, the multi-user server system will aggregate data relating to the users and/or their actions, save this in a database and feed relevant data back into the broadcast as graphics or other forms of information. The multi-user server system also includes the ability to send messages to all users or specific groups of users, adjust the synchronization of the on-line shows, schedule on-line shows, and create scripts for running the shows in synchronization with the broadcasts. The multi-user server system is deployed in a primary / secondary server configuration, where the loads are distributed across multiple server computers. This helps to make the system easily scalable for expansion to accommodate increasing user numbers. The system preferably provides a control application so that broadcast control room personnel may manage the combined on-line / on-air content. Additionally, the system provides broadcasters tools for creating the on-line / on-air content, specifically a scheduling application and a show scripting application.

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BRIEF DESCRIPTION OF THE DRAWINGS

These and other objects, features and advantages of the present invention are better understood by reading the following detailed description of the preferred embodiment, taken in conjunction with the accompanying drawings, in which:

FIG. 1 shows an overview of a presently preferred embodiment of the present invention;

FIG. 2 is a flow diagram showing how the embodiment functions;

FIG. 3 is a diagram showing various client devices usable in the preferred embodiment;

FIG. 4 is a block diagram showing the server system configuration in the embodiment; and

FIG. 5 is a time-based chart depicting the sync-to-broadcast system flow in the embodiment.

DETAILED DESCRIPTION OF PRESENTLY PREFERRED EXEMPLARY EMBODIMENTS

The present invention provides, in a preferred embodiment, a system that allows large numbers of users to engage in on-line multi-user activities that are tightly integrated and synchronized with television, radio, Internet or other types of broadcasts, while simultaneously aggregating user input and feeding real-time information pertaining thereto back into the broadcast. This is deployed in a client / server environment. The system achieves its tight coordination with broadcasts at the broadcast control / Internet server level in order to maximize control of the synchronization and integration and avoid depending upon downstream technologies which may or may not be available to all users.

FIG. 1 provides an overview of the preferred embodiment, illustrating how all the components work together to synchronize multi-user on-line activities to a broadcast. Here, a

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broadcaster 101 transmits a broadcast signal 102 which may involve a television broadcast, radio, the Internet or any other type of broadcast. Although in the following discussion reference will be made to television broadcasts, this is in no way limiting, and the transmission may be via cable, airwaves, network or any other type of transmission medium.

Audience households 103 receive the broadcast 102 via an appropriate device such as a satellite dish, antenna, cable, Internet connection or the like -- in fact, virtually any network capable of simultaneously delivering streaming content to multiple users can be used. For networks which provide effectively instantaneous delivery of content, no provisions need to be made for latency in transmission time; however, for those which do exhibit transmission latency (such as the Internet), compensation may be appropriate as will become apparent to those skilled in the art.

These households are connected to the Internet 104 or similar communications network. A typical household 106 contains a viewer/user 108, a device 107 capable of receiving the broadcast signal 102, e.g., a television, radio, computer or other appropriate type of receiving device, and an Internet-enabled client device 109. Preferably, the Internet-enabled client device 109 supports a language like C++ or Java for executing a client application 412 (see Fig. 4) resident thereon as well as a standard Internet protocol, and is connected to the Internet 104 so that the viewer 108 can interact with the client application 412 while viewing the receiving device 107. This client device 109 can either be integrated into the receiver device 107 (e.g., an enhanced TV) or exist as a stand-alone device (e.g., a personal computer or wireless device). Alternatively, the client device 109 can share a screen with the receiver device 107 (e.g., a WebTV or set-top box) or have its own separate screen as shown in FIG. 1. In the following, reference will be made to a

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personal computer as the client device 109; however, this is only for the purposes of explanation, and other equivalent devices as described above may also be used.

The client application 412 that runs on the client device 109 stays in synchronization with the broadcast 102 by communicating with the multi-user server system 111, described in greater detail below. The client application 412 receives scripts outlining the flow of events from the multi-user server system 111 and runs the on-line shows and activities according to the timeline laid out in these scripts. It also receives synchronization cues from the control application 112 and server system 111 (also described in greater detail below), thus keeping the script in synchronization with the broadcast 102.

The scripting language is preferably time code-based. The time code may reside on a video tape, audio tape or any other medium. Every event in the activity is pegged to a specific time code, thereby creating a timeline made up of a sequence of key events. These events may include, but are not limited to, sending messages to users 108; displaying graphics, playing animation and playing sounds; delivering advertising content; coordinating interactive actions; and receiving input from the users 108.

For example, a show may start at a time code of 1:00:00:05. This might represent a position of five video frames from the start of a video tape. If the show were a trivia-based game show, the first question could be queued at 01:00:30:05. This would represent an action taking place thirty seconds into the show. In this way, online actions can be synchronized to the time code of the source broadcast medium.

In addition, the client application 412 preferably sends back time-stamped data detailing when specific actions take place locally, i.e., within household 106. There are two types of data reported to the multi-user server system 111: user-initiated data, this data may come from

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text entries, chat, responses, instant messaging, etc.; and tracking data which relates to the status of the client application. Data of the first type may include, but are not limited to, answering questions, sending text messages, entering data, and interacting with other on-screen multi-media elements. Preferably, this information is encrypted to prevent alteration by the users 108 or other parties. Further, time stamping the data accommodates variations in latency and bandwidth across the user base 103. Also, it is preferable that the local action reports includes a portion specifying the length and type of report, as well as a sequence number which is used by the multi-user server system 111 to ensure that reports are not taken out of order.

In addition to transmission of such above deliberate activities of the a user 108, the client application 412 preferably also sends back data gathered from other user interactions as data of the second type. These interactions may include data gathered from the user's connection to the server 111, e.g., the activity in which the user 108 is involved; the advertisements the user 108 has seen; where the user 108 goes within the system; and when the user 108 logs on and off of the system.

This data is preferably aggregated and stored in a database 405 residing on the multi-user server system 111 as shown in FIG. 4. This database is used for archiving and tracking information associated with the on-line activities, including user profiles, interaction, scoring results, ad views and other data types. In the archiving process, it is preferably that every user 108 has a unique user profile, and every session in which a user logs on has a unique ID code; thus, data collected during a particular session can be stored according to a unique user ID and session ID. Additionally, the date and time over which each session occurred is known, so that each session can be tracked by any of the above parameters.

FIG. 2 lays out the sync-to-broadcast system flow. It shows the overall flow of the

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preferred embodiment, describing how time synchronization information from the original broadcast 102 is distributed by the server 111 to each of the client devices 109, allowing them to display program information in synchronization with the broadcast 102. First, shows are broadcast normally at Step 201; there is no change in how a radio, Internet or television show is broadcast. Additionally, as shown at Step 202, the television 107 or other receiver device received the broadcast 102 while requiring no special hardware.

At Step 203 the client device 109 is preferably in the same room as the television 107 and the user 108 and receives data from the multi-user server 111 via the Internet 104. The client application 412 uses the Internet 104 to establish a real-time socket connection to the multi-user server system 111. From the multi-user server system 111, the client application 412 receives scripts containing synchronization time information, graphics, sound and other assets, as well as on-the-fly messaging and synchronization cues. In Step 204, the multi-user server system 111 coordinates interaction with all the clients 109, distributes the scripts and assets, directs the flow of information, and connects all the clients 109. The multi-user server system 111 also listens for synchronization cues from the control application 112 and distributes synchronization time information to the connected clients 109.

In Step 205, the Internet-connected control application 112 sends the synchronization time information to the multi-user server system 111. This synchronization time information may come from either VBI decoder box 116 as described above or from a manual synchronization control. In Step 209, the broadcaster 101 broadcasts the radio, Internet or television show 102 normally. In Step 208, the broadcast signal may or may not contain a synchronization cue in the VBI. Having a synchronization tone embedded in the VBI by the broadcaster 101 is optional; the system can run without any VBI synchronization tones by using the

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manual synchronization controls, although the VBI synchronization tones help to automate the synchronization process. In Step 206, the control application 112 listens for synchronization cues from the VBI decoder box 116 if necessary, and in Step 207 the VBI decoder box 116 decodes synchronization cues embedded in the VBI.

In Step 210, data gathered from the on-line users 108 interacting with the client application 412 are aggregated by the multi-user server system 111 and fed back into the broadcast 102 using the control application 112 along with the Chyron 113 or similar device.

The Internet 104 sits at the core of this application, and all parts of the preferred embodiment communicate over the Internet 104. Although dedicated connections between the multi-user server system 111, the control application 112, the scheduling application 114 and the show scripting application 115 (all described in greater detail herein) could be used, the design of the preferred embodiment eliminates any communication latencies introduced by the Internet 104 due to the use of a network time protocol (NTP) on all Internet-connected applications. Essentially, by transmitting in advance set times to computers which are set by the NTP, actions can be executed in synchronization even though there might have been latency in transmission of the times. Of course, NTP is merely used as an exemplary source of time reference information in the preferred embodiment, and other sources, includeing proprietary ones, may be used in its place.

A messaging API for common client / server functions facilitates development of the client application 412 on the client device 109. The messaging API covers over fifty integral commands including, but not limited to, "enter lobby", "request available events", "request available rooms", "create new room(s)", "enter room", "exit room", "request user list for room", "request and edit beeper list", "initiate or respond to private messages". Specific to the synchronization there are commands such as "start event", "end event", "kill event", "speed up

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event", "slow down event", "end event" and the like. These commands are accurate to milliseconds. This messaging API is fully extensible for the development of further features. This API utilizes sockets so it is not dependent on any particular language or schema. Any developer language or front end that can interact with sockets can effectively work with the messaging API. The developer is free to display or not display the information retrieved from the messaging API as suits their product.

Returning to FIG. 1, the multi-user server system 111 coordinates and manages the entire process. It provides a true multi-user platform for allowing numerous simultaneous users 108 to interact with one another and with the on-line show. It synchronizes the client devices 109 in all households 103 with the server 111. It works in conjunction with the control application 112, scheduling application 114, and show scripting application 115 (all described in greater detail below) to control the synchronization, schedule the on-line shows, send out updated assets such as sound, graphics, video and text files, deliver advertisements, send new script files, and provide and coordinate the various media elements. It preferably gathers time-stamped data from each of the clients 109 and stores this data in a database. It also preferably aggregates other data from the users 108 and stores this data in a database. It makes data in the database available to the control application 112 for integration back into the broadcast 102.

The control application 112 schedules the run time / date for both the sync-to-broadcast shows and activities as well as the on-line non-synchronized shows and activities. It is preferably comprised of the following:

-- an optional automatic synchronization control which uses a VBI (Vertical Blanking Interval) decoder box 116 to listen for a tone imbedded in the VBI to synchronize the on-line show with the broadcast 102;

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-- a manual synchronization control for synchronizing the on-line show with the broadcast 102, e.g., a button in the control application 112 which can be pressed when the broadcast show starts;

-- a response data control for managing user activity response data information;

-- a data integration control for integrating information gathered from the users 108 back into the live television, radio or Internet broadcast 102 -- for example, determining the highest scoring users 108 in a broadcast competition and feeding those scores back into the television broadcast using the control application 112 which can gather the high scores from the database 405 of the multi-user server system 111 and display them on a computer screen, the image then being captured using a Chyron 113 and integrated into the broadcast signal 102;

-- a broadcast message control for sending a real-time message to the users 108, e.g., a message that the show is delayed, that a new show will air next week, or that a new prize is being offered;

-- a server status control for displaying the status of the server 111 to the system operator;

-- a start / stop control for manually starting and stopping the on-line show, thereby allowing the operator of the control application 112 to terminate a show due to technical difficulties, scheduling problems and the like;

-- a slip synchronization control for manually shifting the synchronization forward or backward by a number of milliseconds, useful because manual synchronization control may be inaccurate or the broadcast is faulty and VBI information does not start online activities at the correct time;

-- a kill control for terminating a specific function within an on-line show; and

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-- a run reports control for generating reports on usage, user profiles, scores, response data, advertising and other information present in the database.

A Chyron 113 or a device similar in functionality, i.e., one that can place graphics or text in a television display, is used to integrate data back into the live television, radio or Internet broadcast 102.

The scheduling application 114 provides a tool for scheduling the time / date of both on-line sync-to-broadcast shows and on-line non-synchronized shows. The scheduling application 114 essentially sets up a calendar in which dates and times of activities corresponding to events in on-air broadcasts are entered. In advance of these times, corresponding scripts are assembled and sent to clients 109 to run in synchronization with broadcasts 102. This system can easily be used with non-synchronized activities as well as sync-to-broadcast shows.

The show scripting application 115 is used for creating controlling scripts for on-line sync-to-broadcast shows. It is comprised of the following: a script generator for matching specific on-line actions with time code from video tapes; an asset integration tool for adding text, artwork, sounds and music to the on-line shows; an editor for modifying the scripts and assets; and an uploading routine for saving the scripts on the multi-user server system 111. The use of the scripting application for videotaped shows will be readily apparent to those skilled in the art. For live shows, rough synchronization may be obtained if general event timings are known, or sequences of events, e.g., in the case of a football game, can be predicted.

The VBI decoder box 116 decodes synchronization cues embedded in the VBI. Preferably, the control application 112, scheduling application 114, show scripting application 115, client application 412, and multi-user server system 111 all communicate via the Internet 104.

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As shown in FIG. 3, the multi-user server system can work with a variety of different devices, as long as these devices are Internet enabled, support standard Internet protocol and support a programming language such as C++ or Java. The first component shown is a receiver device 107. This can be a television, radio, computer or some other device that can receive the broadcast signal 102. A user 108 views the broadcast and interacts with the client application 412 resident on the client 109.

The multi-user server system 111 can communicate with the client application 412, which can be deployed on a wide variety of devices as shown by devices 109 and 109a-109d. One possible device 109 is an Internet enabled PC running Windows or another operating system. This device communicates with the multi-user server system 111 over the Internet 104. Another possible device 109a is a WebTV-type device that supports a programming language and standard Internet protocol. Another possible device 109b is an enhanced set-top box that supports a programming language and standard Internet protocol. Yet another possible device 109c is a wireless unit that supports a programming language and standard Internet protocol. Still another possible device 109d is an enhanced TV, digital television or radio that supports a programming language and standard Internet protocol. Additionally, although not shown in FIG. 3, other devices may be used, such as a cellular telephone, personal digital assistant, tablet device or any other Internet connected device which supports a programming langauge and standard Internet protocol. All of these devices 109 and 109a-109d can communicate with the multi-user server system 111 through the Internet 104. Basically, any client platform that supports sockets can be used to develop sync-to-broadcast activities.

As shown in FIG. 4, the multi-user system server 111 preferably has two main components: the primary server 402 and the secondary server or servers 407. The primary server

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402 accepts users, validates them (preferably using a user ID/password scheme or similar technique as is known in the art) to ensure that the users 108 are registered and are connecting from the proper client 109, and handles the process of moving them from room to room where various activities, e.g., chat, games, etc., take place. The secondary server 407 is responsible for monitoring a set of rooms that are all on that server. When the load manager application 403 assigns a user to a room, it hands that user off to an activity manager application 408 . When an activity is over, the activity manager application 408 reports any outcome information to the load manager application 403. There is a separate activity manager application 408 for each server 407.

The client application 412 makes its initial connection over the Internet 104 with the load manager application 403. The load manager application 403 deals with the specific problem of managing large numbers of users and activities scaled across multiple servers 407 and the like. It communicates with other server components and client applications 412 using TCP/IP. The load manager application 403 resides on the primary server 402 or servers. When the load manager application 403 initially launches, it queries the system database 405 for scheduled events and pre-allocated rooms. When it has received this data, it listens for each of the activity manager applications 408 to connect. Upon completion, each activity manager application 408 is told which events and rooms to load. By querying the database, the load manager application knows which activities -- trivia games, puzzles, chat, opinion polls, user feedback sessions and the like -- are present in which rooms and how to route users to and from those rooms.

The load manager application 403 authenticates the user 108 by accessing the user database 405. When a user 108 has been validated (and preferably information on which activities the user's client 109 can support is obtained therefrom), they are placed into the lobby. The lobby is a place where users 108 can choose to enter or be assigned to rooms containing different

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activities. Its primary purpose is to enter users into the system and move them into activity rooms.

Users 108 in the lobby preferably may be asked to choose from a dynamically changing list of available events and rooms, or they may be placed automatically into rooms assigned by the load manager application 403. Once they have either selected an available room or been assigned one, the load manager application 403 places them in the room and, at this point, they become the responsibility of the activity manager application 408. Users may re-enter the lobby in order to move to another activity room.

Network time protocols servers 406 and 410 provide critical time synchronization information to all software components; in the preferred embodiment, these are NTP servers, although as noted above other synchronization information sources may alternatively be used. On the primary server 402 side, a primary NTP routine 406 provides the initial time synchronization which is coordinated with a source of time reference information. This primary time synchronization is accessed by the activity manager applications in each of the secondary servers 407 in the system. Accuracy is in the milliseconds within the system. As each client 109 logs onto the system, they too access the time synchronization information. Accuracy of this time synchronization over the Internet 104 ranges from the tens of milliseconds to a second. All events precipitated by the server are cued relative to their NTP time, and are displayed by the clients according to their NTP time.

For example, when the initial cue to start a segment is received, this cue is "stamped" with the NTP time at which it was received. When this cue is distributed to the client machines 109, they can then calculate when to display the cues within the segment relative to their own NTP time. In this way, it is possible to retain synchronization between the server 111 and each connected client application 412 over the course of the synchronized event without any clients

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109 being hindered by latency. Periodic checks against the server's NTP time are made to keep client machines 109 synchronized within one second of each other and the server 111.

In this way, the NTP is used to provide synchronization information over the Internet, rather than over a dedicated LAN as is customarily the case. It is believed that this NTP Internet synchronization technique has not been practiced in the prior art and is unique to the present invention. Also, as noted above, although NTP is used in this presently preferred embodiment, other sources of synchronization information may alternatively be used, including proprietary or semi-dedicated sources.

Activity modules 409 are the client/server software pieces that the user 108 interacts with during the course of an event. These modules are loaded and unloaded based on commands from the load manager 403. For example, the load manager 403 may instruct the multi-user server system 111 to load a trivia game activity into a number of rooms and make those rooms available at 3 p.m. to anyone logging into the system from a specific client application 412 associated with a specific broadcast. Alternatively, the load manager 403 may instruct the multi-user server system 111 to unload the trivia games at 4 p.m. and replace them with other activities such as chat sessions or puzzles.

Examples of sync-to-broadcast program modules include, but are not limited to, user registration, chat, games, polling, advertisements, e-commerce links, rankings, and announcements. Activity modules 409 encapsulate the rules and structure of a single sync-to-broadcast activity or program, and may do so essentially as hard-coded programs or software modules.

Media 409 may be stored on either the client 109 or the server machines 402 and 407. In order to reduce bandwidth usage during critical moments, essential media is installed or cached on the client machine 109 prior to cue time. Updateable media, such as advertising or new

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game files, may be streamed either from the multi-user server system 111 or from external links. Web services 404 and 411 are used to serve up web pages, script files, assets, client applications, and any required media elements or software. Web services 409 and 411 may also include an ad server for delivering on-line advertising synchronized with the broadcast commercials.

The communication responsibilities of the load manager application 403 are:

-- start server system 402 with customizable parameters;

-- listen for activity manager applications 408 and ask them to load room-specific activity;

-- listen for clients 109 on a specified port;

-- verify clients 109 are valid;

-- maintain available room information;

-- move clients 109 from room to room as required or requested;

-- receive information from each of the activity managers 408;

-- write information to user database 405; and

-- propagate customizable web updates as scheduled.

Once all the activity manager applications 408 have connected, the load manager application 403 communicates a list of events and rooms to load. When a user 108 selects an event and room or is assigned to one, the load manager application 403 passes them to the activity manager application 408. Once a user 108 is in a room, their client application 412 speaks directly to the activity manager application 408 until they need or request to be placed into another room.

The activity manager application 408 may be thought of as a conduit between the load manager application 403 and the individual clients 109. There is one activity manager application 408 for every server in the system except the primary server 402 (although in

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alternative embodiments, an activity manager 408 may be operative on the primary server 402 as well). The responsibilities of the activity manager application 408 are:

-- listen to the load manager application 403;

-- set up threads to handle each activity; dynamically load activity-specific DLLs (relatively small software programs downloaded to the client application 412 which are designed to run applications such as chat, trivia games, etc.);

-- listen for clients 109 and direct them to the proper room; and

-- report information to the load manager application 403.

Every room has two threads, one thread accepts client 109 into the room, and another thread controls the room and handles the data exchange back and forth. In addition to room threads, the load manager application 403 also maintains threads. The load manager application 403 is a server to the clients 109, to the activity manager applications 408, and to the control application 112. For each of these, the load manager application 403 maintains two threads, one to accept new connections, and one to regulate the data among the connections.

The load manager application 403 accesses database 405 preferably using ODBC or a similar access scheme to keep track of the following information: user profile; user activity; event information; room information; and results tracking such as high scores and usage data. This information is valuable to sponsors and advertisers and can also be used to provide data which can be used in the on-air component. The activity results are items that can be propagated to the broadcast community102 so users 108 can see how they rank. Ranks and other results can also be propagated automatically to a customized web page for review.

FIG. 5 is a time-based chart illustrating the flow of events in a sync-to-broadcast show according to the preferred embodiment. First, in Step 501 an on-line show is created using

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the show scripting application. In Step 502, the on-line show is scheduled using the scheduling application. In Step 503, a synchronization tone may or may not be imbedded in the VBI of broadcast 102. This is an optional step dependent on the level of cooperation of the broadcaster. In Step 504, the broadcast 102 is aired. Using decoder box 116, Step 505 detects whether or not a VBI synchronization tone is present in broadcast 102. In Step 506, if there is a synchronization tone embedded in the VBI, the decoder 116 will pick up the synchronization tone and transmit it to the control application 112. In Step 508, if there is no tone embedded in the VBI, the control application operator must manually start the sync-to-broadcast on-line show. In Step 507, the control application automatically starts the sync-to-broadcast on-line show.

Meanwhile, in Step 509 the user 108 runs the client application 412 on an Internet-connected client device 109 while tuning into the broadcast 102. In Step 510, the user 108 logs into the system. In Step 511, the client application 412 then automatically downloads the appropriate script and other assets for the show from the multi-user server 111. In Step 512, if the user 108 logs on before the sync-to-broadcast show has started, the user 108 may be directed to engage in other related on-line activities. For example, if the on-air/online show has not yet started, the user 108 may be placed in a chat room or a game room where they can spend time talking to other players before the show is scheduled to start. When the show does start, the activity manager 408 may assign a new activity to the room which corresponds to the broadcast, or the user 108 will automatically be moved into another room where the appropriate sync-to-broadcast activity will take place.

In Step 513, when the sync-to-broadcast show commences, the user 108 is entered into a real-time, multi-user sync-to-broadcast on-line show. In Step 514, the client application 412 follows the show script, keeping in synchronization with the specified timing. In Step 515, to

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avoid problems with Internet latency and bandwidth variations, the client application 412 time stamps local actions. In Step 516, the show script tells the client application 412 to wait and listen for additional synchronization commands from the multi-user server system 111. In Step 517, the client application 412 also responds to any manual or on-the-fly commands from the control application 112. In Step 518, after the sync-to-broadcast on-line show ends, the user 108 is returned to on-line non-synchronized activities.

The present invention has been described above in connection with a preferred embodiment thereof; however, this has been done for purposes of illustration only, and the invention is not so limited. Indeed, variations of the invention will be readily apparent to those skilled in the art and also fall within the scope of the invention.

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WHAT IS CLAIMED IS:

1. A method of synchronizing on-line content with a broadcast, the method comprising:

transmitting a broadcast signal to a first user reception device via a first medium;

transmitting timing information corresponding to information in the broadcast signal to a second user reception device via a second medium; and

using the second user reception device to generate user-perceptible indicia at times corresponding to the timing information.

2. The method of claim 1, wherein the broadcast signal is one of a television broadcast signal and a cable broadcast signal.

3. The method of claim 1, wherein the first user reception device is a television.

4. The method of claim 1, wherein the first medium is a television broadcast spectrum.

5. The method of claim 1, wherein the first medium is a cable television network.

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6. The method of claim 1, wherein the information in the broadcast signal to which the timing information corresponds are events in a show.

7. The method of claim 1, wherein the second user reception device is capable of communicating via the Internet.

8. The method of claim 1, wherein the second medium is the Internet.

9. A system for synchronizing on-line content with a broadcast, the system comprising:

a receiver to receive timing information corresponding to information in a broadcast signal via a reception medium, the timing information corresponding to information in a predetermined broadcast signal; and

a display device to generate user-perceptible indicia at times corresponding to the timing information, the user-perceptible indicia corresponding to content of the broadcast signal.

10. The system of claim 9, wherein the receiver is capable of communicating via the Internet.

11. The system of claim 9, wherein the reception medium is the Internet.

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12. The system of claim 9, wherein the display device is a personal computer.

13. A client device for a sync-to-broadcast system, the device comprising:

communication means for establishing communication between the client device and a communication network;

timing reception means for receiving via the communication means timing information corresponding to events in a broadcast signal; and

display means for generating user-perceptible indicia at times corresponding to the timing information, the user-perceptible indicia corresponding to content of the broadcast signal.

14. The client device of claim 13, further comprising synchronization means for receiving via the communication means synchronization cues and using the synchronization cues to synchronize indicia generated by the display means with the broadcast signal.

15. The client device of claim 13, further comprising:

input means for receiving user commands relating to indicia generated by the display means and processing the commands; and

local action reporting means for transmitting via the communication means information relating to the user commands over the communication network.

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16. The client device of claim 15, wherein the information transmitted by the local action reporting means includes at least one of answers to questions, text messages, activities in which the user is involved; advertisements the user has seen; and login status of the user.

17. The client device of claim 13, wherein the communication means and timing reception means are resident in one of a WebTV device, a set top box and an enhanced television.

18. The client device of claim 13, wherein the communication means, timing reception means and display means are resident in one of a personal computer and a wireless device.

19. A multi-user server system for connecting multiple users over the Internet comprising:

communication means for establishing communication between the server and a communication network;

a load manager application for communicating via the communication means with a plurality of client devices and partitioning each client device into one of a plurality of rooms; and

activity manager means for communicating via the communication means with the plurality of clients to exchange data therewith, the data corresponding to

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activities activities associated with the room to which each client device has been assigned.

20. The multi-user server system of claim 19, further comprising web service means for serving via the communication means at least one of web pages, assets, software and media to the plurality of client devices based on rooms to which the client devices have been partitioned.

21. The multi-user server system of claim 19, further comprising advertising service means for serving on-line advertising synchronized with commercials in the broadcast signal.

22. The multi-user server system of claim 20, further comprising:

at least one media library containing at least one of graphics, video, sound, an animation;

wherein the web service means is further for retrieving information from the media library and serving it via the communication means.

23. The multi-user server system of claim 19, further comprising:

archiving means for receiving via the communication means information related to on-line activities of the plurality of client devices; and

a database for storing and tracking the on-line activity information.

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24. The multi-server system of claim 23, wherein the on-line activity information includes at least one of user profiles, interaction, scoring results and ad views.

25. A control system for an on-line sync-to-broadcast show, the system comprising:

communication means for establishing communication between the system and a communication network;

synchronization control means for transmitting via the communication means information for controlling synchronization of an on-line show with a broadcast signal; and

data integration control means for generating a signal representative of information gathered via the communication means to be integrated into the broadcast signal.

26. The system of claim 25, wherein the synchronization control means includes an automatic synchronization control responsive to a tone imbedded in a vertical blanking interval of the broadcast signal to transmit via the communication means information to synchronize the on-line show with the broadcast.

27. The system of claim 25, wherein the synchronization control means includes a manual synchronization control for transmitting via the communication means

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information to synchronize the on-line show with the broadcast responsive to an operator action at the control system.

28. The system of claim 25, wherein the synchronization control means includes slip synchronization control means for transmitting via the communication means information to slip synchronization between the on-line show and the broadcast signal responsive to an operator action at the control system.

29. The system of claim 25, further comprising flow control means for transmitting via the communication means information to control a flow of information within the on-line show.

30. The system of claim 29, wherein the flow control means includes a start/stop control for transmitting information via the communication means to manually start and stop the on-line show responsive to an operator action at the control system.

31. The system of claim 29, wherein the flow control means includes kill control means for transmitting via the communication means information to terminate a specific function within the on-line show.

32. The system of claim 25, further comprising message transmission means for sending via the communication means a real-time message for viewers of the broadcast signal and on-line show.

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33. The system of claim 25, further comprising standings control means for managing the information received via the communication means relating to viewers of the broadcast signal and on-line show.

34. The system of claim 25, further comprising server status reporting means for displaying information relating to status of the system.

35. The system of claim 25, further comprising user reporting means for generating reports on information received via the communication means relating to user usage, user profiles, scores and advertising.

36. A show scripting system for sync-to-broadcast shows, the system comprising:

communication means for establishing communication between the system and a communication network;

script generator means for receiving via the communication means information representative of on-line actions of users viewing an on-line show and a broadcast based on a medium and based on that information generating a script matching specific on-line actions with time codes from the medium;

asset integration means for adding text, artwork, sounds and music to the on-line show script;

editing means for modifying the scripts and assets; and

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uploading means for transmitting the script via the communication means.

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Fig. 1 **System Overview**

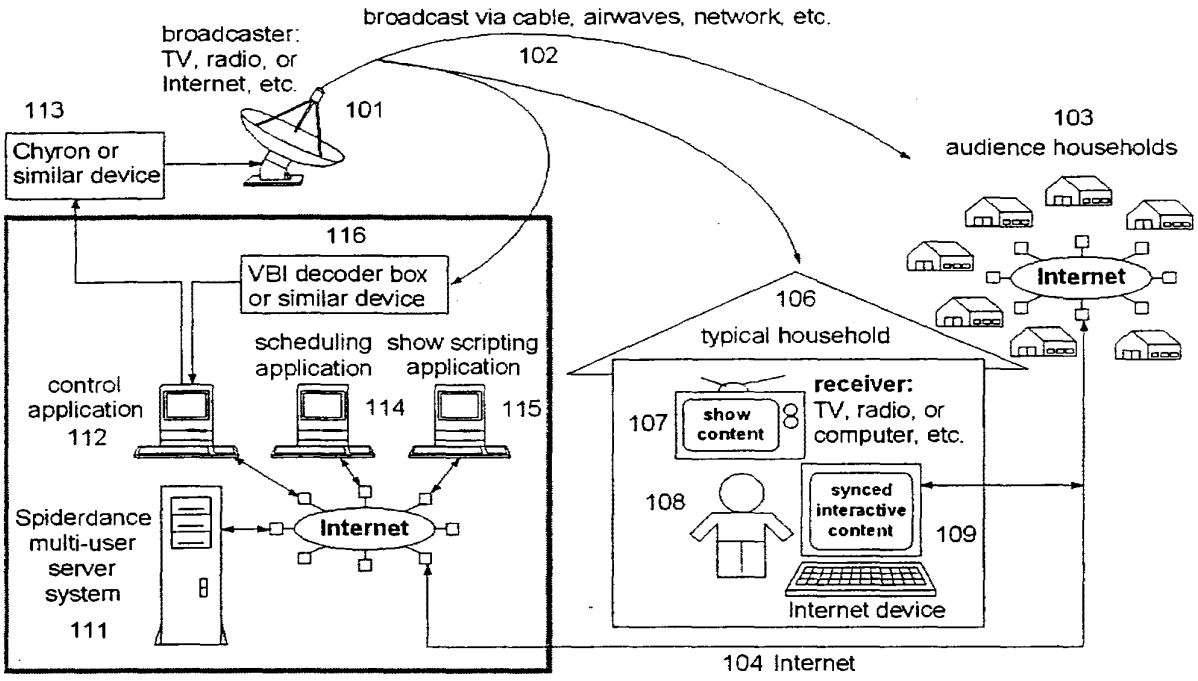


Fig. 2

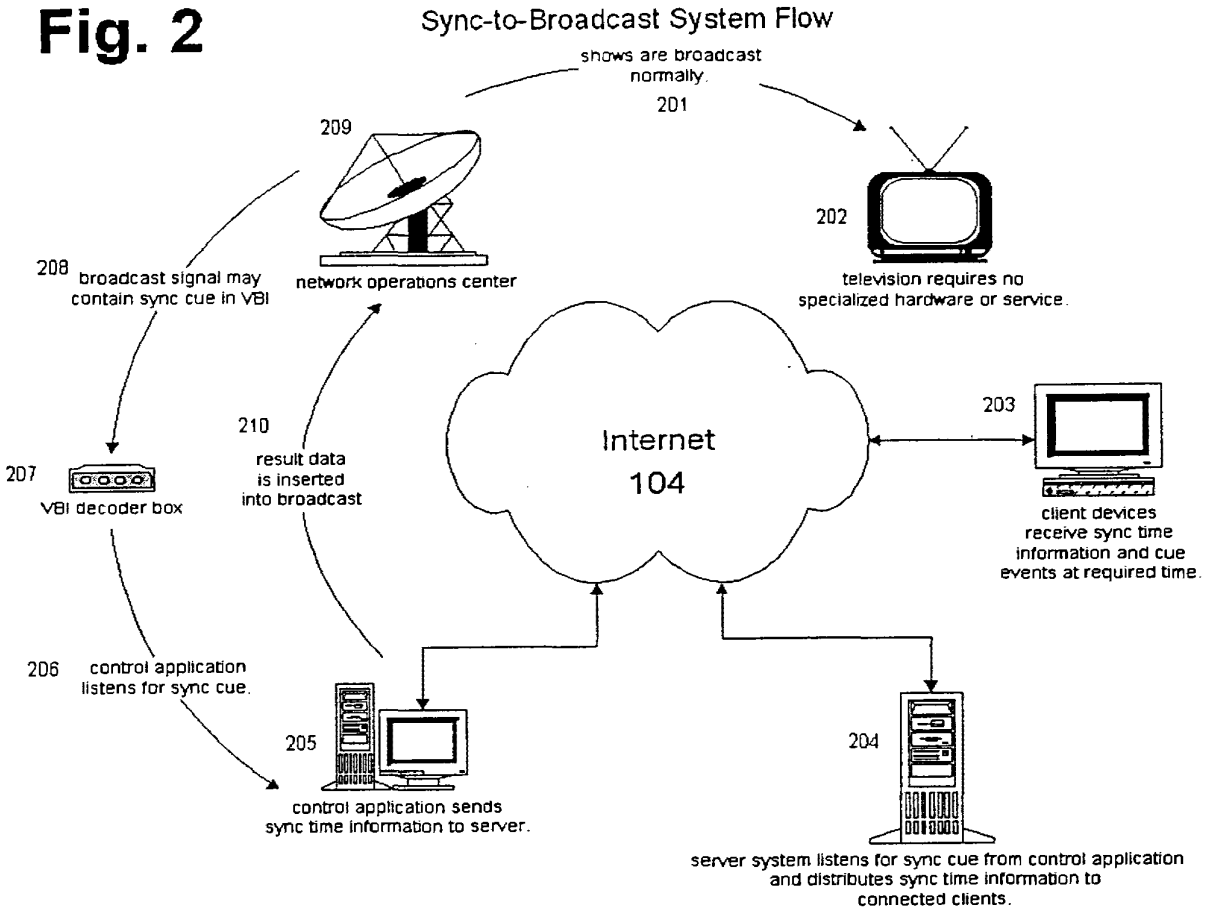

Sync-to-Broadcast System Flow
shows are broadcast normally.
201
209
network operations center
202
television requires no specialized hardware or service.
208
broadcast signal may contain sync cue in VBI
207
VBI decoder box
210
result data is inserted into broadcast
Internet
104
203
client devices receive sync time information and cue events at required time.
206
control application listens for sync cue.
205
control application sends sync time information to server.
204
server system listens for sync cue from control application and distributes sync time information to connected clients.

Fig. 3 Synced Devices

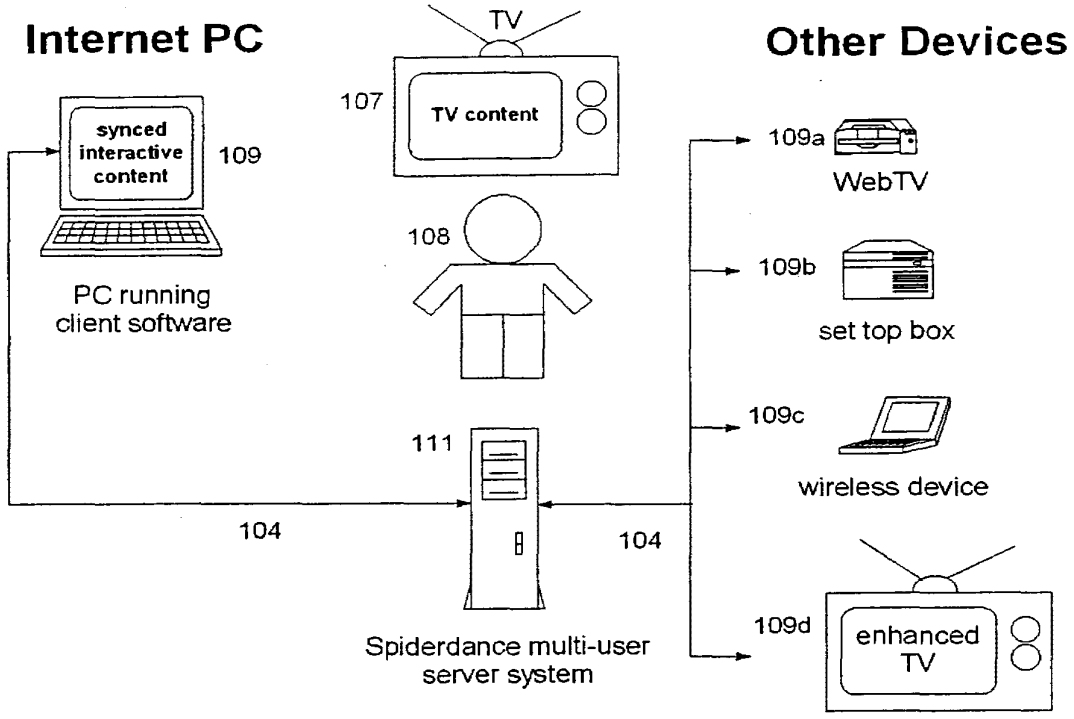


Fig. 4

Spiderdance Server Configuration

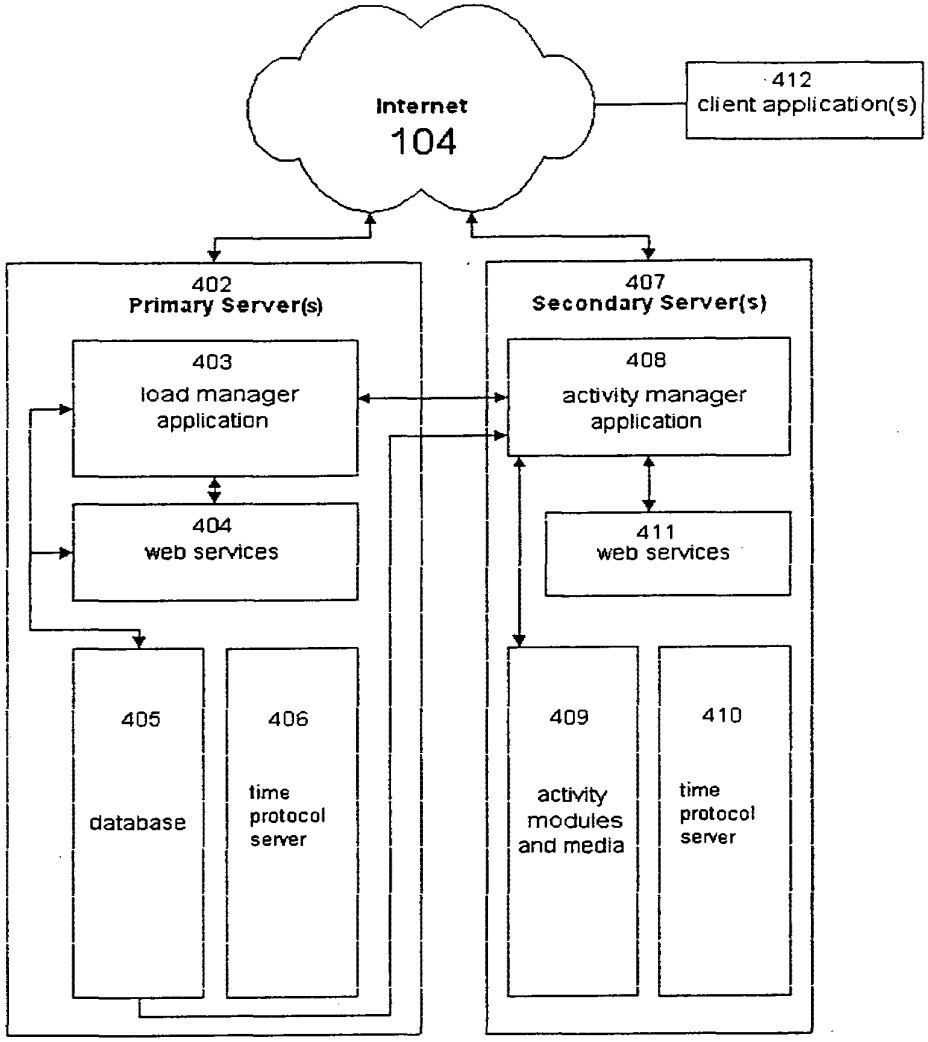
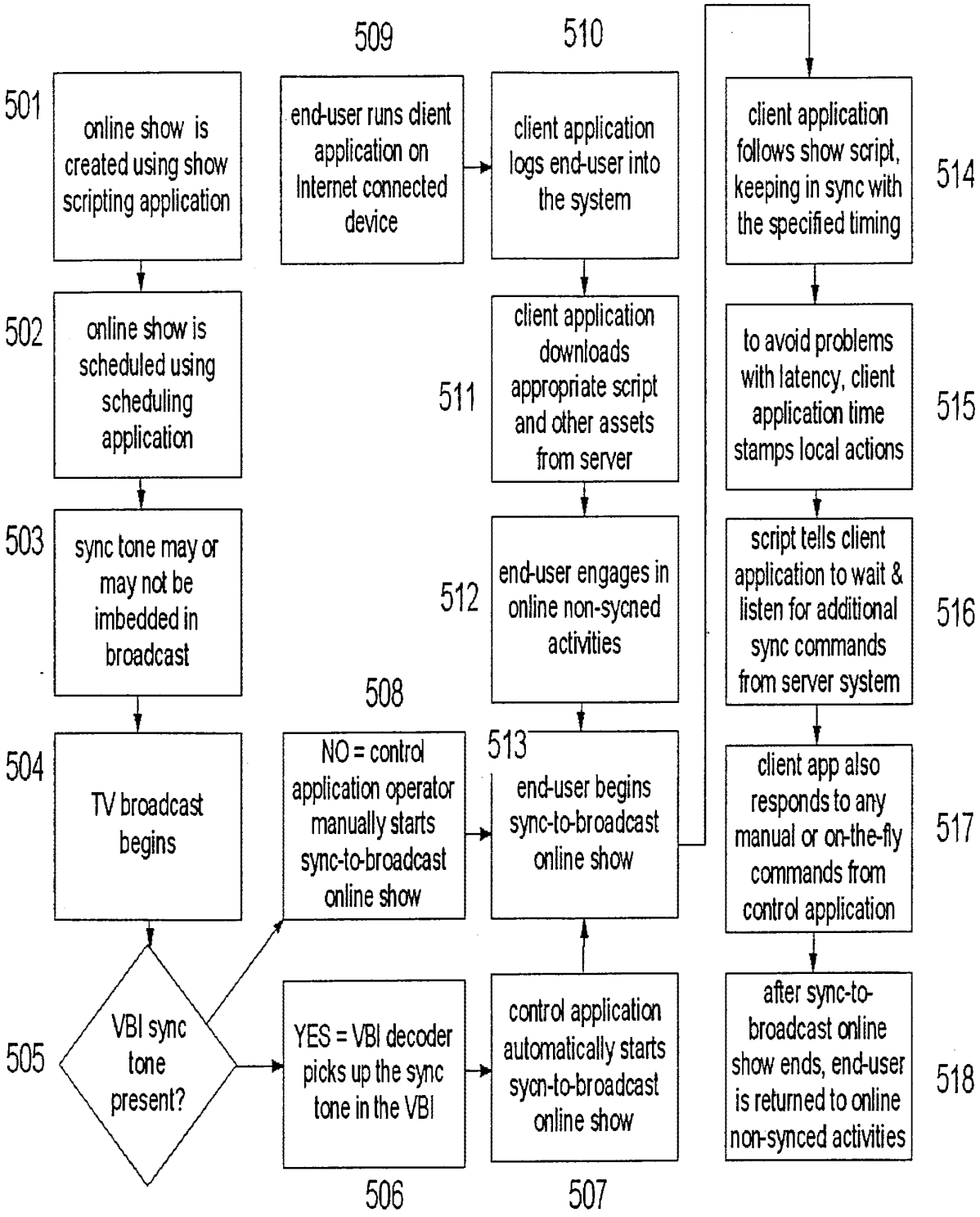


Fig. 5 Time-based Flow Chart



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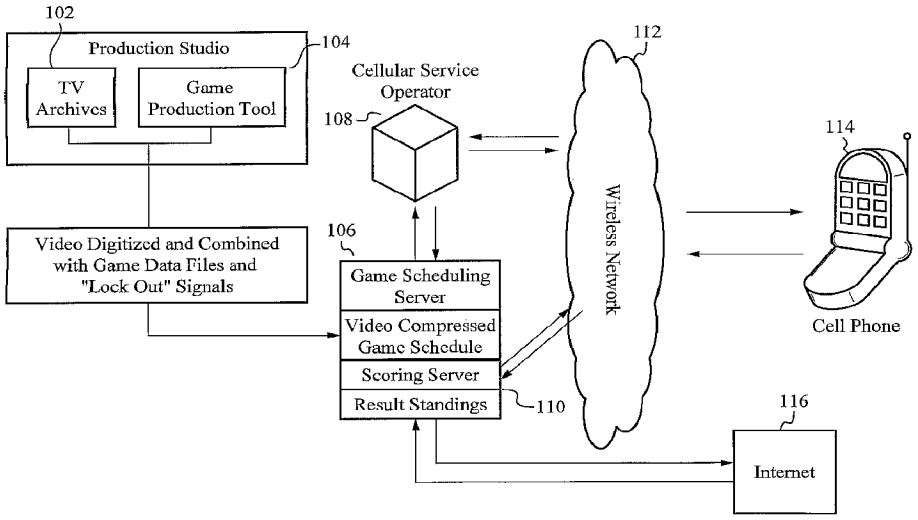
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(54) Title: CELLULAR PHONE GAMES BASED UPON TELEVISION ARCHIVES



(57) Abstract: Cellular phone games based on television archives allow users to play games on their cellular phones wherein the games are based on archived television programs. The game is able to be played simultaneously between competitors or on demand. Game data and video data are combined into one file and are sent to participating cellular phones so that the required information is received at the same time at each cellular phone. Each cellular phone contains software to manipulate the game and video data so that the user is able to play the game. The game is played by watching video clips from archived television programs and then selecting choices related to the video clips using the inputs on the user's cellular phone. User scores are determined based on the answers to the questions related to the video clips and results are distributed to the participants.

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CELLULAR PHONE GAMES BASED UPON TELEVISION ARCHIVES

Related Application(s):

This Patent Application claims priority under 35 U.S.C. §119(e) of the co-pending, co-owned United States Provisional Patent Application No. 60/723,301, filed October 3, 2005, and entitled "CELLULAR PHONE GAMES BASED UPON TELEVISION ARCHIVES" which is also hereby incorporated by reference in its entirety.

Field of the Invention:

The present invention relates to the field of distributed entertainment. More specifically, the present invention relates to the field of distributed entertainment utilizing a computing device where the entertainment corresponds to a previously broadcast archived television program.

Background of the Invention:

In the United States alone there are over 170 million registered cellular phones. With the expiration of the U.S. Patent No. 4,592,546 to Fascenda and Lockton, companies are able to now use the cellular phone and other mobile communication devices utilizing a multicast network to control television viewers in games of skill based upon predicting, for example, what the quarterback may call on the next play within a football game. In addition, games of skill with a common start time can be conducted simultaneously among cellular phone owners, based on classic card, dice, trivia, and other games. In order to avoid the anti-gaming laws in the various states, the winners must be determined by the relative skill, experience and practice of the player in each discrete game.

To date, the televised talent show American Idol® is the most notable marriage of the cellular phone and television viewers in the United States. During the live final events of this nationwide televised talent contest, AT&T® cellular phone subscribers were permitted to vote for their favorite contestant. Over 60 million chose to do so. The results of those votes determined the final winners. Other live television shows incorporate user interactivity via a cellular phone where the users are able to send a text message with their selection or dial a choice such as on the television program So You Think You Can Dance.

AirPlay Network, Inc. launched a nationwide service on September 7, 2006 enabling viewers of televised football games to compete with each other utilizing their cellular phone

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while watching the telecast. However, for viewers that are unable to play along with live events, live television programs or tape-delayed broadcasts or who want a comparable experience, any time and any place, there is a need for additional gaming possibilities.

Summary of the Invention:

Cellular phone games based on television archives allow users to play games on their cellular phones wherein the games relate to archived television programs. Game data and video data are combined into one file and are streamed, broadcast or multicast to participating cellular phones so that the required information is received at the same time at each cellular phone or alternatively, downloaded and launched at the same time. Each cellular phone contains software to manipulate the game and video data so that the user is able to play the game. The game is played by watching video clips from archived television programs and then selecting choices related to the video clips using the interface on the user's cellular phone. User scores are determined based on the answers to the questions or predictions related to the video clips.

In one aspect, a method of playing a game based on archived television programs, comprises receiving one or more video files and one or more game data files and operating a cellular based program to display video data and game data from the one or more video files and the one or more game data files. The files are downloaded to the cellular phone prior to the scheduled start time. The method further comprises receiving a game start signal and starting the game. The method further comprises playing the game by selecting one or more choices related to the video data. The one or more video files and the one or more game data files are received in a combined file. The video data and the game data are displayed simultaneously. A third method has all players receiving a multicast, broadcast or other form of one to many broadcasts in real time. The method further comprises collecting scores and reporting performance to participants to a cellular phone. The method further comprises prohibiting further input with a lockout signal. The one or more video files and the one or more game data files are compressed. The game data contains graphic information in addition to the video data. The graphic information is displayed as crawling information, as closed captioned information, as a picture in picture or as graphically overlayed. The one or more video files and the one or more game data files are received in advance of a scheduled start. The method further comprises transmitting the one or more video files and the one or more game data files on a single TCP, UDP, 3G, multicast or broadcast transmission. Examples are the Media Flo network being deployed by Qualcomm®, Verizon Wireless®

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and Sprint® or the utilization of a 3G cellular network in either TCP connection or multicast mode, or the broadcast of digital data in a digital radio or television transmission or in the subcarrier thereof. Transmitting is digital broadcasting, individual streaming or downloading. The game is played simultaneously live, on demand competitively or as on demand practice. A set of digital audio is received with the one or more video files and the one or more game data files. A user is able to identify remote competitors prior to the game to challenge and compete against in a challenge game. After all of the challenged competitors complete the challenge game, results are sent to the challenged competitors including rankings. In some aspects, the user utilizes the Internet to identify remote competitors to challenge and compete against. The one or more video files and the one or more game data files are simultaneously broadcast to all participants at a specific time. The one or more video files and the one or more game data files are pre-produced. The archived television programs include sporting events, game shows or entertainment shows. One or more segments of the archived television programs are included in the one or more video files. The one or more segments can be between five minutes and twenty minutes. The method further comprises digitizing analog video. The one or more video files and the one or more game data files are received over a wireless cellular network. The video data and the game data are synchronously displayed. A record of episodes played by the user is maintained on a server to ensure the user receives a never-before played game by the user.

In another aspect, a method of playing a game based on a segment of an archived television program, comprises transmitting a set of files from a server over a wireless cellular network, the set of files comprises one or more pre-produced video files, wherein the one or more pre-produced video files contain video data, one or more game data files, wherein the one or more game data files contain game data, further wherein the game data contains graphic information in addition to the video data and one or more audio files, receiving the set of files on a cellular phone, operating a cellular based program contained on the cellular phone to synchronously display the video data and the game data and playing the game by selecting one or more choices. The set of files is assembled into a combined file. The method further comprises collecting scores and reporting performance to participants from the cellular phone. The graphic information is displayed as crawling information, as closed captioned information, as a picture in picture or as a graphic overlay. The set of files contains compressed data. The set of files is received in advance of a scheduled start. Transmitting the set of files is on a single TCP, UDP, 3G, multicast or broadcast transmission. Transmitting is digital broadcasting, individual streaming or downloading. The game is

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played simultaneously live, on demand competitively or as on demand practice. A user is able to identify remote competitors prior to the game to challenge and compete against in a challenge game. After all of the challenged competitors complete the challenge game, results are sent to the challenged competitors including rankings. The set of files is simultaneously broadcast to all participants at a specific time. The archived television program includes sporting events, game shows or entertainment shows.

In yet another aspect, a system for producing and distributing a game based on archived television programs, comprises a game production device for grouping video data and game data into a set of files and a first server coupled to the game production device, wherein the server receives and transmits the set of files. The set of files is assembled into a combined file. The video data and the game data allow a user to play the game by selecting one or more choices related to the video data. The system further comprises a second server coupled to the first server for receiving scoring data, determining standings and communicating the standings to participants. In some embodiments, the first server and the second server are contained within a single server device. The system further comprises a cellular service operator coupled to the first server and a wireless network for transmitting the set of files from the server to the wireless network. The set of files contains compressed data. The set of files is transmitted on a single TCP, UDP, 3G, multicast or broadcast transmission. Transmitting is digital broadcasting, individual streaming or downloading. The game is played simultaneously live, on demand competitively or as on demand practice. A set of digital audio is grouped into the set of files. The set of files is simultaneously broadcast to all participants at a specific time. The video data and the game data are pre-produced. The archived television programs include sporting events, game shows or entertainment shows. One or more segments of the archived television programs are included in the video data. The one or more segments are between five minutes and twenty minutes.

In another aspect, a device for playing a game based on archived television programs, comprises a cellular phone, wherein the cellular phone receives a set of files, wherein the set of files contain video data and game data and utilizes a program and the set of files to present the video data and the game data to a user. The set of files is assembled into a combined file. The video data and the game data are displayed simultaneously. The game data contains graphic information in addition to the video data. The graphic information is displayed as crawling information, as closed captioned information, as a picture in picture or as a graphic overlay. The video data and the game data are synchronized. The game is transmitted to the cellular phone using digital broadcasting, individual streaming or downloading. The game is

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played simultaneously live, on demand competitively or as on demand practice. The user is able to identify remote competitors prior to the game to challenge and compete against in a challenge game. After all of the challenged competitors complete the challenge game, results are sent to the challenged competitors including rankings. Standings information is received from a server. The video data and the game data are pre-produced. The archived television programs include sporting events, game shows or entertainment shows. One or more segments of the archived television programs are included in the video data.

In yet another aspect, a network of devices for playing a game based on archived television programs, comprises a game production device for combining video data with game data into a combined file a first server coupled to the game production device, wherein the server receives and transmits the combined file and a plurality of devices coupled to the first server through a wireless network, wherein the plurality of devices receive the combined file and utilize a program and the combined file to present the video data and the game data to a user. The video data and the game data allow the user to play the game by selecting one or more choices related to the video data. The plurality of devices are selected from the group consisting of cellular phones, personal computers, laptops and PDAs. The combined file is received substantially simultaneously at each of the devices. The network of devices further comprises a second server coupled to the wireless network for receiving scoring data and determining standings. In some embodiments, the first server and the second server are contained within a single server device. Standings information and results are transmitted to participants. The network of devices further comprises a cellular service operator coupled to the first server and the wireless network for transmitting the combined file to the wireless network. The video data and the game data are displayed simultaneously. The combined file contains compressed data. The game data contains graphic information in addition to the video data. The graphic information is displayed as crawling information, as closed captioned information, as a picture in picture or as a graphic overlay. The combined file is transmitted on a single TCP, UDP, 3G, multicast or broadcast transmission. Transmitting is digital broadcasting, individual streaming or downloading. The game is played simultaneously live, on demand competitively or as on demand practice. A set of digital audio is combined into the combined file. The user is able to identify remote competitors prior to the game to challenge and compete against in a challenge game. The competitors are able to play the game when convenient. After all of the challenged competitors complete the challenge game, results are sent to the challenged competitors including rankings. The combined file is simultaneously broadcast to all participants at a specific time. The video

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data and the video data are pre-produced. The archived television programs include sporting events, game shows or entertainment shows. One or more segments of the archived television programs are included in the video data. The one or more segments are between five minutes and twenty minutes. The video and the game data are synchronized. The network of devices further comprises an Internet for registering a group of competitors.

Brief Description of the Drawings:

FIG. 1 illustrates a graphical representation of the preferred embodiment of the present invention.

FIG. 2 illustrates a method of utilizing the present invention.

FIG. 3 illustrates a network of devices of the present invention.

Detailed Description of the Preferred Embodiment:

The present invention includes systems and methodologies for generating, producing, distributing, and playing games on cellular phones and other mobile devices based on archived video of previously broadcast television programming. The game play is similar to games of skill based on live television broadcasts described in prior patents by some of the current inventors. The U.S. Patent No. 4,592,546 to Lockton (expired in April 2004), herein incorporated by reference, teaches a methodology for conducting games of skill utilizing two separate mass media in connection with live and taped television broadcasts. U.S. Patent No. 5,083,800 to Lockton, herein incorporated by reference, similarly applies a separate mass media to control computer and video games played simultaneously. Prior art developed at Interactive Network, in operation from 1989 until 1995 taught a methodology for producing large scale simultaneously played games of skill in conjunction with the broadcast of prerecorded game shows such as Wheel of Fortune® and Jeopardy!®.

For Jeopardy!®, for example, the preproduction of three additional wrong answers were created with the cooperation of the producers of the television shows in advance of the airing of the telecast. These game data files were precisely time synchronized with the video tape of the game show provided in advance and stored on a broadcast server. A means of mass communication (data broadcasting) separate from the television broadcast, for example, a network of FM stations utilizing the SCA sub carrier, or the vertical blanking interval (VBI)

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of the television signal, were leased from broadcasters on a market by market basis. The separate mass media multicast the digital data files to a wireless data receiver in the participant's possession. Through the visual observation of the "live" telecast of the syndicated television show in each market, the game show pre-produced synchronized data files, usually a half hour in duration, were manually synchronized at the beginning of the telecast. The synchronization was monitored throughout the telecast, as the telecast paused for the insertion of local and national commercials and then resumed. These pre-produced data files contained "lock out" signals prohibiting answers past the revelation of the correct answers, which were utilized by game software residing in the wireless data receiver. The software created an individual performance file, generally based on total point scores for each participant receiving the data files simultaneously within their television market, precisely synchronized with a separately broadcast television signal.

In addition to television based games, Interactive Network utilized a methodology for conducting games of skill based upon classic card, dice, word, and trivia games. The production of these games involved the creation of a digital file for the game, including questions and then the correct answers to be revealed to the competitor after a "lock out" prohibited further response for a trivia game, for example. The entire files containing both questions and answers were broadcast prior to the start of the game to all subscribers who indicated their intention to participate. After the countdown to a prescheduled start time, all of the competitors games were launched with a one-way signal broadcast to the participants, and the files "played" for a duration of 10- to 15-minutes until their conclusion.

The current state-of-the-art in cellular phone based entertainment includes downloadable games covering virtually every genre of game that can currently be enjoyed on the computer and video game platforms. In addition, new broadband transmission technology generally referred to in cellular telephony as "third generation" or 3G, has enabled viewing of video clips on the cellular phone either by streaming the digital video files using the Internet, or downloading compressed files and then "playing" them on the cellular phone's LCD color display. Companies like Verizon Wireless® and Qualcomm® are utilizing these technologies in connection with content owners to download television clips of news broadcasts, highlights of sporting events, and other television entertainment on an on demand basis to cellular subscribers. Qualcomm® recently announced its Media Flo project which

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has the capability of broadcasting live televised events or clips from these events, such as NFL® Football, for display and viewing on a cellular telephone color LCD display.

The present invention includes systems and methodologies for providing games of skill and chance, playable either on demand or simultaneously by cellular subscribers, whereby the underlying event upon which the game play is based is archival video footage such as football, baseball, basketball, or other sporting events or game shows (Wheel of Fortune® or Jeopardy!®), or other television entertainment which has already been broadcast.

The present invention utilizes the following methods in the production, game play, and display.

Game Production

All television programmers maintain video taped archives of every program they have produced and aired dating back to at least 1960. Segments of suitable length of once televised sporting events or game shows, generally between 5- and 10-minutes, are selected by the producers of such a game service. For example, in the case of football-based cellular phone games, a scoring drive from a 1980 Super Bowl Game between the Pittsburgh Steelers and Los Angeles Rams of a 10-minute duration is selected. In the case of a game show, a 7-minute "round" from a Jeopardy!® telecast aired in the past is selected. The duration of each selection may vary as desired.

The analog video files are digitized utilizing a variety of standard methodologies in an appropriate format for broadcast utilizing a wireless cellular or broadcast network. Game producers generate data files to support a competitive game of skill or chance which is precisely synchronized with the digitized video files, using a game production tool. In the case of football, these data files, as taught in the Interactive Network prior art and the Lockton patents, contain "lockout" signals prohibiting further input, a determination of whether each play was a short or long pass, a run to the right, or left based on observation of the video file of the game. Point values are assessed for correct or incorrect answers, and the game play is played similarly to that described as in the aforementioned prior art. In the case of a Jeopardy!® game show, three wrong answers are created and the four multiple choices including the correct answer for each Jeopardy!® question selected are produced.

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In the production process, the game data file is time synchronized precisely with the video file, utilizing the game production tool.

When playing, the user selects answers 1, 2, 3, or 4 on his cellular phone to answer the question before a time stamped "lockout" signal contained in the game file, precluding further input. When the correct answer is selected by the television contestant, then the point values for the correct answer are incremented or decremented by software in the game file, depending on whether the competitor is right or wrong with their selection.

The digitized video files, and the separately produced overlying game play file are then either combined for streaming or broadcast into a single data file, maintained as two data files, or an alternate methodology is utilized to ensure that both files are broadcast simultaneously on a single TCP, UDP, 3G, multicast, broadcast or other transmission, utilizing current data compression capabilities. Any appropriate transmission methodology is utilized, including WiFi. The game data files contain graphic information separate from the video of the game telecast, such as the selection options, for example "run," "pass," for a game based on a football telecast. Separate digital sound tracks, one from the television programming, and one related to the game programming are also able to be combined for a single transmission. In other words, data is able to be either A) downloaded in advance or B) streamed or C) broadcast. The different types of data: 1) digitized video and audio, 2) graphic game play data, 3) audio enhancements, are able to be either combined with each other or sent separately. Therefore, users are able to play simultaneously wherein the video, audio and game play data are received by streaming, broadcasting or downloaded using a simultaneous start time. Users are also able to play on demand wherein the video, audio and game play data are received when requested by streaming, broadcasting or downloaded. Users are also able to practice with on demand games where they are not competing against other players. Regardless of how these discreet pieces of information are delivered to the phone, software resident on the phone ensures that the game play data and audio are synchronized with the video archive.

Game Play

Under this methodology, a user on an ad hoc basis, or as a subscriber to a service or charging the required fee to their cellular telephone bill, indicates their desire to

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participate in a contest based upon the old television program. The contests have a specific start time, displayed on the cellular phone, such as, for example, "1980 Super Bowl game, 3:15 pm," or in an alternative embodiment, the menu on the cellular phone describes a game played at any time by the cellular phone owner by selecting it from a menu on the cellular phone. Upon selecting this game from the menu, the underlying video and data files are streamed or downloaded to the cellular phone, and the video of the underlying telecast sporting event, game show, or other entertainment program, is displayed on the cellular phone utilizing software permanently or temporarily resident on a cellular phone client designed to display full motion video. A record of what episodes of what games have been played for an individual subscriber is maintained on the service's server to ensure a subscriber always receives a game they have not played before.

On Demand Games Against Friends

For games not played simultaneously in real time, a subscriber playing an on demand game has the ability, utilizing the cellular phone display, to add the telephone number, subscriber pseudo-name, or other identification of friends who are also subscribers with whom he wishes to match his score in the game about to be played. In an alternate method, a user is able to use a web site to select whom he is going to compete against. This information is registered on a central game management/scheduling server, and the subscribers selected are immediately notified when they access the game provider's main menu or at some other time. When, for example, a football game is played by the subscriber wishing to compare his score with friends, this specific game is identified on the server so that when and if those friends who are challenged and notified, selected a football game for play, the identical game previously played and identified is streamed or downloaded to their new competitors. At the conclusion of the game of the last player challenged, the scores of all the cohort players are transmitted to all the competitor's cellular phones, so that they can determine the relative ranking of their scores.

Additional Kinds of Content

In addition to games played with televised sports and game show footage utilizing the methods described, cellular phone games are able to be based upon a unique repurposing of

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existing archival television footage from a variety of television genres. For example, a game based on a sitcom, such as the discontinued Seinfeld show, is able to utilize short clips of a scene, and then ask viewers to answer questions related to the predicted resolution of the issue, problem, or situation seen in the short clip. People also are able to be shown historic, memorable sports plays, for example, football passes, runs, catches, or highlighted events from a variety of sports telecasts, and then asked to identify the participants, the year the clip was from, and the outcome. Any type of question/answer related to an archived program is possible and is not limited to those described above. In each scenario, however, the video footage and the overlying game aspect is pre-produced, combined and transmitted for display and game play.

Game Display

The data files which manage the game play, received simultaneously, also utilize software resident on the client for managing the display on the phone's LCD. This game software is able to be a separate "gaming client" or an "all in one" application which addresses the video and game elements. The game data graphics are also able to be presented to the player by overlaying the text and symbols over the television footage, or in the alternative, utilize a separate portion of the cellular phone's display for this information, at the option of the producers. An example of this latter approach is the crawling information displayed at the bottom of a television screen containing stock ticker information or the way closed captioning information is displayed on television screens. In the alternative, a picture in picture (PIP) approach is also able to be used to separately display game play information from the underlying television footage. In another alternative, the game play information is simply superimposed on top of the video.

Under this invention, the subscriber would play along with the 5- to 15-minute television segment of the game until its conclusion, and would be informed at the end, based upon software resident in the phone, what their total points earned are. In some embodiments, the segments are longer or shorter. By transmitting this game performance information to a central server for compilation, the competition would receive information on how their score relates to the scores achieved by other players of the game. Under the "on demand" game play format, users are able to selectively play against friends, and prizes

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would generally not be awarded, since the person could play the game as many times as they desire, or obtain the answers from someone who had played.

Games Based on Simultaneous Broadcast

In an alternative embodiment, the combined video and game data files produced by the same methodology described above is able to be simultaneously broadcast to all participants at a specific time, such as every 15-minutes, to all of the players who have registered their intention to play a specific game. In this format, these files would be individually streamed, or in the alternative, digitally broadcast, precisely at the same time to all participants. Another approach is to download the data through streaming, broadcast or other downloading technique in advance. Under this approach, the application ensures that the video and game play started at the appropriate time. This is able to be done by signaling a "start" signal to all players.

While game play unfolds in a manner similar to that described in U.S. Patent No. 4,592,546, a significant difference in this invention and the prior art, is that all of the information utilized for the game is pre-produced and combined in a single data file, and received simultaneously by all participating cellular phones broadcast, to be separated and displayed for simultaneous viewing on a cellular phone by the methods described above. While the games unfold to the participant in virtually the same manner as a game based upon a live telecast of a sporting event or game show, the cellular phone is not utilized as a receiving device for a second mass media communications synchronized with the underlying telecast, but rather is receiving the single data file which contains both the video of the telecast and the game data information. The video and game data is then separated by application software resident on the cellular phone for simultaneous display on a single color LCD display.

Since all players receive the same game data at the same time, cheating among players, possible with on demand games, is not possible, and prizes can be awarded.

Benefits

While there is a large potential demand for games of skill for prizes based upon the live telecast of sporting events and syndicated game shows, participation in these games is

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generally limited to prime time or near prime time viewing on week days, and sporting events on the weekends. The explosion in the popularity of cellular games of short duration indicates that the owners of cellular telephones often find 5-10 minutes during the day to participate in stimulating entertainment work breaks, while commuting to and from work, sometimes even when they are working, amongst other times. The methodologies described herein provide a new and unique form of entertainment. While based on popular television programming, the games are able to be enjoyed either on demand or several times an hour with scheduled start times, since they are generated from television archives. The games are ever changing and are based on programming with a proven huge fan audience. This invention provides the highest quality production value at a fraction of the cost of existing video, computer and cellular games. Other games require the skills of graphic artists and designers, and extensive programming to create full motion 3D graphics in attempt to make games like EA Sports® John Madden Football, or Sony's Jeopardy!® games as close to the actual telecast as possible. This invention repurposes the actual television footage with the production values and excitement of the original broadcasts of these events at a fraction of the cost.

Games with a common start time are able to be played competitively for prizes. While all of these telecasts may have been viewed in the past by a potential competitor, it is highly unlikely that anyone is able to specifically remember the details of a single event seen 5 to 10 years ago. Even so, it is highly likely that these games will be considered games of skill, in that the ability to remember the answers to trivia questions and other tests of recall and memory have been defined as legal games of skill. Thus, these games based on old television footage are able to be played for prizes where laws permit.

Figure 1 illustrates a graphical representation of the preferred embodiment of the present invention. Initially, a game is produced at a production studio or another location that is capable of producing the game. As described above, a set of television archives 102 are stored from many years ago. For television archives stored in analog format, they are converted into digital format using a known conversion method. A game production tool 104 is utilized to generate one or more game data files to support the competitive game of skill or chance which is precisely synchronized with the digitized video files. In some embodiments, audio is also included with the video and game data files. The game production tool 104

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sends the digitized video and game data files to a game scheduling server 106.

The game scheduling server 106 determines a schedule for games to be played in addition to distributing the video and game data files. The game scheduling server 106 communicates with a cellular service operator 108 such as Sprint®, Verizon Wireless® or Cingular® to receive and transmit data through a wireless network 112. The underlying video and game data files are streamed or downloaded to a user's cellular phone 114. As users play the games, their results and scores are calculated and determined with a scoring server 110. In some embodiments, the game scheduling server 106 and the scoring server 110 are contained within the same physical server unit, and in other embodiments, the game scheduling server 106 and the scoring server 110 are separate and communicate with each other. Users are able to view their standings by communicating with the scoring server 110 also.

In some embodiments, users are able to sign up over the Internet 116 for the gaming service. Users are also able to register groups of competitors to compete against. For example, a user is able to log onto a website through the Internet 116 and select usernames of friends to compete against in an on demand game.

Figure 2 illustrates a method of utilizing the present invention. In the step 200, video, audio and game files are transmitted to a user's cellular phone. In some embodiments, the files are transmitted separately, and in other embodiments, the video, audio and game data are all combined in one file and are transmitted together. In some embodiments, audio data is not transmitted, for example, because a user chooses to play the game without sound. In the step 202, a user's cellular phone receives the video, audio and game files either combined or separately depending on how they were transmitted. In the step 204, the cellular phone operates cellular phone-based software to simultaneously display video and game data. When appropriate, in the step 206, the cellular phone receives a game start signal and starts the game. Sometimes the start signal is received based on a designated starting time that the user signed up for, such as, 1980 Super Bowl at 4:00pm. A user is also able to select a game to play from a menu and initiate a game immediately. A user is also able to be a member of an on-demand group where someone else included him in the group and is informed that the group competition has begun and a start signal is sent immediately or when the user is ready. As described above, once the user receives the start signal, the user plays the game on his

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cellular phone by viewing video clips and game data which includes questions and answers and then selects choices related to the questions about the clip, in the step 208. In the step 210, during game play, when appropriate, a lockout signal prevents further input by the user, so that cheating is not allowed. In the step 212, the cellular phone reports performance data to the scoring server and receives standings information back, so that users are able to see how well they did compared to other competitors.

Figure 3 illustrates a network of devices of the present invention. A network of devices 300 includes a game production tool 102, television archives 104, a game scheduling server 106, a cellular service operator 108, a scoring server 110, a wireless network 112 and a plurality of devices 302. In some embodiments, other devices in addition to cellular phones 114 are able to couple to the wireless network and play along, such as personal computers 116, laptop computers 118 and PDAs 120. The game production tool 102 is utilized to generate a game comprising one or more game files, and combine the game files with one or more video files from the television archives after the television archive segment has been digitized. In some embodiments, the game files and the video files are compressed. In some embodiments, digital audio is also combined with the game files and video files. The game files, video files and in some embodiments audio files are stored, in one combined file, on the game scheduling server 106. The game scheduling server 106 also supplies the plurality of devices 302 with a schedule of games through the cellular service operator 108 and the wireless network 112. The scoring server 110 couples to the plurality of devices 302 through the wireless network 112 to receive scoring results and determine/provide standings. In some embodiments, the Internet 116 is utilized to allow users to register or to select a group of competitors for an on demand game. The plurality of devices 302 are utilized by users to receive the requisite game and video data. Each device within the plurality of devices 302 contains software to utilize the game and video data to provide a gaming experience with the archived television program. Through the game scheduling server 106 and the scoring server 110, the plurality of devices 302 are able to be used in competitions where users play the same game at a designated time and based on the correctness of their answers or based on other game conditions, users receive points and those users with the highest point totals are able to win prizes or at least claim to be the most knowledgeable with regards to a certain archived television program.

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In an embodiment where a user wants to play a game on demand, the cellular phone 114 communicates with the game scheduling server 106 and other cellular phones within the plurality of devices 302 to inform them of the beginning of a game. For example, a user wants to challenge his friends to a competition related to the television show, The Emmys. The user enters information usable to detect/identify the other users in the group such as their cellular phone number, username or another identifier. The game scheduling server 106 then contacts the other users and provides them with the necessary game files and video files. Only the users included in the group are able to participate in the game and thus only their scores will be compared to allow a group of friends to determine who is the most knowledgeable about The Emmys or some other archived television program.

There are two perspectives of utilizing the present invention. Game producers use a game production tool to develop a game and combine it with digitized television video clips. The combined game and video data is then sent to a game scheduling server where it is able to be transmitted to users' cellular phones. Cellular phone users receive the game and video data after selecting a game to play and when the appropriate time arrives. At that time, the users each play the game, using software on their cellular phones which incorporates the video clips and game data. The video clips are displayed on the users' cellular phones, and they then select choices based on the clips viewed. As the game progresses or after the game is completed, the results of the selections are transmitted to/from the scoring server and then a user is able to see how well they performed. In some embodiments, instead of users playing a game at a set time, users are able to play on-demand wherein a selected group of people play together as described above.

In operation, the present invention allows users to play games on their cellular phones wherein the games are based on archived television programs. Game data and video data are combined into one file and are sent to participating cellular phones so that the required information is received at the same time at each cellular phone. Each cellular phone contains software to manipulate the game and video data so that the user is able to play the game. The game is played by watching video clips and then answering questions / selecting choices related to the video clips using the buttons on the user's cellular phone. User scores are determined based on the answers to the questions. In some embodiments, users are able to win prizes by performing better than others in the games.

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Although a cellular phone has been used throughout the present specification as the main exemplary game playing device, it should be understood that any computing device is able to be used within the described method and system.

The present invention has been described in terms of specific embodiments incorporating details to facilitate the understanding of principles of construction and operation of the invention. Such reference herein to specific embodiments and details thereof is not intended to limit the scope of the claims appended hereto. It will be readily apparent to one skilled in the art that other various modifications may be made in the embodiment chosen for illustration without departing from the spirit and scope of the invention as defined by the claims.

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PATENT
AIRP-00801WO

CLAIMS

What is claimed is:

1. A method of playing a game based on archived television programs, comprising:
   a. receiving one or more video files and one or more game data files; and
   b. operating a cellular based program to display video data and game data from the one or more video files and the one or more game data files.

2. The method as claimed in claim 1 further comprising receiving a game start signal and starting the game.

3. The method as claimed in claim 1 further comprising playing the game by selecting one or more choices related to the video data.

4. The method as claimed in claim 1 wherein the one or more video files and the one or more game data files are received in a combined file.

5. The method as claimed in claim 1 wherein the video data and the game data are displayed simultaneously.

6. The method as claimed in claim 1 further comprising collecting scores and reporting performance to participants to a cellular phone.

7. The method as claimed in claim 1 further comprising prohibiting further input with a lockout signal.

8. The method as claimed in claim 1 wherein the one or more video files and the one or more game data files are compressed.

9. The method as claimed in claim 1 wherein the game data contains graphic information in addition to the video data.

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10. The method as claimed in claim 9 wherein the graphic information is displayed as a selected one of crawling information, closed captioned information, a picture in picture and a graphical overlay.

11. The method as claimed in claim 1 wherein the one or more video files and the one or more game data files are received in advance of a scheduled start.

12. The method as claimed in claim 1 further comprising transmitting the one or more video files and the one or more game data files on a transmission selected from the group consisting of a single TCP, UDP, 3G, multicast and broadcast transmission.

13. The method as claimed in claim 12 wherein transmitting is selected from the group consisting of digital broadcasting, individual streaming and downloading.

14. The method as claimed in claim 13 wherein the game is played as a selected one of simultaneously live, on demand and practice.

15. The method as claimed in claim 1 wherein a set of digital audio is received with the one or more video files and the one or more game data files.

16. The method as claimed in claim 1 wherein a user identifies remote competitors to challenge and compete against in a challenge game.

17. The method as claimed in claim 16 wherein after all of the challenged competitors complete the challenge game, results are sent to the challenged competitors including rankings.

18. The method as claimed in claim 16 wherein the user utilizes the Internet to identify remote competitors to challenge and compete against.

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19. The method as claimed in claim 1 wherein the one or more video files and the one or more game data files are simultaneously broadcast to all participants at a specific time.

20. The method as claimed in claim 1 wherein the one or more video files and the one or more game data files are pre-produced.

21. The method as claimed in claim 1 wherein the archived television programs are selected from the group consisting of sporting events, game shows and entertainment shows.

22. The method as claimed in claim 1 wherein one or more segments of the archived television programs are included in the one or more video files.

23. The method as claimed in claim 22 wherein the one or more segments are between five minutes and twenty minutes.

24. The method as claimed in claim 1 further comprising digitizing analog video.

25. The method as claimed in claim 1 wherein the one or more video files and the one or more game data files are received over a wireless cellular network.

26. The method as claimed in claim 1 wherein the video data and the game data are synchronously displayed.

27. The method as claimed in claim 1 wherein a record of episodes played by the user is maintained on a server to ensure the user receives a never-before played game by the user.

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PATENT
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28. A method of playing a game based on a segment of an archived television program, comprising:
    a. transmitting a set of files from a server over a wireless cellular network, the set of files comprising:
        i. one or more pre-produced video files, wherein the one or more pre-produced video files contain video data;
        ii. one or more game data files, wherein the one or more game data files contain game data, further wherein the game data contains graphic information in addition to the video data; and
        iii. one or more audio files;
    b. receiving the set of files on a cellular phone;
    c. operating a cellular based program contained on the cellular phone to synchronously display the video data and the game data; and
    d. playing the game by selecting one or more choices.

29. The method as claimed in claim 28 wherein the set of files is assembled into a combined file.

30. The method as claimed in claim 28 further comprising collecting scores and reporting performance to participants to the cellular phone.

31. The method as claimed in claim 30 wherein the graphic information is displayed as a selected one of crawling information, closed captioned information, a picture in picture and a graphic overlay.

32. The method as claimed in claim 28 wherein the set of files contains compressed data.

33. The method as claimed in claim 28 wherein the set of files is received in advance of scheduled start.

34. The method as claimed in claim 28 wherein transmitting the set of files is on a

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transmission selected from the group consisting of a single TCP, UDP, 3G, multicast and broadcast transmission.

35. The method as claimed in claim 34 wherein transmitting is selected from the group consisting of digital broadcasting, individual streaming and downloading.

36. The method as claimed in claim 35 wherein the game is played as a selected one of simultaneously live, on demand and practice.

37. The method as claimed in claim 28 wherein a user identifies remote competitors to challenge and compete against in a challenge game.

38. The method as claimed in claim 37 wherein after all of the challenged competitors complete the challenge game, results are sent to the challenged competitors including rankings.

39. The method as claimed in claim 28 wherein the set of files is simultaneously broadcast to all participants at a specific time.

40. The method as claimed in claim 28 wherein the archived television program is selected from the group consisting of sporting events, game shows and entertainment shows.

41. A system for producing and distributing a game based on archived television programs, comprising:

a. a game production device for grouping video data and game data into a set of files; and

b. a first server coupled to the game production device, wherein the server receives and transmits the set of files.

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42. The system as claimed in claim 41 wherein the set of files is assembled into a combined file.

43. The system as claimed in claim 41 wherein the video data and the game data allow a user to play the game by selecting one or more choices related to the video data.

44. The system as claimed in claim 41 further comprising a second server coupled to the first server for receiving scoring data, determining standings and communicating the standings to participants.

45. The system as claimed in claim 44 wherein the first server and the second server are contained within a single server device.

46. The system as claimed in claim 41 further comprising a cellular service operator coupled to the first server and a wireless network for transmitting the set of files to the wireless network.

47. The system as claimed in claim 41 wherein the set of files contains compressed data.

48. The system as claimed in claim 41 wherein the set of files is transmitted on a transmission selected from the group consisting of a single TCP, UDP, 3G, multicast and broadcast transmission.

49. The system as claimed in claim 48 wherein transmitting the set of files is selected from the group consisting of digital broadcasting, individual streaming and downloading.

50. The system as claimed in claim 49 wherein the game is played as a selected one of simultaneously live, on demand and practice.

51. The system as claimed in claim 41 wherein a set of digital audio is grouped into the

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set of files.

52. The system as claimed in claim 41 wherein the set of files is simultaneously broadcast to all participants at a specific time.

53. The system as claimed in claim 41 wherein the video data and the game data are pre-produced.

54. The system as claimed in claim 41 wherein the archived television programs are selected from the group consisting of sporting events, game shows and entertainment shows.

55. The system as claimed in claim 41 wherein one or more segments of the archived television programs are included in the video data.

56. The system as claimed in claim 55 wherein the one or more segments are between five minutes and twenty minutes.

57. A device for playing a game based on archived television programs, comprising a cellular phone, wherein the cellular phone receives a set of files, wherein the set of files contain video data and game data and utilizes a program and the set of files to present the video data and the game data to a user.

58. The device as claimed in claim 57 wherein the set of files is assembled into a combined file.

59. The device as claimed in claim 57 wherein the video data and the game data are displayed simultaneously.

60. The device as claimed in claim 57 wherein the game data contains graphic information in addition to the video data.

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61. The device as claimed in claim 60 wherein the graphic information is displayed as a selected one of crawling information, closed captioned information, a picture in picture and a graphic overlay.

62. The device as claimed in claim 57 wherein the video data and the game data are synchronized.

63. The device as claimed in claim 57 wherein the game is transmitted to the cellular phone using a selected one of digital broadcasting, individual streaming and downloading.

64. The device as claimed in claim 57 wherein the game is played as a selected one of simultaneously live, on demand and practice.

65. The device as claimed in claim 57 wherein the user identifies remote competitors to challenge and compete against in a challenge game.

66. The device as claimed in claim 65 wherein after all of the challenged competitors complete the challenge game, results are sent to the challenged competitors including rankings.

67. The device as claimed in claim 57 wherein standings information is received from a server.

68. The device as claimed in claim 57 wherein the video data and the game data are pre-produced.

69. The device as claimed in claim 57 wherein the archived television programs are selected from the group consisting of sporting events, game shows and entertainment shows.

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70. The device as claimed in claim 57 wherein one or more segments of the archived television programs are included in the video data.

71. A network of devices for playing a game based on archived television programs, comprising:

a. a game production device for combining video data with game data into a combined file;

b. a first server coupled to the game production device, wherein the server receives and transmits the combined file; and

c. a plurality of devices communicating with the first server through a wireless network, wherein the plurality of devices receive the combined file and utilize a program and the combined file to present the video data and the game data to a user.

72. The network of devices as claimed in claim 71 wherein the video data and the game data allow the user to play the game by selecting one or more choices related to the video data.

73. The network of devices as claimed in claim 71 wherein the plurality of devices are selected from the group consisting of cellular phones, personal computers, laptops and PDAs.

74. The network of devices as claimed in claim 71 wherein the combined file is received substantially simultaneously at each of the devices.

75. The network of devices as claimed in claim 71 further comprising a second server coupled to the wireless network for receiving scoring data and determining standings.

76. The network of devices as claimed in claim 75 wherein the first server and the second server are contained within a single server device.

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77. The network of devices as claimed in claim 71 wherein standings information and results are transmitted to participants.

78. The network of devices as claimed in claim 71 further comprising a cellular service operator coupled to the first server and the wireless network for transmitting the combined file to the wireless network.

79. The network of devices as claimed in claim 71 wherein the video data and the game data are displayed simultaneously.

80. The network of devices as claimed in claim 71 wherein the combined file contains compressed data.

81. The network of devices as claimed in claim 71 wherein the game data contains graphic information in addition to the video data.

82. The network of devices as claimed in claim 81 wherein the graphic information is displayed as a selected one of crawling information, closed captioned information, a picture in picture and a graphic overlay.

83. The network of devices as claimed in claim 71 wherein the combined file is transmitted on a selected one of a single TCP, UDP, 3G, multicast and broadcast transmission.

84. The network of devices as claimed in claim 83 wherein transmitting the combined file is selected from the group consisting of digital broadcasting, individual streaming and downloading.

85. The network of devices as claimed in claim 84 wherein the game is played as a selected one of simultaneously live, on demand or practice.

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86. The network of devices as claimed in claim 71 wherein a set of digital audio is combined into the combined file.

87. The network of devices as claimed in claim 71 wherein the user identifies remote competitors to challenge and compete against in a challenge game.

88. The network of devices as claimed in claim 87 wherein the competitors are able to play the challenge game when convenient.

89. The network of devices as claimed in claim 88 wherein after all of the challenged competitors complete the challenge game, results are sent to the challenged competitors including rankings.

90. The network of devices as claimed in claim 71 wherein the combined file is simultaneously broadcast to all participants at a specific time.

91. The network of devices as claimed in claim 71 wherein the video data and game data is pre-produced.

92. The network of devices as claimed in claim 71 wherein the archived television programs are selected from the group consisting of sporting events, game shows and entertainment shows.

93. The network of devices as claimed in claim 71 wherein one or more segments of the archived television programs are included in the video data.

94. The network of devices as claimed in claim 93 wherein the one or more segments are between five minutes and twenty minutes.

95. The network of devices as claimed in claim 71 wherein the video and the game data

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are synchronized.

96. The network of devices as claimed in claim 71 further comprising an Internet for registering a group of competitors.

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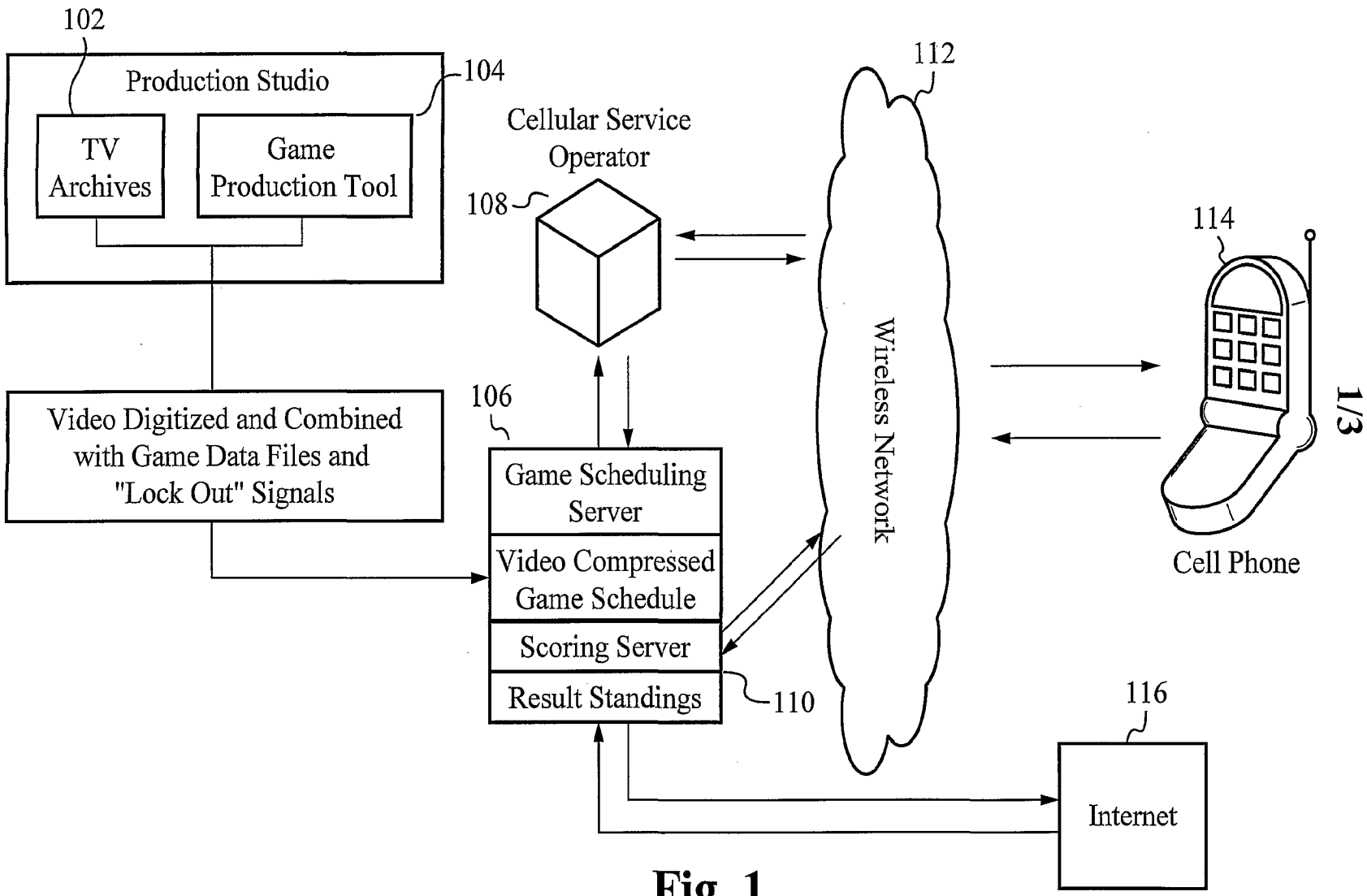


Fig. 1

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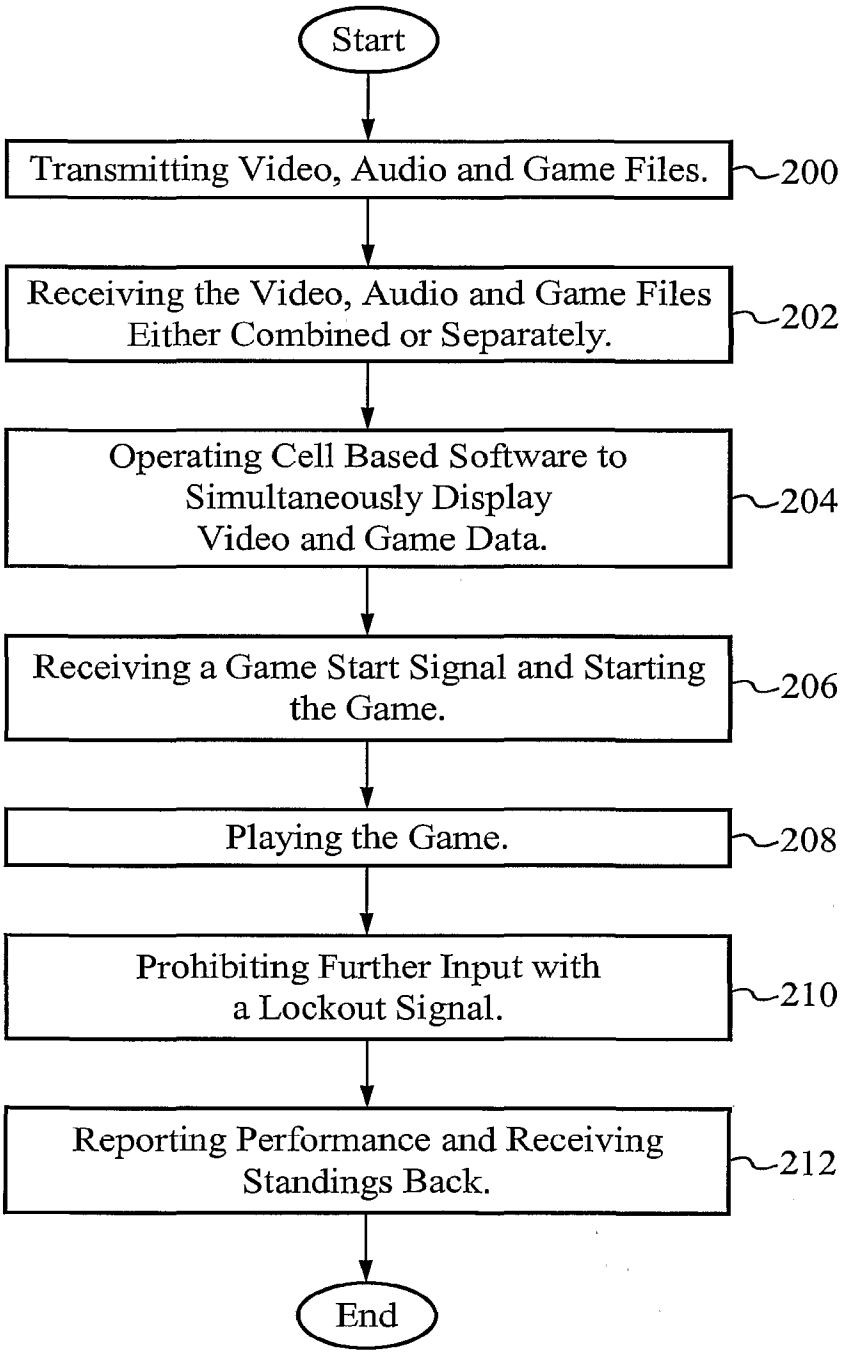

Start
Transmitting Video, Audio and Game Files.
200
Receiving the Video, Audio and Game Files Either Combined or Separately.
202
Operating Cell Based Software to Simultaneously Display Video and Game Data.
204
Receiving a Game Start Signal and Starting the Game.
206
Playing the Game.
208
Prohibiting Further Input with a Lockout Signal.
210
Reporting Performance and Receiving Standings Back.
212
End

Fig. 2

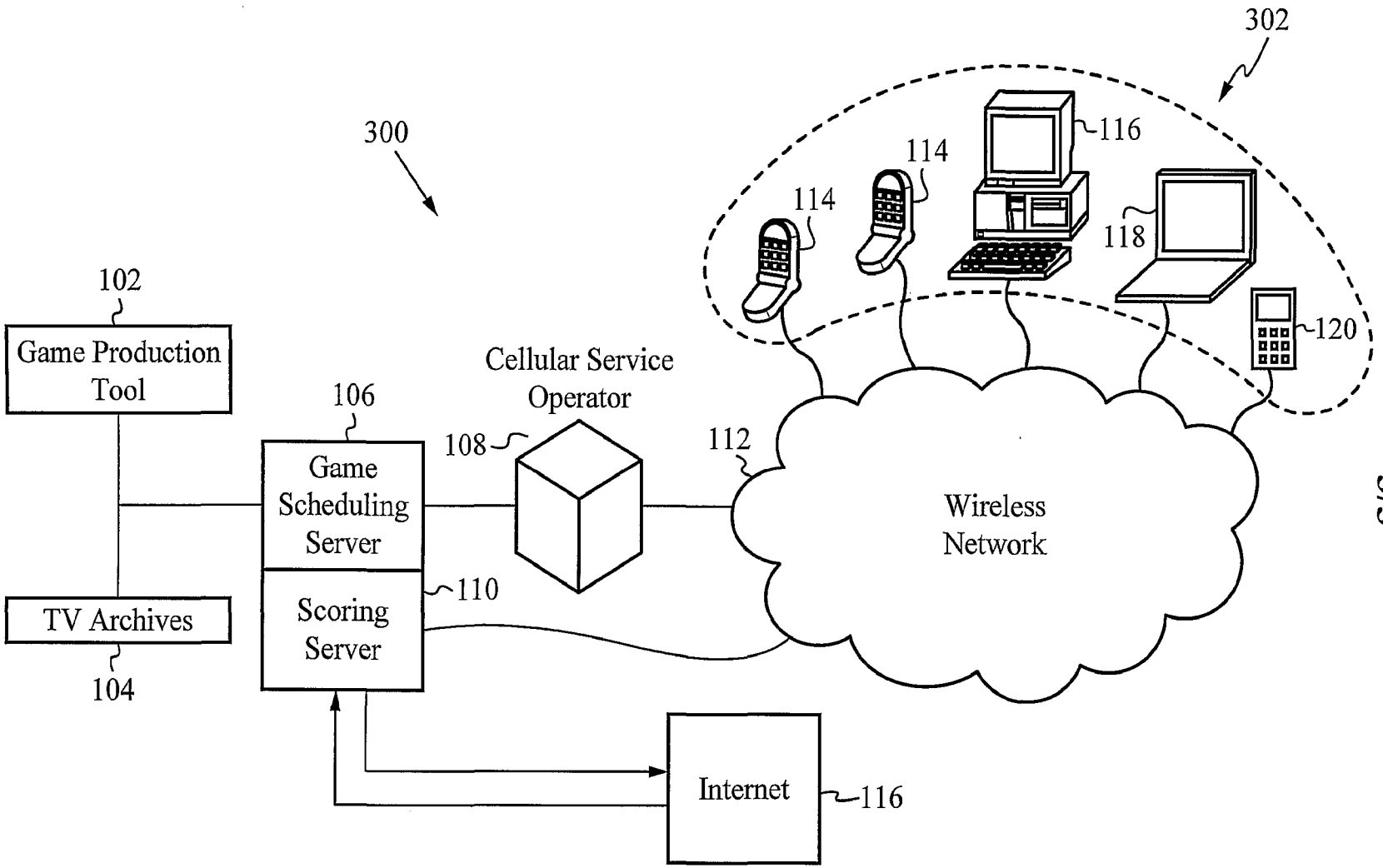


Fig. 3

FanDuel Ex. 1002-0295
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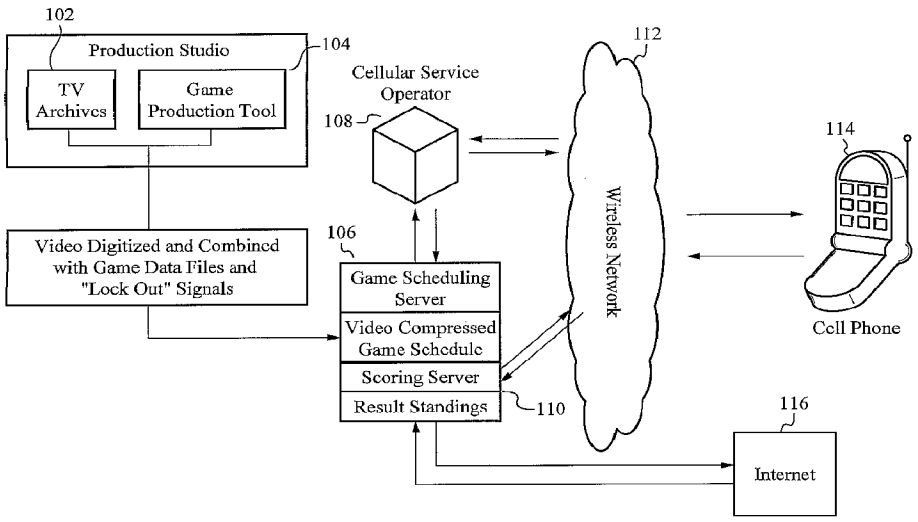
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(54) Title: CELLULAR PHONE GAMES BASED UPON TELEVISION ARCHIVES



(57) Abstract: Cellular phone games based on television archives allow users to play games on their cellular phones wherein the games are based on archived television programs. The game is able to be played simultaneously between competitors or on demand. Game data and video data are combined into one file and are sent to participating cellular phones so that the required information is received at the same time at each cellular phone. Each cellular phone contains software to manipulate the game and video data so that the user is able to play the game. The game is played by watching video clips from archived television programs and then selecting choices related to the video clips using the inputs on the user's cellular phone. User scores are determined based on the answers to the questions related to the video clips and results are distributed to the participants.

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INTERNATIONAL SEARCH REPORT

International application No.
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A. CLASSIFICATION OF SUBJECT MATTER
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Minimum documentation searched (classification system followed by classification symbols)
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Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

PubWest (USPT,PGPB,EPAB,JPAB) - Terms: Game, phone, old or past or archive, television or tv, program or show, cell phone, mobile phone, video, files or data, broadcast, internet, simultaneous

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6,817,947 B2 (Tanskanen), 16 November 2004 (16.11.2004), entire patent	1-96
Y	US 6,942,574 B1 (LeMay et al.) 13 September 2005 (13.09.2005), entire patent	1-96
Y	US 2005/0076371 A1 (Nakamura), 07 April 2005 (07.04.2005), para [0007], [0009], [0014], [0017]-[0018]	8, 20, 24, 32, 47, 53, 68, 80 and 91
Y	US 2004/0158855 A1 (Gu et al.), 12 August 2004 (12.08.2004), para [0021], [0033]-[0034]	9, 13-15, 35-36, 46, 49-51, 60, 63-64, 78, 81 and 84-85
Y	US 2004/0178923 A1 (Kuang), 16 September 2004 (16.09.2004), para [0021] and Abstract	2, 11 and 33
Y	US 6,863,610 B2 (Vancraeynest), 08 March 2005 (08.03.2005), col. 3 lines 12-38; col. 4, lines 5-21; and col. 5, lines 22-29	6, 16-18, 30, 37-38, 44, 65-67, 75, 77, 87-89 and 96

☐ Further documents are listed in the continuation of Box C. ☐

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Date of the actual completion of the international search	Date of mailing of the international search report
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Name and mailing address of the ISA/US	Authorized officer:
Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

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(71) Applicant *(for all designated States except US)*: **AIRPLAY NETWORK, INC.** [US/US]; 600 Townsend, Suite 350 East, San Francisco, CA 94103 (US).

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(74) Agent: **OWENS, Jonathan, O.**; Haverstock & Owens LLP, 162 North Wolfe Road, Sunnyvale, CA 94086 (US).

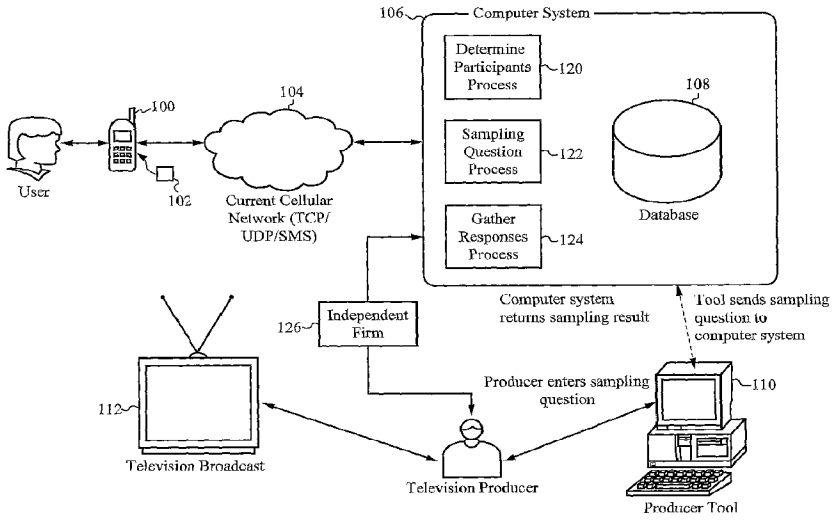
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(54) **Title:** A LIVE TELEVISION SHOW UTILIZING REAL-TIME INPUT FROM A VIEWING AUDIENCE



(57) **Abstract:** A live television show utilizing real-time input from a viewing audience is described herein. Specifically, the viewing audience is at home or at least not in the studio, and they use their cellular phones to input responses or make selections. The audience input is transmitted in real-time so that the producers of the television show are able to incorporate the results of the responses into the show. To permit an audience of millions to participate in real-time, a large random sample is utilized to provide real-time feedback. For example, the audience is able to determine the winner of a talent contest, which door is opened by a contestant, the results of a poll and affect the future direction of the telecast.

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A LIVE TELEVISION SHOW UTILIZING REAL-TIME INPUT FROM A VIEWING AUDIENCE

Related Application(s):

This Patent Application claims priority under 35 U.S.C. §119(e) of the co-pending, co-owned United States Provisional Patent Application No. 60/704,809, filed August 1, 2005, and entitled "A LIVE TELEVISION SHOW UTILIZING REAL TIME INPUT FROM THE VIEWING AUDIENCE" which is also hereby incorporated by reference in its entirety.

Field of the Invention:

The present invention relates to the field of distributed entertainment. More specifically, the present invention relates to the field of distributed entertainment utilizing a computing device where the entertainment corresponds to an event.

Background of the Invention:

To date, the televised talent show American Idol® is the most notable marriage of the cell phone and television viewers in the United States. During the live final events of this nationwide televised talent contest, AT&T® cell phone subscribers were permitted to vote for their favorite contestant. Over 12 million chose to do so. The results of those votes helped to determine the final winners. The methodology utilized was SMS messaging and dial-up telephone calls. These approaches have severe limitations when utilized for anything but a single expression of opinion during the timeframe of a telecast land line.

The capacity of the domestic phone system is severely constrained, and the TV show relied heavily on the cell phone. Many people were unable to deliver their text votes due to the flood of calls being generated at the same time. This bottleneck occurred even though the viewer interaction was basically one vote for a candidate, e.g., "A," "B," "C," or "D," near the end of the show. The phone system is designed to provide a dial tone to about 10% of the subscribers in any coverage area, which is the reason that during holidays like Mother's Day or during events like earthquakes one can get "all circuits are busy" messages.

The latency inherent in the cellular SMS messaging system generally delivers messages anywhere from 30 seconds to several hours after transmission. Thus, this cellular technology would not accommodate an audience participating in a live television show where the format of the show required frequent viewer input and/or votes to be taken and continually sent, received, and tabulated by the producers of a television show in the

relatively short period of time (30 seconds), required to utilize the audience input in the format of the show.

Because of this delay, American Idol® and other television programs that incorporate home user interaction collect the data via cell phones on a first day and then the results are tabulated and announced a day later. As described, collecting results one day and displaying the results a second day is not useful for a live television program where feedback from the viewing audience is an integral part of the format during the show.

Some programs offer immediate feedback of home user interaction, but they utilize the Internet. For example, Music Television (MTV) and Country Music Television (CMT) have programs where one music video is displayed while the graphics and titles of two other videos are shown on the side of the screen. Home viewers then vote for the video they would like to watch next between the two videos on the side of the screen. As the currently playing video ends, a "winner" of the two side videos is selected based on the voting, and then that video begins playing.

Additionally, Who Wants to Be a Millionaire® implements a similar system. When the current contestant on the show uses the "lifeline" of polling the audience, a local audience is polled, as well as an AOL® audience at home. Viewers at home use their computers to input responses by selecting among the possible choices of A, B, C and D. Their selections are transferred over the Internet and are tallied so that the polling results are posted in time for the contestant to review them in making his/her decision. This approach requires the colocation of the personal computer and television, and also suffers capacity issues for the millions of simultaneous responses a show like American Idol® generates.

Summary of the Invention:

A live television show utilizing real-time input from a viewing audience is described herein. Specifically, the viewing audience is at home or at least not in the studio, and they use their cellular phones to input responses or make selections. The audience input is transmitted in real-time so that the producers of the television show are able to incorporate the results of the responses into the show. To permit an audience of millions to participate in real-time, a large random sample is utilized to provide real-time feedback. For example, the audience is able to determine the winner of a talent contest, which door is opened by a contestant, the results of a poll and affect the future direction of the telecast.

In one aspect, a system for interactively participating in a television program, comprises a computer system, a cellular phone for coupling with the computer system to

receive questions from and send responses to the computer system and a computing device coupled to the computer system for sending the questions to the computer system and receiving results from the computer system. The television program is live. The results are incorporated into the television program during airing of the television program. The results are incorporated by selecting from a group consisting of displaying poll information, determining a subsequent scene, directing a plot and selecting a winner based on votes. The cellular phone contains an application associated with the television program. The cellular phone utilizes Transmission Control Protocol to communicate with the computer system. The cellular phone must be registered to be permitted to submit responses. The cellular phone is selected randomly to be permitted to submit responses. The computer system is for determining participants, sending the questions to the cellular phone, gathering the responses from the cellular phone and determining the results from the responses. The television program is pre-recorded in segments, where segments are selected and played based on the results. All registered cellular phones are able to participate in a sweepstakes regardless of being randomly selected. The cellular phone is only able to cast one vote per question. The application within the cellular phone informs the cellular phone that it is selected to send a response. Alternatively, the application within the cellular phone informs the cellular phone that it is not selected to send a response. Alternatively, the cellular phone is informed to send a response from the computer system. Alternatively, the cellular phone is not informed to send a response from the computer system. An independent organization such as a Certified Public Accountancy (CPA) would certify that the statistical sample taken is both random and of sufficient size to represent the true opinion of the entire population of the registered television universe.

In another aspect, a system for interactively participating in a live television program, comprises a computer system containing a database for storing questions and results of responses, wherein the computer system is for determining participants, sending the questions, gathering responses and determining the results from the responses, one or more randomly selected cellular phones for coupling with the computer system through a cellular network to receive the questions from and send the responses to the computer system, wherein the cellular phone contains an application associated with the live television program and a computing device coupled to the computer system for sending the questions to and receiving the results from the computer system. The results are incorporated into the television program during airing of the television program. The results are incorporated by selecting from a group consisting of displaying poll information, determining a subsequent

scene, directing a plot and selecting a winner based on votes. The cellular phones utilize Transmission Control Protocol to communicate with the computer system. The cellular phones must be registered to be selected to participate. All registered cellular phones are able to participate in a sweepstakes regardless of being randomly selected. The cellular phones are each only able to cast one vote per question.

In another aspect, a method of interactively participating in a television program, comprises sending one or more questions to a cellular phone from a computer system, receiving responses to the one or more questions at the computer system, generating results based on the responses and incorporating the results within the television program. The television program is live. Incorporating the results into the television program occurs during airing of the television program. Incorporating the results is selected from a group consisting of displaying poll information, determining a subsequent scene, directing a plot and selecting a winner based on votes. The method further comprises generating the one or more questions on a computing device. The computer system sends the one or more questions to a user via TCP or a one-way multi-cast connection. The method further comprises selecting a user to participate. Selecting the user to participate is random. The cellular phone must be registered for the user to be selected to participate. The method further comprises determining if a user is selected to participate in the one or more questions. Determining occurs when the user couples to the computer system. Alternatively, determining occurs after responding to the one or more questions. Alternatively, determining occurs when the user enters an application related to the television program on the cellular phone. The cellular phone contains an application associated with the television program. The method further comprises receiving and displaying the results on a computing device. All registered cellular phones are able to participate in a sweepstakes regardless of being randomly selected. The cellular phone is only able to cast one vote per question.

In another aspect, a method of interactively participating in a live television program, comprises randomly selecting a segment of registered users to respond to one or more questions, wherein each user in the segment of registered users has a cellular phone, sending the one or more questions to each of the cellular phones from a computer system, receiving responses to the one or more questions at the computer system, generating results based on the responses to the one or more questions at the computer system, receiving the results at a computing device for displaying the results and incorporating the results within the live television program. The method further comprises generating one or more questions on the computing device. The computer system sends the one or more questions to each user via

TCP or a one-way multi-cast connection. The method further comprises sending a notification to each of the cellular phones of the selected segment of users. Incorporating the results is selected from a group consisting of displaying poll information, determining a subsequent scene, directing a plot and selecting a winner based on votes. All registered cellular phones are able to participate in a sweepstakes regardless of being randomly selected. The cellular phones are each only able to cast one vote per question.

In yet another aspect, a network of devices for allowing users to interactively participate in a television program, comprises a computer system containing a database for storing questions and results of responses, a plurality of cellular phones for coupling with the computer system through a cellular network to receive the questions from and send the responses to the computer system, wherein the plurality of cellular phones each contain an application associated with the television program and a computing device coupled to the computer system for sending the questions to and receiving the results from the computer system. The television program is live. The results are incorporated into the television program during airing of the television program. The results are incorporated by selecting from a group consisting of displaying poll information, determining a subsequent scene, directing a plot and selecting a winner based on votes. The plurality of cellular phones utilize Transmission Control Protocol to communicate with the computer system. The plurality of cellular phones must be registered to be permitted to submit responses. A segment of the plurality of cellular phones are selected randomly to be permitted to submit responses. The computer system is for determining participants, sending the questions to the cellular phones, gathering the responses from the cellular phones and determining the results from the responses. The television program is pre-recorded in segments, where segments are selected and played based on the results. All registered cellular phones are able to participate in a sweepstakes regardless of being randomly selected. The cellular phones are each only able to cast one vote per question.

In another aspect, a producer tool comprises an input device for receiving one or more questions from a producer, a network interface to couple to a computer system, wherein one or more questions are sent to the computer system and results are received from the computer system and a display device for displaying the results received from the computer system. The results are incorporated into a television program during airing of the television program. The results are incorporated by selecting from a group consisting of displaying poll information, determining a subsequent scene, directing a plot and selecting a winner based on votes. The television program is live. The one or more questions are sent to a plurality of

cellular phones from the computer system and one or more responses are received at the computer system wherein the one or more responses are used to determine the results.

Brief Description of the Drawings:

FIG. 1 illustrates a graphical representation of a preferred embodiment of the present invention.

FIG. 2 illustrates a flowchart of a method in a preferred embodiment of the present invention.

FIG. 3 illustrates a flowchart of a method of an embodiment of the present invention.

FIG. 4 illustrates a graphical representation of a network of devices of the present invention.

Detailed Description of the Preferred Embodiment:

A method and system for utilizing cellular phones to interactively participate in a live television show is described herein.

Although past cellular technologies were insufficient for live interaction, there are new technologies that will make live interaction possible. The new cellular 3G technologies, including EVDO, and other "multicast" technologies would allow TV based games of skill as described in U.S. Patent Application No. 11/166,596, filed on June 24, 2005 and entitled Methods and Apparatus for Distributed Gaming Over a Mobile Device, herein incorporated by reference, to be fast-paced and formatted around continual input from the television viewing audience. For example, contestants in the home could literally compete against contestants in the TV studio on the live telecast.

The games of skill described in the aforementioned pending patent application, in order to meet economic capacity, and latency requirements, optimally utilize a one way broadcast architecture. In this system the ongoing results are not sent back to the central computer until the conclusion of the game. In certain circumstances described in U.S. Patent Application No. 11/166,596, filed on June 24, 2005 and entitled Methods and Apparatus for Distributed Gaming Over a Mobile Device, random samples from a small subset of a universe of television viewers/competitors are continuously taken and utilized to inform the remaining significant majority of competitors where they stand at any time in the unfolding game.

The present invention addresses a live television show where some of the actions of the participants and the direction of the telecast are controlled by the majority vote of the viewing audience. This, for example, might be the next actions of a TV contestant, such as, for example, does the contestant open the left or right door? Do they attempt to answer question A, B, C, or D? Which team member should try which task next? Who should be voted off the island?

In a format similar to the Family Feud® television game show, the contestants might be asked to predict what the consensus of the viewing audience would be on a series of issues or questions. In any format, the tabulation of the will of the entire viewing audience must be fair and accurate, and not subject to possible manipulation, and accepted by the viewers as legitimate. Such audience input must also meet additional requirements.

The tabulation of the results of the response from the viewing audience must be almost immediate. Delays of 30-60 seconds to move to the next action, detracts from the viewer's enjoyment. Since anyone with a cellular phone is able to participate, the precise viewpoints of a potential universe of tens of millions are able to be obtained.

There was widespread concern over "voting blocks" of callers recruited and voting many times in the American Idol® competition polling which skewed the results to be different from what an independent majority vote might otherwise be. The present invention addresses the capacity, speed, and accuracy requirements of such a television show. In some embodiments, users are only able to cast one vote per cellular phone.

The present invention applies the technology addressed in U.S. Patent Application No. 11/166,596, filed on June 24, 2005 and entitled Methods and Apparatus for Distributed Gaming Over a Mobile Device to a live television show, where the will of the majority of the viewing audience expressed by a real time vote, directly impacts the content and direction of the telecast itself. As with the methodology of informing the competitor universe of their relative standing after each discrete event in massive games of skill, this invention leverages a real time random sampling approach.

From a universe of millions of viewers voting and/or expressing their opinions in real-time, along with a live television show, the central computer generates a random sample selection from all viewer participants who have registered to participate prior to the beginning of the event. If a game of skill is not simultaneously conducted with the telecast, an incentive

event, such as a sweepstakes, could be offered to further motivate the audience to register prior to the beginning of the telecast. The central computer is directly accessible by the producers of the television live telecast underway utilizing the internet, or phone line.

In some embodiments, of the television viewers who have registered to participate, a random sample, for example, of 10,000 viewers is selected to establish a connection "on line" via a Transmission Control Protocol (TCP) connection to the central computer system. Along with all of those registered, only their responses are received, processed, and displayed to the television producers in a manner of seconds. If desired, the system facilitates a new and separate random sample for each separate polling event. In some embodiments, all of the participants are selected instead of a random sample.

In those embodiments in which a sample is taken, a signal is sent to the non-voting segment of the viewers, such as, for example, those whose phones will not actually transmit their selections, causing their attempt to send a response to remain at their cell phone. In the alternative, the game control software transmits a notification of selection as part of the random sample to those cell phones to be polled. Software loaded into the cell phone at registration could contain instructions that the phone is not to transmit a "vote" when a participant votes unless it has either received prior "permission" at the time of registration, or some time prior to the requested "vote" a communication is sent to select the phone to be part of the sample.

A large random sample of 10,000 has a very high degree of accuracy, such as, plus or minus (1%). The pervasiveness of political polls so prevalent in the media, has created a common understanding that a sample size of 1,000, with accuracy of plus, or minus 3% can be sufficient to accurately project the will of the people. Therefore, the confidence in the viewing audience of the viability, fairness, and accuracy of such a large sample is assured. By changing the sample audience with each discrete question, the reliability is further enhanced and the viewing audience made to feel that eventually their specific vote will be taken. If the results of the initial sample of 10,000, yields less than a 1% difference between the two or more alternatives, a second larger sample is able to be taken until the response is considered sufficiently definitive by an independent organization, such as a CPA firm, observing the voting procedures and results.

A separate contest for prizes could be conducted, based on awarding points to a home

contestant for correctly predicting the majority choice, so that each and every one of the predictions not polled would have specific significance.

The underlying invention allows the television producers to obtain almost instantaneous results to questions and decisions, so that entertaining programs can be developed where there is no significant delay in the production of the television show underway. Its format and design can be designed to accommodate input from an audience, potentially in the tens of millions, within seconds of each question being asked of the audience. An audience of tens of millions will not create a bottleneck on either the hard wire or wireless networks, and the expense to the television show's producers will be minimized by eliminating potentially millions of calls.

Figure 1 illustrates a graphical representation of a preferred embodiment of the present invention. A user uses a cellular phone 100 to communicate through a cellular network 104 with a computer system 106. The cellular phone 100 contains an application 102 that is associated with the television event. For example, an application is specific to a Family Feud® show wherein users are asked questions such as "when do you typically go to bed?" However, if the application were related to the program American Idol®, instead of being asked a question, users would select which contestant they would like to remain on the show. In other embodiments, the application 102 is generic, so that it is able to be used with a variety of shows. In yet other embodiments, the application 102 is a bundle of similar applications so that a user is able to participate in television programs of a certain genre. For example, a talent contest bundle would include American Idol®, So You Think You Can Dance® and Dancing with the Stars®. All of these shows are similar in that contestants either sing, dance or do both and then the viewers select who they feel is the best.

The cellular phone 100 communicates over the cellular network 104 using TCP, UDP, SMS or any other appropriate protocol. The computer system 106 which communicates with the cellular phone 100 contains a database 108 to store questions to be sent to the users and results based on the responses that are received from the users. The computer system 106 also includes a participant determining process 120, a sampling question process 122 and a gather responses process 124. The participant determining process 120, randomly determines who will actively participate with a specified set of questions. The sampling question process 122 transmits the questions to the users who are part of the randomly determined sample.

The gather responses process 124 gathers the users' responses after the questions are transmitted. In some embodiments, an independent organization 126, such as a CPA or accounting firm, is able to review the random selection process, the sample size and the results and certifies that each sample response accurately reflects the opinion of the registered viewing audience. After the desired review, the independent organization 126 is able to convey the results of the review with the producer.

Preferably, the computer system 106 is centrally located so that it is reachable by the users and one or more television producers or a person who is in control of a show. The computer system 106 is any computing device which is able to communicate with the users via the cellular network 104 and with a producer tool 110. A producer uses the producer tool 110 to couple to the computer system 106. The producer tool 110 is any computing device which is able to communicate with the computer system 106 which includes but is not limited to a personal computer, a laptop, a PDA or a cellular phone. The producer uses the producer tool 110 by entering questions which will later be transmitted to the users. The producer tool 110 then sends the questions to the computer system 106. During the television program, the computer system 106 sends the producer's submitted questions to the users, so that they are able to respond to them. An exemplary question would be, "Who would you like to remain?" After the users respond to the questions using their cellular phones 100, the computer system 106 sends the results to the producer tool 110. For example, 10,000 users are asked who would you like to remain. 5,000 users select A, 2,000 users select B, 2,000 users select C and 1,000 users select D as determined by the gather responses process 124. The results of that information is then transferred from the computer system 106 to the producer tool 110 where the producer is able to view the information. The producer is then able to incorporate that information in the television broadcast 112 as he chooses. For example, the producer is able to have the host of the show announce the results and inform D that he has received the fewest votes and is thus eliminated from the show.

The timing of events necessary to inform the user of the questions, receive their responses, gather the responses and then implement the television program based on the responses is able to be varied depending on the television program. For a program similar to American Idol® the question of "Who would you like to remain?" is able to be displayed on the show after each contestant performs and/or then quickly in a wrap-up after all of the

performances. Then during a television break of a few minutes, users would have an opportunity to make their selections. This short break gives ample time to submit responses. It also is sufficient time for the computer system 106 to gather the responses and send the results to the producer tool 110 where the producer is able to review them. The producer then quickly decides what to do with the information, such as here, where the producer informs the host that contestant D has been eliminated. When the television show resumes after the commercial break, the host is able to inform the audience and the contestants of the results, and the show continues as desired from there.

Figure 2 illustrates a flowchart of a method in a preferred embodiment of the present invention. In the step 200, a user enters the application associated with the television event on his/her cellular phone. Preferably the television event is a live event. In the step 202, the user couples to the Central Computer System via a TCP connection. In other embodiments, a protocol other than TCP is implemented. In the step 204, a television producer generates a sampling question and sends it to the Cental Computer System. The Central Computer System then sends the question to the user via TCP or a multi-cast connection, in the step 206. In the step 208, the user sees the sampling question on his/her cellular phone. In the step 210, the user responds to the sampling question. In the step 212, it is determined if the user is selected to participate for the sampling question. In some embodiments, it is determined if a user has been selected to participate when he/she makes the initial connection to the Central Computer System. If the user is selected to participate, then the Central Computer System receives all of the responses related to that set of questions and generates a final set of results, in the step 214. In the step 216, the television producer receives the results and presents them on the television broadcast or utilizes them as desired. If the user is not selected to participate, then the user sees the next sampling question.

Figure 3 illustrates a flowchart of a method of an embodiment of the present invention. In the step 300, a segment of the registered users are randomly selected to participate in the questions. The segment is able to vary as desired. For example, the same segment of users is able to be used for one episode of a show like American Idol®. The segment of users is able to vary throughout the show as well, so more people are involved. For example, a segment of users is utilized for a first question on Who Wants to Be A Millionaire®, another segment is used for a second question and so on. A user enters the

application associated with the television event on his/her cellular phone, in the step 302. In some embodiments, the television event is live. After the user enters the application, in some embodiments a notification is sent to the selected users, in the step 304. In the step 306, it is determined if the user is selected to participate in the sampling question. If the user has not been selected, then his/her cellular phone is denied the ability to send a vote, in the step 308. If the user has been selected, then the user couples to the Central Computer System via a TCP connection, in the step 310. In other embodiments, a protocol other than TCP is implemented. In the step 312, a television producer generates a sampling question and sends it to the Cental Computer System. The Central Computer System then sends the question to the user via TCP or a multi-cast connection, in the step 314. In the step 316, the user sees the sampling question on his/her cellular phone. In the step 318, the user responds. The Central Computer System receives all of the responses related to that set of questions and generates a final set of results, in the step 320. In the step 322, the television producer receives the results and presents them on the television broadcast or utilizes them as desired.

Figure 4 illustrates a graphical representation of a network of devices of the present invention. A set of unselected cellular phones 100 and randomly selected cellular phones 100' couple through a cellular network 104 to a computer system 106. The unselected cellular phones 100 and selected cellular phones 100' are previously registered so that they are able to be randomly selected. In some embodiments, a permission signal 410 is sent to a cellular phone so that it becomes a selected cellular phone 100'. The computer system 106 sends questions to the selected cellular phones 100'. Users of the selected cellular phones 100' are able to input their responses to the computer system 106 where the responses are gathered. Questions and results of the responses are stored in a database 108 on the computer system 106. Results of the responses are then sent from the computer system 106 to a producer tool 110. A producer is then able to review the results and utilize the information as he/she chooses to affect the television show.

In some embodiments, users not only make their selections through their cellular phone, but they also view the television program on their cellular phone.

There are numerous applications for the present invention in addition to those described above. The present invention is able to be used with talent contests like American Idol® to have immediate results or to be able to involve the audience in the show more often,

such as filtering some of the initial contestants out instead of just the final few.

America's Funniest Home Videos currently only allows the studio audience to vote, and they only vote from three or four selections already narrowed down by the producers. Utilizing the present invention, an at-home audience would be able to vote on each video throughout the show if the format of the show were slightly changed to accommodate such interaction. Moreover, instead of only the studio audience voting on the ultimate winner, an entire at-home audience would participate in the voting thus providing a better representation of the viewers.

For television drama shows, the at-home user interactivity would also add entertainment value. For example, with a pre-taped show like "24" the writers would have a number of splits in the script depending on the actions of a particular character which correspond with the at-home audience's selections. For instance, a character walks into a bar and notices two people sitting at different locations in the bar. The audience then selects which of the two people the character goes to talk to. Then, depending on the selection, that part of the script and storyline is acted out. In a similar example, the split only occurs at the end of an episode. For example, the decision of which person to talk to occurs at the very end of the episode and then the following episode follows the storyline based on that selection.

In the embodiments where actors must act out scenes, the filming is able to be live but is also able to be taped. For example, a typical hour-long television drama includes essentially four 10-minute clips, but instead, the producer and actors record a split for each 10 minutes. For instance, the first 10 minutes plays and then the audience is given a choice of selection A or B, where the scenes for both A and B have been previously recorded. Then, stemming from A is C or D and from B is E or F which are all also previously recorded. The process continues for an entire show. Hence, the entire show is able to be completely created beforehand; it just needs the audience to determine which parts of the show are actually viewed. Furthermore, since television shows are now sold on DVDs, the DVD is able to include all of the alternate storylines, so that the extra filming is not wasted. Although only two selections were described in the above example, any number of selections are possible.

In a similar application with regards to television dramas, variations of CSI, other police investigation shows and lawyer programs would be implemented where users use the information gathered to follow leads in an investigation, choose which witness to go talk to

next or what questions to ask. The combination of the present invention with specially generated television shows or movies would turn television viewing into a role playing game. In some embodiments, at the end of a program, a contest is provided, and if users, for example, select the proper criminal based on the clues, they are awarded a prize.

The present invention is able to be used with sports wherein a most valuable player is selected for an event using cellular phones, with the advantage that everyone viewing is part of the sample, but the results are not delayed as with current SMS and other text messaging approaches. Adult entertainment programs would also be able to utilize the present invention.

Furthermore, currently the way re-runs of episodes are shown is that the television network cycles through episodes showing one after the other, usually showing ones that have been rated highly in the past. However, this occasionally leads to repetition of episodes and some episodes never being played again. Utilizing the present invention, instead of simply forcing viewers to watch a certain episode, for a short period of time before the episode starts, the network would present viewers with multiple episodes to choose from. Then, based on the users' input, the episode with the most votes is played.

Although some examples of applications have been given above, they are not meant to limit the present invention in any way. Any interactive television program is possible utilizing the present invention.

The present invention is utilized from multiple different perspectives. A user utilizes the invention by submitting responses or selections over his or her cellular phone. A producer of a television program enters the questions on a producer tool which sends the questions to a computer device which then transmits the questions to the user. The producer takes the results of the responses to the questions and incorporates them within the television program.

In operation, a segment of users are randomly selected out of a larger group of registered users. The selected segment of users can be any subset or all of the users, depending on the application. In some embodiments, the selected users are informed of being selected and, if desired, are informed over their cellular phones. The selected users are then able to respond to questions or select choices over their cellular phone. In some embodiments, everyone who is registered is able to vote. However, in those embodiments,

only some of those who vote are randomly selected to generate the results. A producer generates the questions that the users respond to on a producer tool which sends the questions to a computer system. The computer system then sends the questions to and receives the responses from the users. The computer system also determines the results of the responses and sends them to the producer tool where the producer is able to review the results and incorporate them within the television program. The questions sent to the users are related to the television program and thus provide users with a highly interactive experience.

In an alternative embodiment, the computer system and the producer tool are the same computing device. In other embodiments, instead of the computer system sending questions to users' cellular phones, the questions, surveys or other interactive requests are presented on the television program. For example, a host of a show will say, "vote now for your favorite singer."

Some telecasts are broadcast live in the Eastern time zone and then rebroadcast for the West coast on tape delay, such as the Emmy's and other East coast staged live events. The large statistical sample utilized in the Eastern time zone still accurately represents the will of the audience, and the fact that the West Coast audience might not actually vote will not diminish the entertainment value of the "live taped" format for West Coast viewers.

The present invention has been described in terms of specific embodiments incorporating details to facilitate the understanding of principles of construction and operation of the invention. Such reference herein to specific embodiments and details thereof is not intended to limit the scope of the claims appended hereto. It will be readily apparent to one skilled in the art that other various modifications may be made in the embodiment chosen for illustration without departing from the spirit and scope of the invention as defined by the claims.

CLAIMS

What is claimed is:

1. A system for interactively participating in a television program, comprising:
   a. a computer system;
   b. a cellular phone for coupling with the computer system to receive questions from and send responses to the computer system; and
   c. a computing device coupled to the computer system for sending the questions to the computer system and receiving results from the computer system.

2. The system as claimed in claim 1 wherein the television program is live.

3. The system as claimed in claim 1 wherein the results are incorporated into the television program during airing of the television program.

4. The system as claimed in claim 3 wherein the results are incorporated by selecting from the group consisting of displaying poll information, determining a subsequent scene, directing a plot and selecting a winner based on votes.

5. The system as claimed in claim 1 wherein the cellular phone contains an application associated with the television program.

6. The system as claimed in claim 1 wherein the cellular phone utilizes Transmission Control Protocol to communicate with the computer system.

7. The system as claimed in claim 1 wherein the cellular phone must be registered to be permitted to submit responses.

8. The system as claimed in claim 7 wherein the cellular phone is selected randomly to be permitted to submit responses.

9. The system as claimed in claim 1 wherein the computer system is for determining participants, sending the questions to the cellular phone, gathering the responses from the cellular phone and determining the results from the responses.

10. The system as claimed in claim 1 wherein an independent auditing organization inspects the system for random selection, sample size and the results and certifies that each sample response accurately reflects the opinion of a registered audience.

11. The system as claimed in claim 1 wherein the television program is pre-recorded in segments, where segments are selected and played based on the results.

12. The system as claimed in claim 7 wherein all registered cellular phones are able to participate in a sweepstakes regardless of being randomly selected.

13. The system as claimed in claim 1 wherein the cellular phone is only able to cast one vote per question.

14. The system as claimed in claim 5 wherein the application within the cellular phone informs the cellular phone that it is selected to submit a response.

15. The system as claimed in claim 5 wherein the application within the cellular phone informs the cellular phone that it is not selected to submit a response.

16. The system as claimed in claim 1 wherein the cellular phone is informed to send a response from the computer system.

17. The system as claimed in claim 1 wherein the cellular phone is not informed to send a response from the computer system.

18. A system for interactively participating in a live television program, comprising:
a. a computer system containing a database for storing questions and results of

responses, wherein the computer system is for determining participants, sending the questions, gathering responses and determining the results from the responses;

b. one or more randomly selected cellular phones for coupling with the computer system through a cellular network to receive the questions from and send the responses to the computer system, wherein the cellular phone contains an application associated with the live television program; and

c. a computing device coupled to the computer system for sending the questions to and receiving the results from the computer system.

19. The system as claimed in claim 18 wherein the results are incorporated into the television program during airing of the television program.

20. The system as claimed in claim 19 wherein the results are incorporated by selecting from the group consisting of displaying poll information, determining a subsequent scene, directing a plot and selecting a winner based on votes.

21. The system as claimed in claim 18 wherein the cellular phones utilize Transmission Control Protocol to communicate with the computer system.

22. The system as claimed in claim 18 wherein the cellular phones must be registered to be selected to participate.

23. The system as claimed in claim 18 wherein all registered cellular phones are able to participate in a sweepstakes regardless of being randomly selected.

24. The system as claimed in claim 18 wherein the cellular phones are each only able to cast one vote per question.

25. A method of interactively participating in a television program, comprising:

a. sending one or more questions to a cellular phone from a computer system;

b. receiving responses to the one or more questions at the computer system;
c. generating results based on the responses; and
d. incorporating the results within the television program.

26. The method as claimed in claim 25 wherein the television program is live.

27. The method as claimed in claim 25 wherein incorporating the results into the television program occurs during airing of the television program.

28. The method as claimed in claim 27 wherein incorporating the results is selected from the group consisting of displaying poll information, determining a subsequent scene, directing a plot and selecting a winner based on votes.

29. The method as claimed in claim 25 further comprising generating the one or more questions on a computing device.

30. The method as claimed in claim 25 wherein the computer system sends the one or more questions to a user via TCP or a one-way multi-cast connection.

31. The method as claimed in claim 25 further comprising selecting a user to participate.

32. The method as claimed in claim 31 wherein selecting the user to participate is random.

33. The method as claimed in claim 31 wherein the cellular phone must be registered for the user to be selected to participate.

34. The method as claimed in claim 25 further comprising determining if a user is selected to participate in the one or more questions.

35. The method as claimed in claim 34 wherein determining occurs when the user couples

to the computer system.

36. The method as claimed in claim 34 wherein determining occurs after responding to the one or more questions.

37. The method as claimed in claim 34 wherein determining occurs when the user enters an application related to the television program on the cellular phone.

38. The method as claimed in claim 25 wherein the cellular phone contains an application associated with the television program.

39. The method as claimed in claim 25 further comprising receiving and displaying the results on a computing device.

40. The method as claimed in claim 25 wherein all registered cellular phones are able to participate in a sweepstakes regardless of being randomly selected.

41. The method as claimed in claim 25 wherein the cellular phone is only able to cast one vote per question.

42. A method of interactively participating in a live television program, comprising:
a. randomly selecting a segment of registered users to respond to one or more questions, wherein each user in the segment of registered users has a cellular phone;
b. sending the one or more questions to each of the cellular phones from a computer system;
c. receiving responses to the one or more questions at the computer system;
d. generating results based on the responses to the one or more questions at the computer system;
e. receiving the results at a computing device for displaying the results; and
f. incorporating the results within the live television program.

43. The method as claimed in claim 42 further comprising generating one or more questions on the computing device.

44. The method as claimed in claim 42 wherein the computer system sends the one or more questions to each user via TCP or a one-way multi-cast connection.

45. The method as claimed in claim 42 further comprising sending a notification to each of the cellular phones of the selected segment of users.

46. The method as claimed in claim 42 wherein incorporating the results is selected from the group consisting of displaying poll information, determining a subsequent scene, directing a plot and selecting a winner based on votes.

47. The method as claimed in claim 42 wherein all registered cellular phones are able to participate in a sweepstakes regardless of being randomly selected.

48. The method as claimed in claim 42 wherein the cellular phones are each only able to cast one vote per question.

49. A network of devices for allowing users to interactively participate in a television program, comprising:

a. a computer system containing a database for storing questions and results of responses;

b. a plurality of cellular phones for coupling with the computer system through a cellular network to receive the questions from and send the responses to the computer system, wherein the plurality of cellular phones each contain an application associated with the television program; and

c. a computing device coupled to the computer system for sending the questions to and receiving the results from the computer system.

50. The network of devices as claimed in claim 49 wherein the television program is live.

51. The network of devices as claimed in claim 49 wherein the results are incorporated into the television program during airing of the television program.

52. The network of devices as claimed in claim 51 wherein the results are incorporated by selecting from the group consisting of displaying poll information, determining a subsequent scene, directing a plot and selecting a winner based on votes.

53. The network of devices as claimed in claim 49 wherein the plurality of cellular phones utilize Transmission Control Protocol to communicate with the computer system.

54. The network of devices as claimed in claim 49 wherein the plurality of cellular phones must be registered to be permitted to submit responses.

55. The network of devices as claimed in claim 54 wherein a segment of the plurality of cellular phones are selected randomly to be permitted to submit responses.

56. The network of devices as claimed in claim 49 wherein the computer system is for determining participants, sending the questions to the cellular phones, gathering the responses from the cellular phones and determining the results from the responses.

57. The network of devices as claimed in claim 49 wherein the television program is pre-recorded in segments, where segments are selected and played based on the results.

58. The network of devices as claimed in claim 49 wherein all registered cellular phones are able to participate in a sweepstakes regardless of being randomly selected.

59. The network of devices as claimed in claim 49 wherein the cellular phones are each only able to cast one vote per question.

60. A producer tool for producing an interactive television program comprising:
    a. an input device for receiving one or more questions from a producer;
    b. a network interface configured to couple to a computer system, wherein one or more questions are sent to the computer system to then be sent to viewers through cellular phones and results are received from the viewers through the computer system; and
    c. a display device for displaying the results received from the computer system at the producer tool.

61. The producer tool as claimed in claim 60 wherein the results are incorporated into a television program during airing of the television program.

62. The producer tool as claimed in claim 61 wherein the results are incorporated by selecting from the group consisting of displaying poll information, determining a subsequent scene, directing a plot and selecting a winner based on votes.

63. The producer tool as claimed in claim 61 wherein the television program is live.

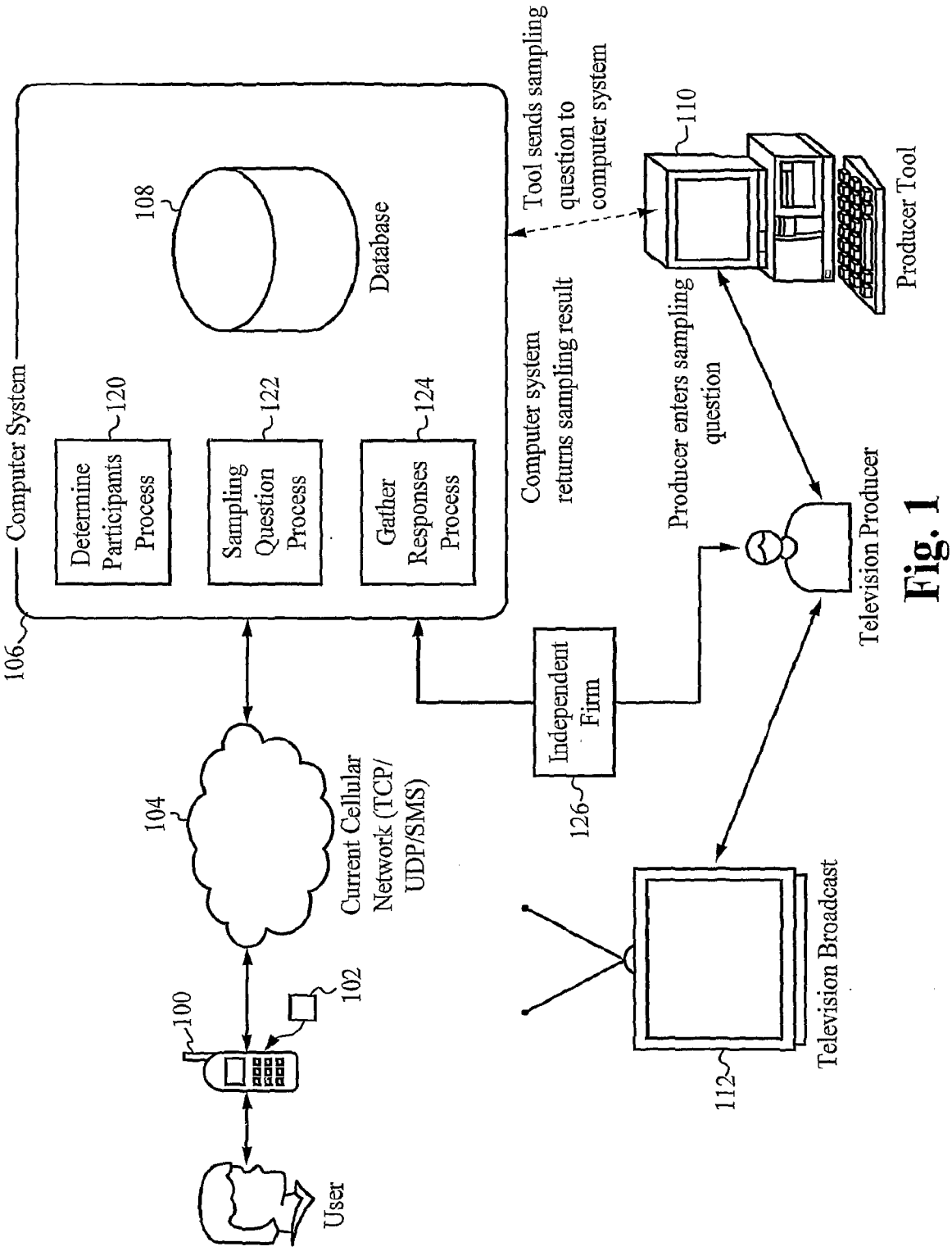


Fig. 1

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FanDuel Ex. 1002-0323

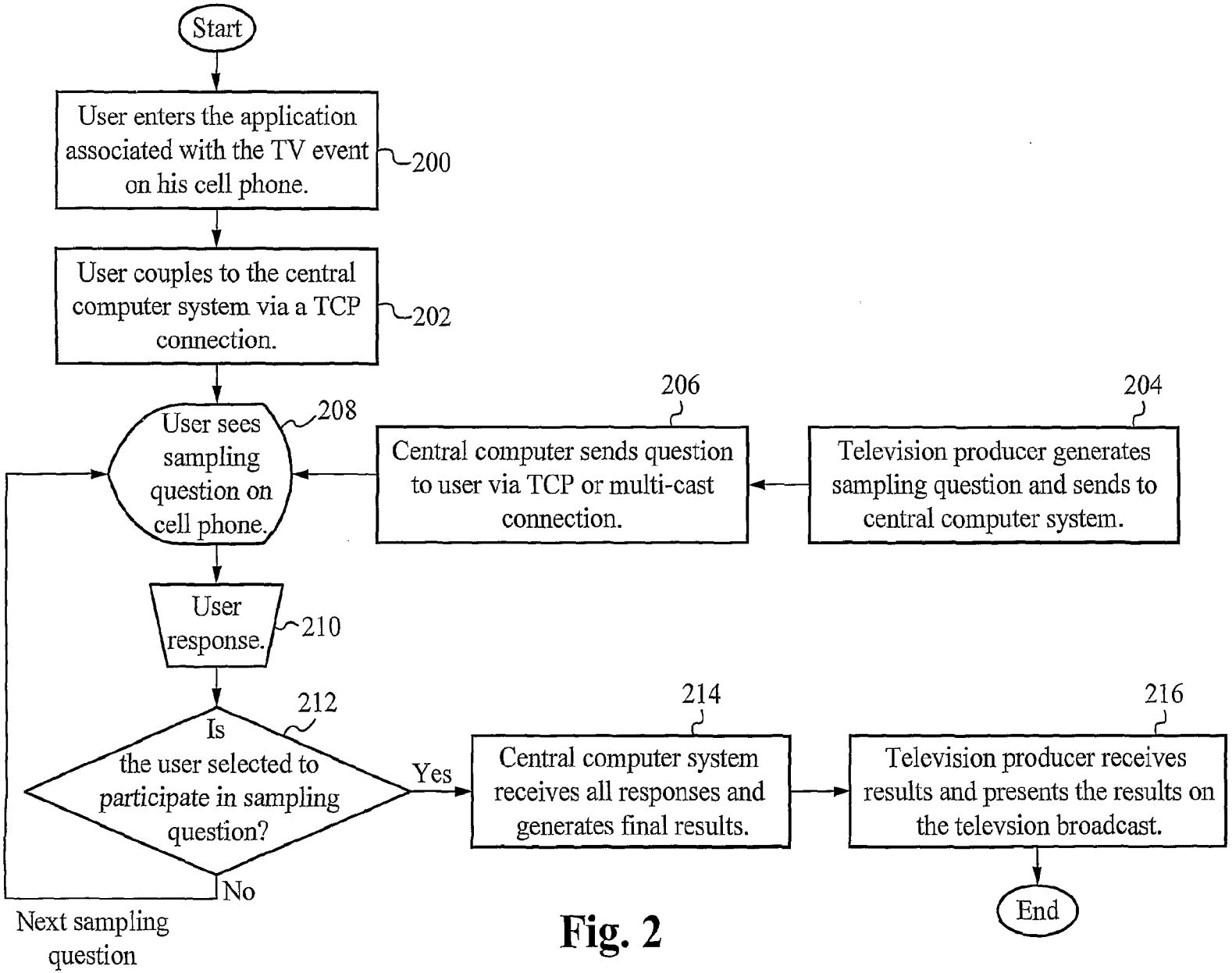


Fig. 2

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FanDuel Ex. 1002-0324

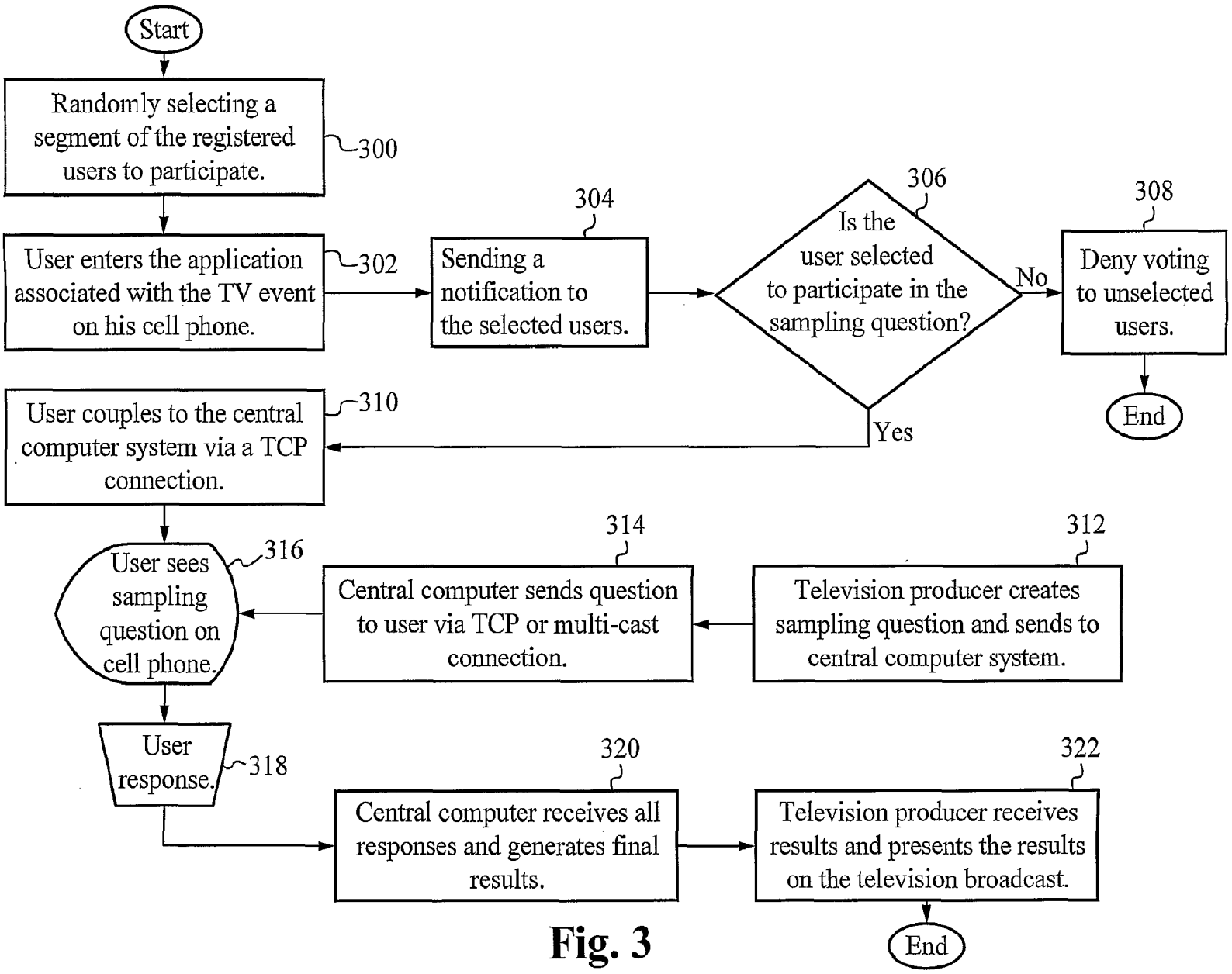


Fig. 3

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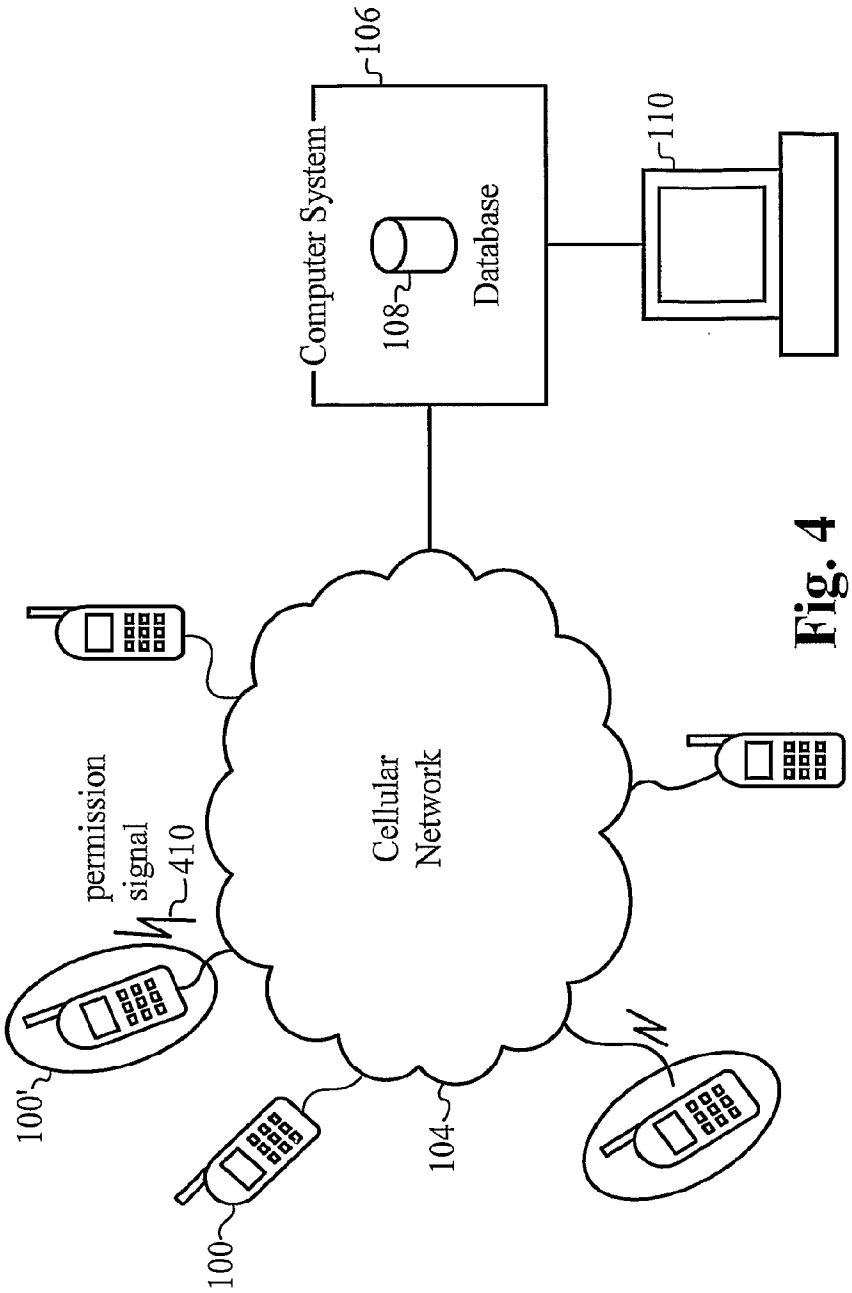


Fig. 4

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(74) Agent: **OWENS, Jonathan, O.**; Haverstock & Owens LLP, 162 North Wolfe Road, Sunnyvale, CA 94086 (US).

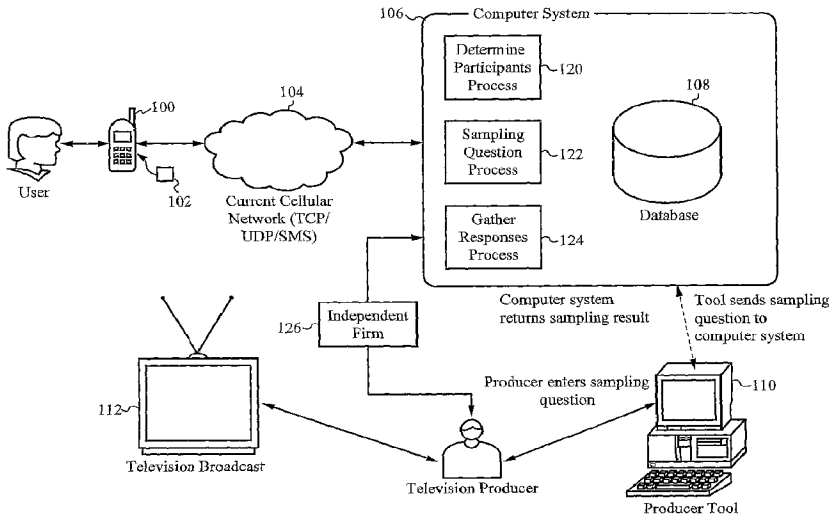
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(54) Title: A LIVE TELEVISION SHOW UTILIZING REAL-TIME INPUT FROM A VIEWING AUDIENCE



(57) Abstract: A live television show utilizing real-time input from a viewing audience is described herein. Specifically, the viewing audience is at home or at least not in the studio, and they use their cellular phones to input responses or make selections. The audience input is transmitted in real-time so that the producers of the television show are able to incorporate the results of the responses into the show. To permit an audience of millions to participate in real-time, a large random sample is utilized to provide real-time feedback. For example, the audience is able to determine the winner of a talent contest, which door is opened by a contestant, the results of a poll and affect the future direction of the telecast.

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B. FIELDS SEARCHED

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Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
MicroPatent

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2002/0054088 A1 (TANSKANEN et al) 09 May 2002 (09.05.2002) Entire Document.	1-63
Y	WO 01/65743 A1 (HOOKAM-MILLER) 07 Septmber 2001 (07.09.2001) Entire Document.	1-63
A	US 2003/0154242 A1 (HAYES et al) 14 August 2003 (14.08.2003) Entire Document.	1-63

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"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
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Date of the actual completion of the international search	Date of mailing of the international search report
07 May 2007	06 NOV 2007

Name and mailing address of the ISA/US	Authorized officer:
Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

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(74) Agents: **OWENS, Jonathan, O.** et al.; HAVERSTOCK & OWENS LLP, 162 North Wolfe Road, Sunnyvale, CA 94086 (US).

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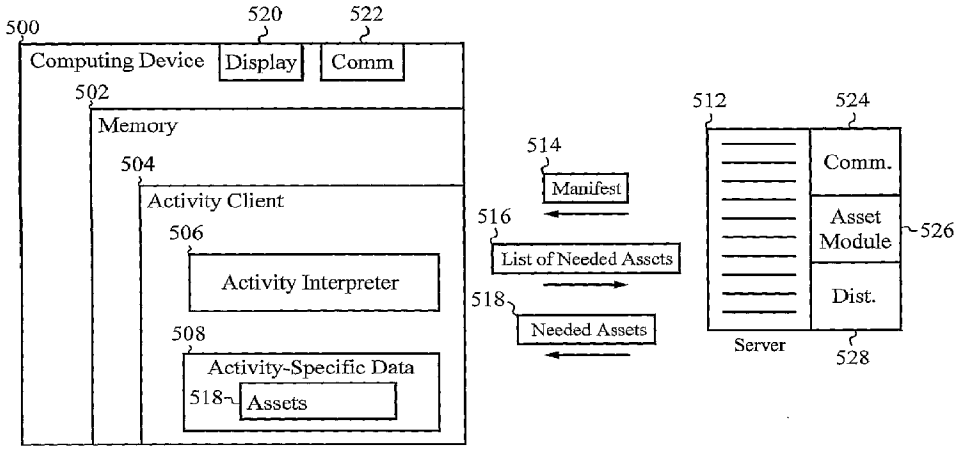
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[Continued on next page]

(54) **Title:** METHOD OF AND SYSTEM FOR MANAGING CLIENT RESOURCES AND ASSETS FOR ACTIVITIES ON COMPUTING DEVICES



(57) **Abstract:** A method of and system for enabling a distributed entertainment system over a computing device is described herein. When implementing a distributed entertainment system wherein the entertainment system is directly correlated to live events or televised programs, there are a number of issues that must be addressed such as differing timing and channels of television programs and separate state laws. Furthermore, there are a plethora of varying computing device models possibly requiring model-specific software. An "Activity Client" is provided to handle such concerns. Furthermore, since time is of the essence for activities based on live or televised events, it is necessary to ensure a computing device is able to receive the necessary updates for the program before the event begins. By providing only the needed components instead of entire data packages, the present invention is able to much more efficiently prepare users' computing devices in time.

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

METHOD OF AND SYSTEM FOR MANAGING CLIENT RESOURCES AND ASSETS FOR ACTIVITIES ON COMPUTING DEVICES

Related Application(s):

This Patent Application claims priority under 35 U.S.C. §119(e) of the co-pending, co-owned United States Provisional Patent Application No. 60/692,356, filed June 20, 2005, and entitled SYSTEMS AND METHODOLOGIES ENABLING A CELL PHONE BASED SUBSCRIPTION SERVICE OFFERING A VARIETY OF SCHEDULED GAMES IN CONNECTION WITH LIVE TELEVISION PROGRAMMING" which is also hereby incorporated by reference in its entirety.

This application is related to co-pending U.S. Patent Application Serial Number 11/298,901, filed on December 9, 2005 and entitled "A GAME OF SKILL PLAYED BY REMOTE PARTICIPANTS UTILIZING WIRELESS DEVICES IN CONNECTION WITH A COMMON GAME EVENT" and co-pending U.S. Patent Application Serial Number 11/166,596, filed on June 24, 2005 and entitled "METHODS AND APPARATUS FOR DISTRIBUTED GAMING OVER A MOBILE DEVICE" which claims priority under 35 U.S.C. § 119(e) of the co-pending United States Provisional Patent Application Serial No. 60/588,273, filed July 14, 2004 and entitled "A METHODOLOGY FOR PROVIDING ALL CONTESTANTS IN GAMES OF SKILL PLAYABLE ON CELL PHONES WITH THEIR CURRENT STANDING WHILE RECEIVING GAME CONTROL INFORMATION ONE-WAY VIA A 'BROADCAST' TRANSMISSION," which are all incorporated by reference in their entirety.

Field of the Invention:

The present invention relates to the field of distributed entertainment. More specifically, the present invention relates to the field of distributed entertainment utilizing a computing device where the entertainment corresponds to an event.

Background of the Invention:

In the United States alone there are over 170 million registered cell phones. With the expiration of the U.S. Patent No. 4,592,546 to Fascenda et al., companies are able to now use the cell phone and other mobile communication devices utilizing a multicast network to

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control television viewers in games of skill based upon predicting, for example, what the quarterback may call on the next play. In addition, games of skill with a common start time can be conducted simultaneously among cell phone owners, based on classic card, dice, trivia, and other games. In order to avoid the anti-gaming laws in the various states, elements of chance must be virtually non-existent in such games and the winners therefore determined by the relative skill, experience and practice of the player in each discrete game. In certain jurisdictions and under certain circumstances, simultaneous games of chance can be conducted using the same technology as games of skill.

Although the ability to play games and enjoy other activities corresponding to current events on cell phones exists, there are a number of issues regarding coordinating the games across a nationwide network. Cellular networks and other networks are only able to handle a limited amount of traffic, so when millions of participants utilize the network at the same time for a regularly scheduled event, there are concerns of the network being overloaded and bogged down to a point where users do not receive necessary data in a timely manner.

Furthermore, cell phones and other computing devices have their own limitations as well. Although cell phone memory is increasing as is typical with technology, cell phones still have a limited amount of memory. Moreover, many users still have somewhat older cell phones that have less memory than current models. In addition to the memory limitations, there are multiple cell phone service providers and a plethora of cell phone models using slightly different protocols. Cell phone users are also sensitive to the time it takes to download the necessary data to play games or enjoy activities.

Servers of the entertainment provider also have limited resources yet must be able to ensure the potentially millions of simultaneous users have the necessary and proper software resident on their cell phones in order to participate in scheduled interactive programs. Again, servers are continuously growing more powerful, quicker and more stable; however there is still potential to overload a server with excessive traffic.

Additionally, other aspects of a nationwide service generate potential issues such as multiple time zones, differing timing and channels of television programs and separate state laws.

Summary of the Invention:

A method of and system for enabling a distributed entertainment system over a computing device is described herein. When implementing a distributed entertainment

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system wherein the entertainment system is directly correlated to live events or televised programs, there are a number of issues that must be addressed such as differing timing and channels of television programs and separate state laws. Furthermore, there are a plethora of varying computing device models possibly requiring model-specific software. An "Activity Client" is provided to handle such concerns. Furthermore, since time is of the essence for activities based on live or televised events, it is necessary to ensure a computing device is able to receive the necessary updates for the program before the event begins. By providing only the needed components instead of entire data packages, the present invention is able to much more efficiently prepare users' computing devices in time.

In one aspect, a method of implementing an entertainment service on computing devices comprises downloading an activity client to a computing device, loading a set of event information to the activity client, selecting an event to participate in from a list of possible events, downloading a set of activity-specific information from a server to the computing device and executing an application corresponding to the event on the computing device. The activity client is a program for managing activity information and data. The method further comprises selecting and registering with a television-related service. The method further comprises identifying a user status. Identifying the user status includes identifying a geographic location of the computing device. The activity client is specifically designed for the computing device. Executing the application is in real-time, synchronized with the event. The set of event information includes a schedule of available events. The schedule of available events includes a name of a television event, identification of an activity to be played with the television event, a television network and local channel offering the television event, a duration of the television event and information relating to nature of a prize related to the television event. The method further comprises displaying the set of event information. The set of event information is continually broadcast from the server and received at the computing device. The set of activity-specific information includes activity-specific instructions and information related to nature of the activity and event. An activity interpreter resident in the activity client is used to execute the application. The activity interpreter combines the activity, event and device instructions to execute the activity in real-time. The application is selected from the group consisting of a game, a survey and a poll. The computing device is a wireless device. The computing device is selected from the group consisting of a set-top box, a personal computer, a gaming console, a laptop computer, a cell phone, a PDA and a combination device. The method further comprises receiving a list of

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assets from the server, comparing the list of assets with a first set of assets on the computing device and receiving only a second set of assets within the list of assets that are not already resident on the computing device. The method further comprises improving efficiency by prioritizing the second set of assets. The second set of assets are grouped into a set of necessary assets and a set of preferred assets.

In another aspect, a method of receiving data on a client device to participate in a specific interactive event comprises receiving a list of assets from a server, comparing the list of assets with the assets on the client device and receiving only the assets within the list of assets that are not already resident on the client device. The method further comprises selecting an activity corresponding to an event from a menu of events. The activity is a game. The method further comprises requesting the list of assets from the server that are required to participate in the specific interactive event. The list of assets are sent from the server. The method further comprises requesting the assets not already on the client device. The method further comprises improving efficiency by prioritizing the assets. The assets are grouped into a set of necessary assets and a set of preferred assets. The client device is a wireless device. The client device is selected from the group consisting of a set-top box, a personal computer, a gaming console, a laptop computer, a cell phone, a PDA and a combination device.

In another aspect, a method of receiving data on a client device to participate in a specific interactive event comprises sending a request to a server from a client device to retrieve assets needed for an activity and concurrently sending a list of the assets currently resident on the client, comparing the list of resident assets sent by the client with a previously generated list of assets on the server and downloading a packet customized for the client containing only the assets missing on the client. The method further comprises improving efficiency by prioritizing the assets. The assets are grouped into a set of necessary assets and a set of preferred assets. The client device is a wireless device. The client device is selected from the group consisting of a set-top box, a personal computer, a gaming console, a laptop computer, a cell phone, a PDA and a combination device.

In yet another aspect, a system for receiving data to participate in a specific interactive event comprises a server and a client device coupled to the server for receiving a set of activity-specific data from the server wherein the client device comprises a memory for storing an activity client. The activity client is a program for managing activity information and data. The activity client further comprises an activity interpreter. A list of assets are utilized to determine which assets are downloaded to the activity client. A set of necessary

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assets are downloaded to the client device. The client device is a wireless device. The client device is selected from the group consisting of a set-top box, a personal computer, a gaming console, a laptop computer, a cell phone, a PDA and a combination device.

In another aspect, a client device comprises a communication interface, an activity client for receiving activity information through the communication interface and a display for displaying the activity information received by the activity client. The activity client is a program for managing activity information and data. The activity client further comprises an activity interpreter. The activity client receives a set of assets related to an application. The application is selected from the group consisting of a game, a survey and a poll. A list of assets are utilized to determine which assets are downloaded to the activity client. Only a set of necessary assets are downloaded to the activity client. The client device is selected from the group consisting of a set-top box, a personal computer, a gaming console, a laptop computer, a cell phone, a PDA and a combination device. The activity information comprises a schedule of upcoming events, is device-specific, is geographic-specific and is activity-specific. A user navigates and selects an event from the schedule of upcoming events.

In another aspect, a server device is configured to communicate with client devices in a plurality of locations wherein the server device provides location-specific activity information to the client devices, wherein the client devices each store an activity client. The server device comprises a communications interface for communicating with the client devices, an asset module for determining which assets each client device needs and a distributing module for sending the assets needed to each client device. The activity client is a program for managing activity information and data. The activity information comprises a schedule of upcoming events. The schedule of upcoming events is activity-specific. The schedule of upcoming events is device-specific. A user navigates and selects an event from the schedule of upcoming events. The server device stores a list of assets required for the client devices to run an application. The server device sends the list of assets to the client devices. The server device sends only requested assets for each client device of the client devices. The server device compares the list of assets with a list of client assets after each client device of the client devices sends the list of client assets to the server device. The server device sends only assets in the list of assets that are not in the list of client assets for each client device of the client devices.

Brief Description of the Drawings:

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FIG. 1 illustrates a flowchart of an embodiment of utilizing an "Activity Client" to ensure a cell phone or other computing device is properly configured.

FIG. 2 illustrates a flowchart of an embodiment of implementing a manifest to determine needed assets for a client computing device.

FIG. 3 illustrates a flowchart of an alternative embodiment of implementing a manifest to determine needed assets for a client computing device.

FIG. 4 illustrates an exemplary manifest of the present invention.

FIG. 5 illustrates a block diagram of an embodiment of the present invention.

Detailed Description of the Preferred Embodiment:

A system for and method of implementing a nationwide entertainment service on computing devices and handling the issues described above are described herein. In some embodiments, the entertainment service is subscription-based. The computing devices include, but are not limited to, set-top boxes, personal computers, gaming consoles, laptop computers, cell phones, PDAs and combination devices such as cell phone/mp3 players.

There are over 200 separate television programming areas across the country. The programming offerings available depend on each individual's physical location. There are hundreds of different printed versions of the "TV Guide," and the same television programs will be viewed at different times and on different television channels depending on what Designated Market Area (DMA) a consumer is located in. Thus, the schedule of events for one person might be entirely different from another person located just a few miles away. Monthly and trial subscribers must be informed in advance which television programs will have games or other activities offered by the service concurrent with their telecast. For example, Jeopardy might start at 4PM ET on Channel 7 in San Francisco, but in Chicago it starts at 6PM ET on Channel 5, and 7PM ET on Channel 13 in New York.

Furthermore, the schedules are continuously changing. The activity schedule changes often and must be updated by adding new activities as well as dropping activities which are based on TV programs that have finished airing or are too far into the program to allow entry.

Immediate entry into activities is also required, since time is of the essence in getting all of the required information processed and downloaded to the client. Moreover, since many contests or competitions are of short duration, a competitor might be put at a

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disadvantage if opportunities to earn points which determine the winners of prizes are missed at the start of the contest, therefore users must be permitted entry possibly seconds before the beginning of a contest, specifically a TV program-based contest. For other activities, such as surveys, time is not necessarily of the essence, but it is still beneficial to users, if they do not have long wait times before participating in an activity. As is described further below, an improved method is described to ensure users have the necessary components of the activity application residing in the memory of the cell phones or computing devices in time to play an activity from its beginning.

The legality of awarding prizes is based on 50 separate state laws. For example, Nevada and Utah have very different gaming laws. When games of skill are offered, each state's laws will define what constitutes a legal game of skill. The same game playable for prizes by a user at one location is not necessarily legal for a user across a state line which might be across the street. It is incumbent upon the entertainment service operator to abide by the laws in each of the jurisdictions where it has users.

Different software is occasionally needed for different makes and models of computing devices such as cell phones. A nationwide entertainment service has a universe of potential users who will utilize a wide variety of makes and models of cell phones. Many of these devices will have different capabilities and requirements regarding display, memory, user interface, and other technical requirements to operate the software necessary to provide such an entertainment service. Therefore, slightly different software is likely required for each separate make and model of a user's device.

A typical subscriber is able to play dozens of different TV-related activities in a week, including football, baseball, Wheel of Fortune™, The Apprentice™ and others. Most makes and models of cell phones have significant limitations on the amount of useable memory for storing downloadable application software. Therefore, a subscriber's cell phone should not be expected to hold in the temporary or permanent memory all of the software capable of running dozens of separate and discreet activity applications which might be offered by such an entertainment service. Minimizing and managing the amount of memory required to fully enjoy the entertainment service is essential.

The present invention utilizes a software application, referred to as an "Activity Client." The "Activity Client" is retained in a user's computing device's memory. A variety

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of methodologies are implemented for downloading the "Activity Client" into memory of the cell phone or other computing device utilized. In an embodiment, the "Activity Client" is preloaded prior to purchase by a manufacturer or carrier. In an alternative embodiment, in order to initiate the service, a subscriber once registered, selects the company's "Activity Client" from a menu on the cell phone or other computing device from a list of activities, games and other entertainment services offered by a wireless service provider such as Verizon™ Wireless or Sprint™. In some embodiments, if the activity is to be participated other than on a trial basis, registration and billing arrangements with the service will be accomplished either on the company's internet site, or by inputting registration information utilizing the cell phone or other computing device.

Upon selecting the company's service from this menu, a data connection is made to either the cellular service provider or the company's server, and the "Activity Client" is downloaded to the user's cell phone or other computing device. An example protocol implemented is TCP. In the cell phone embodiment, the process of downloading the "Activity Client" is similar to the current methods whereby discrete cell phone activities are selected, downloaded, and previewed or purchased.

In some embodiments, the downloaded "Activity Client" resides in the cell phone's compact flash memory. When the user subsequently launches the "Activity Client" on his/her cell phone or other computing device, a data connection is made to a server. After the user is authenticated and their entitlement level has been determined, the authorized and geographic-specific schedule of events is sent down to his/her phone. Using this approach, the schedule is continuously updated while the "Activity Client" is active.

The "Activity Client" in its default mode, utilizes the LCD on the cell phone to display the entertainment beginning with the next scheduled activities yet to start, generally on the half hour. Since the registration process provides the service provider with the make and model of each user's phone, all "Activity Client" downloads are specific for that phone and service. Thus, for example, if a user downloads the "Activity Client" to his Samsung phone on a Verizon Wireless network, subsequent downloads to that phone will function properly as they are specifically designed for that phone.

To address the issue of numerous programming areas across the country, in one embodiment, the legally mandated ability of the cellular networks to accurately identify the

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physical location of every cell phone is utilized. Alternatively, and when using computing devices other than a cell phone, other information is utilized to locate the user, such as area code, zip code, or the billing address provided by the user. Based on the information acquired or provided, the server selects the specific schedule of activities, along with start times and TV channel designation for the location for this particular user. The scheduling information is downloaded into a template residing in the "Activity Client." For example, a user located in the Indianapolis, Indiana television DMA might receive a schedule which includes 9:00 pm Monday Night Football, ABC, Channel 13.

In an alternative embodiment, another methodology is utilized wherein specific scheduling information is continually broadcast to all of the users' phones, either utilizing SMS messages to "wake" the phone or, by utilizing a 3G "always on" multicast to update the schedule continually without user intervention, as long as the user's telephone is powered on.

The server, when determining the location of the cell phone, also accesses information concerning each specific activity offered as to whether or not it has been determined that the activity meets the applicable state law requirements of the game of skill for each particular participant. The user is then informed as to whether or not a prize will be offered to the competitors in this activity from their location.

In addition to containing software for enabling the continual receipt and updating of schedules and activity playing information specific to each user's geographic location, the "Activity Client" has the ability to receive and hold downloaded activity-specific data instructions from the server. Thus, when a specific activity is selected for play by the user, for example, Monday Night Football™, Wheel of Fortune™, or Major League Baseball™, the server downloads the activity-specific instructions into a memory space provided for this purpose in the "Activity Client." These activity-specific data instructions are based on the specific genre such as football, specific event such as San Francisco 49ers vs Dallas Cowboys and the specific computing device such as a wireless mobile device such as Sanyo™ 4300. Thereafter, the specific activity instructions temporarily reside inside the "Activity Client" until the next activity playing session, where it is replaced by different activity-specific data instructions selected by the user.

In an alternative embodiment, the system described herein is used to schedule and control duplicate activities of skill or chance with a common scheduled start time, played

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simultaneously, which are self contained, for example, not related to a television program. Examples of such include a trivia game, or classic card, dice, word games or games based on television clips.

Figure 1 illustrates a flowchart of an embodiment of utilizing an "Activity Client" to ensure a cell phone or other computing device is properly configured. In the step 100, a user selects from a menu provided by his web service provider or cellular service operator, for example, Verizon Wireless™, Cingular™, or Sprint™, the TV related subscription service or other service. In the step 102, the user registers with the subscription service when necessary. For some activities, registration is required, but for others, registration is optional or not even available. After registration, if necessary, the user receives a downloaded "Activity Client" into his cell phone or other computing device, specific to the device's make and model in the step 104. In the step 106, to access the entertainment service, the "Activity Client" is selected by the user from the menu, and the device connects via the cellular network and/or internet to the service provider's server. Alternatively, after the "Activity Client" is downloaded, the device automatically connects to the server. In the step 108, the server identifies the user's status as a "trial" subscriber, "ad hoc" competitor, or "full monthly" subscriber, and identifies the specific geographic location of the user. In the step 110, a current schedule of all available events, by name of event, TV network and channel offered, duration of event, and the nature of the prize, and where appropriate, information that indicates that the activity is able to be played for a prize in the user's locale or not, is loaded into the "Activity Client" and displayed on the device's LCD. In an alternative embodiment, once the "Activity Client" is resident on the user's device, scheduling information is continually "pushed" or "broadcast" and passively received and updated on the "Activity Client" so that it is instantly accessed, current and up to the minute. In the step 112, the user selects the event he/she desires to play along with from a variety of possibilities presented on the device. In the step 114, the "Activity Client" software connects to the company's server, and the activity-specific instructions for a specific device, the nature of the activity, and the specific event are downloaded into the "Activity Client." In the step 116, the "Activity Client" then utilizes the activity interpreter resident in the "Activity Client" and starts the activity application. In the step 118, the activity interpreter that resides in the "Activity Client" combines the activity, event, and device instructions and uses these data instructions to execute the activity

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application as it unfolds in real-time, synchronized with the television programming or live event being viewed by the user.

Additionally, managing different types of software assets or components required by different models of computing devices such as cell phones offered by a variety of cellular carriers or web service providers is described herein. To successfully participate in an activity of skill, based on a television show or live event, a user's cell phone needs specific software to manage, for example, the images displayed on the LCD display, the sound effects utilized by the activity, the activity scripts, the advertising copy and images which are displayed interstitially during the activity, and event-specific data generated in real-time and synchronized with the unfolding of a television show or live event. Complexity is further compounded by the fact that the assets change in minor or major part from activity to activity. For example, from football to baseball to Jeopardy™, there are changes to these assets. Some cellular phones are able to retain some or all of the assets in the phone's memory if the activity to be played was the last activity partaken by a user. Other phones retain some or part of the assets which are common to different genres of activities. Yet other phones retain none of the assets. For example, a first time user or frequent user whose assets were replaced by an upload for a different genre of activity would likely have none of the assets.

Regardless of what type of device is used and on whichever service, the present invention ensures that the application in each user's device receives all of the specific assets necessary for that particular genre of activity for a specific scheduled event while minimizing capacity and latency issues by assuring that only the necessary assets which are not resident on the device for the event are delivered on a timely basis to each cell phone. By using an implementation that only sends necessary missing data, less information needs to be transferred therefore there is less traffic congestion, and users are able to receive the necessary components on time.

Although a cell phone is used in the example above, the present invention is not limited to cell phones. As described above and below, the present invention is applicable to a variety of computing devices in addition to cellular telephones.

Figure 2 illustrates a flowchart of an embodiment of implementing a manifest, which is a list of assets, to determine needed assets for a client computing device. In the step 200, a user selects an activity from a menu which triggers a program in the user's client computing

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device which contacts a server and requests a manifest of assets, from the server, that are required to participate in a specific interactive event. The server then sends the manifest to the client, in the step 202. In the step 204, the client then compares the received manifest to the assets currently resident in the computing device. The client then requests from the server the assets it needs to have resident in the client to obtain a full compliment of required software necessary to participate in the activity, in the step 206. The server then sends a package containing only the assets necessary to complete the manifest resident on the client computing device in the step 208.

Figure 3 illustrates a flowchart of an alternative embodiment of implementing a manifest to determine needed assets for a client computing device. Upon receiving input that a specific activity is about to be undertaken, the client sends a request to the server to retrieve all of the assets it needs for a particular activity while also sending a listing of the assets currently resident on the client, in the step 300. The server having previously generated the manifest for the event, then compares the list of resident assets sent with the request in the step 302, and then downloads a single packet customized for the client containing only the assets missing on the client, in the step 304.

Figure 4 illustrates an exemplary manifest of the present invention. Assets listed in a manifest 400, range in necessity from those that are absolutely required to those that are preferable. To further improve efficiency when delivering components to a user's computing device, the manifest 400 is able to prioritize the assets for the client device to resolve. In some embodiments, the manifest groups the assets into two sets of assets: a first set 402 of required assets and a second set 404 of preferable assets. Furthermore, the assets within each group are able to be ordered utilizing priorities ensuring that the most important assets in the group are first. For example, the server sends the following list of assets required for an event - A, D, and (E, F and H). The assets (E, F and H) are grouped in the response so that the client knows that at least one of them is necessary for the client to join the event. Additionally, the order in which the assets are listed is able to provide additional information to the client device about their priority. For instance, in the example above, the asset E is the most preferred asset 406, then F and finally H within the first set 402 of required assets. If the client has none of the assets, it is able to only request E, depending on the current constraints such as time remaining before the start of the event, the size of the memory on the

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client device and other similar considerations. Although the manifest used in the example above only has two levels and five total assets, the size of the manifest is able to be modified as desired. If three levels of groupings are preferred, then that hierarchy is able to be implemented. Furthermore, more or less than five assets are able to be included within the manifest, as appropriate.

By minimizing the amount of temporary memory utilized for each application in the client, the time necessary to load the software to play an event is decreased, and the memory of each client is used more efficiently. Thus, the server is able to minimize this overhead by only sending the assets which the client specifically needs for a specific application at a specific time. In one embodiment, the client is provided flexibility in terms of managing the assets it needs for the activities. In another embodiment, the processing that needs to be performed by the client is minimized.

Figure 5 illustrates a block diagram of an embodiment of the present invention. A computing device 500 such as a set-top box, personal computer, gaming console, laptop computer, cell phone, PDA or combination cell phone/mp3 device includes a memory 502 for storing data. As described above, the memory 502 varies in size depending on the type and brand of computing device, where more recently produced computing devices have larger memories and are thus able to store more data. However, older computing devices only store a minimal amount of data. Within the memory an "Activity Client" 504 is stored for receiving activity-specific data 508. The activity-specific data 508 includes instructions for a specific computing device, the nature of the activity and the specific event. By utilizing a manifest 514 received from a server 512, wherein the manifest 514 includes assets for running the activity, the computing device 500 is able to efficiently retrieve the activity-specific data 508. A list of needed assets 516 by the computing device 500 is sent from the computing device 500 back to the server 512. Then, the necessary assets 518 are downloaded to the memory 502 of the computing device 500. An activity interpreter 506 within the "Activity Client" utilizes the activity-specific data 508 to start the activity application by combining the activity, event and device instructions and executing the activity in real-time. The computing device 500 also includes a display 520, a communication interface 522 and other standard components necessary for proper functionality. The server 512 also includes a communications interface 524 for communicating with the client device 500, an asset module

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526 for determining which assets the client device 500 needs and a distributing module 528 for sending the assets needed to the client device 500.

The present invention is applicable to any communicating computing devices such as set-top boxes, personal computers, gaming consoles, laptop computers, cell phones, PDAs and combination devices such as cell phone/mp3 players. The computing devices must have access to a network, but are able to be wired or wireless. The computing devices also are able to be mobile or stationary. Furthermore, the network is able to include a cellular network, a web-based network or any other information sharing network.

The activities that are able to be participated in utilizing the present invention include, but are not limited to, games, polls, surveys, and other interactive activities.

In one specific embodiment, a user utilizes a wireless device, such as a cell phone to subscribe to an interactive gaming service. The user then registers with the service and downloads an "Activity Client" into the cell phone where the "Activity Client" is specifically configured for that type of cell phone. Then, the cell phone connects through the cellular network and Internet to a game server. The game server identifies the user's status including the specific geographical location. A current schedule of all available events, by name of TV event, identification of the game to be played with the TV event, TV network and channel offered, duration of event, and the nature of the prize is then downloaded to the "Activity Client." After a user views the schedule and other information, the user is able to select the event they want to play along with. Then, the "Activity Client" connects to the game server and game-specific data is downloaded. In instances where some of the game-specific data is already downloaded in the cell phone's memory, only those assets that are not already there are downloaded. Preferably, necessary assets are downloaded first and then preferred assets are downloaded. This ensures that a user will be able to play along with the game on time. Then, the "Activity Client" utilizes the game interpreter resident to start the game. The game interpreter also combines the game, event and device instructions to execute the game in real-time while synchronized with the television programming.

The present invention is also intended to apply to any kind of application software which utilizes a variety of assets, where some of the assets are maintained on a remote server such as playing video games, listening to music and web browsing.

To utilize the present invention, a user has a computing device, such as a cell phone,

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or other appropriate computing device with which he is able to subscribe to an interactive entertainment service. The user then registers with the service and downloads an "Activity Client" into the computing device where the "Activity Client" is specifically configured for that type of device. Then the computing device connects through to a server. The server identifies the user's status including the specific geographical location. A current schedule of all available events, by name of TV event, identification of the activity to be played with the TV event, TV network and channel offered, duration of event, and the nature of the prize is then downloaded to the "Activity Client." After a user views the schedule and other information, the user is able to select the event they want to play along with. Then, the "Activity Client" connects to the server and activity-specific data is downloaded. In instances where some of the activity-specific data is already downloaded in the computing device's memory, only those assets that are not already there are downloaded. Preferably, necessary assets are downloaded first and then preferred assets are downloaded. This ensures that a user will be able to play along with the activity on time. Then, the "Activity Client" utilizes the activity interpreter resident to start the activity. The activity interpreter also combines the activity, event and device instructions to execute the activity in real-time while synchronized with the television programming.

In operation, a user is able to use his cell phone or other computing device to enjoy interactive entertainment. For example, the user scrolls through the menus and selects the interactive entertainment desired to be played. Thereafter, downloads occur, and instructions and options are displayed on the display so that a user is able to read about and determine which interactive entertainment he wants to play. After selecting the activity, again further downloads occur to ensure the proper components are installed on the user's computing device. For example, if it is a Sunday afternoon at 12:50PM PT, and a user in San Francisco, CA sees that the San Francisco 49ers are playing the Oakland Raiders at 1:00 PM PT, he is able to select that activity to play. The user also watches the activity on television. In other embodiments, the activity is watched on other devices such as a computer, the cell phone or computing device itself, or live. At 1:00PM PT, when the activity starts, the user is able to interactively play along with what he is viewing by predicting aspects of the activity.

Although a cell phone has been used throughout the present specification as the main exemplary computing device, it should be understood that any computing device is able to be

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used within the described method and system.

The present invention has been described in terms of specific embodiments incorporating details to facilitate the understanding of principles of construction and operation of the invention. Such reference herein to specific embodiments and details thereof is not intended to limit the scope of the claims appended hereto. It will be readily apparent to one skilled in the art that other various modifications may be made in the embodiment chosen for illustration without departing from the spirit and scope of the invention as defined by the claims.

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CLAIMS

What is claimed is:

1. A method of implementing an entertainment service on computing devices comprising:
   a. downloading an activity client to a computing device;
   b. loading a set of event information to the activity client;
   c. selecting an event to participate in from a list of possible events;
   d. downloading a set of activity-specific information from a server to the computing device; and
   e. executing an application corresponding to the event on the computing device.

2. The method as claimed in claim 1 wherein the activity client is a program for managing activity information and data.

3. The method as claimed in claim 1 further comprising selecting and registering with a television-related service.

4. The method as claimed in claim 1 further comprising identifying a user status.

5. The method as claimed in claim 4 wherein identifying the user status includes identifying a geographic location of the computing device.

6. The method as claimed in claim 1 wherein the activity client is specifically designed for the computing device.

7. The method as claimed in claim 1 wherein executing the application is in real-time, synchronized with the event.

8. The method as claimed in claim 1 wherein the set of event information includes a schedule of available events.

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9. The method as claimed in claim 8 wherein the schedule of available events includes a name of a television event, identification of an activity to be played with the television event, a television network and local channel offering the television event, a duration of the television event and information relating to nature of a prize related to the television event.

10. The method as claimed in claim 1 further comprising displaying the set of event information.

11. The method as claimed in claim 1 wherein the set of event information is continually broadcast from the server and received at the computing device.

12. The method as claimed in claim 1 wherein the set of activity-specific information includes activity-specific instructions and information related to nature of the activity and event.

13. The method as claimed in claim 1 wherein an activity interpreter resident in the activity client is used to execute the application.

14. The method as claimed in claim 13 wherein the activity interpreter combines the activity, event and device instructions to execute the activity in real-time.

15. The method as claimed in claim 1 wherein the application is selected from the group consisting of a game, a survey and a poll.

16. The method as claimed in claim 1 wherein the computing device is a wireless device.

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17. The method as claimed in claim 1 wherein the computing device is selected from the group consisting of a set-top box, a personal computer, a gaming console, a laptop computer, a cell phone, a PDA and a combination device.

18. The method as claimed in claim 1 further comprising:
    a. receiving a list of assets from the server;
    b. comparing the list of assets with a first set of assets on the computing device; and
    c. receiving only a second set of assets within the list of assets that are not already resident on the computing device.

19. The method as claimed in claim 18 further comprising improving efficiency by prioritizing the second set of assets.

20. The method as claimed in claim 19 wherein the second set of assets are grouped into a set of necessary assets and a set of preferred assets.

21. A method of receiving data on a client device to participate in a specific interactive event comprising:
    a. receiving a list of assets from a server;
    b. comparing the list of assets with the assets on the client device; and
    c. receiving only the assets within the list of assets that are not already resident on the client device.

22. The method as claimed in claim 21 further comprising selecting an activity corresponding to an event from a menu of events.

23. The method as claimed in claim 22 wherein the activity is a game.

24. The method as claimed in claim 21 further comprising requesting the list of assets from the server that are required to participate in the specific interactive event.

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25. The method as claimed in claim 21 wherein the list of assets are sent from the server.

26. The method as claimed in claim 21 further comprising requesting the assets not already on the client device.

27. The method as claimed in claim 21 further comprising improving efficiency by prioritizing the assets.

28. The method as claimed in claim 27 wherein the assets are grouped into a set of necessary assets and a set of preferred assets.

29. The method as claimed in claim 21 wherein the client device is a wireless device.

30. The method as claimed in claim 21 wherein the client device is selected from the group consisting of a set-top box, a personal computer, a gaming console, a laptop computer, a cell phone, a PDA and a combination device.

31. A method of receiving data on a client device to participate in a specific interactive event comprising:

a. sending a request to a server from a client device to retrieve assets needed for an activity and concurrently sending a list of the assets currently resident on the client;

b. comparing the list of resident assets sent by the client with a previously generated list of assets on the server; and

c. downloading a packet customized for the client containing only the assets missing on the client.

32. The method as claimed in claim 31 further comprising improving efficiency by prioritizing the assets.

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33. The method as claimed in claim 32 wherein the assets are grouped into a set of necessary assets and a set of preferred assets.

34. The method as claimed in claim 31 wherein the client device is a wireless device.

35. The method as claimed in claim 34 wherein the client device is selected from the group consisting of a set-top box, a personal computer, a gaming console, a laptop computer, a cell phone, a PDA and a combination device.

36. A system for receiving data to participate in a specific interactive event comprising:
    a. a server; and
    b. a client device coupled to the server for receiving a set of activity-specific data from the server wherein the client device comprises a memory for storing an activity client.

37. The system as claimed in claim 36 wherein the activity client is a program for managing activity information and data.

38. The system as claimed in claim 36 wherein the activity client further comprises an activity interpreter.

39. The system as claimed in claim 36 wherein a list of assets are utilized to determine which assets are downloaded to the activity client.

40. The system as claimed in claim 39 wherein only a set of necessary assets are downloaded to the client device.

41. The system as claimed in claim 36 wherein the client device is a wireless device.

42. The system as claimed in claim 36 wherein the client device is selected from the group consisting of a set-top box, a personal computer, a gaming console, a laptop

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computer, a cell phone, a PDA and a combination device.

43. A client device comprising:
    a. a communication interface;
    b. an activity client for receiving activity information through the communication interface; and
    c. a display for displaying the activity information received by the activity client.

44. The client device as claimed in claim 43 wherein the activity client is a program for managing activity information and data.

45. The client device as claimed in claim 43 wherein the activity client further comprises an activity interpreter.

46. The client device as claimed in claim 43 wherein the activity client receives a set of assets related to an application.

47. The client device as claimed in claim 46 wherein the application is selected from the group consisting of a game, a survey and a poll.

48. The client device as claimed in claim 46 wherein a list of assets are utilized to determine which assets are downloaded to the activity client.

49. The client device as claimed in claim 48 wherein only a set of necessary assets are downloaded to the activity client.

50. The client device as claimed in claim 46 wherein the client device is selected from the group consisting of a set-top box, a personal computer, a gaming console, a laptop computer, a cell phone, a PDA and a combination device.

51. The client device as claimed in claim 46 wherein the activity information comprises a

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schedule of upcoming events.

52. The client device as claimed in claim 51 wherein the schedule of upcoming events is device-specific.

53. The client device as claimed in claim 51 wherein the schedule of upcoming events is geographic-specific.

54. The client device as claimed in claim 51 wherein the schedule of upcoming events is activity-specific.

55. The client device as claimed in claim 51 wherein a user navigates and selects an event from the schedule of upcoming events.

56. A server device configured to communicate with client devices in a plurality of locations wherein the server device provides location-specific activity information to the client devices, wherein the client devices each store an activity client, the server device comprising:

a. a communications interface for communicating with the client devices;

b. an asset module for determining which assets each client device needs; and

c. a distributing module for sending the assets needed to each client device.

57. The server device as claimed in claim 56 wherein the activity client is a program for managing activity information and data.

58. The server device as claimed in claim 56 wherein the activity information comprises a schedule of upcoming events.

59. The server device as claimed in claim 58 wherein the schedule of upcoming events is activity-specific.

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60. The server device as claimed in claim 58 wherein the schedule of upcoming events is device-specific.

61. The server device as claimed in claim 58 wherein a user navigates and selects an event from the schedule of upcoming events.

62. The server device as claimed in claim 56 wherein the server device stores a list of assets required for the client devices to run an application.

63. The server device as claimed in claim 62 wherein the server device sends the list of assets to the client devices.

64. The server device as claimed in claim 63 wherein the server device sends only requested assets for each client device of the client devices.

65. The server device as claimed in claim 62 wherein the server device compares the list of assets with a list of client assets after each client device of the client devices sends the list of client assets to the server device.

66. The server device as claimed in claim 65 wherein the server device sends only assets in the list of assets that are not in the list of client assets for each client device of the client devices.

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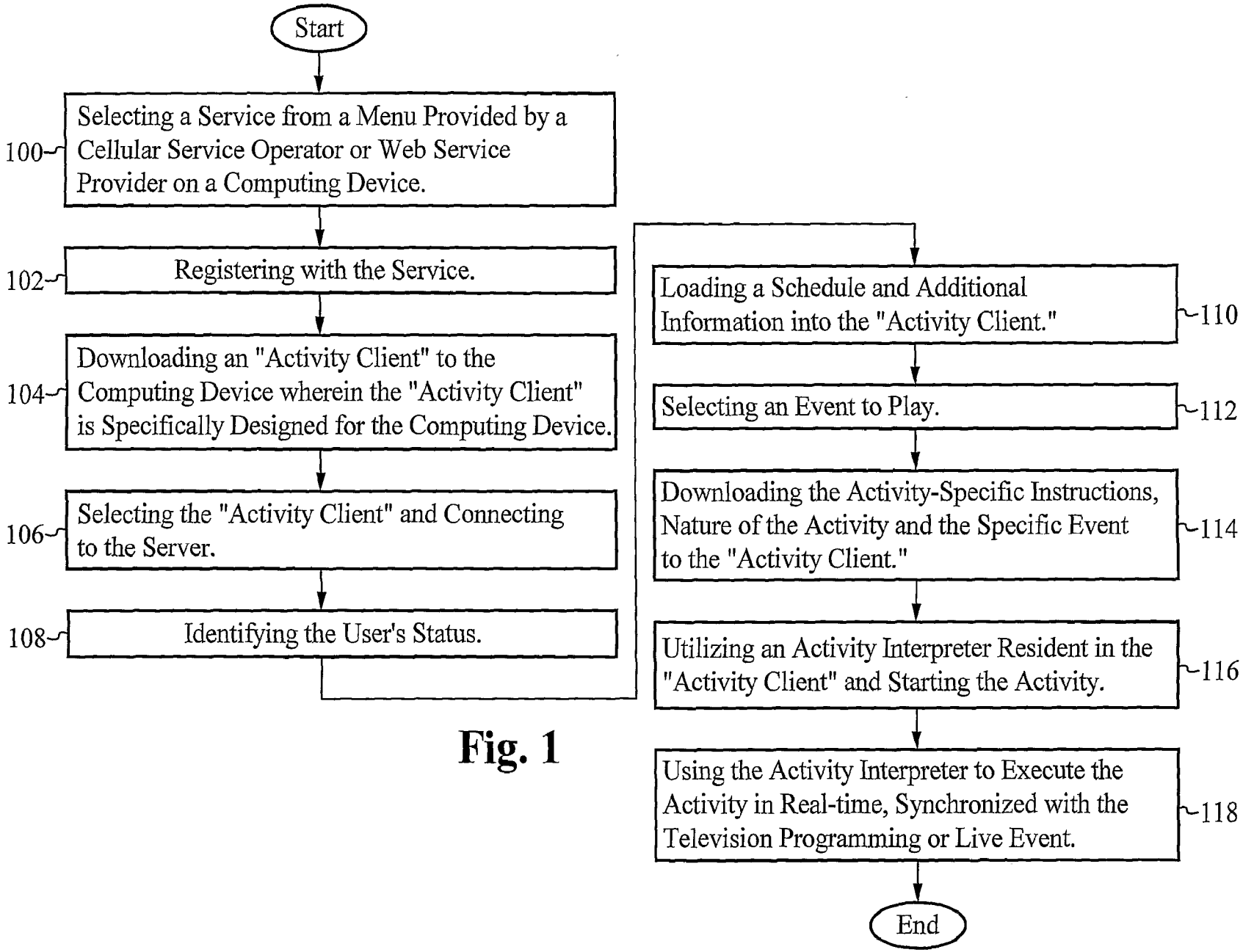


Fig. 1

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FanDuel Ex. 1002-0355

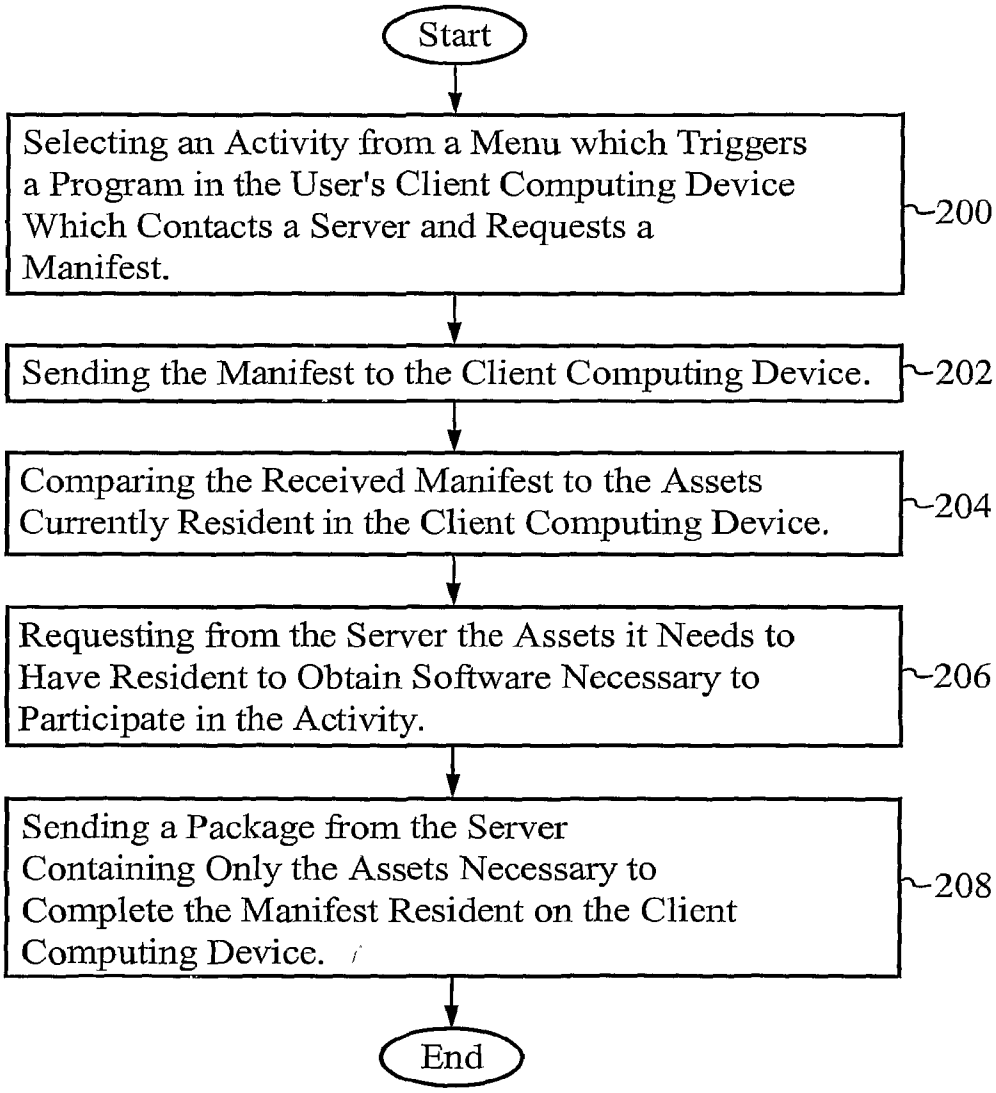

Start
Selecting an Activity from a Menu which Triggers a Program in the User's Client Computing Device Which Contacts a Server and Requests a Manifest.
200
Sending the Manifest to the Client Computing Device.
202
Comparing the Received Manifest to the Assets Currently Resident in the Client Computing Device.
204
Requesting from the Server the Assets it Needs to Have Resident to Obtain Software Necessary to Participate in the Activity.
206
Sending a Package from the Server Containing Only the Assets Necessary to Complete the Manifest Resident on the Client Computing Device.
208
End

Fig. 2

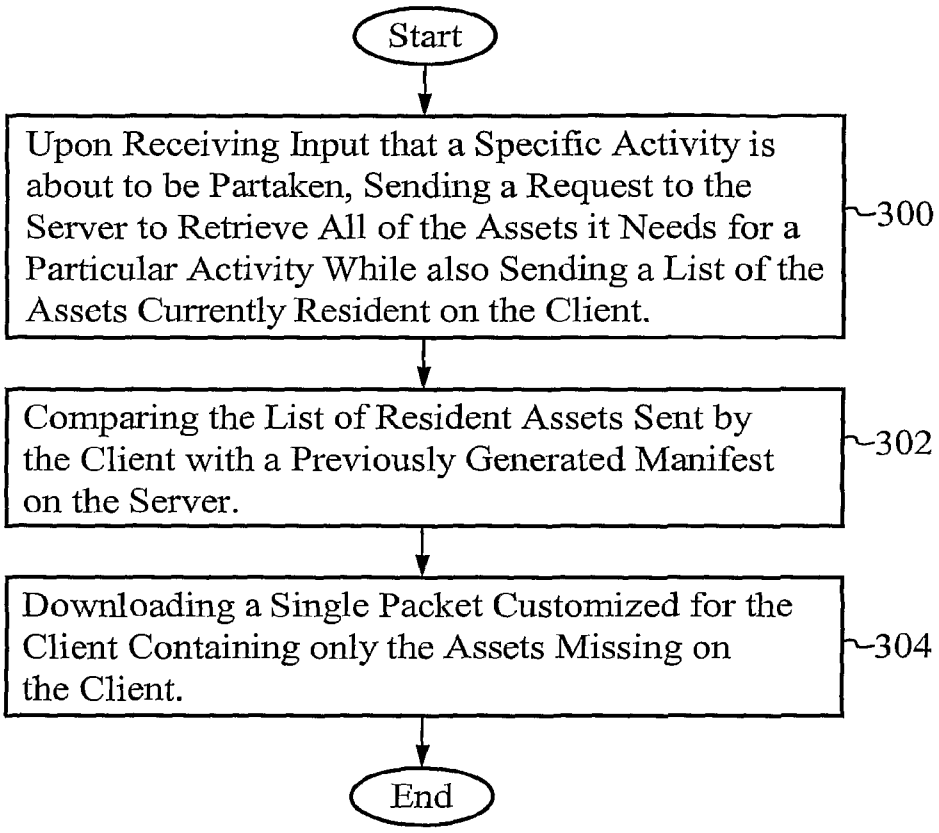

Start
Upon Receiving Input that a Specific Activity is about to be Partaken, Sending a Request to the Server to Retrieve All of the Assets it Needs for a Particular Activity While also Sending a List of the Assets Currently Resident on the Client.
300
Comparing the List of Resident Assets Sent by the Client with a Previously Generated Manifest on the Server.
302
Downloading a Single Packet Customized for the Client Containing only the Assets Missing on the Client.
304
End

Fig. 3

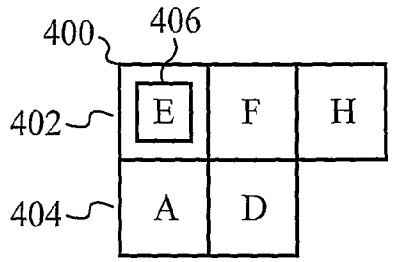


Fig. 4

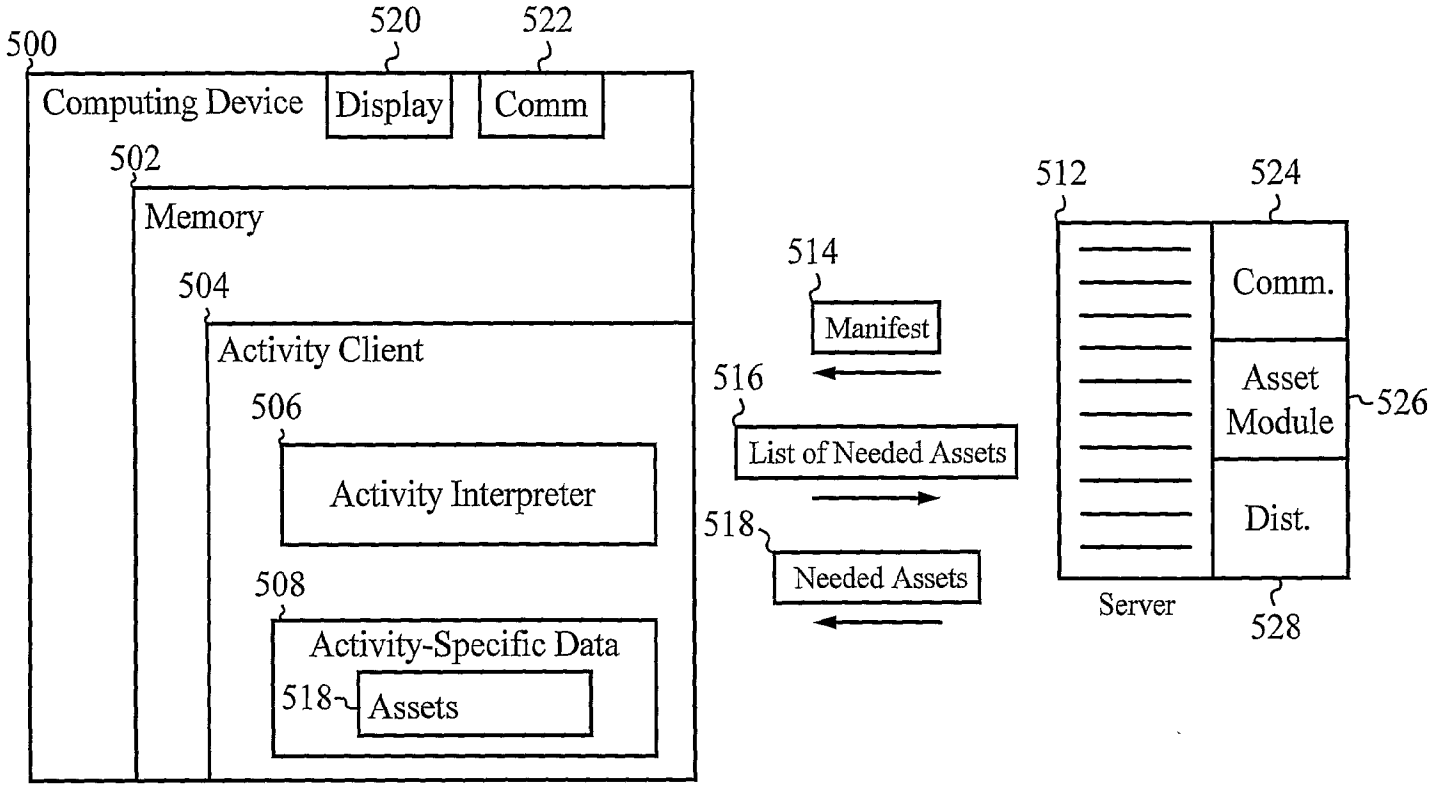


Fig. 5

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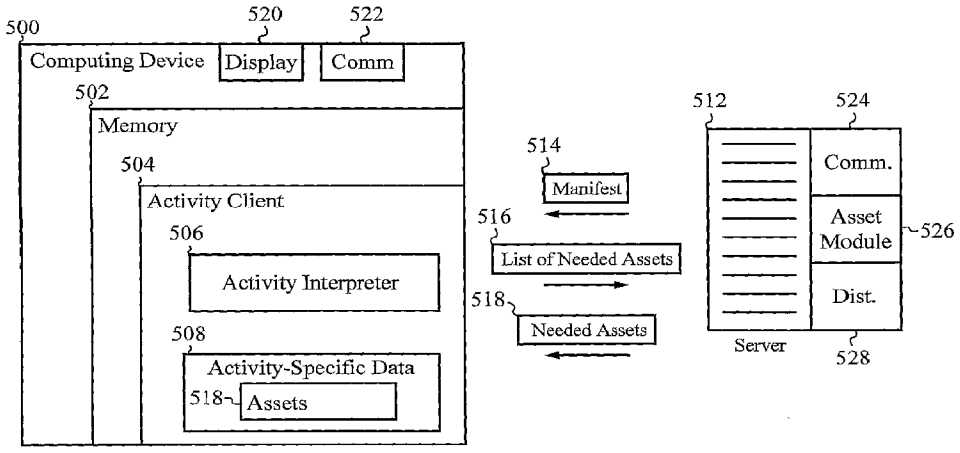
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[Continued on next page]

(54) Title: METHOD OF AND SYSTEM FOR MANAGING CLIENT RESOURCES AND ASSETS FOR ACTIVITIES ON COMPUTING DEVICES



(57) Abstract: A method of and system for enabling a distributed entertainment system over a computing device is described herein. When implementing a distributed entertainment system wherein the entertainment system is directly correlated to live events or televised programs, there are a number of issues that must be addressed such as differing timing and channels of television programs and separate state laws. Furthermore, there are a plethora of varying computing device models possibly requiring model-specific software. An "Activity Client" is provided to handle such concerns. Furthermore, since time is of the essence for activities based on live or televised events, it is necessary to ensure a computing device is able to receive the necessary updates for the program before the event begins. By providing only the needed components instead of entire data packages, the present invention is able to much more efficiently prepare users' computing devices in time.

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A. CLASSIFICATION OF SUBJECT MATTER
IPC(8): A63F 9/24 (2007.01)
USPC: 463/42
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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC: 379/931.13,114.11;463/1

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Electronic data base: USPTO WEST, NPL DialogPRO
Search terms used: managing client resources,download activity client,download assets,load activity client,list assets,list events,select event,download server,request server,user status

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 2004/0117839 A1 (Watson et al.) 17 June 2004 (17.06.2004) [Fig. 1,para 84 ln 8-11,para 83 ln 9,para 26, para 33]	21,24-26,31,36,37,39,40, 43,44,46-49,56,57,62-66 --- 1-20,22,23,27-30, 32-35,38,41,42,45,50-55, 58-61
Y	US 6,763,377 B1 (Belknap et al.) 13 July 2004 (13.07.2004) [para 45 ln 22-23,para 45 ln 45-46, para 45 ln 38-39, para 45 ln 46,para 46 ln 5-6]	1-20,22,23,27-30, 32-35,38,41,42,45, 50-55,58-61
Y	US 5,987,440 A (O'Neil et al.) 16 November 1999 (16.11.1999) [col 20 ln 30-31]	12-14,38,45
Y	US 2003/0069828 A1 (Blazey et al.) 10 April 2003 (10.04.2003) [para 1]	19,20,27,28,32,33
Y	US 6,578,068 B1 (Bowman-Amuah) 10 June 2003 (10.06.2003) [col 50 ln 31-40]	7

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Date of the actual completion of the international search	Date of mailing of the international search report
03 February 2007 (03.02.2007)	23 APR 2007
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

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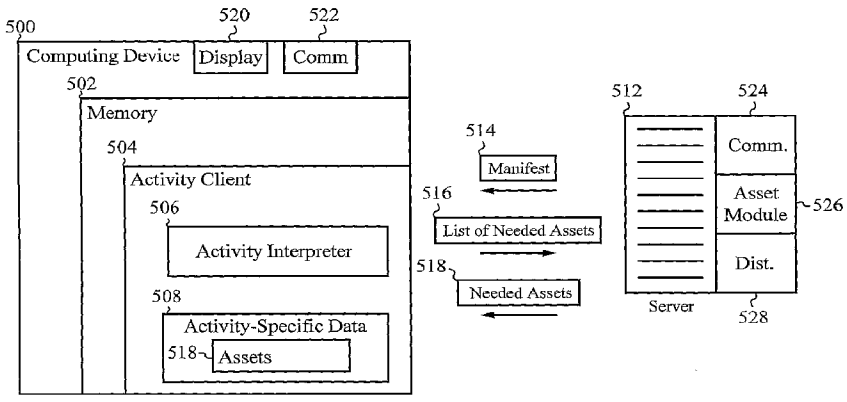
(74) Agents: **OWENS, Jonathan, O.** et al.; HAVERSTOCK & OWENS LLP, 162 North Wolfe Road, Sunnyvale, CA 94086 (US).

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[Continued on next page]

(54) Title: METHOD OF AND SYSTEM FOR MANAGING CLIENT RESOURCES AND ASSETS FOR ACTIVITIES ON COMPUTING DEVICES



(57) Abstract: A method of and system for enabling a distributed entertainment system over a computing device is described herein. When implementing a distributed entertainment system wherein the entertainment system is directly correlated to live events or televised programs, there are a number of issues that must be addressed such as differing timing and channels of television programs and separate state laws. Furthermore, there are a plethora of varying computing device models possibly requiring model-specific software. An "Activity Client" is provided to handle such concerns. Furthermore, since time is of the essence for activities based on live or televised events, it is necessary to ensure a computing device is able to receive the necessary updates for the program before the event begins. By providing only the needed components instead of entire data packages, the present invention is able to much more efficiently prepare users' computing devices in time.

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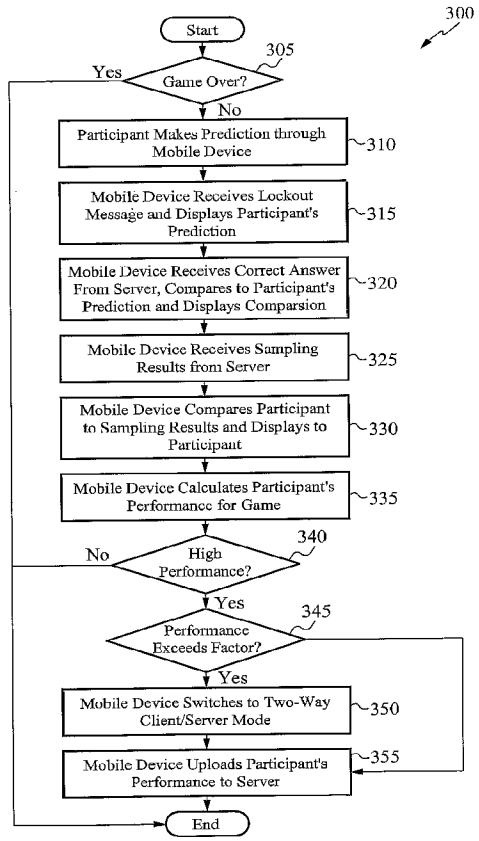
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[Continued on next page]

(54) Title: METHOD AND APPARATUS FOR DISTRIBUTED GAMING OVER A MOBILE DEVICE



(57) Abstract: Some embodiments of the invention provide a method and system for detecting unusual performance in a game. The game has a participant. The method calculates for the participant, a performance metric. The method compares the performance metric to a threshold value. Based on the comparison, the method optionally connects to a server. In some embodiments, the connection is for uploading a set of data from the participant to the server. The server, of some embodiments, broadcasts to the participant. The broadcast is a one-way transmission. In some embodiments, the broadcast includes a distribution based on a set of sample participants. In these embodiments, the set of sample participants comprises a representative sample of all the participants in the game. The threshold value, of some embodiments, is based on the broadcast and in some embodiments, the broadcast includes a histogram. The connecting occurs, in some embodiments, when the performance metric exceeds the threshold value. The connection, for some embodiments, includes a two-way connection. In some embodiments, the method also tracks for the participant, a participant improvement factor. The participant improvement factor is based on an average performance level for the participant. The method stores the participant improvement factor. The threshold value, in some of these embodiments, is based on the participant improvement factor. The method of some embodiments tracks for the game, a game improvement factor. The game improvement factor is based on an average performance level for several participants in the game. The method stores the game improvement factor. The threshold value, in some of these embodiments, is based on the game improvement factor. In some embodiments, the method examines the uploaded data for particular characteristics. In some embodiments, the particular characteristics indicate the likelihood of cheating activity.

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METHODS AND APPARATUS FOR DISTRIBUTED GAMING OVER A MOBILE DEVICE

RELATED APPLICATIONS

This patent application claims priority under 35 U.S.C. §119(e) of the co-pending, co-owned United States Provisional Patent Application No. 60/588,273, filed July 14, 2004, entitled "A METHODOLOGY FOR PROVIDING ALL CONTESTANTS IN GAMES OF SKILL PLAYABLE ON CELL PHONES WITH THEIR CURRENT STANDING WHILE RECEIVING GAME CONTROL INFORMATION ONE-WAY VIA A 'BROADCAST' TRANSMISSION," which is hereby incorporated by reference. This patent application claims priority under 35 U.S.C. §119(e) of the co-pending, co-owned United States Provisional Patent Application No. 60/583,739, filed June 28, 2004, entitled "A METHODOLOGY FOR DETECTING CHEATING DURING A REAL TIME CONTEST OF SKILL UTILIZING A CELL PHONE IN CONNECTION WITH A LIVE TELEVISION PROGRAM," which is hereby incorporated by reference. This patent application is concurrently filed with United States Patent Application No._____, entitled METHODS AND APPARATUS FOR DISTRIBUTED GAMING OVER A MOBILE DEVICE, which is hereby incorporated by reference.

FIELD OF THE INVENTION

The present invention relates to the field of distributed gaming. More particularly, the present invention relates to the field of distributed gaming utilizing a mobile device.

BACKGROUND

Participants of distributed gaming have experienced areas of expansion in recent years. These participants are enabled to play new games and play existing games in novel ways. For example, games today are often played by several participants simultaneously over remote networks. Distributed gaming already takes a variety of forms including Internet and/or online games, as well as simple participation events, such as audience polling. Existing distributed games already pose issues in game management and control. However, several of the complex issues with distributed games have only become more difficult with the expansion into new areas and ways of gaming. One issue involves communication with the participants. Another issue is the ability to scale for large numbers of participants. These two issues make the fundamental task of keeping all the participants updated, into a

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significant challenge. One approach to address these issues is one-way broadcast updating. However, this broadcast or multicast approach presents significant security challenges.

Games of skill and chance have an intrinsic excitement and entertainment value. Any game is greatly enhanced by a participant's ability to know how their performance compares in relation to other participants and/or to historical performance for the game throughout the contest. However, competition will naturally create incentives to enhance performance in a manner outside the rules of the game, i.e., to cheat. Some games provide a lucrative prize based on performance, which creates even greater incentives to break the rules of the game. Network based games over the Internet, television, radio, or other complex technology utilizing a one-way multicast or broadcast system create more complicated issues in detection and prevention of cheating. Unlike a server controlled contest, there are a variety of ways unobserved competitive participants are able to unfairly manipulate a game that has such a broadcast architecture.

The State of the Art

There have been various attempts to address some of the issues raised above. Some of these attempts are mentioned below.

United States Patent No. 5,013,038, filed December 08, 1989, and United States Patent No. 5,120,076, filed April 25, 1991, both to Luxemberg, et al., (the Luxemberg patents) are directed to reducing the number of telephone calls to the game server only after the conclusion of a game. The Luxemberg '076 patent in particular, directs all but a sampling of players to delay sending their scores to the central server in a multicast request after the conclusion of the game. The central server compiles the results of the sampling and broadcasts the sampling results to all the participants of the game. Each participant then determines the participant's own chance of winning based on the sampling results taken at the conclusion of the game. Only those participants whose performance is high enough in comparison to the sampling results are released to send their results to the server for scoring. Thus, in the Luxemberg '076 patent, the number of messages over a landline telephone call to the game server is reduced to the number of participants in the sample. The game server determines the winners at the conclusion of the contest based on the uploaded scores from only the participants who have a chance of winning and who have thus uploaded their scores to the server. The Luxemberg patents ('038 and '076) also provide for the collection of market information surveys after conclusion of the game. However, the Luxemberg patents suffer from lack of real-time capability as participants must wait for each of the sample

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participants to dial-in their results over telephone lines. The Luxemberg patents also suffer from the inability to specifically select and connect with a statistical sample.

United States Patent No. 5,083,800, filed June 07, 1990, to Lockton describes using a one-way FM subcarrier (SCA) channel to broadcast from the server to game participants, while the game participants upload through telephone lines. United States Patent No. 5,479,492, filed December 01, 1993, to Hofstee, et al., describes voting in response to a television or radio broadcast by using a ballot box attached to a telephone line that introduces a time delay. United States Patent No. 5,643,088, filed May 31, 1995, to Vaughn, et al., describes interleaved interactive advertising in the broadcasts. United States Patent No. 5,813,913, filed May 30, 1995, to Berner, et al. (Berner) describes a system where players are grouped according to skill level for competition and comparison within a particular skill level. In Berner, the central computer system sends a lockout signal at the conclusion of each game where only players of the particular skill level update their performance through telephone lines.

However, none of these attempts provide for real time updating, to large numbers of participants, information regarding the standings of a game, particularly over new types of networks. One such network that shows promise is a network for mobile devices such as a cellular network. Moreover, none of the prior techniques address the issues particular to mobile device gaming such as the unfair manipulation of technology.

Summary of the Invention

A system and method are provided for updating game participants. The method selects a subset of sampling participants from the set of all participants of a game. In some embodiments, the selection occurs prior to the start of the game. The method of some embodiments establishes a two-way connection between a server and each of the sampling participants. For some embodiments, the two-way connection is realtime. The method continuously maintains the two-way connection throughout the game. During each discrete game period, for example, each play of a football game, the method receives from a sampling participant, data for the sampling participant's current game period performance. Based on the received data, the method determines the performance for the game period and broadcasts this information to a participant. In some embodiments, the participant is a non-sampling participant. A non-sampling participant is a participant who was not selected for the set of sampling participants. In some embodiments, the non-sampling participant determines a standing relative to the other participants in the game event. Some embodiments display the

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determined standing. Some embodiments calculate a statistically accurate histogram from the sampling data to represent all the participants. In these embodiments, the participant's score is compared to the histogram to determine the standing.

Some embodiments of the invention provide a method and system for detecting unusual performance in a game. The game has a participant. The method calculates for the participant, a performance metric. The method compares the performance metric to a threshold value. Based on the comparison, if an unusually high score or other anomaly is detected, the method optionally connects the participant to a server. In some embodiments, the connection is for uploading a set of data from the participant to the server. The server, of some embodiments, broadcasts to the participant. The broadcast is a one-way transmission. In some embodiments, the broadcast includes a distribution based on a set of sample participants. In these embodiments, the set of sample participants comprises a representative sample of all the participants in the game. The threshold value, of some embodiments, is based on the broadcast and in some embodiments, the broadcast includes a histogram. The connecting occurs, in some embodiments, when the performance metric exceeds the threshold value. The connection, for some embodiments, includes a two-way connection. In some embodiments, the method also tracks for the participant, a participant improvement factor. The participant improvement factor is based on an average performance level for the participant. The method stores the participant improvement factor. In some embodiments, the server stores the participant improvement factor, while in other embodiments, the participant's mobile device stores the improvement factor. The threshold value, in some of these embodiments, is based on the participant improvement factor. The method of some embodiments tracks for the game, a game improvement factor. The game improvement factor is based on an average performance level for several participants in the game. The method stores the game improvement factor. The threshold value, in some of these embodiments, is based on the game improvement factor. In some embodiments, the method examines the uploaded data for particular characteristics. In some embodiments, the particular characteristics indicate the likelihood of cheating activity.

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BRIEF DESCRIPTION OF THE DRAWINGS

The novel features of the invention are set forth in the appended claims. However, for purpose of explanation, several embodiments of the invention are set forth in the following figures.

Figure 1 illustrates a mixed topology for a network game.

Figure 2 illustrates a process flow for getting a schedule of events on a mobile device for a network game.

Figure 3 illustrates a process flow for play in conjunction with a synchronized live event on a mobile device in a network game.

Figure 4 illustrates a process flow for a server sending a list of schedule of events for a network game.

Figure 5 illustrates a process flow for a server setting up a network game.

Figure 6 illustrates a process flow for a server officiating a network game.

Figure 7 illustrates the system implemented by some embodiments.

Detailed Description of the Invention

In the following description, numerous details are set forth for purpose of explanation. However, one of ordinary skill in the art will realize that the invention may be practiced without the use of these specific details. In other instances, well-known structures and devices are shown in block diagram form in order not to obscure the description of the invention with unnecessary detail. Section I below describes notification of participants of their performance. Section II describes the detection of unusual activity for a participant that could constitute cheating. Section III describes the network cluster system implemented by some embodiments, and Section IV describes some advantages of the invention.

With the proliferation of mobile devices, a growing number of mobile device users are able to participate in a distributed online or network game. These games might be associated with various popular live and/or televised events. Participants of the game typically answer questions utilizing a mobile device as a live contestant at a game show (e.g., Wheel of Fortune®, Jeopardy®, etc.). Participants are also able to make simple predictions regarding the outcome of events and even play-by-play decisions for sporting events such as football, baseball, racing, or any of a number of other sporting events. The expansion to include participants utilizing mobile devices increases the number of participants in these network games almost limitlessly. For instance, the Super Bowl live audience numbers in the

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tens of thousands of spectators, while the television audience may number in excess of 100,000,000 viewers. Many of these viewers have access to an assortment of mobile devices, e.g., most commonly in the form of the ubiquitous cellular telephone.

For high bandwidth connections, games are typically controlled through a full time (two-way) connection to a game server that can routinely supply information to the participants of the game. As is known in the art, two-way network connections provide comparatively reliable and secure service. However, forming a two-way connection between the high potential number of participants of a real-time game (e.g., associated with a broadcast event) and a central host server creates challenges because of the low latency demands of such a game played in realtime. Moreover, two-way networks pose scalability issues and become impractical for massive numbers of participants and for games over low bandwidth connections such as some mobile networks. Two-way communication generates a variable cost for each additional competing participant. Ultimately, the implementation of such a two-way system could be prohibitively expensive because of the vast communication demands of continuously updating potentially millions of contestants of the status of their ongoing, changing, and fast paced predictions. This burden on the game server is significant because many games require acknowledgment by the server of the continuously changing predictions, which must be displayed on the mobile device in less than 500 milliseconds. The same problem also exists in non-television broadcast based games played over mobile devices that require a common start time for all competitors and where there are a large number of potential competitors.

I. PROVIDING PARTICIPANTS WITH CURRENT STANDING WHILE RECEIVING GAME CONTROL INFORMATION VIA ONE-WAY BROADCAST.

A system and method are provided for updating participants in a game. In some embodiments, the method selects a set of sampling participants from the set of all participants of a game. In some of these embodiments, the selection occurs prior to the start of the game. The method of some embodiments establishes a two-way connection between a server and each of the sampling participants. The method continuously maintains the two-way connection throughout the game. After each discrete game period, the method receives from a sampling participant, data for the sampling participant's game period performance. Based on the received data, the method determines the performance for the game period and broadcasts this information to a participant. Some embodiments base the data on a statistically projectable random sample that is representative of all the participants in the

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game. In some embodiments, the broadcast recipient is a non-sampling participant. A non-sampling participant is a participant who was not selected for the set of sampling participants. In some embodiments, the non-sampling participant, utilizing the projectable data, determines a standing relative to the other participants for the game period.

As mentioned above, the most cost effective means of controlling a large-scale network game is to use a broadcast server topology to one-way multicast the same information to all participants simultaneously. Thus, some embodiments of the invention provide for a mobile device (e.g., cellular phone, PDA, etc.) as the receiver in a broadcast receiver topology. However, many current mobile devices are capable of operation in both one-way and two-way modes. These modes include small message service (SMS), instant messaging (IM) or Internet Relay Chat (IRC), email, voice and/or other data modes over a number of protocols such as transport control protocol (TCP) or universal datagram protocol (UDP).

Thus, the network game topology of some embodiments may include a mixture of one-way receivers and two-way clients to realize the benefits of both the one-way broadcast and two-way client/server architectures. Figure 1 illustrates such a mixed topology 100. As shown in Figure 1, a server 105 simultaneously broadcasts to several receivers 110-125 that are configured for one-way mode reception, while sending and receiving messages with a two-way mode client 130, through a network 140. In some embodiments, the network 140 includes a cellular network. Current mobile device technology allows the use of each mobile device connected to the network 140 to store locally certain game information such as a cumulative score. Particularly for the broadcast receivers 110-125, this relieves some burden on the server in storing and managing this data, and on the network 140 in relaying the data. As mentioned above, one advantage of the one-way architecture is reducing network and/or server latency by the distribution of data for processing and/or storage at the receiver. To implement such a topology, some embodiments employ a setup process that will be described by reference to Figure 2.

A. PARTICIPANT'S MOBILE DEVICE SETUP

Figure 2 illustrates a mobile device setup process 200 for getting a schedule of events on a mobile device for a network game. As shown in this figure, the mobile device set up process 200 begins at step 205, where a game participant selects a game application by using the participant's mobile device. Then the process 200 transitions to step 210, where the mobile device requests a list of game events associated with the selected game from a server,

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such as the server 100 represented in Figure 1. In some embodiments, the server 100 is a single computer, while in other embodiments the server 100 takes the form of any number of computers in any number of configurations, such as a server farm or cluster. Regardless of the configuration, the server typically hosts and officiates the game for these embodiments. The server of some embodiments will be described in further detail by reference to Figures 4, 5, and 6.

As shown in Figure 2, after requesting a list of events at step 210, the mobile device receives a list of game events and displays the list to the participant at step 215. At step 220, the participant selects a game event in which to compete, and sends the selection to the server. Typically, the server configures the game event for the requesting mobile device. The server configuration of some embodiments includes a determination of whether the mobile device should set up a one-way or two-way connection with the server. The configuration process by the server of some embodiments will be described in further detail by reference to Figure 5.

When the server has configured the game event, the requesting mobile device receives a configuration message from the server at step 225 and the process transitions to step 230. At step 230, the mobile device of some embodiments determines whether the configuration message from the server indicated that the mobile device should set up for one-way broadcast mode. If the message at step 225 indicates that the mobile device should operate in broadcast mode, the process 200 transitions to step 235 where the mobile device is configured to receive one-way broadcast transmissions from the server, and then the process 200 concludes. Otherwise, the process 200 transitions to step 240 where the mobile device sets up a two-way client/server connection with the server for the selected game event, and the mobile device setup process 200 concludes.

B. PARTICIPANT'S MOBILE DEVICE OPERATION

Once the participant has selected the game and the mobile device has prepared the connection with the server. The participant may play the game over the mobile device. Figure 3 illustrates a mobile device operation process 300 for play in conjunction with a synchronized live event. The mobile device operation process 300 begins at step 305 where the process 300 determines whether the game is over. If the game is over, then the process 300 concludes. If the game is not over, then the process 300 transitions to step 310 where the participant makes a prediction regarding some facet of the game being played. The

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participant makes the prediction by using the mobile device that was set up to play the game in accordance with the set up process 200 described above in relation to Figure 2.

As shown in Figure 3, after the participant makes a prediction, the mobile device operation process 300 transitions to step 315 when the mobile device receives a lockout message from the server. At step 315, upon receiving the lockout message, the mobile device displays the participant's current prediction, if any, to the participant. In some embodiments, at the conclusion of each game period or scoring event, for example a football play or a baseball pitch, the server sends "lock out" signals prohibiting predictions or answers to the questions via a one-way broadcast transmission before the correct answers or facts are revealed. The participant's mobile device in these embodiments determines whether the participant's predictions or answers were: (1) entered prior to the receipt of the time stamped lock out message and (2) correct or incorrect. In some embodiments, the mobile device computes locally a cumulative score based on whether the participant was correct, as opposed to performing these calculations for each participant on a central server. Such a system has the ability to scale to accommodate a potentially large number of participants from a huge audience. The lockout message and whether a game is over will be described later by reference to Figure 6.

After the mobile device receives a lockout message at step 315, the process 300 transitions to step 320 where the mobile device receives the correct answer from the server, compares the received answer to the participant's prediction, and displays the comparison to the participant. Then, at step 325, the mobile device receives a set of sampling results from the server. Prior to the commencement of the game, the server of some embodiments selects a statistically significant random sample of participants who have registered their intention to play the game. The server instructs these sampling participants' mobile devices to establish with the server a two-way connection to be maintained for the duration of the contest or game. Some embodiments establish the two-way connection transparently, which occurs with or without the participant's knowledge. The server of some embodiments monitors the period-by-period scores of this statistically significant set of sampling participants. In some embodiments, the sampling results contain a distribution of the performance of the sampling participants for the last period of the game that was tabulated. Some of these embodiments employ a histogram format to represent the sampling results.

After each discrete period in the contest, the server of some embodiments broadcasts some of the information collected from the sampling participants as well as the correct answers or predictions for each game period. In some of these embodiments, the game

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application software residing in the mobile device will compare the participant's current score to the sampling results. For example, a participant who won the maximum number of points possible on their last prediction might be informed they had moved up from the 72nd percentile to the 89th percentile at that point in the game. Some embodiments further provide a visual display of the current percentile standing for the participant based upon the comparison of the participant's score to the representative sample. For some of these embodiments, the sampling results include a histogram or another graphical representation of the sampling results. Generation and transmission of the sampling results will be further described below by reference to Figure 6.

When the mobile device receives the sampling results at step 325, the process 300 transitions to step 330 where the mobile device compares the participant's performance to the sampling results and displays the comparison to the participant. Then, the process 300 transitions to step 335 where the mobile device tabulates and stores the participant's performance for the game. This tabulation and storage may include a ranking system. Once the mobile device determines the participant's performance, the process 300 transitions to step 340 where the process 300 determines whether the participant has achieved a high degree of performance. For some embodiments, a high degree of performance indicates a greater likelihood that the participant will have high enough score(s) to win. In these embodiments, the method uploads the participant's performance to the server for comparison against the uploaded results of the other high performers. Thus, these embodiments monitor only the subset of high scorers, based on the particular game parameters, to determine the winner(s).

If the participant has not achieved notable performance, the process 300 concludes. Otherwise if the participant has performed well, the process 300 of some embodiments transitions to step 345, where the process 300 determines whether the participant has exceeded one or more performance factors. If the participant has not exceeded the performance factor(s) then the process 300 transitions to step 355 where the mobile device uploads the participant's performance information to the server, and the process 300 concludes. Otherwise, the participant exceeds the performance factor and the process 300 transitions to step 350 where the mobile device switches to a two-way client/server mode. Then the mobile device uploads the participant's performance information to the server at step 355 and the process concludes.

Some embodiments use the performance determination at step 340 to check whether the participant's performance is high enough to warrant transmission to the server. In these

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embodiments, high performance may indicate whether the participant is likely to win. Some embodiments use the performance factor of step 345 in Figure 3 to determine whether the participant exhibits unusual performance or activity that might constitute cheating. This topic will be further discussed in Section II. The description above regarding setup and operation of a mobile device has alluded at various times to interaction with a server. The server of some embodiments will now be described in further detail by reference to Figures 4, 5, and 6.

C. Server Setup

As mentioned above, the mixed network topology 100 illustrated in Figure 1 employs a server 105 to operate and officiate a game that is provided to a set of heterogeneous mobile devices. As discussed above in relation to Figure 2, the games begin by a participant selecting a game event through a mobile device, and by the mobile device requesting a list of hosted game events. Figure 4 illustrates a server hosting process 400 for a server sending a list of schedule of events for a network game. As shown in Figure 4, the hosting process 400 begins at step 405 where the server receives from a mobile device, a request for a list of events associated with a game. Then the process 400 transitions to step 410 where the server looks up events associated with the game in a master list of games and events. For instance, for the game of "football" the master list of games and events might include the "Super Bowl" as an event. This master list is maintained by some embodiments on a data storage. At step 415, the server returns the list of events to the requesting mobile device and waits for the mobile device to make a selection. At step 420, the server receives from the requesting mobile device a selection for a game event and then the hosting process 400 concludes.

Once the server of some embodiments receives the selection of a game event from a requesting mobile device, the server performs certain setup operations for the requested game event. In some embodiments, the server logs the mobile device and/or the participant operating the mobile device to one or more data storages maintained by the server. The server of some embodiments may request the identification explicitly, while the mobile device of other embodiments will transmit the identification separately, or in conjunction with another message to the server regardless of a specific identification request.

Figure 5 illustrates a process 500 for a server setting up a network game. The server setup process 500 begins at step 505 when the server receives identification from the mobile device. As mentioned, this identification can represent a participant and/or the participant's mobile device. At step, 510 the server uses the received identifier to look up the performance history associated to the received identifier. The server of some embodiments may use a data

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storage for the lookup. Then, the process 500 transitions to step 515, where the process 500 determines based on the participant's performance history, whether the participant is likely to win. The determination of some embodiments may be an approximation of performance for the selected game event, particularly if little or no performance history has been logged to the data storages for the particular participant.

If at step 515, the participant is likely to win, then the server setup process 500 transitions to step 530 where the server sends a message to set the mobile device in a two-way client/server communications mode. In the two-way mode, the server monitors closely the participant's performance for the game event. In these embodiments, the server is constantly updated with only the most relevant data from a subset of participants who are likely to win. Otherwise, if at step 515, the participant is not likely to win, then the process 500 transitions to step 520, where the process 500 determines whether there is a proper statistical sampling of scores.

In some embodiments, the server setup process 500 determines whether the number of two-way (real-time) connections to the server is statistically significant, i.e., is sufficient to provide a reasonably reliable representation of the population of all participants in the game event. If at step 520, there is not a proper statistical sampling (e.g., there are not enough two-way connections for statistical significance) then the process 500 transitions to step 530 where the server sends a message to set the mobile device in two-way client/server mode (thus, increasing the number of two-way connections toward statistical significance), and the process 500 concludes. Otherwise, the process 500 transitions to step 525 where the server sends a message to set the mobile device in one-way mode to receive broadcasts from the server, and the server setup process 500 concludes. As mentioned above, some embodiments pre-select a set of sampling participants for two-way connections at the start of each game.

D. Server Operation

Once the server has set up and sent the mobile device configuration messages for the selected game, the server will then typically conduct and officiate the game. Figure 6 illustrates a process 600 for a server officiating a network game. As shown in this Figure, the server operation process 600 begins at step 605 where the server transmits parameters and other information regarding the game to any mobile devices that have selected participation for the game period. For the mixed topology 100 illustrated in Figure 1, mobile devices configured for one-way mode will typically receive the game information through broadcast

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messages from the server, while mobile devices configured for two-way mode will send and receive in a manner that is typical of client/server connections.

The transmissions and/or broadcasts will continue at step 605 until the conclusion of the game period as determined by the particular game parameters. Then the process 600 transitions to step 610 where the server generates and sends a lockout message to notify the participating or subscribed mobile devices that the game period has concluded. In some embodiments, the lockout message includes a timestamp. After the lockout message, the server generates and sends the correct result for the recently concluded game period at step 15. Then the process 600 transitions to step 620 where the server compiles the available performance data from the two-way client/server mode participants. As mentioned above, in some embodiments the two-way mode participants form a representative sample of all participants competing during the particular game period. The server operation process 600 of some embodiments generates a graphical representation of the results obtained from the representative sample of participants. Some of these embodiments use a histogram format to illustrate the sampling results.

Once the server operation process 600 compiles the sampling results at step 620, the process 600 transitions to step 625 where the server sends the sampling results to the participants of the game period. In particular, the server typically broadcasts the sampling results to the one-way mode participants. After broadcasting the sampling results, the process 600 transitions to step 630 where the server receives uploaded results from the high performing one-way mode participants. As described above in relation to Figure 3, in some embodiments the high performing one-way mode participants determined their status as high performers based on the sampling results received from the server, and only those participants who were likely to win the game event or period upload their results to the server.

As shown in Figure 6, after step 630, the server operation process 600 transitions to step 635 where the process 600 may perform a number of functions. For instance, the process 600 of some embodiments determines and/or notifies one or more winners of the current game event or period. The process 600 of some embodiments also makes determinations or calculations as to the categories and criteria for winners of the game event and/or period. Thus, for each discrete period a participant's score may increment or decrement by the appropriate number of points depending on the game rules. Some embodiments calculate a total and/or cumulative score for the particular participant. The details of the discrete period and the scoring typically encompasses the underlying facets of the game's subject matter

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such as, for example, the answer to a televised Jeopardy® question, or the results of a prediction of what play will be called by the quarterback in a televised football game.

When the server operation process 600 completes the various tasks at step 630, the process 600 transitions to step 640 where the process 600 determines whether the game, the event, and/or the period are over, based on a set of criteria specific to the selected game. If the game is not over, then the server operation process 600 returns to step 605, otherwise the process 600 concludes. As one of ordinary skill will recognize, the officiating server during an online network game does not monitor a majority of the participants, particularly the one-way broadcast participants. In a network environment of heterogeneous mobile devices, this creates opportunities for participants to unfairly modify and report their performance. Next, Section II describes the additional measures that some embodiments provide to address these concerns.

II. Detecting Cheating for a Game Played over a Mobile Device

As mentioned above, games broadcast to mobile devices pose specific challenges as to data validation and overall game integrity. For example, a participant using a mobile device in an online or network game is able to (1) access the mobile device client to probe the microprocessor, and/or the RAM to modify the local data at the client device; (2) "spoof" or emulate another mobile client device or; (3) apply other techniques to enter predictions after the answers are known. Thus, a crafty participant is able to create game scores that are not legitimately achieved out of view of the officiating secure server and submit the unfairly achieved performance for scoring against un-enhanced legitimate competitors.

To cope with this issue, some embodiments provide a method and system for detecting unusual performance in a game. The game has a participant. In some embodiments, the game is a game of skill, which, as with most games of skill, performance improves with repetitive play, until a participant reaches their general level of skill. The method calculates for the participant an average performance level. Based on the average performance level, the method tracks for the participant, a participant improvement factor and stores the participant improvement factor. The method compares the participant improvement factor to a threshold value. As mentioned above, some embodiments make this comparison at step 345, of the process flow 300 illustrated in Figure 3.

Some embodiments additionally track a game improvement factor (e.g., at step 635 in Figure 6). In some of these embodiments the game improvement factor includes the average change in performance over time for all participants of the game. In some embodiments, any

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participant whose current game performance is exceeding either the overall game improvement factor, and/or the individual's participant improvement factor, or who is achieving a score at the very highest level of the current online players, will trigger the establishment of a two-way connection with the server for closer two-way monitoring of the participant's activity during the remainder of the game. Additionally, participants who approach a level of performance sufficient to win a significant prize, tournament points, or other reward, are also selected by some embodiments for a two-way server connection at various times during their participation of a network game. The two-way connection employs the transport control protocol (TCP) in some embodiments, while other embodiments might employ another suitable protocol. The server of some embodiments is a "game session server" provided by AirPlay Network, Inc. The system implementation of some embodiments will be described further in Section III.

Once a two-way connection is triggered, the server of some embodiments records data for the ongoing game play of the triggering participant and performs a variety of tests. The tests of some embodiments include the recording of each entry by the participant, and examining the time stamp, user input, and other data being received from the participant's mobile device. Some embodiments use the recorded data to identify anomalies in the participant's activities. The anomalies might include (1) abnormal improvement in results relative to other participants, (2) abnormal improvement in performance based on prior performance for the particular participant, (3) signs that the application software has been altered, (4) anomalies in the utilization of the game control interface, and/or (5) indications through encryption and additional non-obvious data that the final score upload has been altered.

Some embodiments, when detecting an anomaly, require future game play by the participant suspected of unfair activity to be conducted on a two-way basis with the server for close monitoring. For instance, during the game play of these embodiments, every play prediction is stored inside the mobile device and is sent periodically to the game server. Moreover, some embodiments store in a database each participant's relative performance for each game in which the participant competes. In some embodiments, the participant's relative performance is stored in the form of a percentile standing. Some embodiments calculate and store the average performance level and the average incremental improvement in the percentile standing for each participant. As participants improve over time with practice and experience, some embodiments continually calculate an average improvement factor for both the game in general, as well as for a specific participant. For instance, the

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average improvement in percentile standing of a specific participant for a particular game might be two percentile points, while the average improvement for a group of participants at a particular skill level game-wide, might be three percentile points.

Thus, the threshold value used by some embodiments to gauge a participant's performance may vary for each participant, and for each game, and may also vary over time. The threshold values of these embodiments are adjusted based on one or more of these or other factors (e.g., the participant and game factors, over time). Moreover, some embodiments employ multiple checks against one or more of the threshold values. For instance, the participant's improvement may not be that notable based on the participant's history but is unusual for the particular game played.

In some embodiments, information regarding the average improvement in percentile standing for a participant and/or for the group of participants within a particular skill level for the game is stored to the participant's mobile device by using software that has been loaded into the participant's mobile device memory and/or that has been downloaded with an applications program. These embodiments continuously compare each participant's current percentile standing to the stored information that includes the improvement factors previously described.

For some embodiments, information is updated in realtime. This includes updating the sampling distribution representing the game-wide performance through the (realtime) two-way connections, as well as updating the broadcast participants utilizing the one-way connections. Also previously mentioned, during play of the game, performance or scoring information may be represented in some embodiments by a histogram format, which may be displayed at various times on the participant's mobile device. The histogram of these embodiments may contain the performance of a random sample of selected participants who are continually connected to the server. In some embodiments, the mobile device might generate the histogram, while for other embodiments, the histogram is broadcast to all participants by the server. The point values to win for each game being played is different and depends upon the following, among other things: the game; the difficulty of the game; and the performance of the players playing the game. Thus, the histogram is used to track the scores of a sampling of the players and communicate those scores to all of the players during the game. Each mobile device will then be able to determine how the corresponding player is performing in the current game relative to the other players.

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III. SYSTEM

As previously mentioned, the server 105 illustrated in Figure 1 is implemented in some embodiments by using a more complex system that includes multiple servers and/or multiple server clusters. To further illustrate this scalability feature, the server of some embodiments is depicted in Figure 7 as a cluster or several clusters of server computers. Accordingly, Figure 7 illustrates a system 705 implemented by some embodiments that includes a communication layer 710, a master layer 715, data storages 720, and administration tools 725. Further shown in Figure 7, one or more mobile devices 110-130 connect to the system 705 through a network 140. As previously mentioned, the network 140 in some embodiments includes a mobile device network such as a cellular network, which employs a variety of communications protocols to transmit data both one-way and two-way between the mobile devices 110-130 and the system 705.

In some embodiments, initial messages received by the system 705 are handled by the communication layer 710. In these embodiments, the communication layer 710 might include dedicated servers to handle the communication needs of a large scale hosted network game. For instance, the communication layer 710 of some embodiments includes a Connection Cluster, a Game Session Cluster, a Score Cluster, a Broadcast Cluster, and a Web Cluster, all provided by AirPlay Network, Inc. In these embodiments, the task of sending and receiving data in the processes of, for example, setting up a game, providing an event list, providing game parameters during a game, and updating scores, is divided among the separate servers and/or clusters.

Also shown in Figure 7, the communications layer 715 is coupled to a master layer 720. In some embodiments, the master layer 720 includes operational support for hosting and officiating the network games. In these embodiments, this hosted support might include server applications and functions for scheduling, registration, scoring, and validation. The master layer 720 often operates on massive amounts of data, thus each function in these embodiments is typically delegated to a dedicated collection of servers and/or clusters (e.g., a Schedule Cluster, a Registration Cluster, and a Scoring/Validation Cluster, also provided in some embodiments by Airplay Network, Inc.). The master layer 720 is further coupled to a set of data storages 720 to enable, for example, look ups into scheduling data such as a master schedule of games and events, user data such as participant and/or mobile device profiles and history, as well as prize data, results, metrics, and reporting data. Also shown in Figure 7, the data storages 720 and the master layer 715 of some embodiments are coupled to a set of administration tools 725 that allow, for example, data entry and management such as

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scheduling and customer service functions. In these embodiments, the administration tools include user interfaces, terminals, and other appropriate administration means.

IV. ADVANTAGES

In the embodiments described above, each participant among potentially millions of participants may receive data on a one-way basis that indicates a highly accurate approximation of the participant's percentile standing after each event in real-time throughout the game. Some embodiments of the invention enable the server providing game control to utilize a one-way broadcast transmission for all but a small fraction of the participants, which significantly reduces the number of servers required to conduct a massive real time game. These embodiments also reduce the communications traffic on the cellular networks. These communications and infrastructure costs of operating the game could otherwise be insurmountable.

In addition to the benefit of providing current standings to all participants, the present invention also dramatically reduces the number of scoring calls both during and at the conclusion of an event, which represents a significant improvement over the art. The present invention establishes and maintains an ongoing two-way connection with a sample of participants throughout the game. The present invention monitors this sample and makes the information available game-wide in real-time. Therefore, the present invention does not require additional time to collect, process, and rebroadcast to the game participants instructions to later establish a two-way connection and upload scores for verification and ranking. Further, the present invention permits an almost immediate data collection, verification, and notification process, from only the most relevant group of participants in a game.

Moreover, the present invention addresses issues of integrity that are critical to a large-scale network game, which particularly may involve a number of mobile devices. A sponsor of such a large or network game offering may charge for the service and award prizes to winners. As mentioned above, the participation for such events can number potentially in the tens of millions of simultaneous subscribers, particularly by using the multicast mobile or cellular network configuration of some embodiments. However, such a game will draw little market response if the sponsor cannot maintain the integrity of the game. Issues of cheating may be addressed by employing two-way connections to closely monitor participants, but this quickly becomes impractical for large numbers of participants. Also, in some games based on rapidly unfolding events, such as a live telecast of a sporting

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event, the latency inherent in controlling a client utilizing a two-way connection (e.g., a cellular telephone) to a secure server makes keeping up with the telecast problematic. Some embodiments of the present invention incur the high overhead of two-way monitoring for only the set of participants who have a higher risk of cheating and/or have a high risk of winning. Such a system dramatically improves the economics of staging the network game and the quality of service for all the subscribed participants.

While the invention has been described with reference to numerous specific details, one of ordinary skill in the art will recognize that the invention can be embodied in other specific forms without departing from the spirit of the invention. Thus, one of ordinary skill in the art will understand that the invention is not to be limited by the foregoing illustrative details, but rather is to be defined by the appended claims.

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CLAIMS

What is claimed is:

1. A method of detecting unusual performance in a game, the game having a participant, the method comprising:

calculating for the participant a performance metric;

comparing the performance metric to a threshold value; and

based on the comparison, optionally forming a connection to a server for uploading a set of data from the participant to the server.

2. The method of claim 1, further comprising:

broadcasting a one-way transmission from the server to the participant.

3. The method of claim 2, wherein the one-way transmission includes a histogram.

4. The method of claim 2, wherein the one-way transmission includes a distribution based on a set of sample participants, wherein the set of sample participants comprises a representative sample of a plurality of the participants in the game.

5. The method of claim 4, wherein the distribution is a histogram.

6. The method of claim 4, wherein the threshold value is based on the distribution.

7. The method of claim 1, wherein the connection to the server is formed when the performance metric exceeds the threshold value.

8. The method of claim 1, wherein the connection to the server comprises a two-way connection.

9. The method of claim 1, further comprising:

tracking for the participant a participant improvement factor, wherein the participant improvement factor is based on an average performance level for the participant; and

storing the participant improvement factor;

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wherein the threshold value is based on the participant improvement factor.

10. The method of claim 1, further comprising:

tracking for the game a game improvement factor, wherein the game improvement factor is based on an average performance level for a plurality of participants in the game; and

storing the game improvement factor;

wherein the threshold value is based on the game improvement factor.

11. The method of claim 1, wherein the server logs activity for the participant.

12. The method of claim 1, further comprising examining the uploaded data for a set of particular characteristics.

13. The method of claim 12, wherein the particular characteristics comprise:

an indication that a device used by the participant to upload the data has been accessed abnormally; or

an indication that the uploaded data has been altered; or

a participant's performance data that shows substantial improvement over a history of performance for the participant; or

a participant's performance data that shows substantial improvement over a history of performance for a particular set of games, wherein the game is in the particular set of games.

14. The method of claim 1, the connection comprising a mobile device network.

15. A system for detecting unusual performance in a game, the game having a participant, the system comprising:

means for calculating for the participant a performance metric;

means for comparing the performance metric to a threshold value; and

means for based on the comparison, optionally forming a connection to a server for uploading a set of data from the participant to the server.

16. The system of claim 15, wherein the connection to the server is formed when the performance metric exceeds the threshold value.

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17. The system of claim 15, wherein the connection to the server comprises a two-way connection.

18. The system of claim 15, further comprising:

means for tracking for the participant a participant improvement factor, wherein the participant improvement factor is based on an average performance level for the participant; and

means for storing the participant improvement factor;

wherein the threshold value is based on the participant improvement factor.

19. The system of claim 15, further comprising:

tracking for the game a game improvement factor, wherein the game improvement factor is based on an average performance level for a plurality of participants in the game; and

storing the game improvement factor;

wherein the threshold value is based on the game improvement factor.

20. The system of claim 15 further comprising:

means for examining the uploaded data for a set of particular characteristics.

21. The system of claim 20, wherein the particular characteristics comprise:

an indication that a device used by the participant to upload the data has been accessed abnormally; or

an indication that the uploaded data has been altered; or

a participant's performance data, wherein the performance data shows substantial improvement over a history of performance for the participant; or shows substantial improvement over a history of performance for a particular set of games, wherein the game is in the particular set of games.

22. The system of claim 15, the connection comprising a mobile device network.

23. A method of detecting unusual performance in a game, the game having a participant, the participant having a mobile device, the method comprising:

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receiving via the mobile device a one-way transmission, wherein the one-way transmission comprises a set of data;

calculating for the participant a performance metric;

comparing the performance metric to the received set of data;

based on the comparison, optionally establishing a two-way connection with a server.

24. The method of claim 23, wherein the set of data comprises a threshold value, wherein establishing the two-way connection occurs when the performance metric exceeds the threshold value.

25. The method of claim 23, wherein establishing the two-way connection further comprises switching the one-way connection to the two-way connection.

26. The method of claim 25, wherein the switching is performed for a single mobile device.

27. The method of claim 23, wherein the two-way connection comprises a mobile device network.

28. The method of claim 23, wherein the set of data comprises a histogram.

29. The method of claim 23, further comprising examining the mobile device.

30. The method of claim 29, wherein examining the mobile device further comprises:

determining whether the mobile device has been accessed abnormally; or

determining whether data stored by the mobile device has been altered; or

determining whether the performance metric comprises an anomaly, wherein the anomaly indicates a likelihood of an unfair game.

31. A system for detecting unusual performance in a game, the game having a participant, the system comprising:

a mobile device having:

a processor for:

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calculating a performance metric; and

comparing the performance metric to a set of data; and

a memory for storing the performance metric and the set of data;

a server for hosting the game; and

a network, wherein the mobile device receives through the network a one-way transmission from the server, the one-way transmission including the set of data.

32. The system of claim 31, wherein the set of data comprises a histogram.

33. The system of claim 31, further comprising a two-way connection from the mobile device to the server through the network, wherein the two-way communication is formed when the performance metric exceeds a threshold value.

34. The system of claim 33, wherein the threshold value is based on an average performance level for the participant.

35. The system of claim 33, wherein the threshold value is based on an average performance level for the game.

36. The system of claim 33, wherein the server examines the mobile device by using the two-way connection.

37. The system of claim 36, wherein examining the mobile device further comprises:

determining whether the mobile device has been accessed abnormally; or

determining whether data stored by the mobile device has been altered; or

determining whether the performance metric includes an anomaly, wherein the anomaly indicates a prohibited action for the game.

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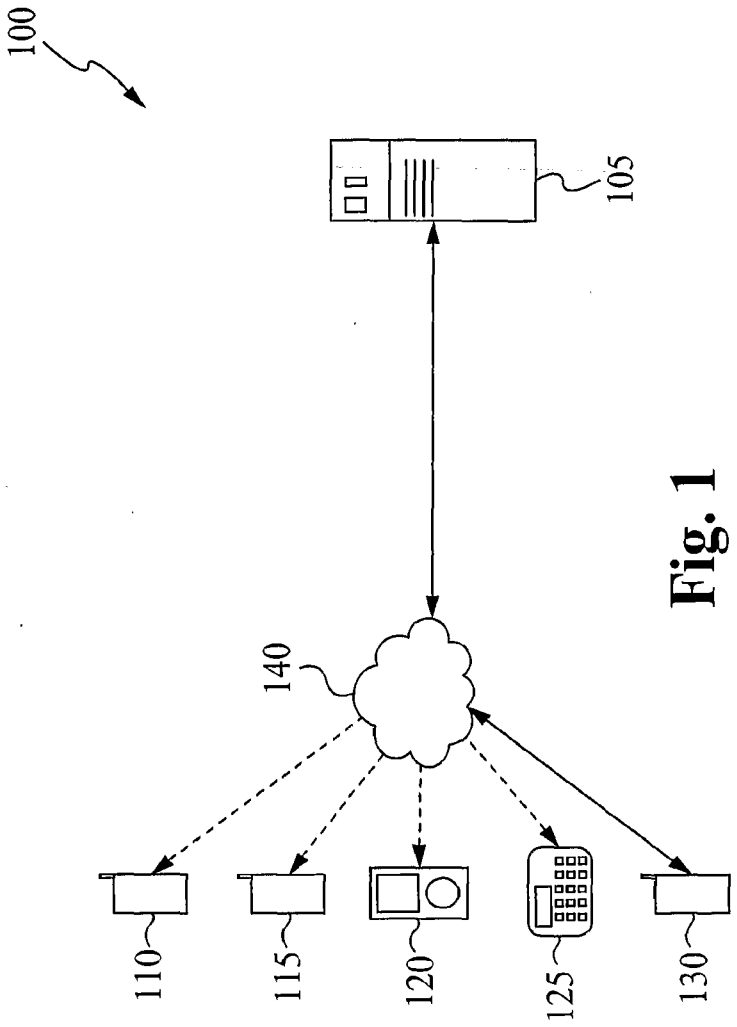


Fig. 1

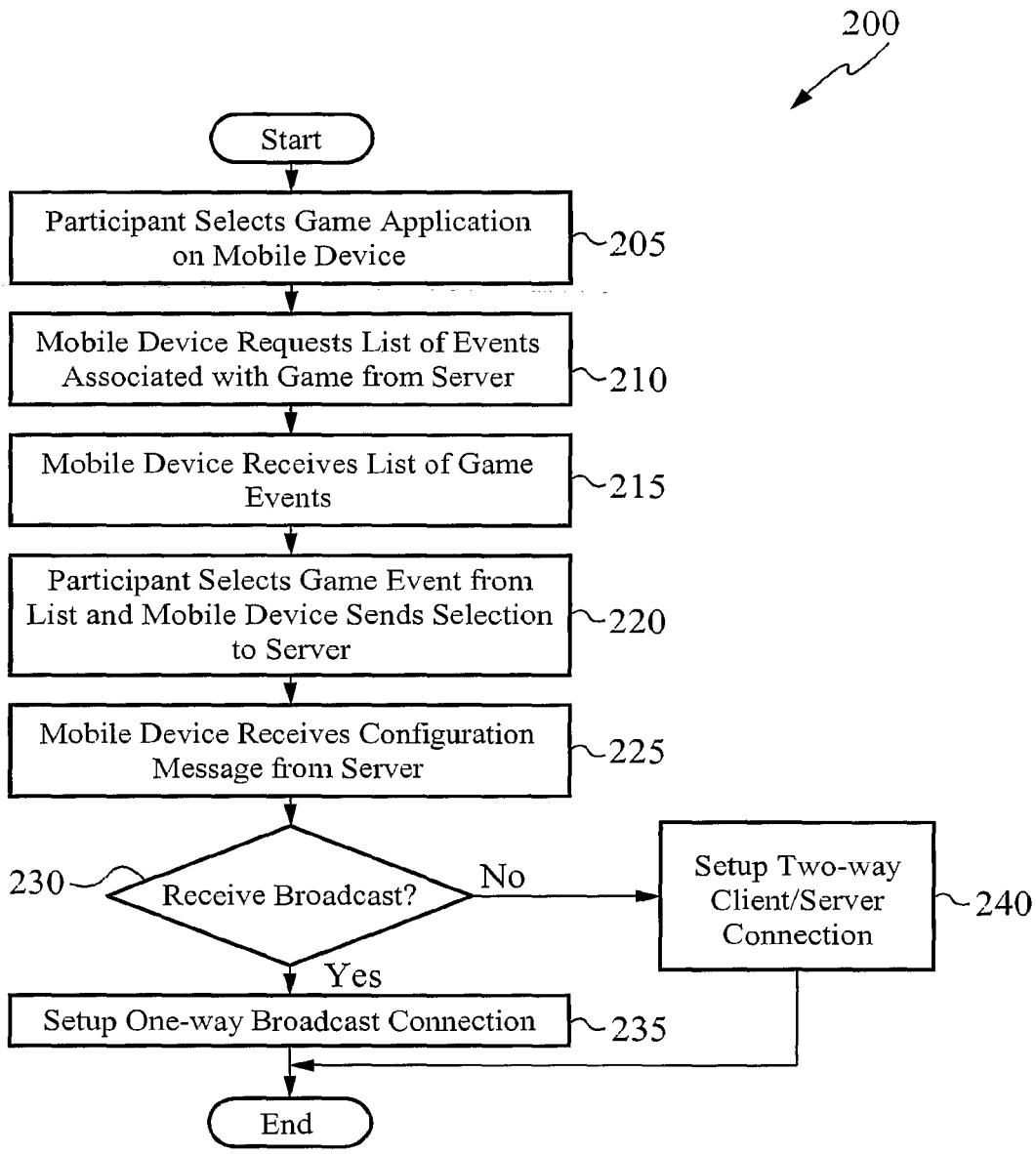

200
Start
Participant Selects Game Application on Mobile Device
205
Mobile Device Requests List of Events Associated with Game from Server
210
Mobile Device Receives List of Game Events
215
Participant Selects Game Event from List and Mobile Device Sends Selection to Server
220
Mobile Device Receives Configuration Message from Server
225
230
Receive Broadcast?
No
Setup Two-way Client/Server Connection
240
Yes
Setup One-way Broadcast Connection
235
End

Fig. 2

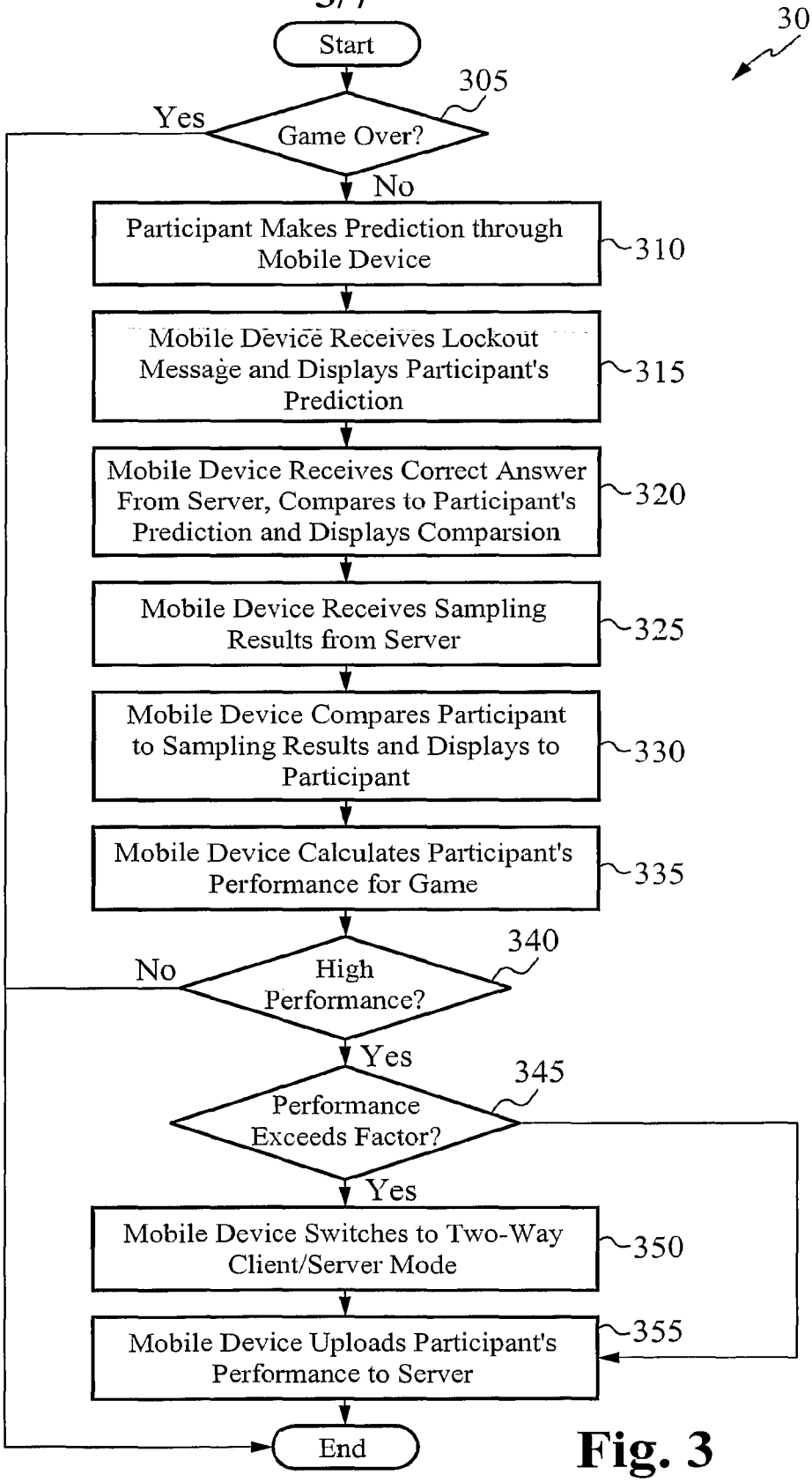

300
Start
305
Yes
Game Over?
No
Participant Makes Prediction through Mobile Device
310
Mobile Device Receives Lockout Message and Displays Participant's Prediction
315
Mobile Device Receives Correct Answer From Server, Compares to Participant's Prediction and Displays Comparsion
320
Mobile Device Receives Sampling Results from Server
325
Mobile Device Compares Participant to Sampling Results and Displays to Participant
330
Mobile Device Calculates Participant's Performance for Game
335
340
No
High Performance?
Yes
345
Performance Exceeds Factor?
Yes
Mobile Device Switches to Two-Way Client/Server Mode
350
Mobile Device Uploads Participant's Performance to Server
355
End

Fig. 3

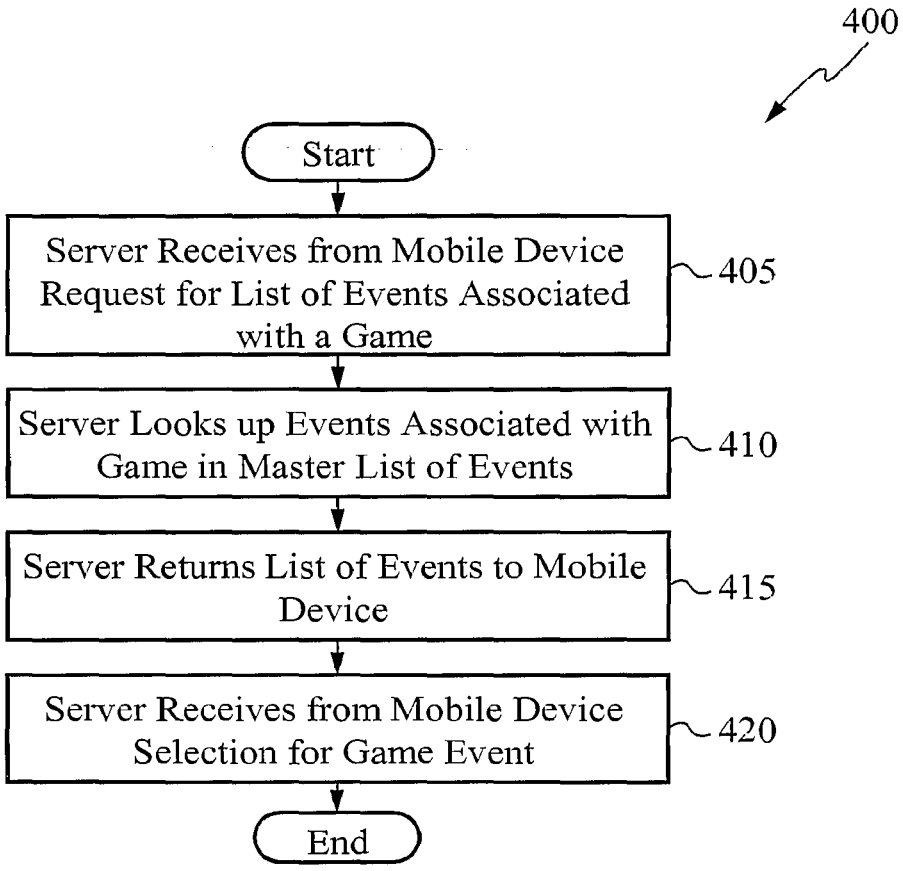

400
Start
Server Receives from Mobile Device Request for List of Events Associated with a Game
405
Server Looks up Events Associated with Game in Master List of Events
410
Server Returns List of Events to Mobile Device
415
Server Receives from Mobile Device Selection for Game Event
420
End

Fig. 4

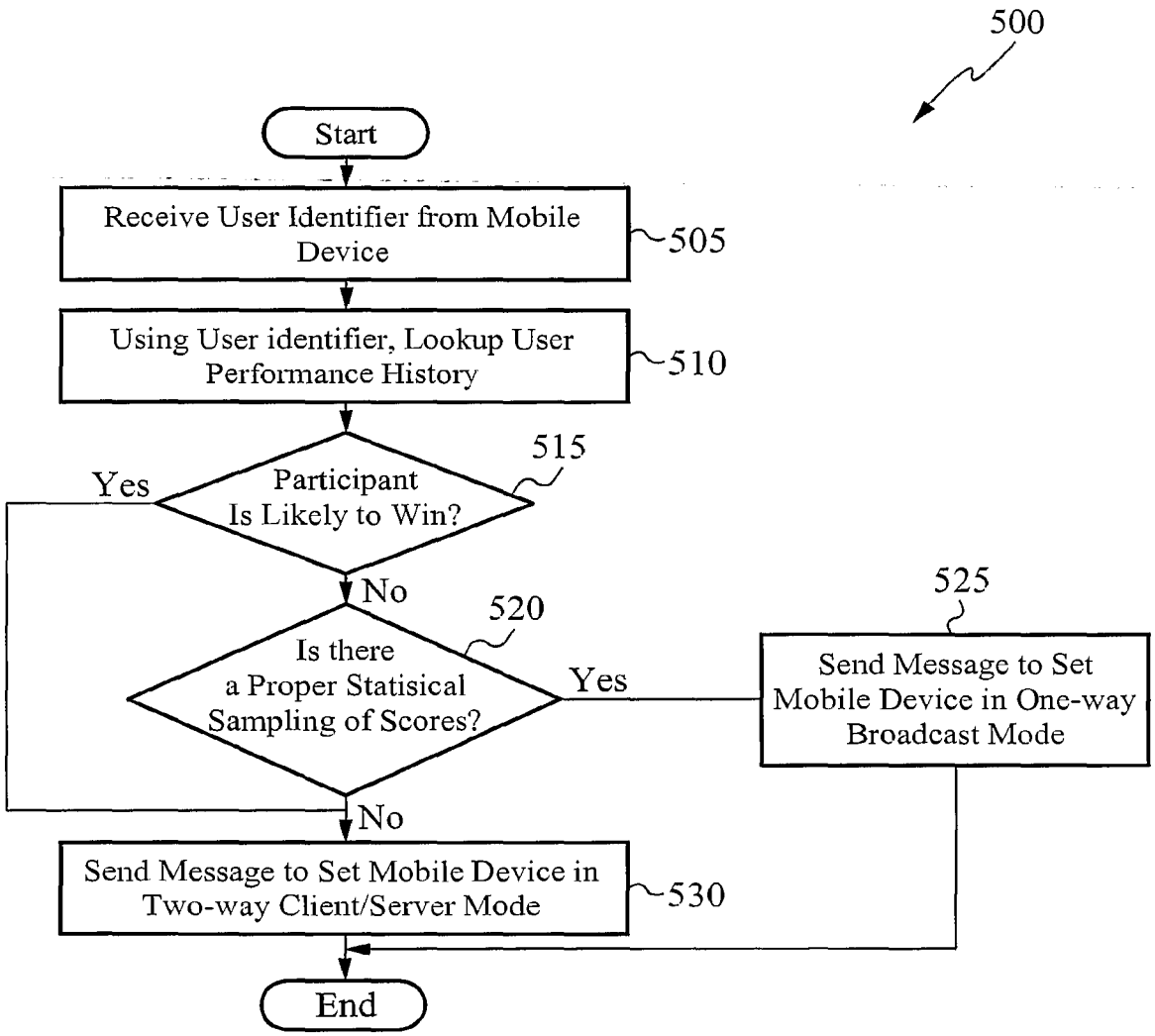

500
Start
Receive User Identifier from Mobile Device
505
Using User identifier, Lookup User Performance History
510
Participant Is Likely to Win?
515
Yes
No
Is there a Proper Statisical Sampling of Scores?
520
Yes
No
525
Send Message to Set Mobile Device in One-way Broadcast Mode
Send Message to Set Mobile Device in Two-way Client/Server Mode
530
End

Fig. 5

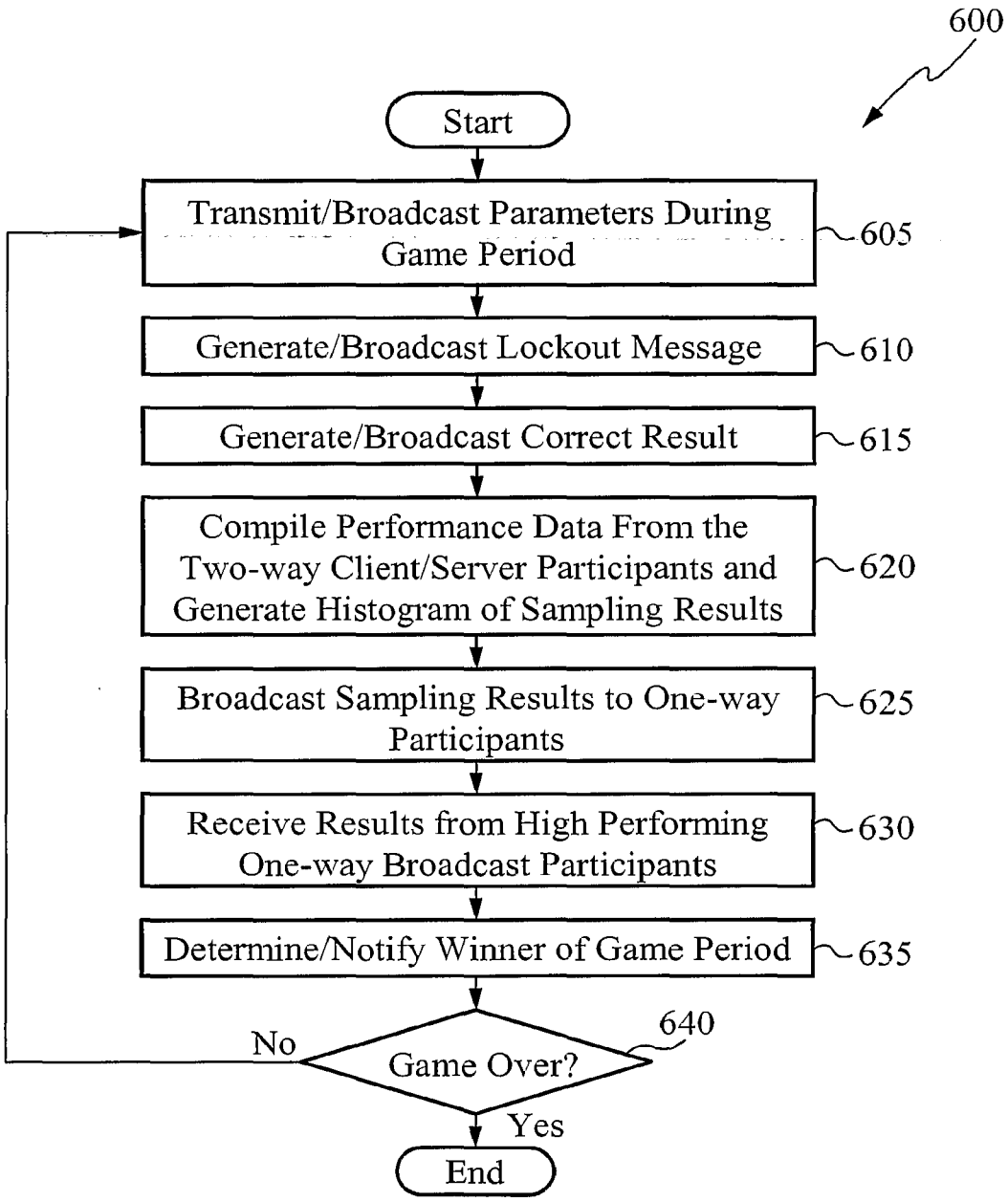

600
Start
Transmit/Broadcast Parameters During Game Period
605
Generate/Broadcast Lockout Message
610
Generate/Broadcast Correct Result
615
Compile Performance Data From the Two-way Client/Server Participants and Generate Histogram of Sampling Results
620
Broadcast Sampling Results to One-way Participants
625
Receive Results from High Performing One-way Broadcast Participants
630
Determine/Notify Winner of Game Period
635
640
Game Over?
No
Yes
End

Fig. 6

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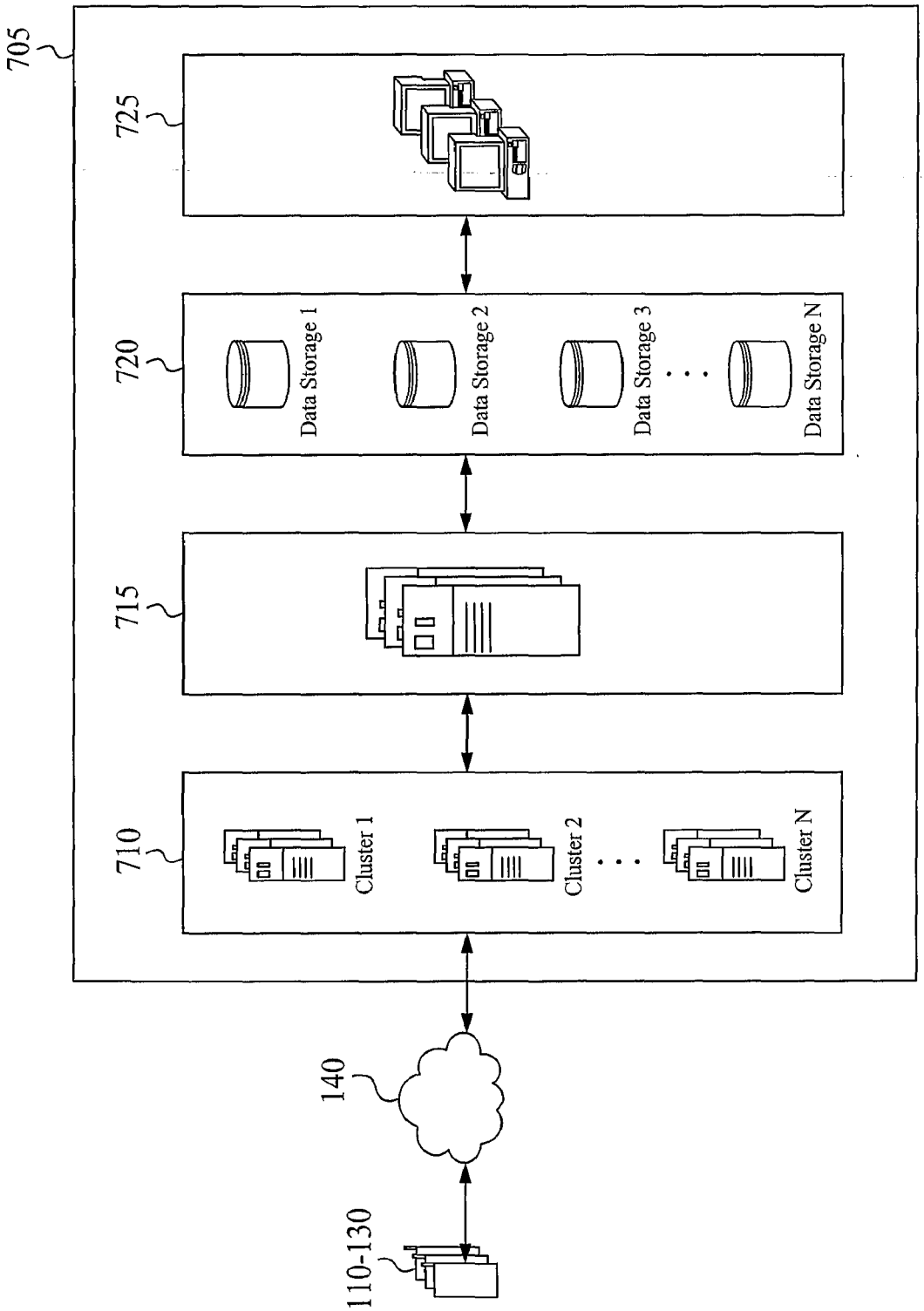


Fig. 7

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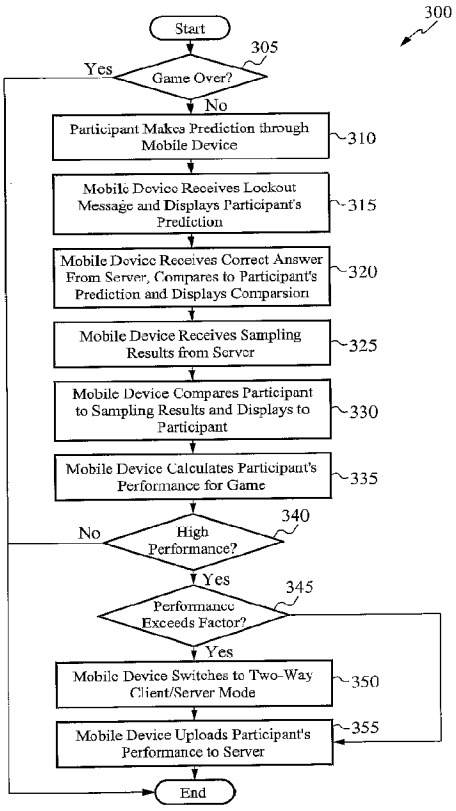
(74) Agents: **OWENS, Jonathan, O.** et al.; Haverstock & Owens LLP, 162 Norht Wolfe Road, Sunnyvale, CA 94086 (US).

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[Continued on next page]

(54) Title: METHOD AND APPARATUS FOR DISTRIBUTED GAMING OVER A MOBILE DEVICE



(57) Abstract: A method and system for detecting unusual performance in a game. The game has a participant. The method calculated for the participant, a performance metric. The method compared the performance metric to a threshold value. Based on the comparison, the method optionally connects to a server. The connection is for uploading a set of data from the participant to the server. The server broadcasts to the participant. The broadcast is a one-way transmission. The broadcast includes a distribution based on a set of sample participants in the game. The threshold value, of some embodiments, is based on the broadcast.

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FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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USPC: 463/1
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
U.S. : 463/1

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US Pub. No. 2004/0242321 A1 (Overton) 2 December 2004 (2.12.2004), paragraphs 18-23, 34, 41, 46-59, 68-74, and 94-97	1-37

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

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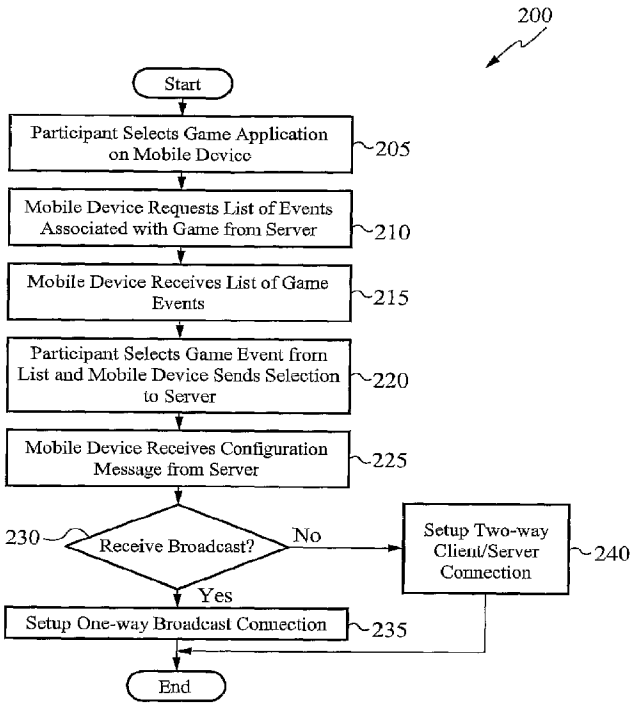
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) **Title:** METHODS AND APPARATUS FOR DISTRIBUTED GAMIING OVER A MOBILE DEVICE



(57) **Abstract:** A system and method are provided for updating game participants. In some embodiments, the participants receive game control information via a one-way broadcast. The method selects a set of sampling participants from the set of all participants of a game. In some embodiments, the selection occurs prior to the start of the game. The method of some embodiments establishes a two-way connection between a server and each of the sampling participants. For some embodiments, the two-way connection is realtime. The method continuously maintains the two-way connection throughout the game. During each discrete game period, the method receives from a sampling participant, data for the sampling participant's game period performance. Based on the received data, the method determines the performance for the game period and broadcasts this information to a non-sampling participant. A non-sampling participant is a participant who was not selected for the set of sampling participants. In some embodiments, the non-sampling participant determines a standing relative to the other participants in the game event. Some embodiments provide a method and system for detecting unusual performance in a game. The game has a participant. The method calculates for the participant an average performance level. Based on the average performance level, the method tracks for the participant a participant improvement factor and stores the participant improvement factor. The method compares the participant improvement factor to a threshold value.

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METHODS AND APPARATUS FOR DISTRIBUTED GAMING OVER A MOBILE DEVICE

RELATED APPLICATIONS

This patent application claims priority under 35 U.S.C. §119(e) of the co-pending, co-owned United States Provisional Patent Application No. 60/588,273, filed July 14, 2004, entitled "A METHODOLOGY FOR PROVIDING ALL CONTESTANTS IN GAMES OF SKILL PLAYABLE ON CELL PHONES WITH THEIR CURRENT STANDING WHILE RECEIVING GAME CONTROL INFORMATION ONE-WAY VIA A 'BROADCAST' TRANSMISSION," which is hereby incorporated by reference. This patent application claims priority under 35 U.S.C. §119(e) of the co-pending, co-owned United States Provisional Patent Application No. 60/583,739, filed June 28, 2004, entitled "A METHODOLOGY FOR DETECTING CHEATING DURING A REAL TIME CONTEST OF SKILL UTILIZING A CELL PHONE IN CONNECTION WITH A LIVE TELEVISION PROGRAM," which is hereby incorporated by reference. This patent application is concurrently filed with United States Patent Application No._____, entitled METHODS AND APPARATUS FOR DISTRIBUTED GAMING OVER A MOBILE DEVICE, which is hereby incorporated by reference.

FIELD OF THE INVENTION

The present invention relates to the field of distributed gaming. More particularly, the present invention relates to the field of distributed gaming utilizing a mobile device.

BACKGROUND

Participants of distributed gaming have experienced areas of expansion in recent years. These participants are enabled to play new games and play existing games in novel ways. For example, games today are often played by several participants simultaneously over remote networks. Distributed gaming already takes a variety of forms including Internet and/or online games, as well as simple participation events, such as audience polling. Existing distributed games already pose issues in game management and control. However, several of the complex issues with distributed games have only become more difficult with the expansion into new areas and ways of gaming. One issue involves communication with the participants. Another issue is the ability to scale for large numbers of participants. These two issues make the fundamental task of keeping all the participants updated, into a

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significant challenge. One approach to address these issues is one-way broadcast updating. However, this broadcast or multicast approach presents significant security challenges.

Games of skill and chance have an intrinsic excitement and entertainment value. Any game is greatly enhanced by a participant's ability to know how their performance compares in relation to other participants and/or to historical performance for the game throughout the contest. However, competition will naturally create incentives to enhance performance in a manner outside the rules of the game, i.e., to cheat. Some games provide a lucrative prize based on performance, which creates even greater incentives to break the rules of the game. Network based games over the Internet, television, radio, or other complex technology utilizing a one-way multicast or broadcast system create more complicated issues in detection and prevention of cheating. Unlike a server controlled contest, there are a variety of ways unobserved competitive participants are able to unfairly manipulate a game that has such a broadcast architecture.

The State of the Art

There have been various attempts to address some of the issues raised above. Some of these attempts are mentioned below.

United States Patent No. 5,013,038, filed December 08, 1989, and United States Patent No. 5,120,076, filed April 25, 1991, both to Luxemberg, et al., (the Luxemberg patents) are directed to reducing the number of telephone calls to the game server only after the conclusion of a game. The Luxemberg '076 patent in particular, directs all but a sampling of players to delay sending their scores to the central server in a multicast request after the conclusion of the game. The central server compiles the results of the sampling and broadcasts the sampling results to all the participants of the game. Each participant then determines the participant's own chance of winning based on the sampling results taken at the conclusion of the game. Only those participants whose performance is high enough in comparison to the sampling results are released to send their results to the server for scoring. Thus, in the Luxemberg '076 patent, the number of messages over a landline telephone call to the game server is reduced to the number of participants in the sample. The game server determines the winners at the conclusion of the contest based on the uploaded scores from only the participants who have a chance of winning and who have thus uploaded their scores to the server. The Luxemberg patents ('038 and '076) also provide for the collection of market information surveys after conclusion of the game. However, the Luxemberg patents suffer from lack of real-time capability as participants must wait for each of the sample

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participants to dial-in their results over telephone lines. The Luxemberg patents also suffer from the inability to specifically select and connect with a statistical sample.

United States Patent No. 5,083,800, filed June 07, 1990, to Lockton describes using a one-way FM subcarrier (SCA) channel to broadcast from the server to game participants, while the game participants upload through telephone lines. United States Patent No. 5,479,492, filed December 01, 1993, to Hofstee, et al., describes voting in response to a television or radio broadcast by using a ballot box attached to a telephone line that introduces a time delay. United States Patent No. 5,643,088, filed May 31, 1995, to Vaughn, et al., describes interleaved interactive advertising in the broadcasts. United States Patent No. 5,813,913, filed May 30, 1995, to Berner, et al. (Berner) describes a system where players are grouped according to skill level for competition and comparison within a particular skill level. In Berner, the central computer system sends a lockout signal at the conclusion of each game where only players of the particular skill level update their performance through telephone lines.

However, none of these attempts provide for real time updating, to large numbers of participants, information regarding the standings of a game, particularly over new types of networks. One such network that shows promise is a network for mobile devices such as a cellular network. Moreover, none of the prior techniques address the issues particular to mobile device gaming such as the unfair manipulation of technology.

Summary of the Invention

A system and method are provided for updating game participants. The method selects a subset of sampling participants from the set of all participants of a game. In some embodiments, the selection occurs prior to the start of the game. The method of some embodiments establishes a two-way connection between a server and each of the sampling participants. For some embodiments, the two-way connection is realtime. The method continuously maintains the two-way connection throughout the game. During each discrete game period, for example, each play of a football game, the method receives from a sampling participant, data for the sampling participant's current game period performance. Based on the received data, the method determines the performance for the game period and broadcasts this information to a participant. In some embodiments, the participant is a non-sampling participant. A non-sampling participant is a participant who was not selected for the set of sampling participants. In some embodiments, the non-sampling participant determines a standing relative to the other participants in the game event. Some embodiments display the

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determined standing. Some embodiments calculate a statistically accurate histogram from the sampling data to represent all the participants. In these embodiments, the participant's score is compared to the histogram to determine the standing.

Some embodiments of the invention provide a method and system for detecting unusual performance in a game. The game has a participant. The method calculates for the participant, a performance metric. The method compares the performance metric to a threshold value. Based on the comparison, if an unusually high score or other anomaly is detected, the method optionally connects the participant to a server. In some embodiments, the connection is for uploading a set of data from the participant to the server. The server, of some embodiments, broadcasts to the participant. The broadcast is a one-way transmission. In some embodiments, the broadcast includes a distribution based on a set of sample participants. In these embodiments, the set of sample participants comprises a representative sample of all the participants in the game. The threshold value, of some embodiments, is based on the broadcast and in some embodiments, the broadcast includes a histogram. The connecting occurs, in some embodiments, when the performance metric exceeds the threshold value. The connection, for some embodiments, includes a two-way connection. In some embodiments, the method also tracks for the participant, a participant improvement factor. The participant improvement factor is based on an average performance level for the participant. The method stores the participant improvement factor. In some embodiments, the server stores the participant improvement factor, while in other embodiments, the participant's mobile device stores the improvement factor. The threshold value, in some of these embodiments, is based on the participant improvement factor. The method of some embodiments tracks for the game, a game improvement factor. The game improvement factor is based on an average performance level for several participants in the game. The method stores the game improvement factor. The threshold value, in some of these embodiments, is based on the game improvement factor. In some embodiments, the method examines the uploaded data for particular characteristics. In some embodiments, the particular characteristics indicate the likelihood of cheating activity.

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BRIEF DESCRIPTION OF THE DRAWINGS

The novel features of the invention are set forth in the appended claims. However, for purpose of explanation, several embodiments of the invention are set forth in the following figures.

Figure 1 illustrates a mixed topology for a network game.

Figure 2 illustrates a process flow for getting a schedule of events on a mobile device for a network game.

Figure 3 illustrates a process flow for play in conjunction with a synchronized live event on a mobile device in a network game.

Figure 4 illustrates a process flow for a server sending a list of schedule of events for a network game.

Figure 5 illustrates a process flow for a server setting up a network game.

Figure 6 illustrates a process flow for a server officiating a network game.

Figure 7 illustrates the system implemented by some embodiments.

Detailed Description of the Invention

In the following description, numerous details are set forth for purpose of explanation. However, one of ordinary skill in the art will realize that the invention may be practiced without the use of these specific details. In other instances, well-known structures and devices are shown in block diagram form in order not to obscure the description of the invention with unnecessary detail. Section I below describes notification of participants of their performance. Section II describes the detection of unusual activity for a participant that could constitute cheating. Section III describes the network cluster system implemented by some embodiments, and Section IV describes some advantages of the invention.

With the proliferation of mobile devices, a growing number of mobile device users are able to participate in a distributed online or network game. These games might be associated with various popular live and/or televised events. Participants of the game typically answer questions utilizing a mobile device as a live contestant at a game show (e.g., Wheel of Fortune®, Jeopardy®, etc.). Participants are also able to make simple predictions regarding the outcome of events and even play-by-play decisions for sporting events such as football, baseball, racing, or any of a number of other sporting events. The expansion to include participants utilizing mobile devices increases the number of participants in these network games almost limitlessly. For instance, the Super Bowl live audience numbers in the

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tens of thousands of spectators, while the television audience may number in excess of 100,000,000 viewers. Many of these viewers have access to an assortment of mobile devices, e.g., most commonly in the form of the ubiquitous cellular telephone.

For high bandwidth connections, games are typically controlled through a full time (two-way) connection to a game server that can routinely supply information to the participants of the game. As is known in the art, two-way network connections provide comparatively reliable and secure service. However, forming a two-way connection between the high potential number of participants of a real-time game (e.g., associated with a broadcast event) and a central host server creates challenges because of the low latency demands of such a game played in realtime. Moreover, two-way networks pose scalability issues and become impractical for massive numbers of participants and for games over low bandwidth connections such as some mobile networks. Two-way communication generates a variable cost for each additional competing participant. Ultimately, the implementation of such a two-way system could be prohibitively expensive because of the vast communication demands of continuously updating potentially millions of contestants of the status of their ongoing, changing, and fast paced predictions. This burden on the game server is significant because many games require acknowledgment by the server of the continuously changing predictions, which must be displayed on the mobile device in less than 500 milliseconds. The same problem also exists in non-television broadcast based games played over mobile devices that require a common start time for all competitors and where there are a large number of potential competitors.

I. PROVIDING PARTICIPANTS WITH CURRENT STANDING WHILE RECEIVING GAME CONTROL INFORMATION VIA ONE-WAY BROADCAST.

A system and method are provided for updating participants in a game. In some embodiments, the method selects a set of sampling participants from the set of all participants of a game. In some of these embodiments, the selection occurs prior to the start of the game. The method of some embodiments establishes a two-way connection between a server and each of the sampling participants. The method continuously maintains the two-way connection throughout the game. After each discrete game period, the method receives from a sampling participant, data for the sampling participant's game period performance. Based on the received data, the method determines the performance for the game period and broadcasts this information to a participant. Some embodiments base the data on a statistically projectable random sample that is representative of all the participants in the

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game. In some embodiments, the broadcast recipient is a non-sampling participant. A non-sampling participant is a participant who was not selected for the set of sampling participants. In some embodiments, the non-sampling participant, utilizing the projectable data, determines a standing relative to the other participants for the game period.

As mentioned above, the most cost effective means of controlling a large-scale network game is to use a broadcast server topology to one-way multicast the same information to all participants simultaneously. Thus, some embodiments of the invention provide for a mobile device (e.g., cellular phone, PDA, etc.) as the receiver in a broadcast receiver topology. However, many current mobile devices are capable of operation in both one-way and two-way modes. These modes include small message service (SMS), instant messaging (IM) or Internet Relay Chat (IRC), email, voice and/or other data modes over a number of protocols such as transport control protocol (TCP) or universal datagram protocol (UDP).

Thus, the network game topology of some embodiments may include a mixture of one-way receivers and two-way clients to realize the benefits of both the one-way broadcast and two-way client/server architectures. Figure 1 illustrates such a mixed topology 100. As shown in Figure 1, a server 105 simultaneously broadcasts to several receivers 110-125 that are configured for one-way mode reception, while sending and receiving messages with a two-way mode client 130, through a network 140. In some embodiments, the network 140 includes a cellular network. Current mobile device technology allows the use of each mobile device connected to the network 140 to store locally certain game information such as a cumulative score. Particularly for the broadcast receivers 110-125, this relieves some burden on the server in storing and managing this data, and on the network 140 in relaying the data. As mentioned above, one advantage of the one-way architecture is reducing network and/or server latency by the distribution of data for processing and/or storage at the receiver. To implement such a topology, some embodiments employ a setup process that will be described by reference to Figure 2.

A. Participant's Mobile Device Setup

Figure 2 illustrates a mobile device setup process 200 for getting a schedule of events on a mobile device for a network game. As shown in this figure, the mobile device set up process 200 begins at step 205, where a game participant selects a game application by using the participant's mobile device. Then the process 200 transitions to step 210, where the mobile device requests a list of game events associated with the selected game from a server,

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such as the server 100 represented in Figure 1. In some embodiments, the server 100 is a single computer, while in other embodiments the server 100 takes the form of any number of computers in any number of configurations, such as a server farm or cluster. Regardless of the configuration, the server typically hosts and officiates the game for these embodiments. The server of some embodiments will be described in further detail by reference to Figures 4, 5, and 6.

As shown in Figure 2, after requesting a list of events at step 210, the mobile device receives a list of game events and displays the list to the participant at step 215. At step 220, the participant selects a game event in which to compete, and sends the selection to the server. Typically, the server configures the game event for the requesting mobile device. The server configuration of some embodiments includes a determination of whether the mobile device should set up a one-way or two-way connection with the server. The configuration process by the server of some embodiments will be described in further detail by reference to Figure 5.

When the server has configured the game event, the requesting mobile device receives a configuration message from the server at step 225 and the process transitions to step 230. At step 230, the mobile device of some embodiments determines whether the configuration message from the server indicated that the mobile device should set up for one-way broadcast mode. If the message at step 225 indicates that the mobile device should operate in broadcast mode, the process 200 transitions to step 235 where the mobile device is configured to receive one-way broadcast transmissions from the server, and then the process 200 concludes. Otherwise, the process 200 transitions to step 240 where the mobile device sets up a two-way client/server connection with the server for the selected game event, and the mobile device setup process 200 concludes.

B. Participant's Mobile Device Operation

Once the participant has selected the game and the mobile device has prepared the connection with the server. The participant may play the game over the mobile device. Figure 3 illustrates a mobile device operation process 300 for play in conjunction with a synchronized live event. The mobile device operation process 300 begins at step 305 where the process 300 determines whether the game is over. If the game is over, then the process 300 concludes. If the game is not over, then the process 300 transitions to step 310 where the participant makes a prediction regarding some facet of the game being played. The

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participant makes the prediction by using the mobile device that was set up to play the game in accordance with the set up process 200 described above in relation to Figure 2.

As shown in Figure 3, after the participant makes a prediction, the mobile device operation process 300 transitions to step 315 when the mobile device receives a lockout message from the server. At step 315, upon receiving the lockout message, the mobile device displays the participant's current prediction, if any, to the participant. In some embodiments, at the conclusion of each game period or scoring event, for example a football play or a baseball pitch, the server sends "lock out" signals prohibiting predictions or answers to the questions via a one-way broadcast transmission before the correct answers or facts are revealed. The participant's mobile device in these embodiments determines whether the participant's predictions or answers were: (1) entered prior to the receipt of the time stamped lock out message and (2) correct or incorrect. In some embodiments, the mobile device computes locally a cumulative score based on whether the participant was correct, as opposed to performing these calculations for each participant on a central server. Such a system has the ability to scale to accommodate a potentially large number of participants from a huge audience. The lockout message and whether a game is over will be described later by reference to Figure 6.

After the mobile device receives a lockout message at step 315, the process 300 transitions to step 320 where the mobile device receives the correct answer from the server, compares the received answer to the participant's prediction, and displays the comparison to the participant. Then, at step 325, the mobile device receives a set of sampling results from the server. Prior to the commencement of the game, the server of some embodiments selects a statistically significant random sample of participants who have registered their intention to play the game. The server instructs these sampling participants' mobile devices to establish with the server a two-way connection to be maintained for the duration of the contest or game. Some embodiments establish the two-way connection transparently, which occurs with or without the participant's knowledge. The server of some embodiments monitors the period-by-period scores of this statistically significant set of sampling participants. In some embodiments, the sampling results contain a distribution of the performance of the sampling participants for the last period of the game that was tabulated. Some of these embodiments employ a histogram format to represent the sampling results.

After each discrete period in the contest, the server of some embodiments broadcasts some of the information collected from the sampling participants as well as the correct answers or predictions for each game period. In some of these embodiments, the game

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application software residing in the mobile device will compare the participant's current score to the sampling results. For example, a participant who won the maximum number of points possible on their last prediction might be informed they had moved up from the 72nd percentile to the 89th percentile at that point in the game. Some embodiments further provide a visual display of the current percentile standing for the participant based upon the comparison of the participant's score to the representative sample. For some of these embodiments, the sampling results include a histogram or another graphical representation of the sampling results. Generation and transmission of the sampling results will be further described below by reference to Figure 6.

When the mobile device receives the sampling results at step 325, the process 300 transitions to step 330 where the mobile device compares the participant's performance to the sampling results and displays the comparison to the participant. Then, the process 300 transitions to step 335 where the mobile device tabulates and stores the participant's performance for the game. This tabulation and storage may include a ranking system. Once the mobile device determines the participant's performance, the process 300 transitions to step 340 where the process 300 determines whether the participant has achieved a high degree of performance. For some embodiments, a high degree of performance indicates a greater likelihood that the participant will have high enough score(s) to win. In these embodiments, the method uploads the participant's performance to the server for comparison against the uploaded results of the other high performers. Thus, these embodiments monitor only the subset of high scorers, based on the particular game parameters, to determine the winner(s).

If the participant has not achieved notable performance, the process 300 concludes. Otherwise if the participant has performed well, the process 300 of some embodiments transitions to step 345, where the process 300 determines whether the participant has exceeded one or more performance factors. If the participant has not exceeded the performance factor(s) then the process 300 transitions to step 355 where the mobile device uploads the participant's performance information to the server, and the process 300 concludes. Otherwise, the participant exceeds the performance factor and the process 300 transitions to step 350 where the mobile device switches to a two-way client/server mode. Then the mobile device uploads the participant's performance information to the server at step 355 and the process concludes.

Some embodiments use the performance determination at step 340 to check whether the participant's performance is high enough to warrant transmission to the server. In these

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embodiments, high performance may indicate whether the participant is likely to win. Some embodiments use the performance factor of step 345 in Figure 3 to determine whether the participant exhibits unusual performance or activity that might constitute cheating. This topic will be further discussed in Section II. The description above regarding setup and operation of a mobile device has alluded at various times to interaction with a server. The server of some embodiments will now be described in further detail by reference to Figures 4, 5, and 6.

C. Server Setup

As mentioned above, the mixed network topology 100 illustrated in Figure 1 employs a server 105 to operate and officiate a game that is provided to a set of heterogeneous mobile devices. As discussed above in relation to Figure 2, the games begin by a participant selecting a game event through a mobile device, and by the mobile device requesting a list of hosted game events. Figure 4 illustrates a server hosting process 400 for a server sending a list of schedule of events for a network game. As shown in Figure 4, the hosting process 400 begins at step 405 where the server receives from a mobile device, a request for a list of events associated with a game. Then the process 400 transitions to step 410 where the server looks up events associated with the game in a master list of games and events. For instance, for the game of "football" the master list of games and events might include the "Super Bowl" as an event. This master list is maintained by some embodiments on a data storage. At step 415, the server returns the list of events to the requesting mobile device and waits for the mobile device to make a selection. At step 420, the server receives from the requesting mobile device a selection for a game event and then the hosting process 400 concludes.

Once the server of some embodiments receives the selection of a game event from a requesting mobile device, the server performs certain setup operations for the requested game event. In some embodiments, the server logs the mobile device and/or the participant operating the mobile device to one or more data storages maintained by the server. The server of some embodiments may request the identification explicitly, while the mobile device of other embodiments will transmit the identification separately, or in conjunction with another message to the server regardless of a specific identification request.

Figure 5 illustrates a process 500 for a server setting up a network game. The server setup process 500 begins at step 505 when the server receives identification from the mobile device. As mentioned, this identification can represent a participant and/or the participant's mobile device. At step, 510 the server uses the received identifier to look up the performance history associated to the received identifier. The server of some embodiments may use a data

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storage for the lookup. Then, the process 500 transitions to step 515, where the process 500 determines based on the participant's performance history, whether the participant is likely to win. The determination of some embodiments may be an approximation of performance for the selected game event, particularly if little or no performance history has been logged to the data storages for the particular participant.

If at step 515, the participant is likely to win, then the server setup process 500 transitions to step 530 where the server sends a message to set the mobile device in a two-way client/server communications mode. In the two-way mode, the server monitors closely the participant's performance for the game event. In these embodiments, the server is constantly updated with only the most relevant data from a subset of participants who are likely to win. Otherwise, if at step 515, the participant is not likely to win, then the process 500 transitions to step 520, where the process 500 determines whether there is a proper statistical sampling of scores.

In some embodiments, the server setup process 500 determines whether the number of two-way (real-time) connections to the server is statistically significant, i.e., is sufficient to provide a reasonably reliable representation of the population of all participants in the game event. If at step 520, there is not a proper statistical sampling (e.g., there are not enough two-way connections for statistical significance) then the process 500 transitions to step 530 where the server sends a message to set the mobile device in two-way client/server mode (thus, increasing the number of two-way connections toward statistical significance), and the process 500 concludes. Otherwise, the process 500 transitions to step 525 where the server sends a message to set the mobile device in one-way mode to receive broadcasts from the server, and the server setup process 500 concludes. As mentioned above, some embodiments pre-select a set of sampling participants for two-way connections at the start of each game.

D. Server Operation

Once the server has set up and sent the mobile device configuration messages for the selected game, the server will then typically conduct and officiate the game. Figure 6 illustrates a process 600 for a server officiating a network game. As shown in this Figure, the server operation process 600 begins at step 605 where the server transmits parameters and other information regarding the game to any mobile devices that have selected participation for the game period. For the mixed topology 100 illustrated in Figure 1, mobile devices configured for one-way mode will typically receive the game information through broadcast

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messages from the server, while mobile devices configured for two-way mode will send and receive in a manner that is typical of client/server connections.

The transmissions and/or broadcasts will continue at step 605 until the conclusion of the game period as determined by the particular game parameters. Then the process 600 transitions to step 610 where the server generates and sends a lockout message to notify the participating or subscribed mobile devices that the game period has concluded. In some embodiments, the lockout message includes a timestamp. After the lockout message, the server generates and sends the correct result for the recently concluded game period at step 15. Then the process 600 transitions to step 620 where the server compiles the available performance data from the two-way client/server mode participants. As mentioned above, in some embodiments the two-way mode participants form a representative sample of all participants competing during the particular game period. The server operation process 600 of some embodiments generates a graphical representation of the results obtained from the representative sample of participants. Some of these embodiments use a histogram format to illustrate the sampling results.

Once the server operation process 600 compiles the sampling results at step 620, the process 600 transitions to step 625 where the server sends the sampling results to the participants of the game period. In particular, the server typically broadcasts the sampling results to the one-way mode participants. After broadcasting the sampling results, the process 600 transitions to step 630 where the server receives uploaded results from the high performing one-way mode participants. As described above in relation to Figure 3, in some embodiments the high performing one-way mode participants determined their status as high performers based on the sampling results received from the server, and only those participants who were likely to win the game event or period upload their results to the server.

As shown in Figure 6, after step 630, the server operation process 600 transitions to step 635 where the process 600 may perform a number of functions. For instance, the process 600 of some embodiments determines and/or notifies one or more winners of the current game event or period. The process 600 of some embodiments also makes determinations or calculations as to the categories and criteria for winners of the game event and/or period. Thus, for each discrete period a participant's score may increment or decrement by the appropriate number of points depending on the game rules. Some embodiments calculate a total and/or cumulative score for the particular participant. The details of the discrete period and the scoring typically encompasses the underlying facets of the game's subject matter

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such as, for example, the answer to a televised Jeopardy® question, or the results of a prediction of what play will be called by the quarterback in a televised football game.

When the server operation process 600 completes the various tasks at step 630, the process 600 transitions to step 640 where the process 600 determines whether the game, the event, and/or the period are over, based on a set of criteria specific to the selected game. If the game is not over, then the server operation process 600 returns to step 605, otherwise the process 600 concludes. As one of ordinary skill will recognize, the officiating server during an online network game does not monitor a majority of the participants, particularly the one-way broadcast participants. In a network environment of heterogeneous mobile devices, this creates opportunities for participants to unfairly modify and report their performance. Next, Section II describes the additional measures that some embodiments provide to address these concerns.

II. Detecting Cheating for a Game Played over a Mobile Device

As mentioned above, games broadcast to mobile devices pose specific challenges as to data validation and overall game integrity. For example, a participant using a mobile device in an online or network game is able to (1) access the mobile device client to probe the microprocessor, and/or the RAM to modify the local data at the client device; (2) "spoof" or emulate another mobile client device or; (3) apply other techniques to enter predictions after the answers are known. Thus, a crafty participant is able to create game scores that are not legitimately achieved out of view of the officiating secure server and submit the unfairly achieved performance for scoring against un-enhanced legitimate competitors.

To cope with this issue, some embodiments provide a method and system for detecting unusual performance in a game. The game has a participant. In some embodiments, the game is a game of skill, which, as with most games of skill, performance improves with repetitive play, until a participant reaches their general level of skill. The method calculates for the participant an average performance level. Based on the average performance level, the method tracks for the participant, a participant improvement factor and stores the participant improvement factor. The method compares the participant improvement factor to a threshold value. As mentioned above, some embodiments make this comparison at step 345, of the process flow 300 illustrated in Figure 3.

Some embodiments additionally track a game improvement factor (e.g., at step 635 in Figure 6). In some of these embodiments the game improvement factor includes the average change in performance over time for all participants of the game. In some embodiments, any

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participant whose current game performance is exceeding either the overall game improvement factor, and/or the individual's participant improvement factor, or who is achieving a score at the very highest level of the current online players, will trigger the establishment of a two-way connection with the server for closer two-way monitoring of the participant's activity during the remainder of the game. Additionally, participants who approach a level of performance sufficient to win a significant prize, tournament points, or other reward, are also selected by some embodiments for a two-way server connection at various times during their participation of a network game. The two-way connection employs the transport control protocol (TCP) in some embodiments, while other embodiments might employ another suitable protocol. The server of some embodiments is a "game session server" provided by AirPlay Network, Inc. The system implementation of some embodiments will be described further in Section III.

Once a two-way connection is triggered, the server of some embodiments records data for the ongoing game play of the triggering participant and performs a variety of tests. The tests of some embodiments include the recording of each entry by the participant, and examining the time stamp, user input, and other data being received from the participant's mobile device. Some embodiments use the recorded data to identify anomalies in the participant's activities. The anomalies might include (1) abnormal improvement in results relative to other participants, (2) abnormal improvement in performance based on prior performance for the particular participant, (3) signs that the application software has been altered, (4) anomalies in the utilization of the game control interface, and/or (5) indications through encryption and additional non-obvious data that the final score upload has been altered.

Some embodiments, when detecting an anomaly, require future game play by the participant suspected of unfair activity to be conducted on a two-way basis with the server for close monitoring. For instance, during the game play of these embodiments, every play prediction is stored inside the mobile device and is sent periodically to the game server. Moreover, some embodiments store in a database each participant's relative performance for each game in which the participant competes. In some embodiments, the participant's relative performance is stored in the form of a percentile standing. Some embodiments calculate and store the average performance level and the average incremental improvement in the percentile standing for each participant. As participants improve over time with practice and experience, some embodiments continually calculate an average improvement factor for both the game in general, as well as for a specific participant. For instance, the

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average improvement in percentile standing of a specific participant for a particular game might be two percentile points, while the average improvement for a group of participants at a particular skill level game-wide, might be three percentile points.

Thus, the threshold value used by some embodiments to gauge a participant's performance may vary for each participant, and for each game, and may also vary over time. The threshold values of these embodiments are adjusted based on one or more of these or other factors (e.g., the participant and game factors, over time). Moreover, some embodiments employ multiple checks against one or more of the threshold values. For instance, the participant's improvement may not be that notable based on the participant's history but is unusual for the particular game played.

In some embodiments, information regarding the average improvement in percentile standing for a participant and/or for the group of participants within a particular skill level for the game is stored to the participant's mobile device by using software that has been loaded into the participant's mobile device memory and/or that has been downloaded with an applications program. These embodiments continuously compare each participant's current percentile standing to the stored information that includes the improvement factors previously described.

For some embodiments, information is updated in realtime. This includes updating the sampling distribution representing the game-wide performance through the (realtime) two-way connections, as well as updating the broadcast participants utilizing the one-way connections. Also previously mentioned, during play of the game, performance or scoring information may be represented in some embodiments by a histogram format, which may be displayed at various times on the participant's mobile device. The histogram of these embodiments may contain the performance of a random sample of selected participants who are continually connected to the server. In some embodiments, the mobile device might generate the histogram, while for other embodiments, the histogram is broadcast to all participants by the server. The point values to win for each game being played is different and depends upon the following, among other things: the game; the difficulty of the game; and the performance of the players playing the game. Thus, the histogram is used to track the scores of a sampling of the players and communicate those scores to all of the players during the game. Each mobile device will then be able to determine how the corresponding player is performing in the current game relative to the other players.

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III. SYSTEM

As previously mentioned, the server 105 illustrated in Figure 1 is implemented in some embodiments by using a more complex system that includes multiple servers and/or multiple server clusters. To further illustrate this scalability feature, the server of some embodiments is depicted in Figure 7 as a cluster or several clusters of server computers. Accordingly, Figure 7 illustrates a system 705 implemented by some embodiments that includes a communication layer 710, a master layer 715, data storages 720, and administration tools 725. Further shown in Figure 7, one or more mobile devices 110-130 connect to the system 705 through a network 140. As previously mentioned, the network 140 in some embodiments includes a mobile device network such as a cellular network, which employs a variety of communications protocols to transmit data both one-way and two-way between the mobile devices 110-130 and the system 705.

In some embodiments, initial messages received by the system 705 are handled by the communication layer 710. In these embodiments, the communication layer 710 might include dedicated servers to handle the communication needs of a large scale hosted network game. For instance, the communication layer 710 of some embodiments includes a Connection Cluster, a Game Session Cluster, a Score Cluster, a Broadcast Cluster, and a Web Cluster, all provided by AirPlay Network, Inc. In these embodiments, the task of sending and receiving data in the processes of, for example, setting up a game, providing an event list, providing game parameters during a game, and updating scores, is divided among the separate servers and/or clusters.

Also shown in Figure 7, the communications layer 715 is coupled to a master layer 720. In some embodiments, the master layer 720 includes operational support for hosting and officiating the network games. In these embodiments, this hosted support might include server applications and functions for scheduling, registration, scoring, and validation. The master layer 720 often operates on massive amounts of data, thus each function in these embodiments is typically delegated to a dedicated collection of servers and/or clusters (e.g., a Schedule Cluster, a Registration Cluster, and a Scoring/Validation Cluster, also provided in some embodiments by Airplay Network, Inc.). The master layer 720 is further coupled to a set of data storages 720 to enable, for example, look ups into scheduling data such as a master schedule of games and events, user data such as participant and/or mobile device profiles and history, as well as prize data, results, metrics, and reporting data. Also shown in Figure 7, the data storages 720 and the master layer 715 of some embodiments are coupled to a set of administration tools 725 that allow, for example, data entry and management such as

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scheduling and customer service functions. In these embodiments, the administration tools include user interfaces, terminals, and other appropriate administration means.

IV. ADVANTAGES

In the embodiments described above, each participant among potentially millions of participants may receive data on a one-way basis that indicates a highly accurate approximation of the participant's percentile standing after each event in real-time throughout the game. Some embodiments of the invention enable the server providing game control to utilize a one-way broadcast transmission for all but a small fraction of the participants, which significantly reduces the number of servers required to conduct a massive real time game. These embodiments also reduce the communications traffic on the cellular networks. These communications and infrastructure costs of operating the game could otherwise be insurmountable.

In addition to the benefit of providing current standings to all participants, the present invention also dramatically reduces the number of scoring calls both during and at the conclusion of an event, which represents a significant improvement over the art. The present invention establishes and maintains an ongoing two-way connection with a sample of participants throughout the game. The present invention monitors this sample and makes the information available game-wide in real-time. Therefore, the present invention does not require additional time to collect, process, and rebroadcast to the game participants instructions to later establish a two-way connection and upload scores for verification and ranking. Further, the present invention permits an almost immediate data collection, verification, and notification process, from only the most relevant group of participants in a game.

Moreover, the present invention addresses issues of integrity that are critical to a large-scale network game, which particularly may involve a number of mobile devices. A sponsor of such a large or network game offering may charge for the service and award prizes to winners. As mentioned above, the participation for such events can number potentially in the tens of millions of simultaneous subscribers, particularly by using the multicast mobile or cellular network configuration of some embodiments. However, such a game will draw little market response if the sponsor cannot maintain the integrity of the game. Issues of cheating may be addressed by employing two-way connections to closely monitor participants, but this quickly becomes impractical for large numbers of participants. Also, in some games based on rapidly unfolding events, such as a live telecast of a sporting

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event, the latency inherent in controlling a client utilizing a two-way connection (e.g., a cellular telephone) to a secure server makes keeping up with the telecast problematic. Some embodiments of the present invention incur the high overhead of two-way monitoring for only the set of participants who have a higher risk of cheating and/or have a high risk of winning. Such a system dramatically improves the economics of staging the network game and the quality of service for all the subscribed participants.

While the invention has been described with reference to numerous specific details, one of ordinary skill in the art will recognize that the invention can be embodied in other specific forms without departing from the spirit of the invention. Thus, one of ordinary skill in the art will understand that the invention is not to be limited by the foregoing illustrative details, but rather is to be defined by the appended claims.

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CLAIMS

What is claimed is:

1. A method of updating participants of a game, comprising:

selecting from a plurality of participants of the game, a subset of sampling participants;

establishing a two-way connection with a plurality of the sampling participants;

maintaining the two-way connection throughout the game;

periodically, receiving through the two-way connection, data from a sampling participant, the data representing performance of the sampling participant for a period of the game;

based on the sampling data, determining a performance metric for the game; and

broadcasting the performance metric to a participant of the game.

2. The method of claim 1, wherein the broadcasting to the participant comprises a non-sampling participant, wherein the non-sampling participant is a participant of the game that was not selected for the subset of sampling participants.

3. The method of claim 1, wherein the broadcasting is to a plurality of participants of the game.

4. The method of claim 1, wherein the selecting occurs before the start of the game.

5. The method of claim 1, wherein the game performance metric comprises a distribution of scores based on the received data from the plurality of sampling participants, wherein the plurality of sampling participants substantially represent a statistically significant number of participants in the game.

6. The method of claim 5, wherein selecting the subset of sampling participants comprises utilizing a random selection methodology.

7. The method of claim 1 further comprising:

determining a local performance metric for the broadcast participant;

receiving the game performance metric; and

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comparing the local performance metric to the received game performance metric.

8. The method of claim 7 further comprising displaying the comparison.

9. The method of claim 8, wherein the displaying comprises a histogram.

10. The method of claim 7, wherein based on the comparison, the broadcast participant sends the local performance metric to a server, the server for hosting the game.

11. The method of claim 1, wherein the game comprises a mobile device network.

12. A system for updating participants of a game, comprising:

means for selecting from a plurality of participants of the game, a subset of sampling participants;

means for establishing a two-way connection with a plurality of the sampling participants;

means for maintaining the two-way connection throughout the game;

means for periodically, receiving through the two-way connection, data from a sampling participant, the data representing performance of the sampling participant for a period of the game;

means for based on the sampling data, determining a performance metric for the game; and

means for broadcasting to a participant of the game the game performance metric.

13. The system of claim 12, wherein the broadcasting to the participant comprises a non-sampling participant, wherein the non-sampling participant is a participant of the game that was not selected for the subset of sampling participants.

14. The system of claim 12, wherein the broadcasting is to a plurality of participants of the game.

15. The system of claim 12, wherein the selecting occurs before the start of the game.

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16. The system of claim 12, wherein the game performance metric comprises a distribution of scores based on the received data from the plurality of sampling participants.

17. The system of claim 12, further comprising:
determining a local performance metric for the broadcast participant;
receiving the game performance metric; and
comparing the local performance metric to the received game performance metric.

18. The system of claim 12, further comprising means for displaying the comparison.

19. The system of claim 12, wherein based on the comparison, the broadcast participant sends the local performance metric to a server, the server for hosting the game.

20. A system for updating game participants, the system comprising:
a server to host the game;
a first mobile device having a two-way connection with the server;
a second mobile device having a one-way connection with the server; and
a network, wherein the first mobile device communicates with the server through the network by using the two-way connection, wherein based on the two-way communication, the server broadcasts to the second mobile device by using the one-way connection.

21. The system of claim 20, wherein the two-way connection is realtime.

22. The system of claim 20, further comprising a first set of data, wherein the first mobile device uploads the first set of data over the two-way connection.

23. The system of claim 20, further comprising a second set of data, wherein the server broadcasts the second set of data to the second mobile device over the one-way connection.

24. The system of claim 20, wherein the second set of data is based on the uploaded first set of data.

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25. The system of claim 20, wherein the one-way broadcast comprises a histogram.

26. A server for updating game participants, the server comprising:

a communication layer for providing connections through a network, the communication layer further comprising:

a plurality of one-way connections between a first plurality of mobile devices and the server; and

a plurality of two-way connections between a second plurality of mobile devices and the server;

wherein the one-way connections are updated based on the two-way connections.

27. The server of claim 26 further comprising:

a master layer for hosting the game, wherein data received by using the two-way connections are processed by the master layer.

28. The server of claim 26, wherein the two way connections are selected by the server.

29. The server of claim 26, wherein the server comprises a cluster.

30. The server of claim 26, further comprising a connection to a mobile device.

31. A mobile device for receiving updates during a game, the mobile device comprising:

a communication module for connecting to a network, the communication module having one-way and two-way connectivity, wherein the communication module receives a one way broadcast from a server through the network, including a received data set, and communicates game results to the server by using the two-way connectivity;

a processor coupled to the communication module, the processor for calculating a local data set and for comparing the local data set to the received data set;

a memory coupled to the processor, the memory for storing applications and data, including the local data set and the received data set; and

a display for presenting data.

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32. The mobile device of claim 31, wherein the mobile device comprises a cellular telephone.

33. The mobile device of claim 31, wherein the one-way broadcast comprises a histogram.

34. The mobile device of claim 31, further comprising an application allowing connection to a server for participation in the game.

35. The mobile device of claim 31, wherein based on the one-way broadcast, the mobile device establishes a two-way connection with a server.

36. The mobile device of claim 31, wherein the server examines the mobile device by using the two-way connection.

37. The mobile device of claim 31, further comprising modules for:

determining whether the mobile device has been accessed abnormally; or

determining whether data stored by the mobile device has been altered; or

determining whether data stored by the mobile device includes an anomaly, wherein the anomaly indicates a prohibited action for the game.

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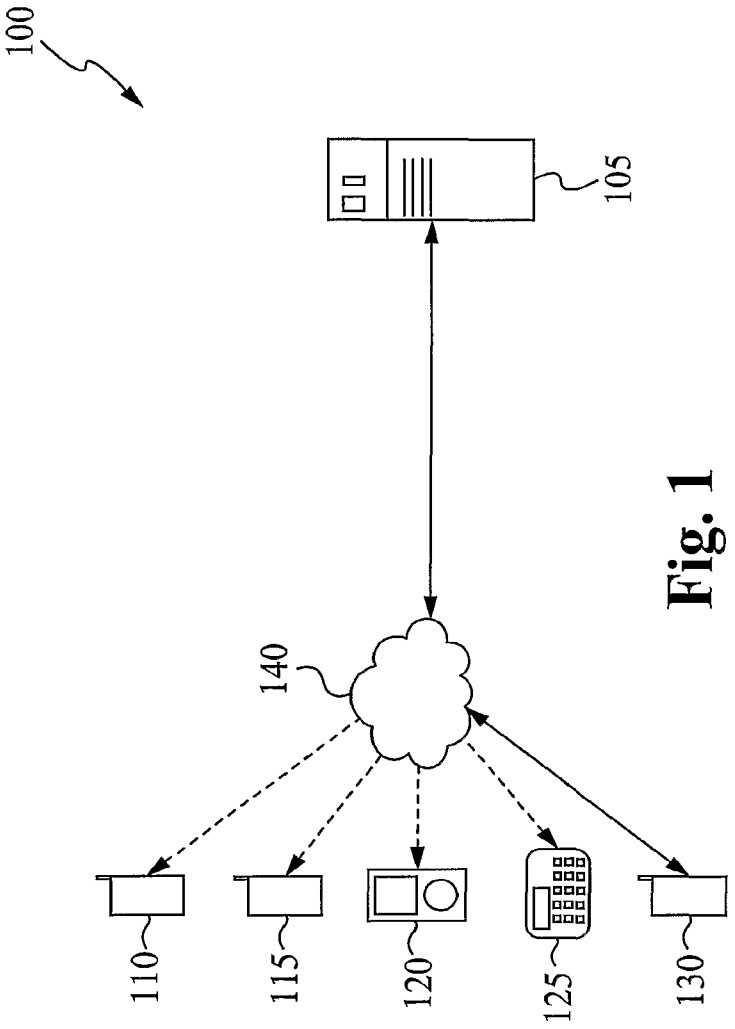


Fig. 1

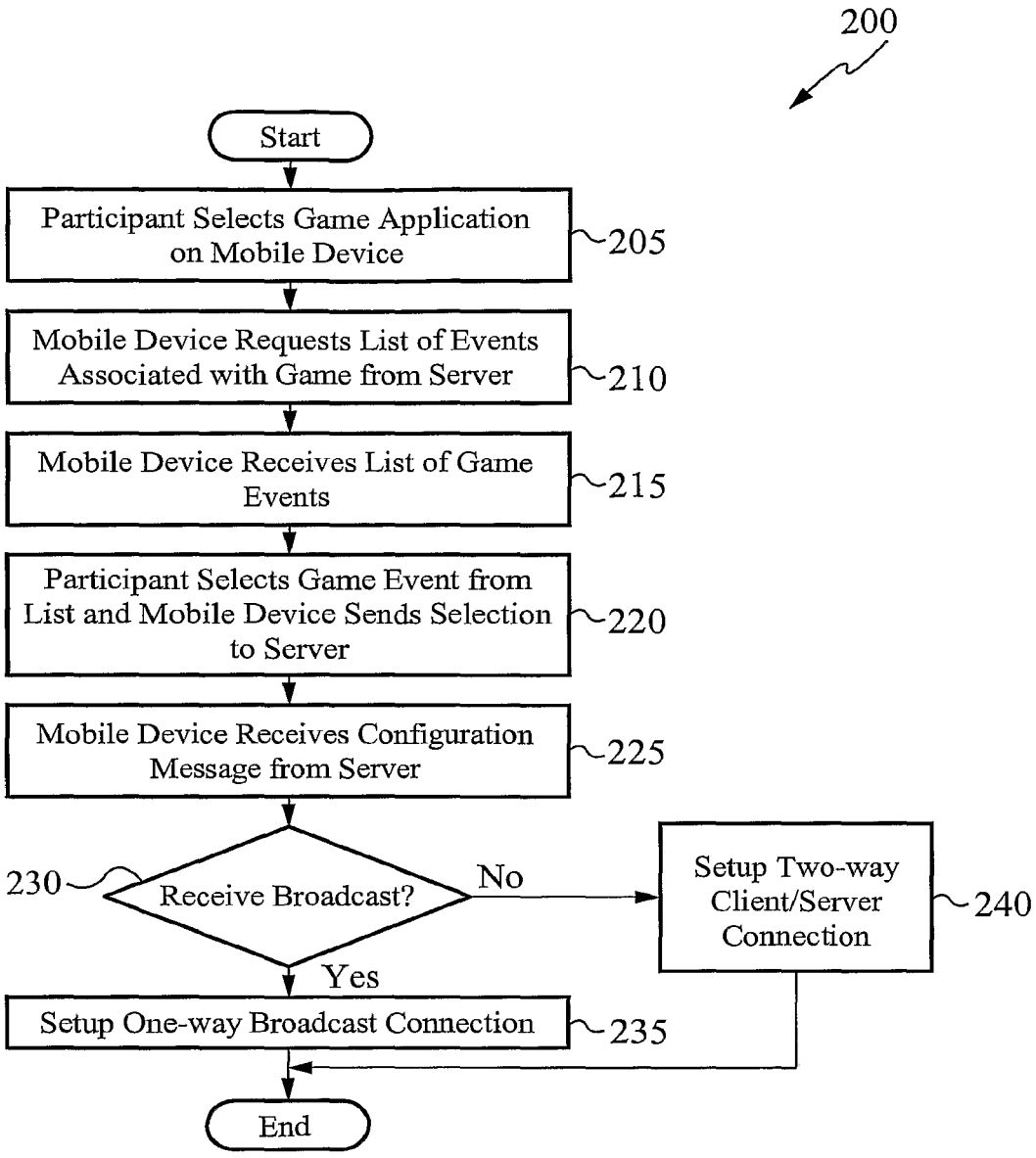

200
Start
Participant Selects Game Application on Mobile Device
205
Mobile Device Requests List of Events Associated with Game from Server
210
Mobile Device Receives List of Game Events
215
Participant Selects Game Event from List and Mobile Device Sends Selection to Server
220
Mobile Device Receives Configuration Message from Server
225
230
Receive Broadcast?
No
Setup Two-way Client/Server Connection
240
Yes
Setup One-way Broadcast Connection
235
End

Fig. 2

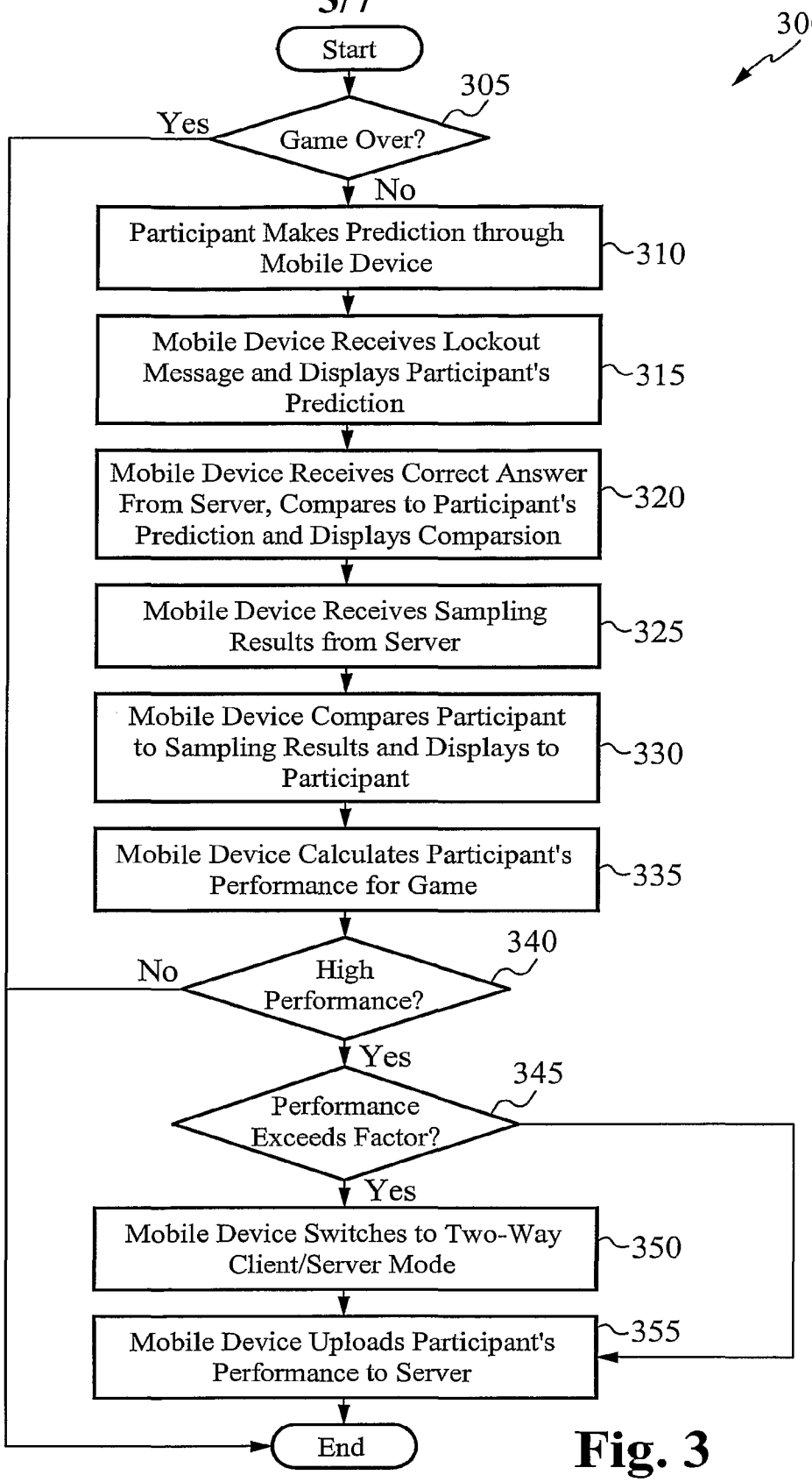

300
Start
305
Yes
Game Over?
No
Participant Makes Prediction through Mobile Device
310
Mobile Device Receives Lockout Message and Displays Participant's Prediction
315
Mobile Device Receives Correct Answer From Server, Compares to Participant's Prediction and Displays Comparsion
320
Mobile Device Receives Sampling Results from Server
325
Mobile Device Compares Participant to Sampling Results and Displays to Participant
330
Mobile Device Calculates Participant's Performance for Game
335
340
No
High Performance?
Yes
345
Performance Exceeds Factor?
Yes
Mobile Device Switches to Two-Way Client/Server Mode
350
Mobile Device Uploads Participant's Performance to Server
355
End

Fig. 3

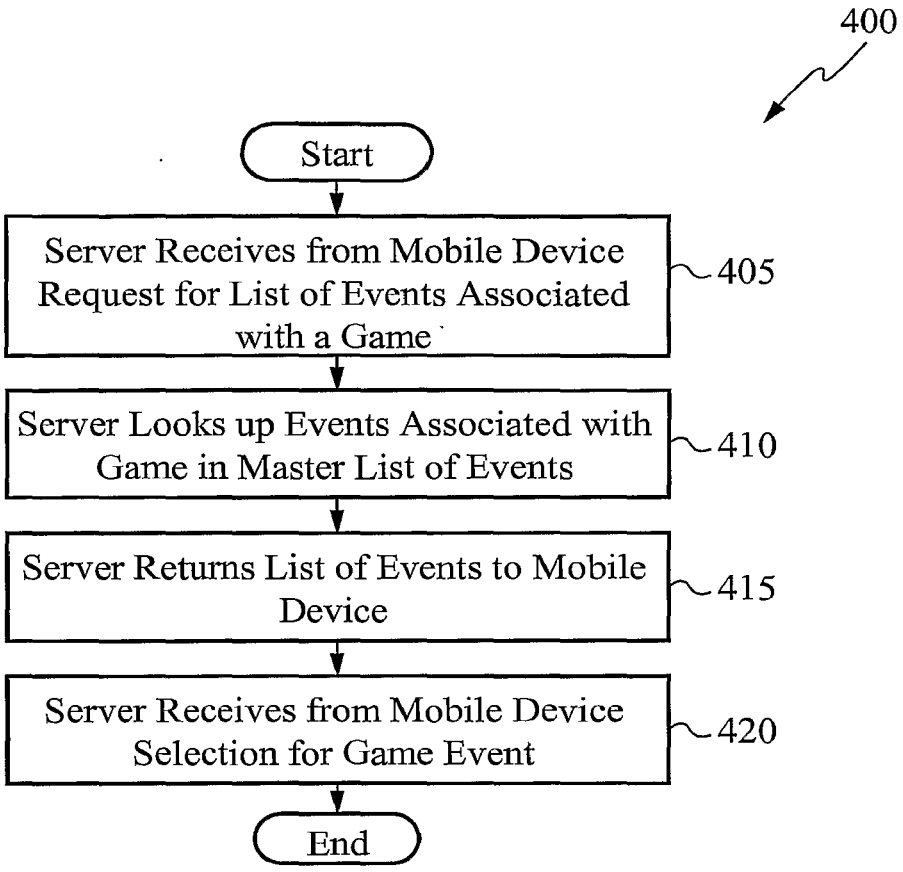

400
Start
Server Receives from Mobile Device Request for List of Events Associated with a Game
405
Server Looks up Events Associated with Game in Master List of Events
410
Server Returns List of Events to Mobile Device
415
Server Receives from Mobile Device Selection for Game Event
420
End

Fig. 4

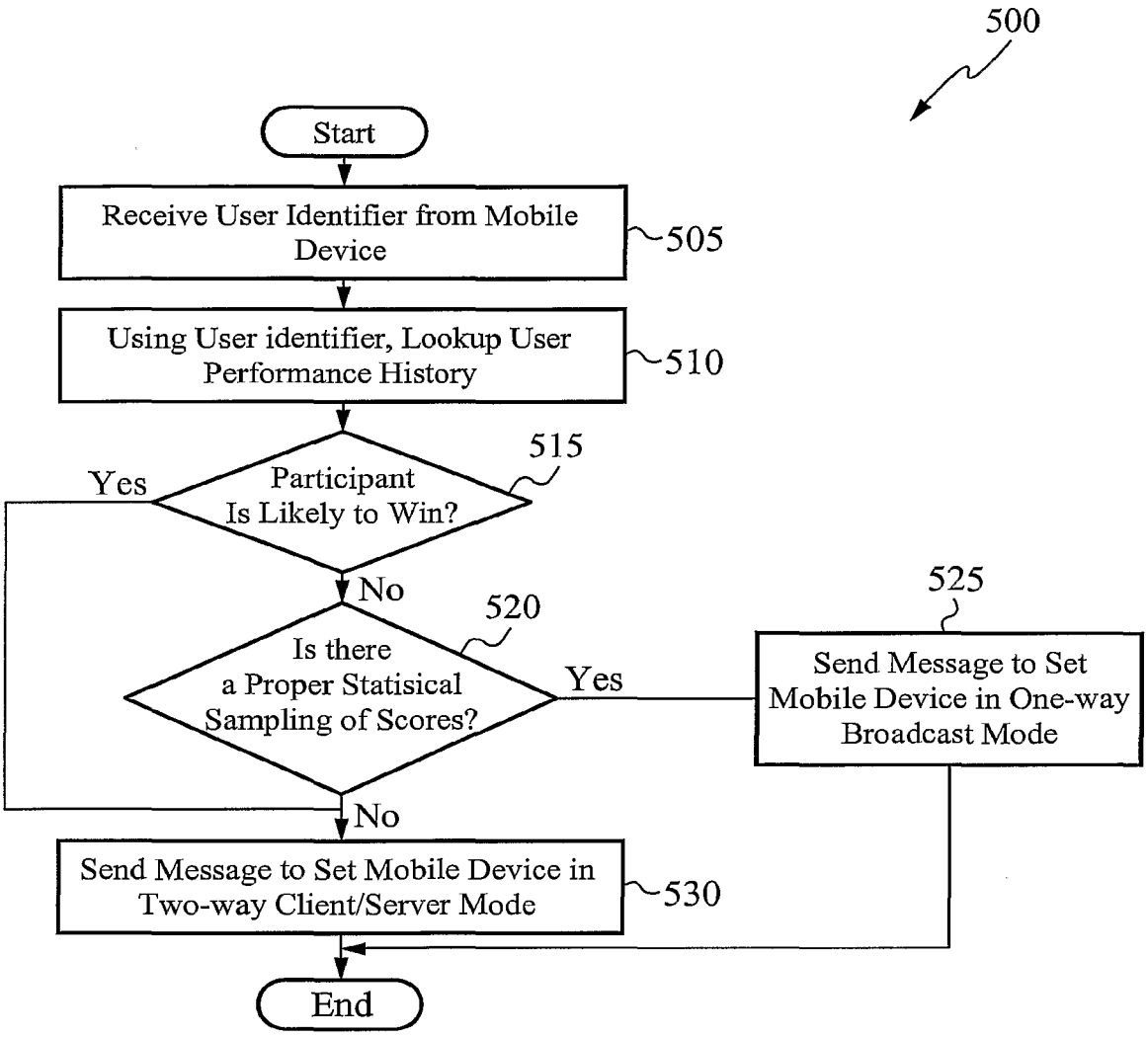

500
Start
Receive User Identifier from Mobile Device
505
Using User identifier, Lookup User Performance History
510
515
Participant Is Likely to Win?
Yes
No
520
Is there a Proper Statisical Sampling of Scores?
Yes
525
Send Message to Set Mobile Device in One-way Broadcast Mode
No
Send Message to Set Mobile Device in Two-way Client/Server Mode
530
End

Fig. 5

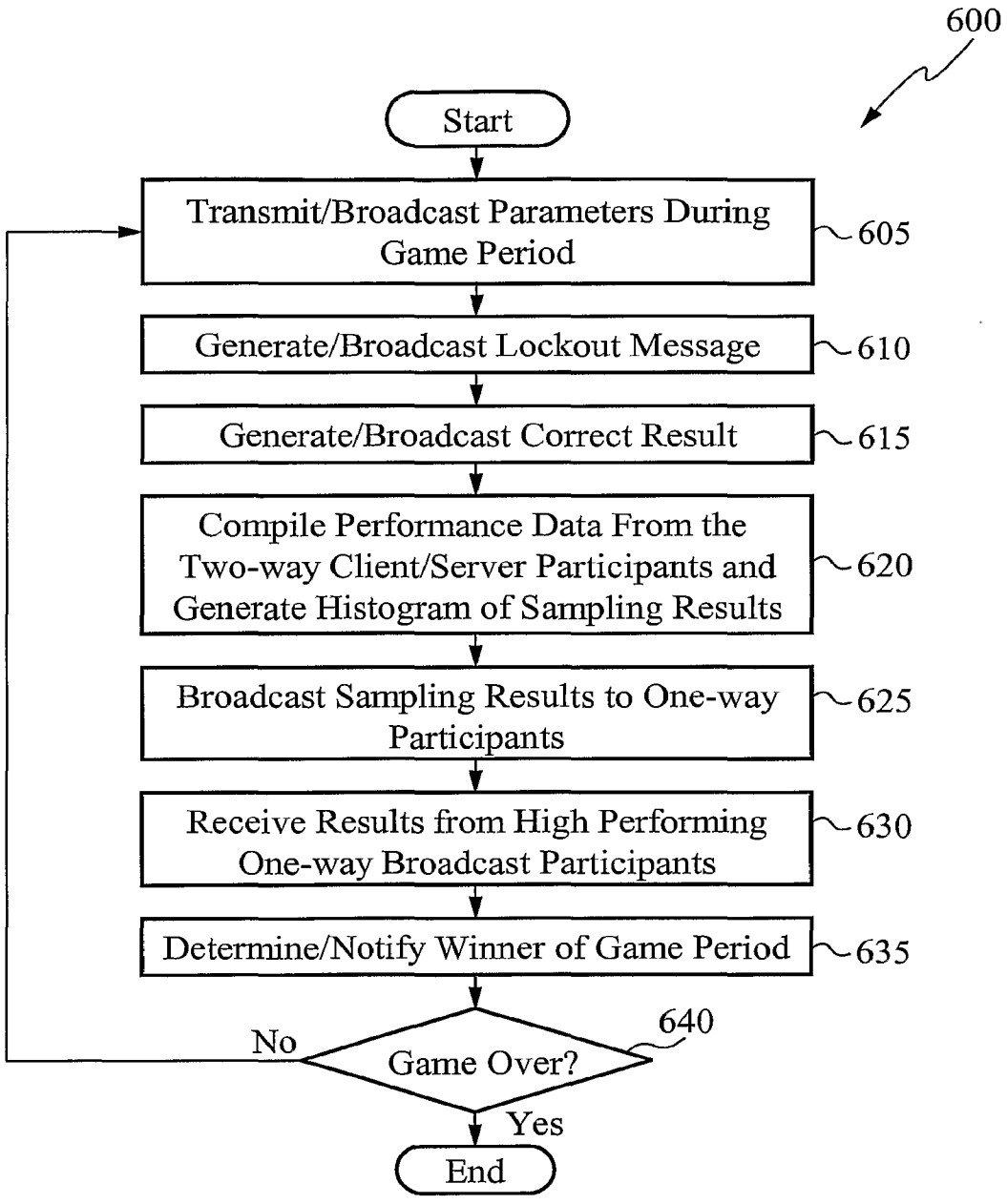

600
Start
Transmit/Broadcast Parameters During Game Period
605
Generate/Broadcast Lockout Message
610
Generate/Broadcast Correct Result
615
Compile Performance Data From the Two-way Client/Server Participants and Generate Histogram of Sampling Results
620
Broadcast Sampling Results to One-way Participants
625
Receive Results from High Performing One-way Broadcast Participants
630
Determine/Notify Winner of Game Period
635
Game Over?
640
No
Yes
End

Fig. 6

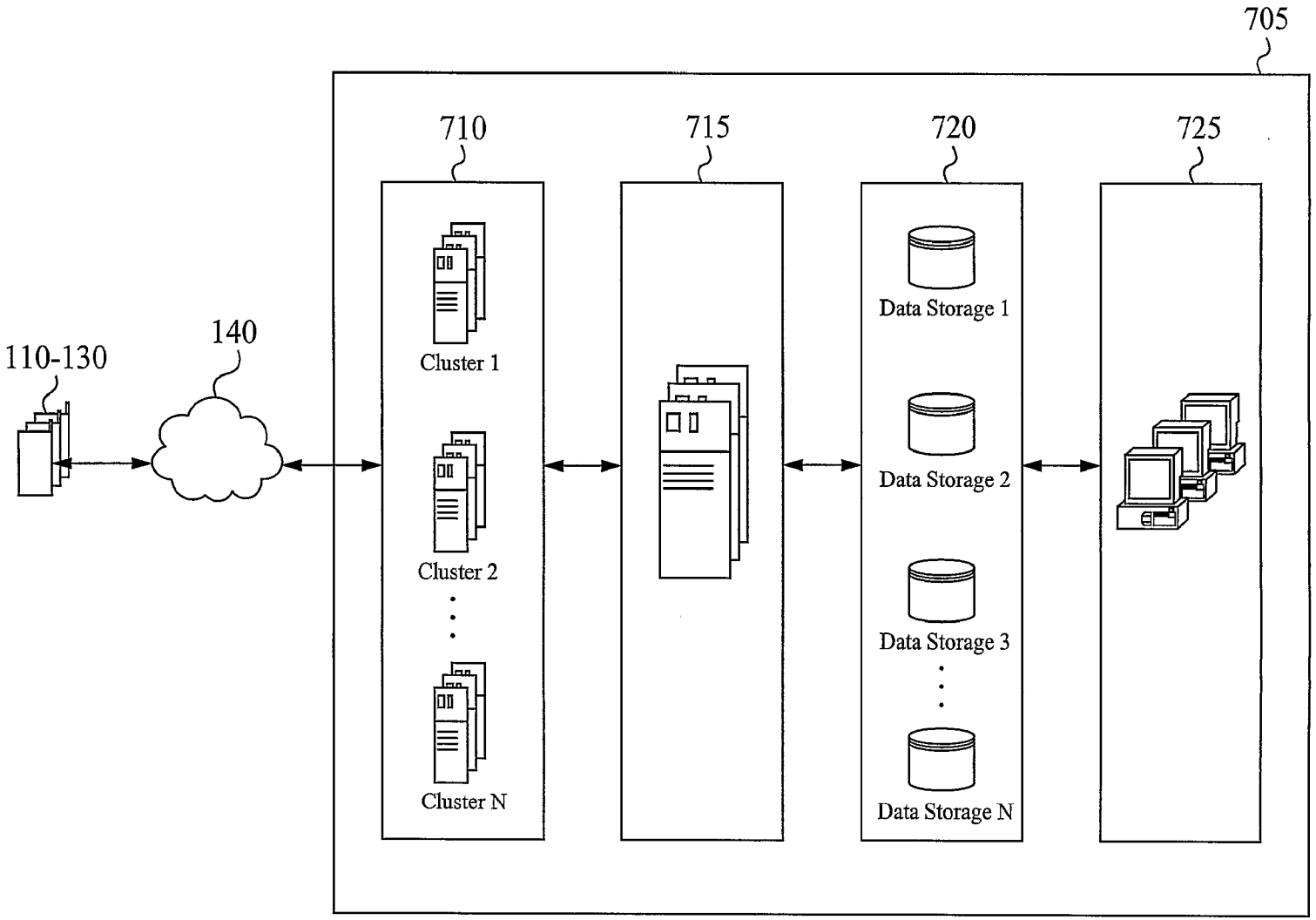


Fig. 7

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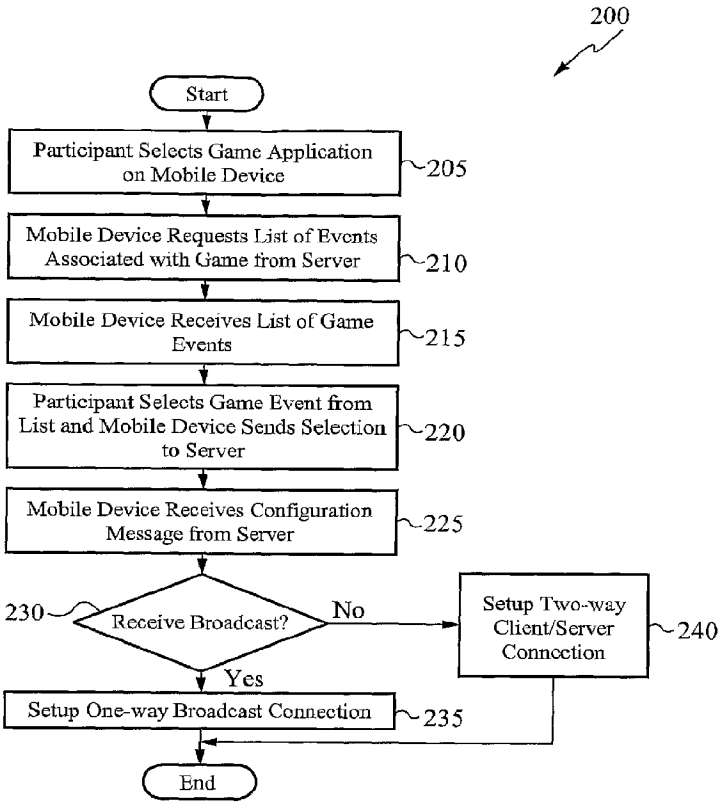
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[Continued on next page]

(54) Title: METHODS AND APPARATUS FOR MOBILE DEVICE GAMING



(57) Abstract: A system and method provided for updating game participants. The participants receive game control information via a one-way broadcast. The method selects a set of sampling participants from the set of all participants of a game. The method establishes a two-way connection between a server and each of the sampling participants. During each discrete game period, the method receives from a sampling participant, dat for the sampling participant's game period performance. Based on the received data, the method determines t performance for the game period and broadcasts this information to a non-sampling participant. The method calculates for the participant an average performance level. Based on the average performance level, the method tracks for the participant a participant improvement factor and stores the participant improvement facto The method compares the participant improvement factor to a threshold value.

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US Pub. No. 2003/0144017 A1 (INSELBERG) 31 July 2003 (31.06.2003), paragraphs : 0009-0029, 0038-0045, 0048-0053	1-37

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

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(54) **Title:** LOCATION-BASED MULTIPLAYER GAMING PLATFORM

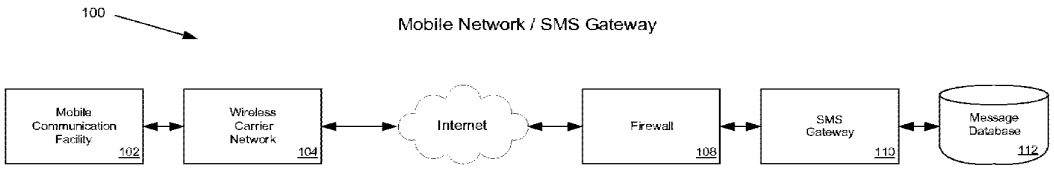


Fig. 1

(57) **Abstract:** The methods and systems disclosed herein include a gaming platform that may support massively-multiplayer online computer games, with elements of social networking, in which players may use mobile devices in order to verify their location and claim a measure of control over the location. Players may function like game pieces in association with other members on a team and participate in competitions to capture and defend real-world territory as part of the gaming experience. The gaming platform and associated entities may share revenue and other incentives with entities associated with the locations controlled by the players on the game platform.

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LOCATION-BASED MULTIPLAYER GAMING PLATFORM

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority to the following commonly-owned U.S. Provisional Patent Applications, each of which is incorporated herein by reference in its entirety: U.S. Prov. App. No. 60/895,323 filed on March 16, 2007; and U.S. Prov. App. No. 60/944,575 filed on June 18, 2007.

BACKGROUND

[0002] 1. Field

[0003] This invention relates to electronic commerce, and more particularly to the combination of online gaming activity with offline behavior of game participants.

[0004] 2. Description of Related Art

[0005] Search engines and click-through online advertising have revolutionized how retailers market to potential customers. Yet, while shopping online has become more popular, consumers, for the foreseeable future, will continue to patronize brick and mortar retail outlets.

[0006] Up to 100 million Americans (and even more worldwide) play online casual games. Overwhelmingly these are single-player experiences, yet gaming is historically a social activity that provides participants with dynamic interpersonal activity. Currently, large-scale, community-based, online computer games like World of Warcraft are designed to attract so-called "hard-core gamers" and can be played by thousands of people simultaneously and deliver a powerful social experience. Yet these massively-multiplayer games are not particularly attractive for the casual gamer, because they require an enormous investment of time and skill.

[0007] Social networking websites like MySpace and Facebook have recently become popular by offering a way for Internet users to socialize in an engrossing way. But few, if any, have yet to make money commensurate with their massive customer base.

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[0008] Cell phones are increasingly offering more features above and beyond basic phone service such as e-mail, text messaging, location-based services and games. And while cell phone gaming has become more popular, few offer the ability to play with others and socialize. And while virtually most subscribers have access to location-based services, the sector has yet to take off.

[0009] Therefore, there is a need for a gaming platform that may enable retailers to take advantage of current mobile communication technologies to drive consumers to their physical store locations, based at least in part on a massively-multiplayer online computer gaming platform, with elements of social networking, in which people and their cell phones are the game pieces in team competitions to capture and defend real-world territory as part of the gaming experience.

SUMMARY

[0010] Methods and systems are provided herein for a multiplayer online computer gaming platform, with elements of social networking, in which people and their cell phones are the game pieces in team competitions to capture and defend real-world territory as part of the gaming experience. In embodiments, the present invention provides a method and system for associating a geographic location with a code, transmitting the code using a mobile communication facility, verifying the code transmission receipt at a geographic location using a location verification facility located at the geographic location, and broadcasting the verification to a network.

[0011] In embodiments, upon broadcasting of the verification, a measure is awarded based on the verification. A measure may be a location control measure of a multiplayer game. A location control measure may be based at least in part on a distance of the mobile communication facility from the geographic location at the time of the code transmission. A location control measure may be based at least in part on a criterion. A criterion may be a purchase at a geographic location, a visit duration at a geographic location by a player, a fee payment made by a player, a receipt of a sponsor code transmission, or some other criterion. A sponsor code may include a coupon code, proof-of-purchase code, or some other type of sponsor code. In embodiments, a measure may be a territory control measure of a multiplayer game.

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[0012] In embodiments, the verification may be broadcast to a plurality of mobile communication facility users. The verification control facility may use a local wireless network to identify a mobile communication facility of a user that is in proximity to the geographic location.

[0013] In embodiments, the game platform may be able to identify whether the mobile communication facility is present at the geographic location near the time of entering the code.

[0014] In embodiments, a geographic location may be a virtual geographic location, a retail store, a landmark, a location defined by a mobile communication facility user, a ground level location, a subterranean location, an above ground level location, or some other location.

[0015] In embodiments, the geographic location of a mobile communication facility may be established using triangulation, GPS, geocoding, human verification of location, or some other location finding or verification technology.

[0016] In embodiments, a code may be associated with a game scenario or a plurality of game scenarios.

[0017] In embodiments, a code may be transmitted by calling a phone number, sending an SMS or some other form of text message, using a website or some other means of transmission. In embodiments, transmission of a code may invoke a fee to a player or team that is sending the code. A code transmission fee may be billed to the account associated with the mobile communication facility from which the code is transmitted. In embodiments, a code transmission receipt may be confirmed to the mobile communication facility.

[0018] In embodiments, a broadcast may be made using the Internet, a webpage update, a social networking site, an email, a text message, a wireless provider, a voice mail, an automated voice mail, a wireless provider and the Internet in combination, an interactive user interface, or some other broadcast means. A broadcast may invoke a fee. An automated voice mail may be created by a user of the mobile communication facility gaining location control of the geographic location. An interactive user interface may include a map. A map may be a satellite image, a graphic rendering, a three-dimensional map. An interactive interface may include a blog, sponsored content, or

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some other type of content. Sponsored content may be associated with the geographic location.

[0019] In embodiments, the present invention may enable creating a code that may be entered in a mobile communication facility, associating the code with a unit of a location verification facility that may be further associated with one or more of a plurality of geographic locations, establishing a geographic location of the mobile communication facility, transmitting the code from the mobile communication facility, computing with the verification facility a location verification measure associated with the geographic location and the mobile communication facility, and broadcasting the measure to a network.

[0020] In embodiments, the present invention may enable associating a mobile communication facility with a plurality of mobile communication facilities, wherein the association forms a multiplayer team, associating a code with a geographic location, transmitting the code using the mobile communication facility, identifying whether the mobile communication facility is present at the geographic location near the time of entering the code, and creating a first multiplayer team score based at least in part on verifying that the mobile communication facility is present at the geographic location near the time of the code transmission.

[0021] In embodiments, a first multiplayer team score may be aggregated with a second multiplayer team score from a second code transmission, or plurality of multiplayer team scores from a plurality of code transmissions. Code transmissions, and the multiplayer team scores on which they are based, may derive from a single mobile communication facility visiting multiple locations, a single mobile communication facility visiting a single location more than once, a plurality of mobile communications visiting the same location, or a plurality of mobile communication facilities visiting a plurality of locations.

[0022] In embodiments, an aggregated multiplayer team score may be weighted based on a criterion. A criterion may be a purchase at a geographic location, a visit duration at a geographic location by a player, a fee payment made by a player, a receipt of a sponsor code transmission, or some other criterion. A sponsor code may

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include a coupon code, proof-of-purchase code, or some other type of sponsor code. In embodiments, a measure may be a territory control measure of a multiplayer game.

[0023] In embodiments, an aggregated multiplayer team score may be converted into a weighting of a multiplayer team's location control measure. A weighting of the multiplayer team's location control measure may diminish as a function of time. The diminution of the weighting of the multiplayer team's location control measure may be halted upon receipt of a third code transmission by at least one of a plurality of players' mobile communication facilities.

[0024] In embodiments, a multiplayer team's location control measure may be broadcast to a plurality of multiplayer teams.

[0025] In embodiments, an association of a player's mobile communication facility with the plurality of mobile communication facilities may be made using the Internet, a wireless provider, or some other means of communication. The association may form a team.

[0026] In embodiments, the present invention may enable_creating a first code associated with a first location, a second code associated with a second location, and a third code associated with a third location, lines among the three locations defining a perimeter of a geographic territory, transmitting the first, second, and third codes using at least one mobile communication facility, verifying location of the mobile communication facility upon receipt of the codes' transmissions, and upon verification of at least three codes, awarding a territory control measure for the geographic territory to an entity associated with the mobile communication facility.

[0027] In embodiments, a rival location control that is associated with a location within a geographic territory may be eliminated upon awarding territory control. The rival location control may be associated with a rival mobile communication facility in competition for location control with the mobile communication facility.

[0028] In embodiments, the present invention may enable_associating a code with a geographic location, tracking a transaction at the geographic location and associating the code with the transaction upon verification of a user's presence at the geographic location, calculating a revenue associated with the transaction, awarding a

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location control measure based on the code and the transaction, and receiving a share of the revenue associated with the transaction.

[0029] In embodiments, a share of revenue derived from a sponsor, location, code transmission, or the like, may be retained by the gaming platform and/or entities associated with the platform.

[0030] In embodiments, a code associated with a geographic location may be automatically sent for a player or team.

[0031] In embodiments, a player or team may be provided an incentive upon receipt of the transmitted code. An incentive may be a coupon or some other incentive.

[0032] In embodiments, a transaction may be a webpage view, an online advertisement conversion, an online transaction, an online survey completion, a visit to a geographic store location, a purchase at a geographic store location, a club enrollment, a credit card enrollment, a credit card purchase, a phone call, a text message, a viewing of television content, or some other transaction type.

[0033] In embodiments, a code may be transmitted using a mobile communication facility, a telecommunications land line, the Internet, email, ground mail, a television, a fax, or some other means of transmission.

[0034] In embodiments, revenue may derive from advertising, a purchase or transaction, a sponsorship, a subscription, or some other means of revenue creation.

[0035] These and other systems, methods, objects, features, and advantages of the present invention will be apparent to those skilled in the art from the following detailed description of the preferred embodiment and the drawings.

BRIEF DESCRIPTION OF THE FIGURES

[0036] The invention and the following detailed description of certain embodiments thereof may be understood by reference to the following figures:

[0037] Fig. 1 illustrates a simplified mobile network/SMS gateway.

[0038] Fig. 2 illustrates a simplified architecture of the gaming platform.

[0039] Fig. 3 illustrates a sample rack configuration within the gaming platform.

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[0040] Fig. 4 illustrates the creation and verification of a location code transmission.

[0041] Fig. 5 illustrates the creation of a multiplayer team score.

[0042] Fig. 6 illustrates the creation of an aggregated multiplayer team score.

[0043] Fig. 7 illustrates an example of a team gaining control of a territory.

[0044] Fig. 8 illustrates steps in a method for taking an action based on verification of a location of a mobile communication facility with a location-based code.

[0045] Fig. 9 shows steps in a method for computing a measure based on verification of the presence of a mobile communication facility at a location.

[0046] Fig. 10 shows steps in a method for association of a group of mobile communication facilities in a team that is awarded measures based on verification of presence of the mobile communication facilities at locations.

[0047] Fig.11 shows steps in a method for awarding a territory control measure based on verification of presence of mobile communication facilities at locations.

[0048] Fig. 12 shows steps in a method for managing revenue shares associated with transactions occurring at locations at which the presence of a mobile communication facility is verified.

DETAILED DESCRIPTION

[0049] An aspect of the present invention includes a location-based, massively-multiplayer, community-building, real-world cellular gaming platform that uses people and their cell phones as game pieces in team competitions to capture and defend real-world territory - all displayed on thousands of web pages. Game play may deliver customers to retail, bricks and mortar clients, turning click-throughs into walk-ins to physical store locations. The method and systems of the present invention include a game that may be played with a cell phone, or some mobile device with location-based capabilities, such as GPS, triangulation, and the like. The game may utilize the Internet for communication, organization and to create a gaming social community. Revenue may be derived from web page advertising, sponsorships, premium subscriptions, and retail revenue sharing. In embodiments, the game may be an adaptable game platform, based on a simple rule-set similar to Risk or Capture the Flag, and aimed at a mass

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audience of tens of millions of casual Internet game players and the even larger population of two billion-plus cell phone users, both domestically and abroad.

[0050] In embodiments, the gaming platform may utilize the real world as the game board, with players moving through this space capturing territory by using their cell phones as the game controllers. Rather than delivering single game graphics to the small screens of cell phones, in embodiments of the present invention the phone may be used to confirm a player's location on the game board, via already existing and ubiquitous cellular location-based technology. Graphics, team and individual identities and community tools and rankings may be delivered over the Internet on game webpages that track each contest's constantly evolving progress and status in real time.

[0051] In embodiments, game play may include teams that compete for "nodes," which are real world locations that can range from retail stores to rock concerts. Team members enter a code into their cell phone to capture a Node. Captured Nodes are then linked to define a territory controlled by the team – with the winning team owning the most territory at the end of the game. Any location or event can become a Node, and games can be tailored for duration – a few days to many months. Games may scale seamlessly from local to global play, and territories may be displayed on contest Web pages in real time. Team-owned spaces may decay over time and may be attacked by other teams through a variety of tactics, including repeated incursion and surrounding by an opposing team.

[0052] In embodiments, the competition results may be sharable, for example on a website posting a leader board. Game play may also us coupons and personalized purchase opportunities to create player affinity and incentives for playing the game. Game play may also provide a reason for community members to meet face-to-face.

[0053] In embodiments, the gaming platform may provide links between online game play and accomplishment by associating game play with tangible real world benefits and rewards by making brick and mortar retail locations part of game play. Furthermore, by actually delivering customers to retail locations in a provable and auditable way, the game may provide incentives for retailers to offer prizes and sponsor contests. Through the game experience, a cell phone may become a nonintrusive means of matching local business offerings with user needs.

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[0054] In embodiments, the game may be customized, and the game Nodes or play locations may be any store, location, or landmark. The game may be tailored to appeal to any geographic theater or demographic. In other words, according to the methods and systems described herein, games may be created, with or without sponsors, for teen boys in Los Angeles, "tween" girls in Singapore, or single adult females in London, Seoul, or Shanghai, or any other demographic group or geographic location.

[0055] In embodiments, the gaming platform may benefit from a wide range of revenue streams owing to its combination of sponsorships, venues, and game play elements. Depending on the location, player population, and design of the game, the game may tailor its business model and revenue flow per game, per site, and per demographic—allowing a level of flexibility and adaptability that may diversify and minimize risk while maximizing customer satisfaction, repeat play, and customer loyalty and predictability. In an example, when a player participant in the game visits a retail partner in the course of capturing a node, the game operators may receive a bounty for delivering the customer to the store, as well as participating in revenue sharing from any purchase resulting from the player's store visit.

[0056] In embodiments, the gaming platform may be free to play. In embodiments, the game may be a premium game, available via a subscription fee. In embodiments, winning players in the game may be rewarded. In embodiments, winning teams may be rewarded. A reward may include, but is not limited to, money, merchandise, store credits, coupons, or some other incentive or reward.

[0057] In embodiments, the gaming platform may be a custom-designed private game for a corporate client, person, event, occasion, or some other defining characteristic.

[0058] In embodiments, the gaming platform may generate revenue for an operator by virtue of the traffic through the thousands and tens-of-thousands of game and team web pages linked through a game operator website as players check on the status of their games and socialize and coordinate with their friends and fellow players. Such an operator website may sell advertisements for inclusion on the game-related webpages used by the players.

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[0059] In embodiments, the game players may have the opportunity to purchase game-enhancing power-ups for themselves or their teammates, as well as numerous customizations for their personal and team pages.

[0060] In embodiments, the game is a scalable set of games. A game may be, instead of a single game, a gaming platform that hosts a virtually unlimited number of different games, some with different fictive wrappers, which target different audiences and different facets of the marketplace. Moreover, each "layering" of games may be tailored to each individual geographic location according the national tastes, motivations, and real-world sponsor and other partnerships negotiated for each region.

[0061] In embodiments, the gaming platform may include a set of tools to allow players to create and run their own games in addition to the in-house games that designers may build. The game platform may require that player-generated content use a certain percentage of retail partner nodes, this combined amount of content may, in effect, allow retail partners to conduct real-time market research. Moreover, game traffic patterns may help establish what works best for each market and location, determining direction and focus for continual development and marketing of the game platform's sponsored, revenue generating content. In an example, a retail book store may have a book-signing in New York and want a large crowd at the event in order to create buzz for the launch. Using the game platform, it may be possible to create a real-time, special benefit for those game players that visit the store and narrowcast this in-game promotion to New Yorkers who have, for example, indicated an interest in books.

[0062] In embodiments, the gaming platform content, such as game titles, concept, web graphics, and sponsor-sets, may be customized and marketed to individual marketplaces, retailers, or some other commercial entity.

[0063] In embodiments, the gaming platform may use a set of databases. These databases may be designed to log and track millions of unique customer attributes and call up situation-specific graphics from multiple "libraries" in real time, so that the individual user sees only their specific "world" – for example, the game that they have agreed to play in, or have even created themselves. Such an infrastructure may permit the gaming platform to handle the requirements of running tens-of-thousands of simultaneous games for millions of players in thousands of locations internationally.

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[0064] In embodiments, the gaming platform may be differentiated from the traditional "causal gaming." The term "casual games" is used to describe games that are easy to learn, utilize simple controls and aspire to forgiving game-play, but perhaps are best portrayed as games targeted at a mass audience. Casual games usually have a few simple rules and an engaging game design, making it easy for a new player to begin playing the game in just minutes. And they require no long-term time commitment or special skills to play. Common features of casual games include simple game-play in short bursts, with the ability to quickly reach a final stage, or continuous play with no need to save the game, and no plot or character, or simple ones with no bearing on the game's mechanics. Casual games reach virtually all demographic sectors. Women in their forties comprise the typical casual game player – but so do men, teens, kids, college students, seniors and international audiences. Even hard-core game players take a break every now and then to play free online poker games and online pool. More people from around the world play casual games than any other kind of video game. Overwhelmingly, however, casual games are limited to a single-player experience, yet gaming is historically a social activity that provides participants with dynamic interpersonal activity. Currently, large-scale, community-based, online computer games (Massively-Multiplayer Online Games or MMOGs) like Ultima Online, EverQuest, Asheron's Call, and World of Warcraft (at 8 million online subscribers worldwide and growing) are designed to attract so-called "hard-core gamers" and can be played by thousands of people simultaneously. Yet these games are not particularly attractive for the casual gamer since they require an enormous investment of time and skill.

[0065] In embodiments, the gaming platform may support a massively-multiplayer, online computer game specifically designed for casual gamers.
In embodiments, the gaming platform may provide elements of a social network functionality to correspond to the gaming aspects. The gaming platform may foster a community – a self-identified, active, and persistent group of like-minded or commonly motivated individuals – has existed online since the early days of the Internet. In embodiments, the gaming platform may create a social networking and community site for casual users.

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[0066] In embodiments, the location-based services and capabilities of mobile communication devices, like cell phones, may be used by the gaming platform, for example, access to mobile maps, driving directions, and the like. The gaming platform may support a massively-multiplayer, casual game played in the real word, where players and their cell phones are the game pieces in a team competition for territorial control. A game may be played with a cell phone, but unlike traditional mobile phone games where the player interacts with the game through a pad of tiny buttons and watches the game world on a screen, a game according to the gaming platform methods and systems may be played within the real world where the players' phones are their game controllers.

[0067] In embodiments, the gaming platform may enable an ever-growing, always evolving society of players who come together to compete, cooperate, play and socialize, both in the real world and in an online community where the Internet is utilized for communication, organization and community. Players may monitor the game's progress on a gaming platform website where a game, in all its many iterations, along with teams and players, are displayed on thousands of web pages.

[0068] In embodiments, the gaming platform may turn any geographic location or plurality of geographic locations into an interactive game board. A player may create a game that incorporates a street in his neighborhood or a favorite haunt, and may gain notoriety for himself and his team within the social network of the gaming platform. Basic game-play may be free and may be paid for, in part, from retail revenue sharing by delivering players to the game platform's bricks and mortar clients – turning click-throughs into walk-ins. Additional revenue may be derived from web page advertising, sponsorships, premium subscriptions, or some other financial means.

[0069] In embodiments, the gaming platform may support games whose objective is to access territory and control the territory that is accessed. Teams of players may compete to control strategic locations, or "Nodes", in the real world to draw borders around territory that they can claim as their own. Players may vie for control of these Nodes through their cell phones, either through positioning systems such as GPS, triangulation, by texting location-specific codes via SMS, or by some other location-sensing technology. In an example, a game player may walk into a participating location (e.g., a coffee shop, fast food restaurant, video rental store) bring up the game application

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and press "Energize" within the game user interface. No other actions may be required to initiate game play. By performing this act, a player may stake a claim to that location for himself or his team. If an individual or team was successful, they will be notified via email, text message, phone call, or by some other communication means. A player or team of players may coordinate to make strategic moves that will capture large stretches of territory and cut off opposing teams from doing the same. Progress may be tracked through a gaming platform website and/or online community space. The gaming platform may also offer players the opportunity to purchase "power-up" enhancements that provide special abilities that may provide a competitive edge.

[0070] In embodiments, the gaming platform may support an online community. Each player may be given a personal home page where they may show off who they are and what they've done, in a manner similar to social networking sites. Players may be provided with tools to customize their personal webpage within the gaming platform's online community, for example, the background, the music that plays for visitors, the player's online avatar, or some other website characteristic. A player may also display their in-game achievements alongside their list of favorites (movies, bands, etc…) Through these personal pages, players may post messages, invites and endorsements. Players may also trade in-game virtual items such as power-ups or collectibles.

[0071] In embodiments, the gaming platform may players may track the progress of the game through a gaming platform website. Each game may have its own page displaying a dynamic 3-D map of the game. This map may update in real-time to show Nodes under attack, territory lost and gained and special events such as power-ups and team bonuses. In embodiments, a gaming platform website may include special effects, animation, soundtrack, or other features that are common to a conventional, modern video game.

[0072] In embodiments, the gaming platform may use a network of Nodes to make up the game world in which the game play may occur. These Nodes may be real-world locations, for example the retail locations of strategic partners of the gaming operators. Players may attempt to control these Nodes by visiting them and "Energizing" the Node via their mobile phones. Energizing a node may entail sending an SMS code generated by the retail location to the game server. In an alternate embodiment, those

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players with the latest location-enabled phones, may load the game and press the "Energize" button, and your location at the Node is logged on the game server, based at least in part on the phone transmitting its location information to the gaming platform. At the end of each round of game play (which may be hourly, or daily, or some other time duration) the "Energy" at each Node may be tallied and the team with the most Energy at the Node may take control of the Node. Once control of a Node has been achieved, "Links" may be drawn between the Node and other Nodes controlled by the same individual or team. These Links may be used to define a "Territory" that the individual or team controls, and to determine the points they are awarded. Once the Links are drawn and the Territories scored, the Energy at each Node may be cleared and a new round of competition begins.

[0073] In embodiments, the gaming platform may provide game variations on the basic gaming structure of energizing Nodes, capturing Territories, and earning rewards. In embodiments, games may scale from small games limited to a single city, to international competitions. Fast-paced games may be completed in a day or a weekend, or games may run for weeks and months. In embodiments, games may run continuously with no predefined end.

[0074] In embodiments, the gaming platform may be a universal game system that may be adapted and modified with variations and rules appropriate to a game fiction and an intended demographic. For example, in a pirate-themed game, the Nodes may become "Ports" and the Links become "Trade Routes." "Energizing a Node" may become "Plundering a Port," and a website map corresponding to the game and the game graphics may be filled with pirate paraphernalia, such as parrots, sabers, cannons, doubloons, and the like. Each player may become a captain of her virtual ship and she may visit an online store to "recruit" special items and virtual crew that will give her and her team an edge. In an alternate embodiment, a "Da Vinci Code" tie-in may be used in creating a game within the gaming platform. For example, players may visit nodes to collect cryptic clues and collaborate with their teammates to solve the puzzle before the other teams. In an alternate embodiment, in an "M:I3" themed game within the gaming platform, players may take on the role of secret agents working for the Impossible Mission team and defuse virtual "bombs" hidden at each node. Other embodiments of

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themed games may include, commercial product branding, Mr. Clean fights to clean (Energize) soiled locations in a city (Nodes) and create anti-bacterial zones (Territories), wherein the game winners are rewarded with Mr. Clean products, coupons, and the like.

[0075] In embodiments, the gaming platform may be designed to appeal to a wide range of players, though each may find different aspects of the game more engaging depending on their personality and play style. Dr. Richard Bartle, one of the pioneers of massively multiplayer online games, categorizes gamers into four distinct categories based on the aspects of a game that interest them most. "Achievers" tend to prefer collecting points, accolades, ranks and other rewards. They may do this to show dominance over other players, or simply for the reward of completing difficult challenges. "Explorers" enjoy exploring the game and game world, discovering all the secrets of the game's back story, characters and enemies. Knowledge of the game is often more important than success. "Killers" are driven by the rush they get from challenging human opponents and besting them. For these players fierce competition and "The Thrill of the Hunt" is everything. And, "Socializers" are drawn toward the elements of games that allow them to interact with other players. They enjoy creating and promoting organizations and finding cooperative solutions to game challenges. Though few players are defined by a single play style, a game that does not appeal to a player's preferred style will have a harder time keeping that individual's interest. The gaming platform is designed so that there are elements of the game that may appeal strongly to each of the four play styles. For example, for Achievers there may be accolades and awards for a wide variety of game actions. In an example, players may be ranked on the number of Nodes Energized, Nodes Captured, Links Made and Territory Held. Leader boards may be maintained for each game, individual and/or team so that players can see how they stack up against other players and their own team-mates. Power-ups and titles may be awarded to individuals for exceptional game-play such as quickly capturing a large number of Nodes. Explorers may be drawn to discover all of the secret nodes, hidden power-ups and special locations that a given game has to offer. Some games may be geared heavily toward exploration, but may include discoveries to be made and secrets to be uncovered. Killers may test their skills against other players and track their personal success rate. When a player uses a power-up to eliminate another players charge, or

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nullifies a player's territory with a well-placed capture, both players may receive a message to this effect so that the Killer can boast of his success and the Killer's target can begin to plot his revenge. Socializers may take the role of clan leaders and strategists. These players may coordinate their team's actions and pull off plays that will leave less organized teams wondering what hit them. These players may be the glue that keeps the gaming platform community together and may be responsible for the lion's share of user-run games and content.

[0076] In embodiments, the gaming platform may include Nodes that are the strategic locations that players compete to control during a game. Nodes may be real-world locations, such as branch locations of retail partners (Starbucks, McDonald's, FedEx Kinko's, etc.). Some games may include Nodes displayable on location-enabled phones that need not be tied to a retail partner. These Nodes may be selected for their theme or novelty value. (e.g., graveyards may be nodes in a horror themed game, or the Hollywood sign could be a Node in a city-centric game).

[0077] In embodiments, the gaming platform may include some games that have Nodes whose existence or locations are not initially revealed to the players. The location of these Nodes may be revealed through riddles, as rewards for challenges, through player exploration, by purchasing "maps" from the online store, or through some other means.

[0078] In embodiments, the gaming platform may enable players to vie for control of a Node by Energizing it. With a location-enabled phone, this may include being at the location and transmitting a code through the game application. Other phones may Energize a Node by texting an SMS code that is generated at the location. These codes may be generated by the retail partner's point-of-sale registers and printed on receipts from a sales or non-sales transaction. Energy Codes may be printed on receipts as a bar code that can be photographed by camera phone and transmitted to the game server. Bar codes printed on static media such as posters may enhance a transmission (by providing a power-up) by a location-enabled phone (and thereby minimize doubt that the player was actually inside the location). In embodiments, each Node may have a Window of opportunity that determines when it can be Energized. The duration and frequency of this Window may be adjusted to suit the requirements of the game or of the

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retail partner. For example, a leisurely-paced game may have a 24-hour window from midnight to midnight. At midnight the game server may tally the activity at each Node and award control of the Node to the team with the most Energy over the course of the day. In a more fast-paced game, that tally might happen every hour. Some Nodes may have their window limited to certain times a day. For example, a retail shop's Energy Window may be restricted to the hours that shop is open for business. A game in which Energy Windows are not in sync across all Nodes may offer very complex strategic possibilities.

[0079] For gameplay purposes Nodes may act as the "play spaces" of the virtual board in a plurality of games. Charging a Node is the means by which a player may make choices in game play and interact with the game. Charging the Node may be interpreted differently by each game, in some games representing an attempt to control the Node, while in others charging the node may be an attempt to uncover new game information, send a message, activate a power, launch a virtual weapon or construct a virtual building. From a system implementation aspect, the game system may determine which nodes should be energized. The game system may also determine how much each node should be energized and for how long. The game system may make this determination according to the rules of the game in play. The game system may invoke a method on the game server to record the change on each node that is energized. The game server may store this information in the game database.

[0080] In embodiments, it may be worthwhile for a team to control a single Node simply to deny another team control. However, if a team controls two or more Nodes during a given Window, Links will be created between them. Links belonging to opposing teams cannot cross one another, however. When two opposing links cross one another, the longer link is broken and cancelled.

[0081] In embodiments, territories may be a means of keeping score in the game. A Territory is a segment of the game area that is bound by Links created by a single team. The volume of ground within the shape created by the Links may determine the value of that Territory and thus the amount it adds to the controlling team's score. Territories cannot be created if an enemy Territory exists within it, but any Nodes that do not form a Territory may be lost if they are enclosed within an enemy Territory.

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[0082] In embodiments, each Link may be assigned a Weakness value proportional to its length. Shorter Links are therefore stronger. When Links belonging to opposing teams cross, the weaker Link may be broken and eliminated. If both Links are created at the same time, the weaker Link is always the longer Link. However, Links may persist until they are broken or their Nodes controlled by an opposing team, but their weakness may increase by a set percentage with each passing Energy Window. This may make it possible for a longer Link to break a shorter Link if the latter has decayed and grown sufficiently weak.

[0083] In embodiments, once created, a Territory may take precedence over individual Nodes and Links (created subsequently) belonging to an enemy team that do not form a Territory. However, if a new Territory is created by an opposing team that includes Links that previously belonged to an enemy Territory, those Nodes and Links may go to the new team and the previously created Territory may be reduced or destroyed.

[0084] In embodiments, there may be a range of game play options envisioned beyond the core rules that will add variety and novelty to games. Also, players and teams may be able to purchase or win power-ups that will confer special abilities in the game.

[0085] In embodiments, numerous game-play variations are support by the gaming platform, including, but not limited to, "colony," "skullduggery," "burger chase," "motherload," or some other variation. In colony, the players are teams of aliens attempting to colonize and control the unsuspecting population of their local city. Each player picks a role such as Scout, Soldier or Queen that give them special powers in this game of territory (and mind-) control. In skullduggery, the players are pirates, traders and swashbucklers, their local "nodes" are ports of call and the links between them are hotly contested trade routes. Earn doubloons by shrewd trading or brazen piracy and add to your Nation/Team's coffers (and thus their score). In burger chase, a game well suited for sponsored special events, teams of players conduct a treasure hunt for delicious snacks. Taking control of Nodes helps a team zero in on the hidden burgers (virtual burgers, that is to say), which they then try to capture and return to a designated goal Node. In motherload, players are teams of Miners and the Nodes are potential mines rich

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in valuable ore. Linked Nodes form rich "veins" of ore that act as score multipliers. But watch out for the other teams or they will jump your claim.

[0086] In embodiments, the gaming platform players may derive real-world benefits for playing the game and building their online teams and associations. Since many of the games will be sponsored by real brick-and-mortar companies, each team will have a chance at the winner's prize. More important, however, are the promotions, sale notifications, and bonuses each player may receive for simply being part of the community. Because each player will need to enter a wealth of demographic information at sign-up and will demonstrate his or her commercial preferences by the types of real-world sites they choose to play at, advertisers may find it more than worthwhile to "lock-in" that player with special promotions and gaming platform-exclusive offers.

[0087] In embodiments, the gaming platform may drive customers to retail locations in a provable and auditable way, which may incentivize those commercial entities to offer coupons and prizes, and to sponsor contests.

[0088] In embodiments, because the game is may be customized, and the game Nodes or play locations may be any store, location, or landmark, the game may be tailored to appeal to any geographic theater or demographic. In other words, the gaming platform games may be created, with or without sponsors for teen boys in Los Angeles, "tween" girls in Singapore, or single adult females in London, Seoul, or Shanghai, to cite only a few examples of many.

[0089] In embodiments, the gaming platform may incorporate multiple revenue sources, each of which may be at low or no cost to the user. For example, revenue may be derived from retail participation, retail location fees, retail location point-of-presence bounties, retail revenue share, subscription fees, advertising, or some other revenue source. Retail location fees may be derived by partnering with retail chains in establishing a game grid. This game design provides the ability to steer customers directly into retail partners' establishments. Players' foot traffic may translate into store sales. Additional revenues may be derived by charging each retailer a per store fee of, for example, $25 per month to participate in a game grid. Retail location point-of-presence bounties refers to a revenue model based at least in part on charging each retailer a user visit fee of, for example, $0.025 per visit. Because the gaming platform is designed, in

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part, to put customers/users into the retail establishment, retailers may find a per visit bounty as an acceptable cost of customer acquisition. Retail revenue share refers to obtaining revenues from receiving a percentage of the purchase price a store may receive from a customer visiting the store as part of participating a game of the gaming platform. In an example, if 12.5% to 17.5% of retail visits result in a customer purchase, with an estimated average purchase will be $4.50, the operators of the gaming platform may receive 0.3% of the gross purchase price, or $0.0135 per purchase. Subscription fees may be charged to players for access to the gaming platform, or for access to premium games. In embodiments, the gaming platform may generate revenue from direct and indirect advertising as well. In embodiments, the gaming platform may enable its users to purchase in-game consumables items, typically known as "power-ups". These digital item purchases are characteristic of online casual games as well as in premium subscriber games. The TDD lays out a road map for the technical development of the project. This document makes note of the significant engineering features of the game, describes the intended approach to implementing these features (including 3rd party software or tools) and highlights high-risk elements of the project as well as the steps and procedures that will be taken to mitigate those risks. Much the same as the GDD, the TDD is a living document and is expected to be updated continuously over the development of the project as new information becomes available and priorities change.

[0090] In embodiments, the gaming platform may enable differing game designs and the artistic look and feel of each game to target specific demographics. The same basic underlying game-play may be coupled with varying artistic styles to attract audiences as different as the casual "tween" girl and the twenty-something hardcore male gamer. Combined with a relatively short production cycle, Poplio can also create content that artistically takes advantage of quickly emerging trends and current promotions.

[0091] In embodiments, the gaming platform may be modified or changed entirely in a very short period time and on a per-user basis. Furthermore, individual players may be able to modify and customize the game's appearance to suit their personal tastes. Two players might be presented with radically different graphics and art, even though the underlying rules of the game are the same. This customization can be taken to such extremes that the basic theme of the game may seem radically different for two

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different groups of players, even though both are participating in the same game. To a casual observer, it would appear to be two completely different games. One group could be playing a game presented as rival spy organizations vying to steal their opponent's top secret files, while another group is presented with a game where teams of wizards attempt to locate and rescue magical creatures, but both groups are playing the same game and competing against each other. The underlying game actions are translated into each group's preferred idiom.

[0092] In embodiments, the gaming platform may be used to create "meta-games" that are collections of smaller games that do not all share the same theme or story. Thus, the gaming platform may not need to restrict itself to games, stories, or art that appeals to the widest possible audience. Rather, the gaming platform may be used to create content that appeals to many small (but devoted) interest groups without the need for any individual game to reach a self-sustaining critical mass of players. This may allow the gaming platform to address demographic groups that might otherwise be underserved or ignored completely.

[0093] In embodiments, the gaming platform may provide players the tools to create their own customized content. In addition to being able to create personalized pages for themselves and their clan or guild, players may be given the means to create new interface art for their games similar to the custom "skins" that can be created for the popular music application WinAmp. Players may be able to create their own complete games based on the core gaming platform. This user-generated and customized content may reduce the burden on the gaming platform art team and help to ensure that no demographic, regardless how small, goes unserved. This flexibility may also empower the player base to self-identify new opportunities and new markets. If dozens of custom games are created based on a new TV series, the operators of the gaming platform may use this information as an excellent opportunity to approach the series' production company about partnering to create an official game.

[0094] In embodiments, the gaming platform may include a community web site constructed using standard HTML and Flash for certain interactive and premium content. This approach may allow the players to access the community contents from a number of different environments, from desktop computers to handheld devices. The site may be

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created using an established open source content management system (e.g. Drupal) that may provide community-focused building blocks, such as blogging tools, personal spaces, message boards, and calendars. This may allow developers to concentrate on building the community and adding rich content without wasting cycles on basic support systems.

[0095] In embodiments, the gaming platform may use distributed collection and aggregation techniques (e.g. the Map/Reduce algorithm popularized by Google) to manage the vast volume of player actions and calculate game statistics and results.

[0096] In embodiments, the gaming platform may feed players' actions into the platform via SMS messages, which may be automatically fashioned and sent by phones with location awareness or manually entered by the player (from a key code available at the retail outlet). As illustrated in Fig. 1, the gaming platform's SMS gateway 110 may receive the messages and translate them into actions in the game database to track the progress and results of individual games. A player's mobile communication facility 102 may be associated with a wireless carrier network 104 that is further associated with the Internet. A player participating in a game scenario running on the gaming platform may send a message, such as a text message, from his mobile communication facility 102 upon reaching, for example, a particular location. The message may be routed through a wireless carrier network 104, the Internet, through a firewall 108, to an SMS gateway 110. Messages sent by players may be stored in a message database 112 and further associated with other elements of the gaming platform. The information may be processed and fed to the community site where the status of games can be tracked in real-time.

[0097] As illustrated in Fig. 2, in embodiments, the gaming platform 200 may use a server platform that consists of a set of commercially supported open source software package, for example Linux, Apache (e.g. The Apache HTTP Server), MySQL/PostgreSQL, J2ME (e.g. JSR-179 – Java Location API for Location-Aware Devices).

[0098] In embodiments, the gaming platform 200 may include an authentication system, SMS gateway 108, databases, and a community focused content management system. In embodiments, the gaming platform 200 may include, but is not limited to, an

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Internet database 202 associated with a plurality of web servers 204. The web servers 204 may be further associated with game servers 208. The game servers 208 of the gaming platform may be associated with an SMS gateway 108, a business database server, and a game database 212. A game database 212, or plurality of game databases may store gaming information such as game scenarios, the rules pertaining to game scenarios, player data, or some other type of game data. A business database server 210 may be associated with a business database 214. A business database 214 may include, but is not limited to, storing revenue information, sponsor information, or some other type of business data.

[0099] In embodiments, the gaming platform 200 may include a data center rack. In an example, a rack configuration 300, such as that shown in Fig. 3, may include servers, firewall, RAID arrays, and other equipment.

[00100] In embodiments, the gaming platform 200 may substantiate a proof of presence of a player in a retail partner's store by, for example, using existing location-based technologies currently deployed by cell phone carriers in the US, Europe and the developed Asian nations, or via point-of-purchase online cash register systems deployed throughout the retail sector. In each case, data may flow from the carriers and/or retailers to a gaming platform 200 database.

[00101] The game platform translates received SMS messages into actions by routing them to the game server, where they are then processed by the game system logic for the game in play. The results are then stored in a database that is available to the community site system for display in real-time.

[00102] Location-based technologies currently in use by cell phone carriers includes GPS and aGPS (assisted GPS).

[00103] Other game platform systems include matchmaking, chat, and friends management.

[00104] Other equipment required for the gaming platform 200 are internet routers, internet switches, uninterruptible power supplies, and automated backup storage devices.

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In embodiments, the gaming platform 200 may partner with entities in numerous industries including, but not limited to, retailers, cell phone operators, carriers and manufacturers, internet portals, credit cards, and other industries.

[00105] In embodiments, the gaming platform 200 may use co-marketing campaigns with retail, cell phone carriers, credit card partners, or other industry partners.

[00106] In embodiments, the gaming platform 200 may use "street teams" that seed message boards, blogs, and chat rooms with information about the gaming platform 200.

[00107] In embodiments, the gaming platform 200 may use tell-a-friend incentive promotions for beta testers and for players.

[00108] In embodiments, the gaming platform 200 may include game playing types such as "colony." Colony mixes aspects of Battlefield 2 with Real-Time Strategy, but in a live-action, location based format. Colony has players assume the role of an alien race which comes to earth to conquer as much land as possible. Like the land rush of the American west, Earth is fertile ground for colonization, and each team of aliens will fiercely battle over the right to claim each of the node locations as their own.

[00109] In embodiments, at the start of the game, each player may choose a team (or play with his regular clan) and choose a team role. The team role may or may not be changed until the end of each round. (Round length may be dependent on number of players or other parameters set up by the players themselves.) The team roles may be: Scout – Scouts explore the environment searching for new nodes, resources (like energy, food, or building materials), enemy hives, and special power-ups. Scouts report these positions back to their home Hive, where other player types can act on that intelligence in various ways. The Scout is a good role for players that are constantly on the go and cover a wide area during their daily routine. Forager – Foragers get reports sent to them by their team Scouts, pointing them to valuable resources and power-ups. The forager's job is to go out to the locations their scouts send them and pick up the virtual loot before the other teams can get to them. A good forager is a player that knows their neighborhood really well and knows the fastest route between any two points in the city. Engineer – Engineers can spend the resources that the scouts and foragers collect to establish new hives for the colony. Hives are home bases where resources can be stashed

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and players can re-energize their character's health/energy. Hives also determine the amount of terrain captured by a given team. Engineers can also repair damaged Hives and disarm enemy bombs. Engineers may be players that don't move around that much, but tend to hang out at their favorite Hive to provide constant damage control. Soldiers – Soldiers are a player type that can "damage" other player's avatars. Rather than face to face style combat, soldiers may set traps or land mines that can take energy/health away from the other team. Soldiers can also plant spores that take over opposing Hives. Soldiers can also act as guards for existing Hives, or as bodyguards to Queens. Queens – The Hive Queens are the eyes and ears of the team. They are a player type that has access to all of the data collected by his/her teammates, and can send orders, waypoints, etc. to the team. Whenever a Hive Queen is at a Hive (node), he/she can drop a force field which gives the Hive an extra defensive barrier to attack that lasts a finite amount of time. Queens are the weakest unit in the game and take the most amount of damage from traps and bombs. A good Queen player may be someone that's a great multitasker and isn't shy about giving out orders.

[00110] In embodiments, each round may be scored based on the number of Hives captured and successfully defended from enemy attack. In turn, each player may be scored based on their personal performance (e.g. number of resources collected, number of Hives captured, etc.)

[00111] In embodiments, the gaming platform 200 may include game playing types such as "skullduggery." Skullduggery is a game of pirating, smuggling, and trading. Each team or clan swears its allegiance to one of a series of fictional nations, transforming their familiar streets and highways into pirate infested seas and their favorite haunts (nodes) into exotic trading ports. In Skullduggery, each player is the captain of his own ship. Whether or not that ship engages in legitimate trading or occasionally flies the Jolly Roger as a pirate is entirely up to the player and his teammates. Players can visit the various nodes in the game and speak to the "merchant" or "governor" of each "port", who will offer the player various goods to trade or special errands and missions. Just like a traditional sea trading game, the player travels from one node to the other hoping to get the best price for the goods in his hold while avoiding

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pirate attack. The game may be played in rounds, and the team with the highest amount of booty plundered and goods traded wins the round.

[00112] In embodiments, pirate battles on the high seas may be stat-based affairs. When wandering around "the open sea" (your physical neighborhood) or visiting a port (a node) you will see a roster of ships that are within the range of your guns. If the ship is a teammate, you can wirelessly trade goodies that you've collected like pieces of treasure maps and magical artifacts. If the ship is an enemy team (or fair pickings for plundering) you can choose to open fire. Dice rolls are exchanged on the server in a turn-based manner, taking into account upgrades that players earn in the game like better guns, shielded hulls, tougher sails, etc. Battle ends when one of the players either a.) surrenders, b.) flees, or c.) sinks. When a player surrenders, the treasure in his hold is taken, but he lives to fight another day. The player can physically leave the proximity of the node where the combat is taking place, is essence escaping the battle. Or, if the player is sunk, the winner recovers only a portion of the cargo, but the loser must physically return to the nearest port controlled by his team to replace his lost ship and crew.

[00113] In embodiments, the real world may be peppered with secret locations (nodes) that hold surprises like buried treasure, pieces of pirate maps, magical idols, etc. Players can trade these collectibles with their teammates by physically visiting the same port. Teams can also capture a port and convert it to a team port (home base) by congregating multiple team members at a given node and sinking any opposition. Team Ports are places where players can replace sunken ships and crew.

[00114] In embodiments, the gaming platform 200 may include game playing types such as "Mac Attack" (for MacDonalds) or "Jack Attack" (for Jack-in-the-Box), and so forth for other entities. This game embodiment may be a cross-media variation of "capture the flag" or "tag". In Mac Attack, there may be a number of virtual Big Macs (or Jack in the Box Bobble Heads) scattered every few city blocks. At the start of each round, the players attempt to find the node where the nearest Big Mac is hiding. Once he finds and captures the Big Mac, he needs to take it back to the nearest McDonalds node to score a goal for his team. During normal play, the player may only see when other players on his own team are near his proximity. When he picks up the

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Big Mac, he can see both teammates and opponents in his area – and they can see him. The player holding the Big Mac wants to get to the nearest goal without having the Big Mac stolen by his opponents. Opponents may steal the Big Mac by challenging the player to a game of virtual rock, paper, scissors. If he wins, he stays in possession of the Mac. If he loses, the opponent steals the Mac, and the losing player cannot immediately challenge him. However, he can send up a "signal flare" to his teammates that will direct them towards the stolen Mac. Likewise, if the person holding the Mac wins the RoShamBo match, the challenger cannot immediately rechallenge the winner. Players may also pass the captured Mac to any of his teammates in his physical proximity. He first sends out a request to pass the Mac, and if his teammate accepts, the pass initiates. Passing takes x number of seconds, during which the Mac cannot be stolen. Thus, well-coordinated groups can pass the Mac back and forth like soccer players towards a goal, constantly keeping the opposition off guard. Each time a goal is scored, the Mac resets in a new, random location somewhere within the game area. There will always be a set number of Macs in play in any given area, so it will always be possible to steal or capture one of the Macs and try to score a goal. In embodiments, this basic mechanic may be used for any number of themes: similar branding could be offered to Fifa or World Cup Soccer, NBA Basketball, Red Bull, Gatorade, or any other brand that emphasizes being fast on your feet, working as a team, and going for the goal.

[00115] In embodiments, the gaming platform 200 may include game playing types such as "mother load." In Mother Load, players may assume the role of prospectors working for their team's mining operation. Like the "Colony" game, Mother Load uses team roles for various play styles and actions: Geologists – Geologists' phones may be transformed into a "Gem Hunter", a high-tech diving rod that guides them to veins of precious metals and gems hidden in each of the game's secret nodes. Some of the node locations are known to all teams at the start of the game, but others are hidden and can only be discovered by Geologists. Geologists report their findings back to the team. Their score is based on a percentage of the gems and ore that are successfully mined from each node they discover. Prospectors – Prospectors may establish a mine on the veins that the Geologists find. Each Prospector is armed with a finite number of dynamite sticks. These can be used to either excavate a mine, or as offensive weapons to

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destroy the opposition's mines. Miner – A miner is the grunt labor but a key member of the team. Miners can collect the virtual precious metals and gems from the mines established by his team. Miners first fill their cell phone "bucket" up with treasure, then pass it to another Miner at the next node until the treasure load makes it back to the home base, and haul it back to their nearest team base to convert it into points for his team. Miners' scores may be based on the amount of ore or gems they manage to carry back to their base. Miners can be raided by enemy Guards. When an enemy Guard chooses to raid a Miner from another team, the engagement is played out using a simple rock/paper/scissor mechanic. Guards – Guards are the hired muscle of the mining operation. The number of guards at any given node determines the strength of the mine and the number of sticks of dynamite it will take the enemy team to destroy the mine. Guards can also act as escorts to Miners returning with phones loaded with loot. If a Guard is within physical proximity (at the same node as) one of his team's miners, and that miner is challenged by an enemy, the Guard plays the RoShamBo game against the attacker, giving the Miner a chance to escape. If there are multiple Guards assigned to a Miner, the attacking enemy has to make it through a RoShamBo match through all of the Guards before he gets a crack at the Miner's loot. In embodiments, at the end of the round, the team that has mined the most treasure is the winner. In this game, the number of nodes captured is of less importance than the quality of the treasure found in each node. For example, a gold mine is worth more than a silver mine; a diamond mine is worth more than an emerald mine, etc. However, the amount of ore/gems in any given node is different from node to node. Thus, a really full silver mine could potentially yield more points than a relatively small Gold Mine.

[00116] In embodiments, the gaming platform 200 may support an action game pitting two teams against one another in an attempt to roll a virtual ball into their opponent's goal. The game may be scaleable to a variety of geographies including, but not limited to, a metropolitan area, a state, a country, international scale, or some other geography size. The game may accommodate a plurality of team sizes including, but not limited to teams consisting of tens of players, hundreds of players, thousands of players, or some other team size.

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[00117] In embodiments, the game may be adaptable to any location, for example, by selecting landmarks that are known to the participants in the game. A plurality of landmarks may be selected. In an example, the landmarks may be the well known location of the Disneyland and Universal Studios theme parks. The two theme parks may act as the virtual goals into which the teams are trying to roll the virtual ball. In embodiments, between these two goals there may be located hundreds of game nodes that serve as a virtual game board. The game nodes may be associated with real world, physical locations, such as a store. A game node may be sponsored by an entity, such as a store owner or some other entity. At the beginning of a game the virtual ball may be situated between the two goals. This ball location may, in turn, be associated with a real world geography, such as an intersection, town name, store location, or some other geographic location.

[00118] In embodiments, the goal of the virtual ballgame may be to score more points than the other team by the end of the game. In an example, points may be scored by rolling the virtual ball into the opposing team's goal. In embodiments, the length of a virtual ballgame may be scalable from a matter of hours, to days, weeks, months, years, or some other time frame. During game play, players may interact by visiting node locations (e.g., a sponsor store location) and sending a GPS encoded SMS to the servers of the gaming platform 200. By visiting the node and sending the message, the player may "charge" the node for his team. The charging of the node may have the effect of emitting a virtual beam that pushes the virtual ball in a direction. The players may strategically select which nodes to visit based at least in part on the predicted effect the charging of a node will have on the direction in which the ball will be forced as a result of the node charging. Players may selectively visit nodes that serve to advance the virtual ball towards the goal in which the wish to deposit the ball and, thereby, gain an advantage over the opposing team(s). In an example, the force required to move the ball may be scalable such that forcing the ball to move requires a plurality of players to act in concert and visit a node. For example, to move the ball the game may require ten players to visit the node prior to moving the ball. The player visits to the node may be subject to additional game rules, such as forcing all ten players to visit the node within 2 hours of each other. In embodiments, the game may provide no limit to the frequency with which

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a player can charge nodes, but there may be rules limiting a player to only charge each individual node once every half-hour, or some other temporal interval. In embodiments, if multiple players charge a node simultaneously the effect may be multiplied as opposed to simply added. For example, if two players charge a node at the same time it may emit a node beam that pushes the ball the same amount as 4 individuals, and if 10 players all charge at once the force may be equivalent to 100 individuals, and so forth.

[00119] In embodiments, a point may be scored for each time that the ball rolls into the opponent's goal. After a goal is scored, the ball may be reset to the center of the playing field.

[00120] In embodiments, each time a point is scored and the ball may be reset and all nodes may toggle between pushing and pulling, forcing teams to adjust their strategy accordingly.

[00121] In embodiments, there may be greater than two teams and greater than two goals used during a game. In an example, a game with greater than two teams participating may adopt a rule that a team is removed from the game after a specified number of goals have been scored in its goal. This may have the effect, in part, of providing an incentive for teams to form alliances to target the removal of a particular team. For example, in a game consisting of Teams 1, 2, and 3, Teams 1 and 2 may agree to work in alliance to force the virtual ball only in the direction of Team 3's goal in order to eliminate Team 3 from the game, forming a détente between Teams 1 and 2 until Team 3 is removed. This may serve to add a strategic, social networking aspect to the game play.

[00122] In embodiments, the time period near the end of a game may adopt a new rule set in order to speed the pace of the game in its final moments. In an example, on the final day of the game, scored goals may be worth two points each and all nodes, or a subset of nodes, may emit double force, triple force, etc. in order to speed the pace of the game. Once a game ends, the players may be messaged with the final score and a break down of their own personal performance. Star players may be called out and players may be encouraged to log onto the gaming platform 200 website to watch a replay of the game with color commentary.

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[00123] In embodiments, rewards may be provided to star players, winning teams and the like by sponsors. The sponsors may be the same entities whose stores or other locations serve as game nodes during game play. Players or teams receiving rewards may have to visit the sponsors in order to pickup their rewards.

[00124] In embodiments, teams may be formed in leagues. Teams and leagues may be ranked. Players may be traded, bought, waived, released, and the like from teams. Players may become free agents. Players may sign contracts with teams, leagues, sponsors, and the like. Players may be celebrities. Teams may have sponsors. Players or teams may have uniforms. Uniforms may be associated with a sponsor.

[00125] In embodiments, a player may choose to increase the force with which he may advance the virtual ball when visiting a game node by making a purchase at the sponsor's location that is associated with the game node. For example, a game node may be associated with a fast food restaurant. The player may emit a beam and advance the ball simply by virtue of visiting the node and sending a message. However, the game rules may further specify that if he makes a purchase of $5-$10 his beam strength will be double, and so forth. The gaming platform 200 operator may have a revenue-sharing agreement with the sponsors that are associated with the game nodes to share in the income derived from these "beam-strength" purchases.

[00126] In embodiments, the players may have blogs on the gaming platform 200 servers.

[00127] In embodiments, a plurality of still cameras, motion picture cameras, video cameras, webcams, phonecams, or some other camera type may be used to capture still and/or motion imagery of the gaming geography (e.g., Manhattan). The photo/video imagery may be captured in real time, at time intervals, upon request of a game administrator, upon request of a team or player, or in response to some other command. The photo/video imagery of the gaming geography in which a particular game is occurring may be combined with the virtual game imagery to create a plurality of images in which the virtual phenomena appear to have presence within the real world geography. In an example, a webcam atop a skyscraper in New York City may capture real time video imagery or still photos of the New York skyline. As a virtual ball game occurs with the gaming geography of New York City and the balls are pushed by the

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players, the virtual imagery of the balls, goals, and the like may be combined with the real world imagery of New York to give players a sense of where their balls of interest are located in relation to the physical world in which they are playing: New York. The images combining the real and the virtual gaming space may be made available to players in real time. The images may be made available over the Internet or some other networked platform. In embodiments, players may be able to submit real world imagery to the gaming platform 200 to be combined with the virtual imagery. This imagery may be able to be shared between players on a team.

[00128] In embodiments, the gaming platform 200 may support an action game that pits a plurality of teams against one another in an attempt to maneuver virtual balloons to a target location and stay there as long as possible.

[00129] In embodiments, the playing field may be a real world geographical location, such as the Island of Manhattan, the State of Texas, Interstate 95, or some other geography. In embodiments, within the playing field there may be located hundreds of game nodes that serve as a virtual game board. The game nodes may be associated with real world, physical locations, such as a store. A game node may be sponsored by an entity, such as a store owner or some other entity. In embodiments, within the playing field there may be located a plurality of "target rings" that are created in a random location. The number of target rings present in a given game may be determine, based at least in part on the number of players and/or teams that are participating in the game. Each target ring may be a virtual ring. The size of each virtual ring may vary and be scalable. A ring may be, for example, two blocks in diameter; another ring in the same game may be one block in diameter; rings may fluctuate in diameter over time throughout a game's duration, and so forth.

[00130] In embodiments, an objective of the game may be for the teams to attempt to move their giant balloons into these rings in order to score points.

[00131] In embodiments, each team may select a virtual balloon to be their team mascot and avatar for the game. The balloons may large, for example, similar to the size of a Macy's Thanksgiving Parade balloon. In embodiments, the size of a balloon may vary by the number of players on a team. In embodiments, the balloons may take a variety of shapes; clowns, rockets, planes, vegetables, etc. In embodiments, teams may

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color their balloons to further distinguish themselves and establish their team identity. In embodiments, teams may be able to select from a number of licensed balloons; sports mascots, giant bottles of Coke, or a Virgin Airlines Jet to name just a few possible examples. In embodiments, each balloon may begin the game near the starting location of a team's founder.

[00132] In embodiments, each team may attempt to score as many points as possible by the end of the game period. In embodiments, the length of a game may be scalable from a matter of hours, to days, weeks, months, years, or some other time frame. In embodiments, points may be scored by entering the target rings that appear randomly around the city. During game play, players may interact by visiting node locations (e.g., a sponsor store location) and sending a GPS encoded SMS to the servers of the gaming platform 200. By visiting the node and sending the message, the player may "charge" the node for his team. The charging of the node may have the effect of pushing the virtual balloon in a direction. The players may strategically select which nodes to visit based at least in part on the predicted effect the charging of a node will have on the direction in which the balloon will be forced as a result of the node charging. Players may selectively visit nodes that serve to advance the virtual balloon towards the ring in which the wish to deposit the balloon and, thereby, gain an advantage over the opposing team(s). In embodiments, if multiple players charge a node simultaneously the effect may be multiplied as opposed to simply added. For example, if two players charge a node at the same time it may push the balloon the same amount as 4 individuals, and if 10 players all charge at once the force may be equivalent to 100 individuals, and so forth.

[00133] In embodiments, when balloons collide they may react with exaggerated effects, as if they were giant rubber balls. In embodiments, the size of each balloon may be proportional to the number of players on it's team. In embodiments, the size of a balloon may determine how much inertia it has. For example, larger balloons (belonging to larger teams) may be able to knock smaller balloons out of the way. However, larger balloons may also require more players to move them, making smaller balloons more maneuverable.

[00134] In embodiments, teams may score points by maneuvering their balloons into the target rings and keeping them there. For example, every 10 minutes, or

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some other time interval, each balloon that is the only balloon in a particular target ring may score 1 point. If more than one balloon is inside the ring at the 10 minute mark, no points may be awarded. One team may have to knock the other balloons out of the ring to score points. In embodiments, once a given target ring has awarded 6 points, or some other point total, to any team or combination of teams, it may disappears and a new target ring may be created somewhere in the game play geography. Teams may be notified when a new target ring appears. At the end of the game, points may be tallied and the winners announced.

[00135] In embodiments, rewards may be provided to star players, winning teams and the like by sponsors. The sponsors may be the same entities whose stores or other locations serve as game nodes during game play. Players or teams receiving rewards may have to visit the sponsors in order to pickup their rewards.

[00136] In embodiments, teams may be formed in leagues. Teams and leagues may be ranked. Players may be traded, bought, waived, released, and the like from teams. Players may become free agents. Players may sign contracts with teams, leagues, sponsors, and the like. Players may be celebrities. Teams may have sponsors. Players or teams may have uniforms. Uniforms may be associated with a sponsor.

[00137] In embodiments, a player may choose to increase the force with which he may advance the virtual balloon when visiting a game node by making a purchase at the sponsor's location that is associated with the game node. For example, a game node may be associated with a fast food restaurant. The player may emit a beam and advance the balloon simply by virtue of visiting the node and sending a message. However, the game rules may further specify that if he makes a purchase of $5-$10 his beam strength will be double, and so forth. The gaming platform 200 operator may have a revenue-sharing agreement with the sponsors that are associated with the game nodes to share in the income derived from these "beam-strength" purchases.

[00138] In embodiments, the players may have blogs on the gaming platform 200 servers.

[00139] In embodiments, a plurality of still cameras, motion picture cameras, video cameras, webcams, phonecams, or some other camera type may be used to capture still and/or motion imagery of the gaming geography (e.g., Manhattan). The

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photo/video imagery may be captured in real time, at time intervals, upon request of a game administrator, upon request of a team or player, or in response to some other command. The photo/video imagery of the gaming geography in which a particular game is occurring may be combined with the virtual game imagery to create a plurality of images in which the virtual phenomena appear to have presence within the real world geography. In an example, a webcam atop a skyscraper in New York City may capture real time video imagery or still photos of the New York skyline. As a virtual balloon game occurs with the gaming geography of New York City and the balloons are pushed and pulled by the players, the virtual imagery of the balloons, target rings, and the like may be combined with the real world imagery of New York to give players a sense of where their balloons of interest are located in relation to the physical world in which they are playing: New York. The images combining the real and the virtual gaming space may be made available to players in real time. The images may be made available over the Internet or some other networked platform. In embodiments, players may be able to submit real world imagery to the gaming platform 200 to be combined with the virtual imagery. This imagery may be able to be shared between players on a team.

[00140] Referring to Fig. 4, in embodiments, the present invention provides a method and system for associating a geographic location 400 with a code 402, transmitting the code 410 to a wireless carrier network 104 using a mobile communication facility 102, verifying the code transmission receipt at a geographic location 400 using a location verification facility 414 located at the geographic location 400, sending a confirmation of transmission receipt 412 to the mobile communication facility 102, and broadcasting the verification to a network 418. In embodiments, the broadcast of the verification to a network 418 may result in displaying 420 a notice of control of the geographic location 400 to other users of the wireless carrier network 104. This notice may also be broadcast using the Internet, email, text message, phone call, or any of the other methods and systems described herein.

[00141] In embodiments, upon broadcasting of the verification, a measure is awarded based on the verification. A measure may be a location control measure of a multiplayer game. A location control measure may be based at least in part on a distance of the mobile communication facility from the geographic location at the time of the code

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transmission. A location control measure may be based at least in part on a criterion. A criterion may be a purchase at a geographic location, a visit duration at a geographic location by a player, a fee payment made by a player, a receipt of a sponsor code transmission, or some other criterion. A sponsor code may include a coupon code, proof-of-purchase code, or some other type of sponsor code. In embodiments, a measure may be a territory control measure of a multiplayer game.

[00142] In embodiments, the verification may be broadcast to a plurality of mobile communication facility users. The verification control facility may use a local wireless network to identify a mobile communication facility of a user that is in proximity to the geographic location.

[00143] In embodiments, the game platform may be able to identify whether the mobile communication facility is present at the geographic location near the time of entering the code.

[00144] In embodiments, a geographic location may be a virtual geographic location, a retail store, a landmark, a location defined by a mobile communication facility user, a ground level location, a subterranean location, an above ground level location, or some other location.

[00145] In embodiments, the geographic location of a mobile communication facility may be established using triangulation, GPS, or some other location finding technology.

[00146] In embodiments, a code may be associated with a game scenario or a plurality of game scenarios.

[00147] In embodiments, a code may be transmitted by calling a phone number, sending an SMS or some other form of text message, using a website or some other means of transmission. In embodiments, transmission of a code may invoke a fee to a player or team that is sending the code. A code transmission fee may be billed to the account associated with the mobile communication facility from which the code is transmitted. In embodiments, a code transmission receipt may be confirmed to the mobile communication facility.

[00148] In embodiments, a broadcast may be made using the Internet, a webpage update, a social networking site, an email, a text message, a wireless provider, a

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voice mail, an automated voice mail, a wireless provider and the Internet in combination, an interactive user interface, or some other broadcast means. A broadcast may invoke a fee. An automated voice mail may be created by a user of the mobile communication facility gaining location control of the geographic location. An interactive user interface may include a map. A map may be a satellite image, a graphic rendering, a three-dimensional map. An interactive interface may include a blog, sponsored content, or some other type of content. Sponsored content may be associated with the geographic location.

[00149] In embodiments, the present invention may enable creating a code that may be entered in a mobile communication facility, associating the code with a unit of a location verification facility that may be further associated with one or more of a plurality of geographic locations, establishing a geographic location of the mobile communication facility, transmitting the code from the mobile communication facility, computing with the verification facility a location verification measure associated with the geographic location and the mobile communication facility, and broadcasting the measure to a network.

[00150] Referring to Fig. 5, in embodiments, the present invention may enable associating a mobile communication facility 102 with a plurality of mobile communication facilities (500, 502), wherein the association forms a multiplayer team 504, associating a code 402 with a geographic location 400, transmitting the code 410 using the mobile communication facility 102, identifying whether the mobile communication facility is present at the geographic location 400 near the time of entering the code 402, and creating a first multiplayer team score 504 based at least in part on verifying that the mobile communication facility is present at the geographic location near the time of the code transmission.

[00151] Referring to Fig. 6, in embodiments, a first multiplayer team score 610 may be aggregated 614 with a second multiplayer team score 612 from a second code transmission 604 that is related to a second geographic location 600 and second code 602. A second mobile communication facility 500 from the multiplayer team 504 may be used to send the second code transmission 604. The wireless carrier network 102 may send the second mobile communication facility 500 a verification 608 that the second code

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transmission 604 was successful. In embodiments, a plurality of multiplayer team scores may be created from a plurality of code transmissions and used to form an aggregated multiplayer team score 614. Code transmissions (410, 604), and the multiplayer team scores (610, 612), may derive from a single mobile communication facility visiting multiple locations, a single mobile communication facility visiting a single location more than once, a plurality of mobile communications visiting the same location, or a plurality of mobile communication facilities visiting a plurality of locations.

[00152] In embodiments, an aggregated multiplayer team score may be weighted based on a criterion. A criterion may be a purchase at a geographic location, a visit duration at a geographic location by a player, a fee payment made by a player, a receipt of a sponsor code transmission, or some other criterion. A sponsor code may include a coupon code, proof-of-purchase code, or some other type of sponsor code. In embodiments, a measure may be a territory control measure of a multiplayer game.

[00153] In embodiments, an aggregated multiplayer team score may be converted into a weighting of a multiplayer team's location control measure. A weighting of the multiplayer team's location control measure may diminish as a function of time. The diminution of the weighting of the multiplayer team's location control measure may be halted upon receipt of a third code transmission by at least one of a plurality of players' mobile communication facilities.

[00154] In embodiments, a multiplayer team's location control measure may be broadcast to a plurality of multiplayer teams.

[00155] In embodiments, an association of a player's mobile communication facility with the plurality of mobile communication facilities may be made using the Internet, a wireless provider, or some other means of communication. The association may form a team.

[00156] Referring to Fig. 7, in embodiments, the present invention may enable creating a first code 402 associated with a first location 400, a second code 602 associated with a second location 600, and a third code 702 associated with a third location 700, lines among the three locations defining a perimeter of a geographic territory 710 within a game scenario geography 714, transmitting the first, second, and third codes 704 using at least one mobile communication facility that is associated with a

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multiplayer team 504, verifying location of the mobile communication facility upon receipt of the codes' transmissions using a location verification facility 414, sending a transmission receipt verification 708 to the multiplayer team 504, and upon verification of at least three codes, awarding a territory control measure for the geographic territory 710 to an entity associated with the mobile communication facility, such as a multiplayer team 504. In an embodiment, the network 102 may broadcast the verification of the location codes' transmissions 712 to the users of the network 102. The broadcast may be associated with a display 718 to network users of a map 720 indicating the territory that is controlled by the multiplayer team 504.

[00157] In embodiments, a rival location control that is associated with a location within a geographic territory, for example "Location 4" shown in Fig. 7, may be eliminated upon awarding territory control to a team or individual. The rival location control may be associated with a rival mobile communication facility in competition for location control with the mobile communication facility.

[00158] In embodiments, the present invention may enable associating a code with a geographic location, tracking a transaction at the geographic location and associating the code with the transaction upon verification of a user's presence at the geographic location, calculating a revenue associated with the transaction, awarding a location control measure based on the code and the transaction, and receiving a share of the revenue associated with the transaction.

[00159] In embodiments, a share of revenue derived from a sponsor, location, code transmission, or the like, may be retained by the gaming platform 200 and/or entities associated with the platform.

[00160] In embodiments, a code associated with a geographic location may be automatically sent for a player or team.

[00161] In embodiments, a player or team may be provided an incentive upon receipt of the transmitted code. An incentive may be a coupon or some other incentive.

[00162] In embodiments, a transaction may be a webpage view, an online advertisement conversion, an online transaction, an online survey completion, a visit to a geographic store location, a purchase at a geographic store location, a club enrollment, a

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credit card enrollment, a credit card purchase, a phone call, a text message, a viewing of television content, or some other transaction type.

[00163] In embodiments, a code may be transmitted using a mobile communication facility, a telecommunications land line, the Internet, email, ground mail, a television, a fax, or some other means of transmission.

[00164] In embodiments, revenue may derive from advertising, a purchase or transaction, a sponsorship, a subscription, or some other means of revenue creation.

[00165] Fig. 8 illustrates steps in a method for taking an action based on verification of a location of a mobile communication facility with a location-based code. This may include at a step 802 associating a geographic location with a code; at a step 804 transmitting the code using a mobile communication facility; at a step 808 verifying the code transmission receipt at a geographic location using a location verification facility located at the geographic location; at a step 810 verifying the code and at a step 812 broadcasting the verification to a network.

[00166] Fig. 9 shows steps in a method for computing a measure based on verification of the presence of a mobile communication facility at a location. This may include at a step 902 creating a code that may be entered in a mobile communication facility; at a step 904 associating the code with a unit of a location verification facility that may be further associated with one or more of a plurality of geographic locations; at a step 908 establishing a geographic location of the mobile communication facility; at a step 910 transmitting the code from the mobile communication facility; at a step 912 computing with the verification facility a location verification measure associated with the geographic location and the mobile communication facility; and at a step 914 broadcasting the measure to a network.

[00167] Fig. 10 shows steps in a method for association of a group of mobile communication facilities in a team that is awarded measures based on verification of presence of the mobile communication facilities at locations. The method may include at a step 1002 associating a mobile communication facility with a plurality of mobile communication facilities, wherein the association forms a multiplayer team; at a step 1004 associating a code with a geographic location; at a step 1008 transmitting the code using the mobile communication facility; at a step 1010 identifying whether the mobile

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communication facility is present at the geographic location near the time of entering the code; and at a step 1012 creating a first multiplayer team score based at least in part on verifying that the mobile communication facility is present at the geographic location near the time of the code transmission.

[00168] Fig.11 shows steps in a method for awarding a territory control measure based on verification of presence of mobile communication facilities at locations. The method may include at a step 1102 creating a first code associated with a first location, a second code associated with a second location, and a third code associated with a third location, lines among the three locations defining at a step 1104 at least a portion of a perimeter of a geographic territory; at a step 1108 transmitting the first, second, and third codes using at least one mobile communication facility; at a step 1110 verifying location of the mobile communication facility upon receipt of the codes' transmissions; and at a step 1111 upon verification of at least three codes, awarding a territory control measure for the geographic territory to an entity associated with the mobile communication facility. It may be noted that territories may be triangular, or may represent more complex geometries defined by more than three perimeter points, such as various polygons of various regular or irregular shapes that comprise portions of a geographic map. Thus, a territory, such as a city, may be defined by various regions that are defined by vertices, with the locations of the vertices of a particular region defining points that allow control over that region in a game. Upon verification of location of a mobile communication facility at a vertex, or optionally by some other action, such as entry of a code, entering into a transaction, or the like, the vertex can be awarded to the user or team associated with the mobile communication facility. Once all vertices of a region are awarded, the region itself can be awarded. Such control of regions can be associated with a wide variety of different games, including fantasy role-playing games, territorial "war games", simulation games, or the like.

[00169] Fig. 12 shows steps in a method for managing revenue shares associated with transactions occurring at locations at which the presence of a mobile communication facility is verified. The method may include at a step 1202 associating a code with a geographic location; at a step 1204 tracking a transaction at the geographic location and associating the code with the transaction upon verification of a user's presence at the

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geographic location; at a step 1208 calculating a revenue associated with the transaction; at a step 1210 awarding a location control measure based on the code and the transaction; and at a step 1214 managing distribution of a share of the revenue associated with the transaction.

[00170] The elements depicted in flow charts and block diagrams throughout the figures imply logical boundaries between the elements. However, according to software or hardware engineering practices, the depicted elements and the functions thereof may be implemented as parts of a monolithic software structure, as standalone software modules, or as modules that employ external routines, code, services, and so forth, or any combination of these, and all such implementations are within the scope of the present disclosure. Thus, while the foregoing drawings and description set forth functional aspects of the disclosed systems, no particular arrangement of software for implementing these functional aspects should be inferred from these descriptions unless explicitly stated or otherwise clear from the context.

[00171] Similarly, it will be appreciated that the various steps identified and described above may be varied, and that the order of steps may be adapted to particular applications of the techniques disclosed herein. All such variations and modifications are intended to fall within the scope of this disclosure. As such, the depiction and/or description of an order for various steps should not be understood to require a particular order of execution for those steps, unless required by a particular application, or explicitly stated or otherwise clear from the context.

[00172] The methods or processes described above, and steps thereof, may be realized in hardware, software, or any combination of these suitable for a particular application. The hardware may include a general-purpose computer and/or dedicated computing device. The processes may be realized in one or more microprocessors, microcontrollers, embedded microcontrollers, programmable digital signal processors or other programmable device, along with internal and/or external memory. The processes may also, or instead, be embodied in an application specific integrated circuit, a programmable gate array, programmable array logic, or any other device or combination of devices that may be configured to process electronic signals. It will further be appreciated that one or more of the processes may be realized as computer executable

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code created using a structured programming language such as C, an object oriented programming language such as C++, or any other high-level or low-level programming language (including assembly languages, hardware description languages, and database programming languages and technologies) that may be stored, compiled or interpreted to run on one of the above devices, as well as heterogeneous combinations of processors, processor architectures, or combinations of different hardware and software.

[00173] Thus, in one aspect, each method described above and combinations thereof may be embodied in computer executable code that, when executing on one or more computing devices, performs the steps thereof. In another aspect, the methods may be embodied in systems that perform the steps thereof, and may be distributed across devices in a number of ways, or all of the functionality may be integrated into a dedicated, standalone device or other hardware. In another aspect, means for performing the steps associated with the processes described above may include any of the hardware and/or software described above. All such permutations and combinations are intended to fall within the scope of the present disclosure.

[00174] While the invention has been disclosed in connection with the preferred embodiments shown and described in detail, various modifications and improvements thereon will become readily apparent to those skilled in the art. Accordingly, the spirit and scope of the present invention is not to be limited by the foregoing examples, but is to be understood in the broadest sense allowable by law.

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CLAIMS

What is claimed is:

1. A method comprising:

associating a geographic location with a code;
transmitting the code using a mobile communication facility;
verifying the code transmission receipt at a geographic location using a location verification facility located at the geographic location; and
broadcasting the verification to a network.

2. The method of claim 1, wherein upon broadcasting of the verification, a measure is awarded based on the verification.

3. The method of claim 2, wherein the measure is a location control measure of a multiplayer game.

4. The method of claim 3, wherein the location control measure is based at least in part on a distance of the mobile communication facility from the geographic location at the time of the code transmission.

5. The method of claim 3, wherein the location control measure is based at least in part on a criterion.

6. The method of claim 5, wherein the criterion is a purchase at the geographic location by the player.

7. The method of claim 5, wherein the criterion is a visit duration at the geographic location by the player.

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8. The method of claim 5, wherein the criterion is a fee payment made by a user of the mobile communication facility.

9. The method of claim 5, wherein the criterion is a receipt of a sponsor code transmission.

10. The method of claim 9, wherein the sponsor code is a coupon code.

11. The method of claim 9, wherein the sponsor code is a proof-of-purchase code.

12. The method of claim 2, wherein the measure is a territory control measure of a multiplayer game.

13. The method of claim 1, wherein broadcasting the verification is to a plurality of mobile communication facility users.

14. The method of claim 1, wherein the verification control facility uses a local wireless network to identify a mobile communication facility of a user that is in proximity to the geographic location.

15. The method of claim 1, further comprising identifying whether the mobile communication facility is present at the geographic location near the time of entering the code.

16. The method of claim 1, wherein the geographic location is a virtual geographic location.

17. The method of claim 1, wherein the geographic location is a retail store.

18. The method of claim 1, wherein the geographic location is a landmark.

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19. The method of claim 1, wherein the geographic location is defined by a user of the mobile communication facility.

20. The method of claim 1, wherein the geographic location is ground level.

21. The method of claim 1, wherein the geographic location is subterranean.

22. The method of claim 1, wherein the geographic location is above ground level.

23. The method of claim 1, wherein the geographic location of the mobile communication facility is established using GPS.

24. The method of claim 1, wherein the geographic location of the mobile communication facility is established using triangulation.

25. The method of claim 1, wherein the code is associated with a game scenario.

26. The method of claim 1, wherein the code is associated with a plurality of game scenarios.

27. The method of claim 1, wherein the transmission of the code is made by calling a phone number.

28. The method of claim 1, wherein the transmission of the code is made by sending an SMS text message.

29. The method of claim 1, wherein the transmission of the code is made through an Internet website.

30. The method of claim 1, wherein the transmission of the code invokes a fee.

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31. The method of claim 30, wherein the fee is billed to the account associated with the mobile communication facility from which the code is transmitted.

32. The method of claim 1, wherein the code transmission receipt is confirmed to the mobile communication facility.

33. The method of claim 1, wherein the broadcast is made using the internet.

34. The method of claim 1, wherein the broadcast is a webpage update.

35. The method of claim 34, wherein the webpage update is an update of a social networking website.

36. The method of claim 1, wherein the broadcast in an email.

37. The method of claim 1, wherein the broadcast is made using a wireless provider.

38. The method of claim 1, wherein the broadcast is an SMS text message.

39. The method of claim 1, wherein the broadcast is an automated voice mail.

40. The method of claim 39, wherein the automated voice mail is created by a user of the mobile communication facility gaining location control of the geographic location.

41. The method of claim 1, wherein the broadcast is made using a wireless provider and the internet in combination.

42. The method of claim 1, wherein the broadcast is associated with an interactive user interface.

43. The method of claim 42, wherein the interactive user interface includes a map.

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44. The method of claim 43, wherein the map is a satellite image.

45. The method of claim 43, wherein the map is a graphic rendering.

46. The method of claim 43, wherein the map is three-dimensional.

47. The method of claim 42, wherein the interactive user interface includes a blog.

48. The method of claim 42, wherein the interactive user interface includes sponsored content.

49. The method of claim 48, wherein the sponsored content is associated with the geographic location.

50. The method of claim 1, wherein the broadcast invokes a fee.

51. The method of claim 42, wherein the fee is billed to the account associated with the mobile communication facility from which the code is transmitted.

52. A method comprising:

creating a code that may be entered in a mobile communication facility;
associating the code with a unit of a location verification facility that may be further associated with one or more of a plurality of geographic locations;
establishing a geographic location of the mobile communication facility;
transmitting the code from the mobile communication facility;
computing with the verification facility a location verification measure associated with the geographic location and the mobile communication facility; and
broadcasting the measure to a network.

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53. The method of claim 52, wherein upon broadcasting of the verification, a measure is awarded based on the verification.

54. The method of claim 53, wherein the measure is a location control measure of a multiplayer game.

55. The method of claim 53, wherein the measure is a territory control measure of a multiplayer game.

56. The method of claim 52, wherein the broadcasting is to a plurality of mobile communication facility users.

57. The method of claim 52, wherein the geographic location of the mobile communication facility is established using GPS.

58. The method of claim 52, wherein the geographic location of the mobile communication facility is established using triangulation.

59. A method comprising:

associating a mobile communication facility with a plurality of mobile communication facilities, wherein the association forms a multiplayer team;
associating a code with a geographic location;
transmitting the code using the mobile communication facility;
identifying whether the mobile communication facility is present at the geographic location near the time of entering the code; and
creating a first multiplayer team score based at least in part on verifying that the mobile communication facility is present at the geographic location near the time of the code transmission.

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60. The method of claim 59, wherein upon broadcasting of the verification, a measure is awarded based on the verification.

61. The method of claim 60, wherein the measure is a location control measure of a multiplayer game.

62. The method of claim 60, wherein the measure is a territory control measure of a multiplayer game.

63. The method of claim 59, further comprising receiving a second transmission of the code from at least one of the plurality of mobile communication facilities.

64. The method of claim 59, further comprising creating an aggregated multiplayer team score based at least in part on a combination of the code transmission and a second code transmission.

65. The method of claim 64, wherein the aggregated multiplayer team score is weighted based on a criterion.

66. The method of claim 65, wherein the criterion is a purchase at the geographic location by the player.

67. The method of claim 65, wherein the criterion is a visit duration at the geographic location by the player.

68. The method of claim 59, further comprising converting an aggregated multiplayer team score into a weighting of the multiplayer team's location control measure.

69. The method of claim 68, wherein the weighting of the multiplayer team's location control measure diminishes as a function of time.

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70. The method of claim 69, wherein the diminution of the weighting of the multiplayer team's location control measure may be halted upon receipt of a third code transmission by at least one of the plurality of players' mobile communication facilities.

71. The method of claim 59, further comprising broadcasting a multiplayer team's location control measure to a plurality of multiplayer teams.

72. The method of claim 59, wherein the association of the player's mobile communication facility with the plurality of mobile communication facilities is made using the internet.

73. The method of claim 59, wherein the association of the player's mobile communication facility with the plurality of mobile communication facilities is made using a wireless provider.

74. A method comprising:

creating a first code associated with a first location, a second code associated with a second location, and a third code associated with a third location, lines among the three locations defining at least a portion of a perimeter of a geographic territory;
transmitting the first, second, and third codes using at least one mobile communication facility;
verifying location of the mobile communication facility upon receipt of the codes' transmissions; and
upon verification of at least three codes, awarding a territory control measure for the geographic territory to an entity associated with the mobile communication facility.

75. The method of claim 74, wherein upon broadcasting of the verification, a measure is awarded based on the verification.

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76. The method of claim 75, wherein the measure is a location control measure of a multiplayer game.

77. The method of claim 75, wherein the measure is a territory control measure of a multiplayer game.

78. The method of claim 74, further comprising broadcasting the territory control measure to a network.

79. The method of claim 78, wherein the broadcasting is to a plurality of mobile communication facility users.

80. The method of claim 74, wherein verification of a location is based on a location control measure.

81. The method of claim 74, further comprising eliminating a rival location control that is associated with a location within the geographic territory upon awarding territory control.

82. The method of claim 81, wherein the rival location control is associated with a rival mobile communication facility in competition for location control with the mobile communication facility.

83. The method of claim 74, wherein the transmission of the first, second and third codes is made using a plurality of mobile communication facilities.

84.The method of claim 83, wherein the plurality of mobile communication facilities comprise a team.

85. The method of claim 74, wherein the geographic location of the mobile communication facility is established using GPS.

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86. The method of claim 74, wherein the geographic location of the mobile communication facility is established using triangulation.

87. A method comprising:

associating a code with a geographic location;
tracking a transaction at the geographic location and associating the code with the transaction upon verification of a user's presence at the geographic location;
calculating a revenue associated with the transaction;
awarding a location control measure based on the code and the transaction; and
managing distribution of a share of the revenue associated with the transaction.

88. The method of claim 87, wherein upon broadcasting of the verification, a measure is awarded based on the verification.

89. The method of claim 88, wherein the measure is a location control measure of a multiplayer game.

90. The method of claim 88, wherein the measure is a territory control measure of a multiplayer game.

91. The method of claim 88, wherein the measure is associated with control of a territory.

92. The method of claim 91, wherein the territory is associated with a geographic territory.

93. The method of claim 87, further comprising transmitting the measure to a plurality of gaming platform users; and
retaining a portion of the revenue by the entity associated with the gaming platform.

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94. The method of claim 87, further comprising automatically transmitting the code for the user by the entity receiving the transaction.

95. The method of claim 87, further comprising providing the user an incentive upon receipt of the transmitted code.

96. The method of claim 95, wherein the incentive is a coupon.

97. The method of claim 87, wherein the transaction is a webpage view.

98. The method of claim 87, wherein the transaction is an online advertisement conversion.

99. The method of claim 87, wherein the transaction is an online transaction.

100. The method of claim 87, wherein the transaction is an online survey completion.

101. The method of claim 87, wherein the transaction is a visit to geographic store location.

102. The method of claim 87, wherein the transaction is a purchase at a geographic store location.

103. The method of claim 87, wherein the transaction is a club enrollment.

104. The method of claim 87, wherein the transaction is a credit card enrollment.

105. The method of claim 87, wherein the transaction is a credit card purchase.

106. The method of claim 87, wherein the transaction is a phone call.

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107. The method of claim 87, wherein the transaction is a text message.

108. The method of claim 87, wherein the transaction is viewing television content.

109. The method of claim 87, wherein the code is transmitted using a mobile communication facility.

110. The method of claim 87, wherein the code is transmitted using a telecommunications land line.

111. The method of claim 87, wherein the code is transmitted using the internet.

112. The method of claim 87, wherein the code is transmitted using email.

113. The method of claim 87, wherein the code is transmitted using ground mail.

114. The method of claim 87, wherein the code is transmitted using a television.

115. The method of claim 87, wherein the code is transmitted using a fax.

116. The method of claim 87, wherein the revenue derives from advertising.

117. The method of claim 87, wherein the revenue derives from a purchase.

118. The method of claim 87, wherein the revenue derives from a sponsorship.

119. The method of claim 87, wherein the revenue derives from a subscription.

120. A system comprising:

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an association facility adapted to associate a geographic location with a code;
a transmission facility adapted to transmit the code using a mobile communication facility;
a verification facility adapted to verify the code transmission receipt at a geographic location using a location verification facility located at the geographic location; and
a broadcasting facility adapted to broadcast the verification to a network.

121. The system of claim 120, wherein upon broadcasting of the verification, a measure is awarded based on the verification.

122. The system of claim 121, wherein the measure is a location control measure of a multiplayer game.

123. The system of claim 122, wherein the location control measure is based at least in part on a distance of the mobile communication facility from the geographic location at the time of the code transmission.

124. The system of claim 122, wherein the location control measure is based at least in part on a criterion.

125. The system of claim 124, wherein the criterion is a purchase at the geographic location by the player.

126. The system of claim 124, wherein the criterion is a visit duration at the geographic location by the player.

127. The system of claim 124, wherein the criterion is a fee payment made by a user of the mobile communication facility.

128. The system of claim 124, wherein the criterion is a receipt of a sponsor code transmission.

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129. The system of claim 128, wherein the sponsor code is a coupon code.

130. The system of claim 128, wherein the sponsor code is a proof-of-purchase code.

131. The system of claim 121, wherein the measure is a territory control measure of a multiplayer game.

132. The system of claim 120, wherein broadcasting the verification is to a plurality of mobile communication facility users.

133. The system of claim 120, wherein the verification control facility uses a local wireless network to identify a mobile communication facility of a user that is in proximity to the geographic location.

134. The system of claim 120, further comprising an identification facility adapted to identify whether the mobile communication facility is present at the geographic location near the time of entering the code.

135. The system of claim 120, wherein the geographic location is a virtual geographic location.

136. The system of claim 120, wherein the geographic location is a retail store.

137. The system of claim 120, wherein the geographic location is a landmark.

138. The system of claim 120, wherein the geographic location is defined by a user of the mobile communication facility.

139. The system of claim 120, wherein the geographic location is ground level.

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140. The system of claim 120, wherein the geographic location is subterranean.

141. The system of claim 120, wherein the geographic location is above ground level.

142. The system of claim 120, wherein the geographic location of the mobile communication facility is established using GPS.

143. The system of claim 120, wherein the geographic location of the mobile communication facility is established using triangulation.

144. The system of claim 120, wherein the code is associated with a game scenario.

145. The system of claim 120, wherein the code is associated with a plurality of game scenarios.

146. The system of claim 120, wherein the transmission of the code is made by calling a phone number.

147. The system of claim 120, wherein the transmission of the code is made by sending an SMS text message.

148. The system of claim 120, wherein the transmission of the code is made through an Internet website.

149. The system of claim 120, wherein the transmission of the code invokes a fee.

150. The system of claim 149, wherein the fee is billed to the account associated with the mobile communication facility from which the code is transmitted.

151. The system of claim 120, wherein the code transmission receipt is confirmed to the mobile communication facility.

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152. The system of claim 120, wherein the broadcast is made using the internet.

153. The system of claim 120, wherein the broadcast is a webpage update.

154. The system of claim 153, wherein the webpage update is an update of a social networking website.

155. The system of claim 120, wherein the broadcast in an email.

156. The system of claim 120, wherein the broadcast is made using a wireless provider.

157. The system of claim 120, wherein the broadcast is an SMS text message.

158. The system of claim 120, wherein the broadcast is an automated voice mail.

159. The system of claim 158, wherein the automated voice mail is created by a user of the mobile communication facility gaining location control of the geographic location.

160. The system of claim 120, wherein the broadcast is made using a wireless provider and the internet in combination.

161. The system of claim 120, wherein the broadcast is associated with an interactive user interface.

162. The system of claim 161, wherein the interactive user interface includes a map.

163. The system of claim 162, wherein the map is a satellite image.

164. The system of claim 162, wherein the map is a graphic rendering.

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165. The system of claim 162, wherein the map is three-dimensional.

166. The system of claim 161, wherein the interactive user interface includes a blog.

167. The system of claim 161, wherein the interactive user interface includes sponsored content.

168. The system of claim 167, wherein the sponsored content is associated with the geographic location.

169. The system of claim 120, wherein the broadcast invokes a fee.

170. The system of claim 161, wherein the fee is billed to the account associated with the mobile communication facility from which the code is transmitted.

171. A system comprising:

a creation facility adapted to create a code that may be entered in a mobile communication facility;
an association facility adapted to associate the code with a unit of a location verification facility that may be further associated with one or more of a plurality of geographic locations;
an establishment facility adapted to establish a geographic location of the mobile communication facility;
a transmission facility adapted to transmit the code from the mobile communication facility;
a computation facility adapted to compute with the verification facility a location verification measure associated with the geographic location and the mobile communication facility; and
a broadcasting facility adapted to broadcast the measure to a network.

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172. The system of claim 171, wherein upon broadcasting of the verification, a measure is awarded based on the verification.

173. The system of claim 172, wherein the measure is a location control measure of a multiplayer game.

174. The system of claim 172, wherein the measure is a territory control measure of a multiplayer game.

175. The system of claim 171, wherein the broadcasting is to a plurality of mobile communication facility users.

176. The system of claim 171, wherein the geographic location of the mobile communication facility is established using GPS.

177. The system of claim 171, wherein the geographic location of the mobile communication facility is established using triangulation.

178. A system comprising:

an association facility adapted to associate a mobile communication facility with a plurality of mobile communication facilities, wherein the association forms a multiplayer team;
an association facility adapted to associate a code with a geographic location;
a transmission facility adapted to transmit the code using the mobile communication facility;
an identification facility adapted to identify whether the mobile communication facility is present at the geographic location near the time of entering the code; and
a creation facility adapted to create a first multiplayer team score based at least in part on verifying that the mobile communication facility is present at the geographic location near the time of the code transmission.

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179. The system of claim 178, wherein upon broadcasting of the verification, a measure is awarded based on the verification.

180. The system of claim 179, wherein the measure is a location control measure of a multiplayer game.

181. The system of claim 179, wherein the measure is a territory control measure of a multiplayer game.

182. The system of claim 178, further comprising a reception facility adapted to receive a second transmission of the code from at least one of the plurality of mobile communication facilities.

183. The system of claim 178, further comprising a creation facility adapted to create an aggregated multiplayer team score based at least in part on a combination of the code transmission and a second code transmission.

184. The system of claim 183, wherein the aggregated multiplayer team score is weighted based on a criterion.

185. The system of claim 184, wherein the criterion is a purchase at the geographic location by the player.

186. The system of claim 184, wherein the criterion is a visit duration at the geographic location by the player.

187. The system of claim 178, further comprising a conversion facility adapted to convert an aggregated multiplayer team score into a weighting of the multiplayer team's location control measure.

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188. The system of claim 187, wherein the weighting of the multiplayer team's location control measure diminishes as a function of time.

189. The system of claim 188, wherein the diminution of the weighting of the multiplayer team's location control measure may be halted upon receipt of a third code transmission by at least one of the plurality of players' mobile communication facilities.

190. The system of claim 178, further comprising a broadcasting facility adapted to broadcast a multiplayer team's location control measure to a plurality of multiplayer teams.

191. The system of claim 178, wherein the association of the player's mobile communication facility with the plurality of mobile communication facilities is made using the internet.

192. The system of claim 178, wherein the association of the player's mobile communication facility with the plurality of mobile communication facilities is made using a wireless provider.

193. A system comprising:

a creation facility adapted to create a first code associated with a first location, a second code associated with a second location, and a third code associated with a third location, lines among the three locations defining at least a portion of a perimeter of a geographic territory;
a transmission facility adapted to transmit the first, second, and third codes using at least one mobile communication facility;
a verification facility adapted to verify location of the mobile communication facility upon receipt of the codes' transmissions; and

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upon verification of at least three codes, an award facility adapted to award a territory control measure for the geographic territory to an entity associated with the mobile communication facility.

194. The system of claim 193, wherein upon broadcasting of the verification, a measure is awarded based on the verification.

195. The system of claim 194, wherein the measure is a location control measure of a multiplayer game.

196. The system of claim 194, wherein the measure is a territory control measure of a multiplayer game.

197. The system of claim 193, further comprising broadcasting the territory control measure to a network.

198. The system of claim 197, wherein the broadcasting is to a plurality of mobile communication facility users.

199. The system of claim 193, wherein verification of a location is based on a location control measure.

200. The system of claim 193, further comprising an elimination facility adapted to eliminate a rival location control that is associated with a location within the geographic territory upon awarding territory control.

201. The system of claim 200, wherein the rival location control is associated with a rival mobile communication facility in competition for location control with the mobile communication facility.

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202. The system of claim 193, wherein the transmission of the first, second and third codes is made using a plurality of mobile communication facilities.

203. The system of claim 202, wherein the plurality of mobile communication facilities comprise a team.

204. The system of claim 193, wherein the geographic location of the mobile communication facility is established using GPS.

205. The system of claim 193, wherein the geographic location of the mobile communication facility is established using triangulation.

206. A system comprising:

an association facility adapted to associate a code with a geographic location;
a tracking facility adapted to track a transaction at the geographic location and associate the code with the transaction upon verification of a user's presence at the geographic location;
a calculation facility adapted to calculate a revenue associated with the transaction;
an award facility adapted to award a location control measure based on the code and the transaction; and
a management facility adapted to manage distribution of a share of the revenue associated with the transaction.

207. The system of claim 206, wherein upon broadcasting of the verification, a measure is awarded based on the verification.

208. The system of claim 207, wherein the measure is a location control measure of a multiplayer game.

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209. The system of claim 207, wherein the measure is a territory control measure of a multiplayer game.

210. The system of claim 207, wherein the measure is associated with control of a territory.

211. The system of claim 210, wherein the territory is associated with a geographic territory.

212. The system of claim 206, further comprising a transmission facility adapted to transmit the measure to a plurality of gaming platform users; and
a retaining facility adapted to retain a portion of the revenue by the entity associated with the gaming platform.

213. The system of claim 206, further comprising a transmission facility adapted to automatically transmit the code for the user by the entity receiving the transaction.

214. The system of claim 206, further comprising a provision facility adapted to provide the user an incentive upon receipt of the transmitted code.

215. The system of claim 214, wherein the incentive is a coupon.

216. The system of claim 206, wherein the transaction is a webpage view.

217. The system of claim 206, wherein the transaction is an online advertisement conversion.

218. The system of claim 206, wherein the transaction is an online transaction.

219. The system of claim 206, wherein the transaction is an online survey completion.

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220. The system of claim 206, wherein the transaction is a visit to geographic store location.

221. The system of claim 206, wherein the transaction is a purchase at a geographic store location.

222. The system of claim 206, wherein the transaction is a club enrollment.

223. The system of claim 206, wherein the transaction is a credit card enrollment.

224. The system of claim 206, wherein the transaction is a credit card purchase.

225. The system of claim 206, wherein the transaction is a phone call.

226. The system of claim 206, wherein the transaction is a text message.

227. The system of claim 206, wherein the transaction is viewing television content.

228. The system of claim 206, wherein the code is transmitted using a mobile communication facility.

229. The system of claim 206, wherein the code is transmitted using a telecommunications land line.

230. The system of claim 206, wherein the code is transmitted using the internet.

231. The system of claim 206, wherein the code is transmitted using email.

232. The system of claim 206, wherein the code is transmitted using ground mail.

233. The system of claim 206, wherein the code is transmitted using a television.

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234. The system of claim 206, wherein the code is transmitted using a fax.

235. The system of claim 206, wherein the revenue derives from advertising.

236. The system of claim 206, wherein the revenue derives from a purchase.

237. The system of claim 206, wherein the revenue derives from a sponsorship.

238. The system of claim 206, wherein the revenue derives from a subscription.

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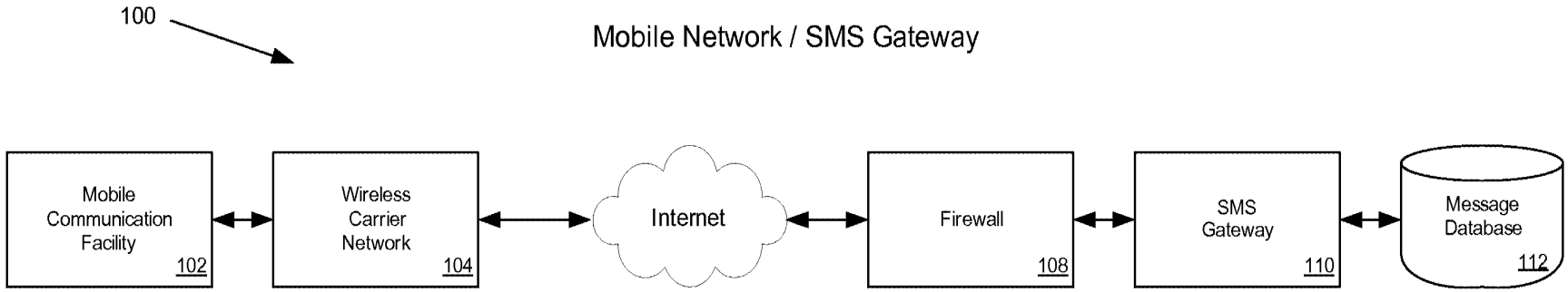


Fig. 1

FanDuel Ex. 1002-0504
FanDuel Ex. 1002-0504

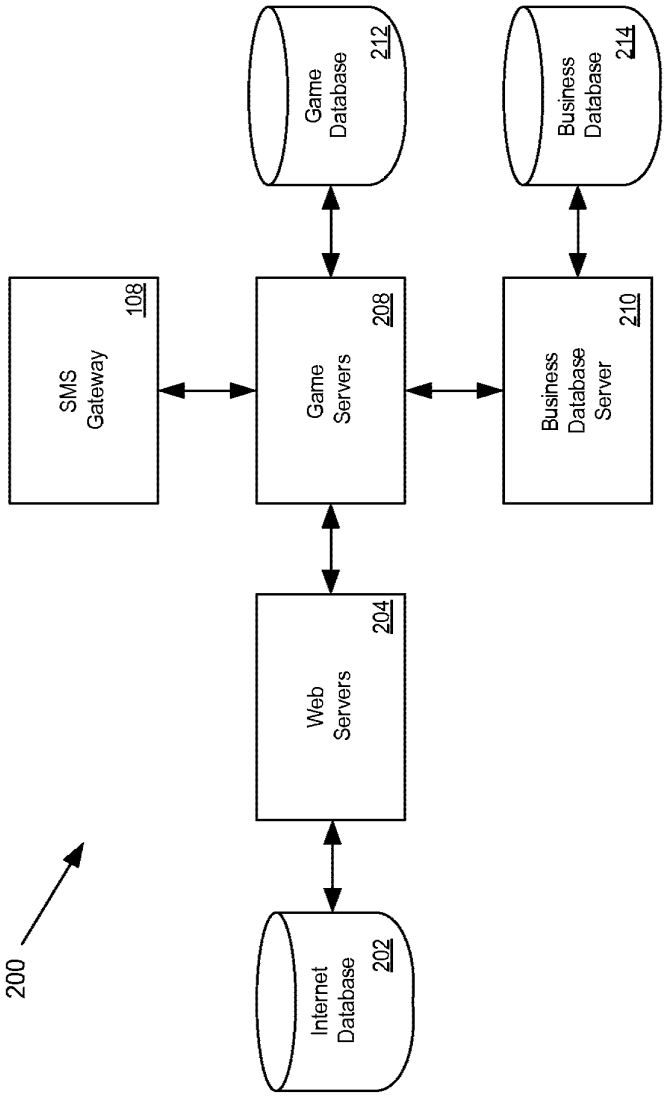

Game Database
212
Business Database
214
SMS Gateway
108
Game Servers
208
Business Database Server
210
Web Servers
204
Internet Database
202
200

Fig. 2

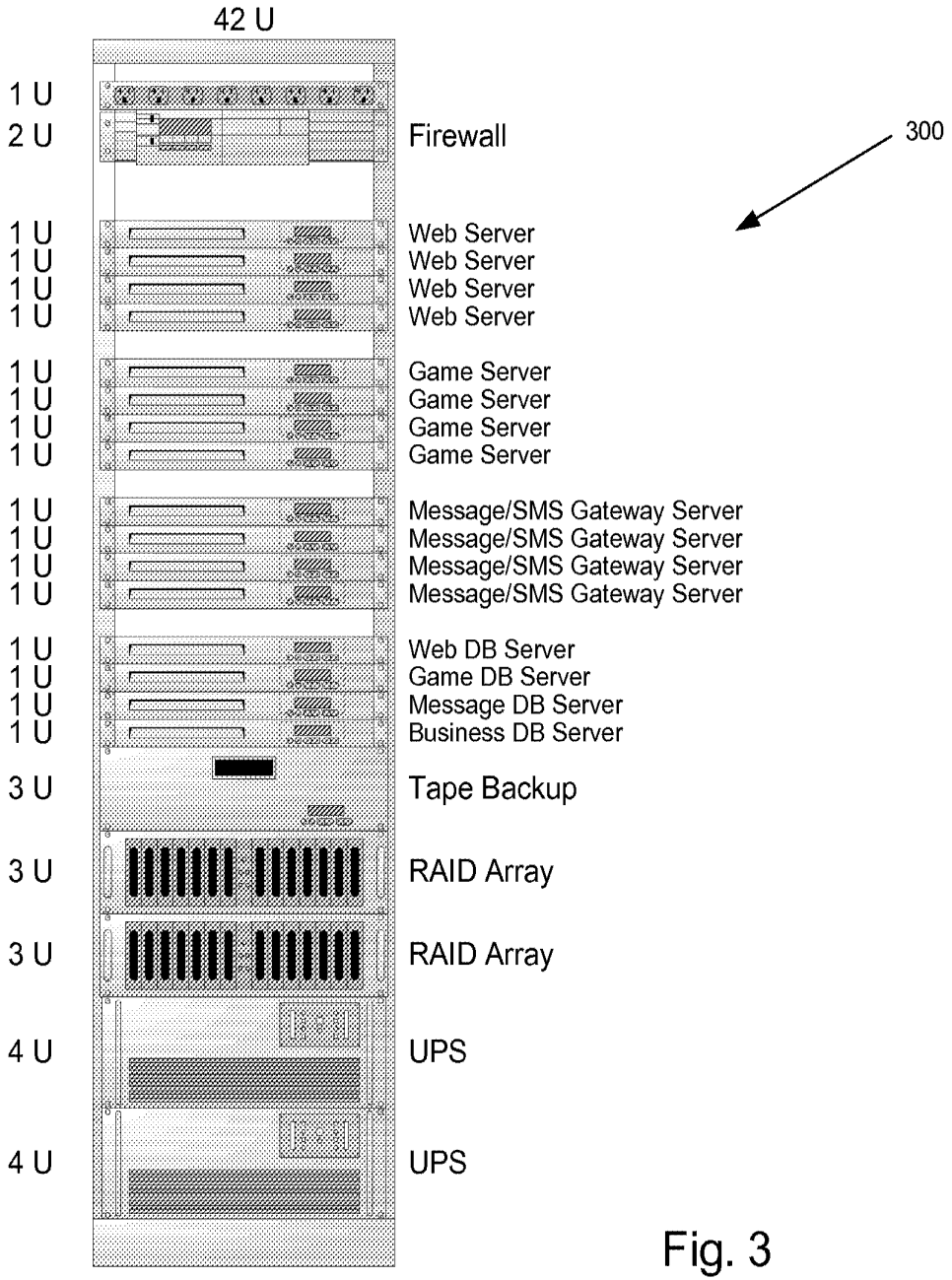


Fig. 3

FanDuel Ex. 1002-0506
FanDuel Ex. 1002-0506

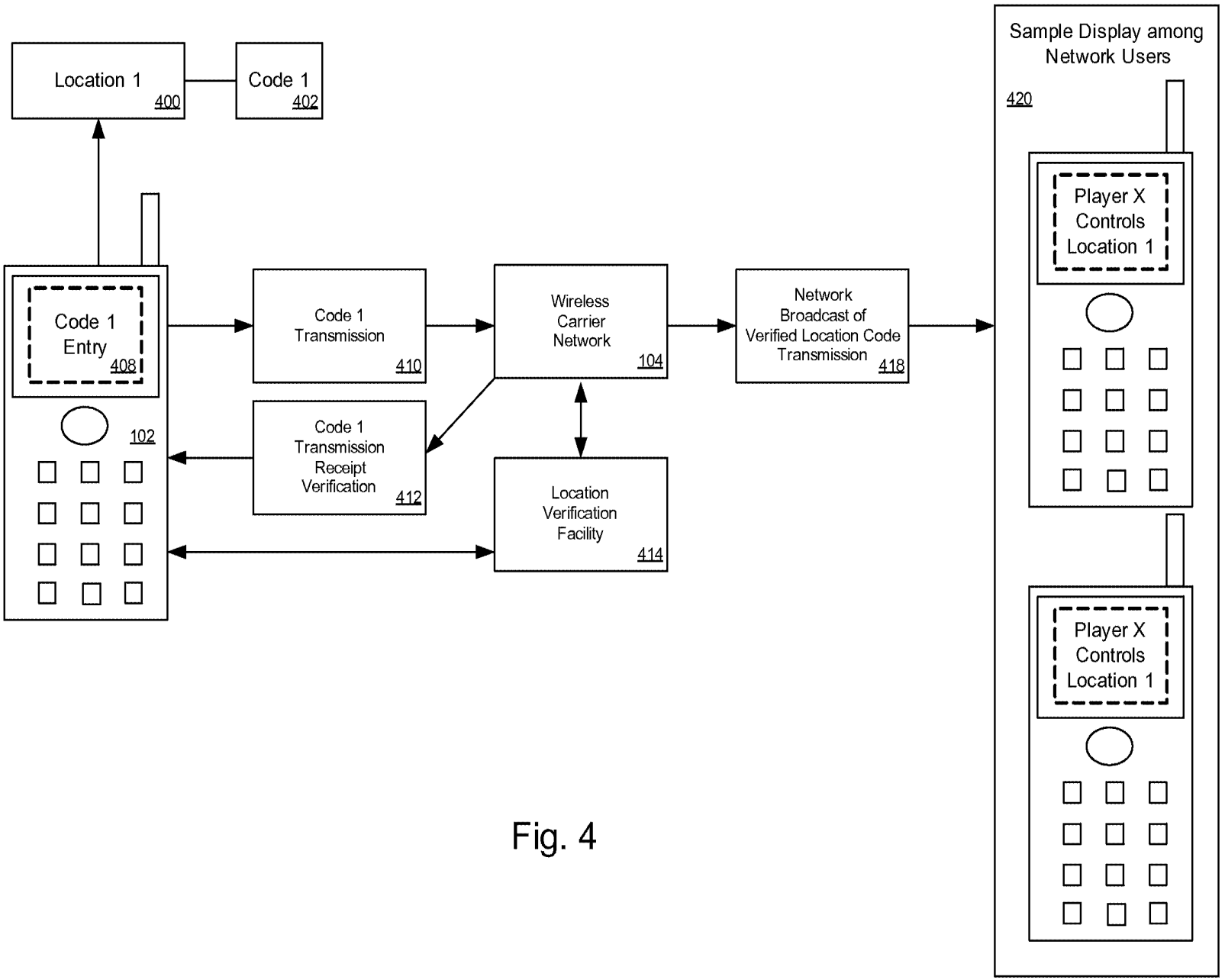


Fig. 4

FanDuel Ex. 1002-0507
FanDuel Ex. 1002-0507

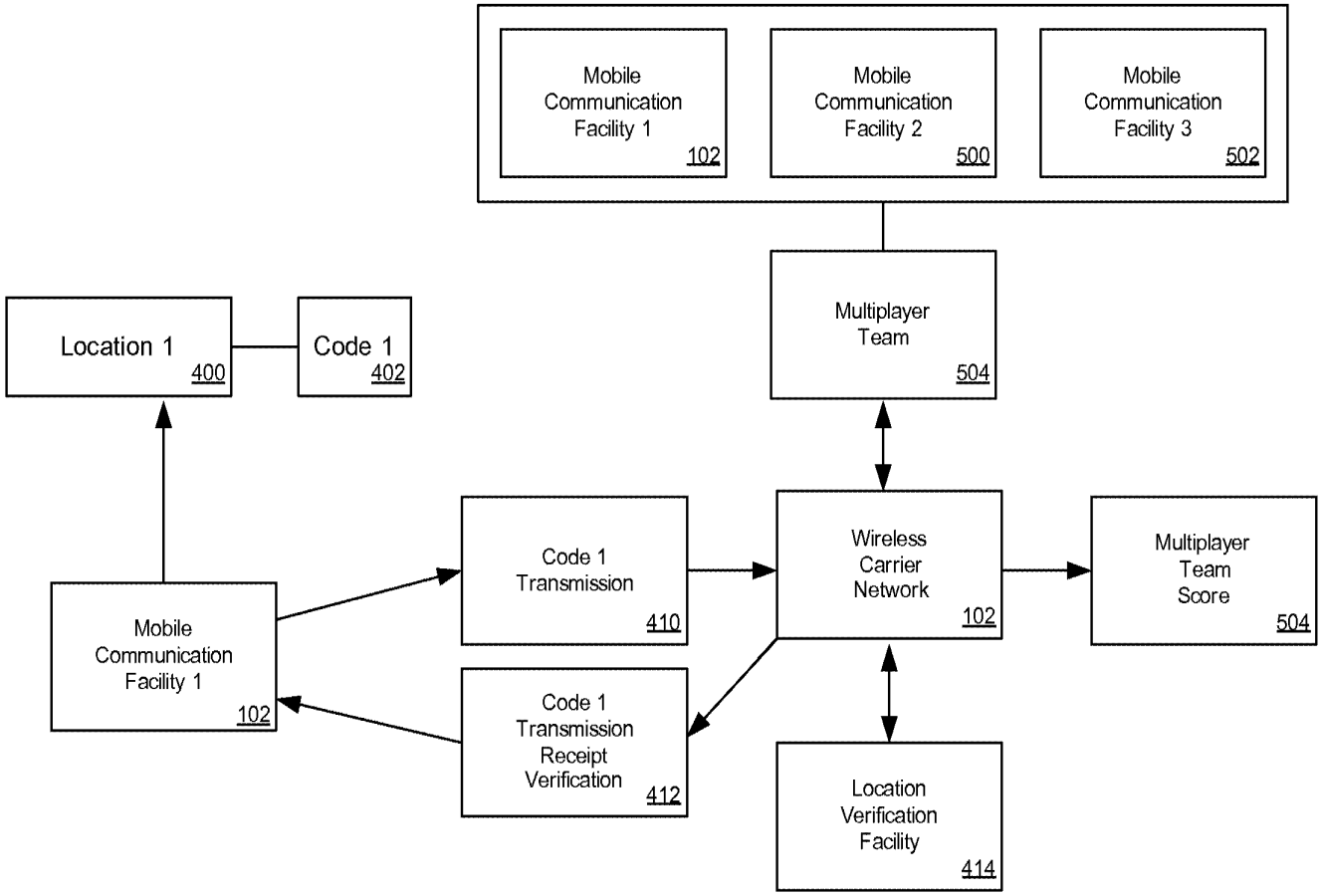


Fig. 5

FanDuel Ex. 1002-0508
FanDuel Ex. 1002-0508

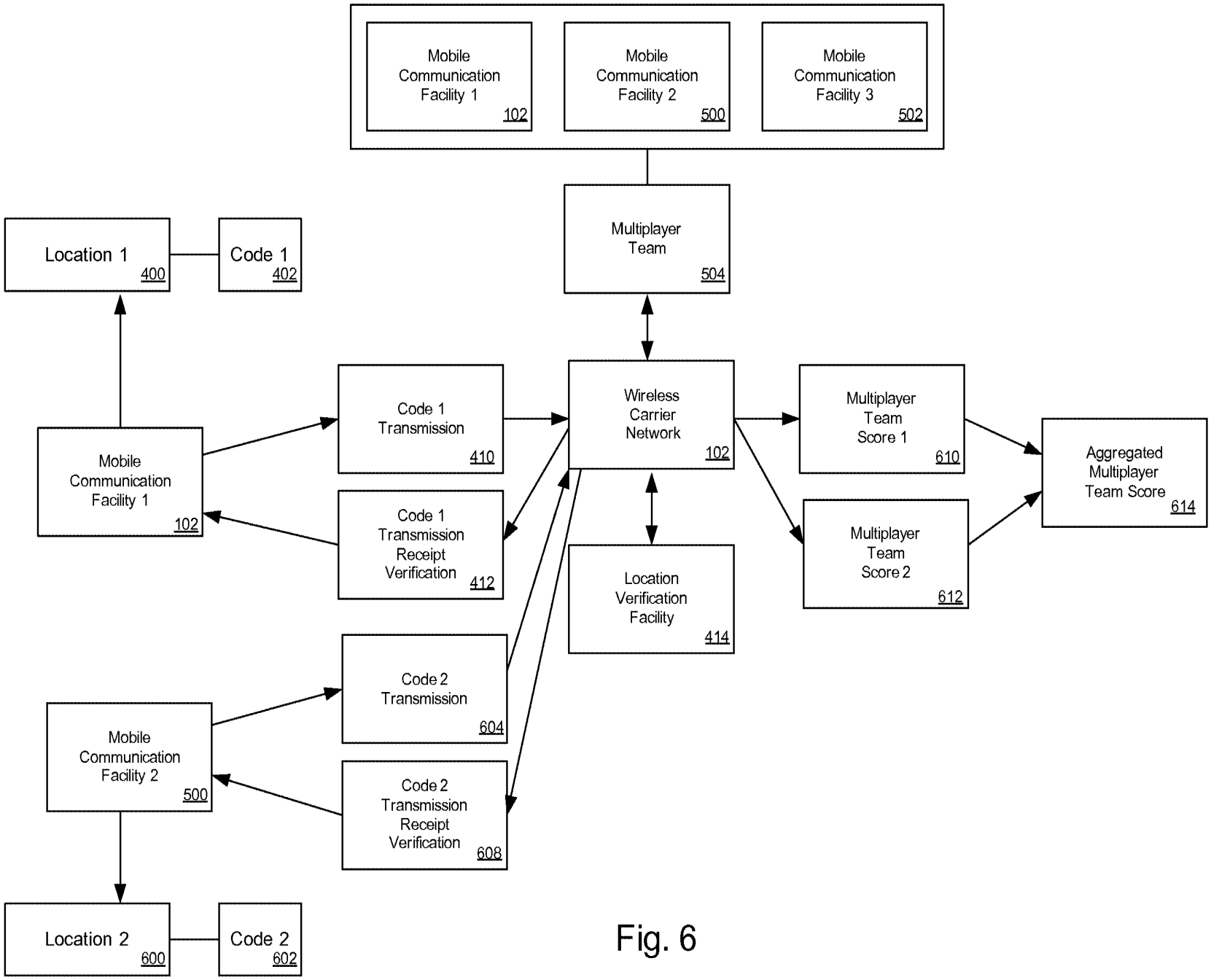


Fig. 6

FanDuel Ex. 1002-0509
FanDuel Ex. 1002-0509

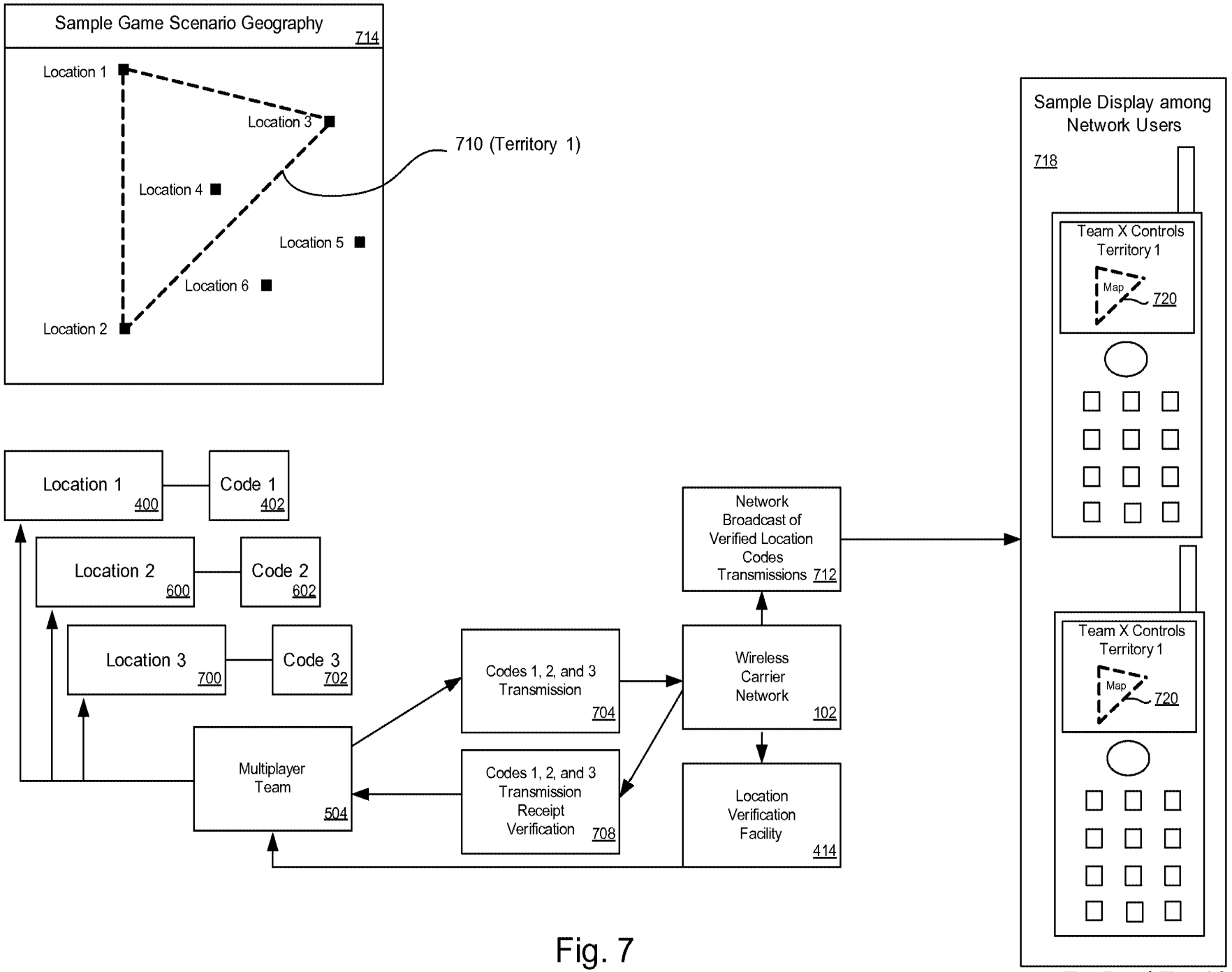


Fig. 7

FanDuel Ex. 1002-0510
FanDuel Ex. 1002-0510

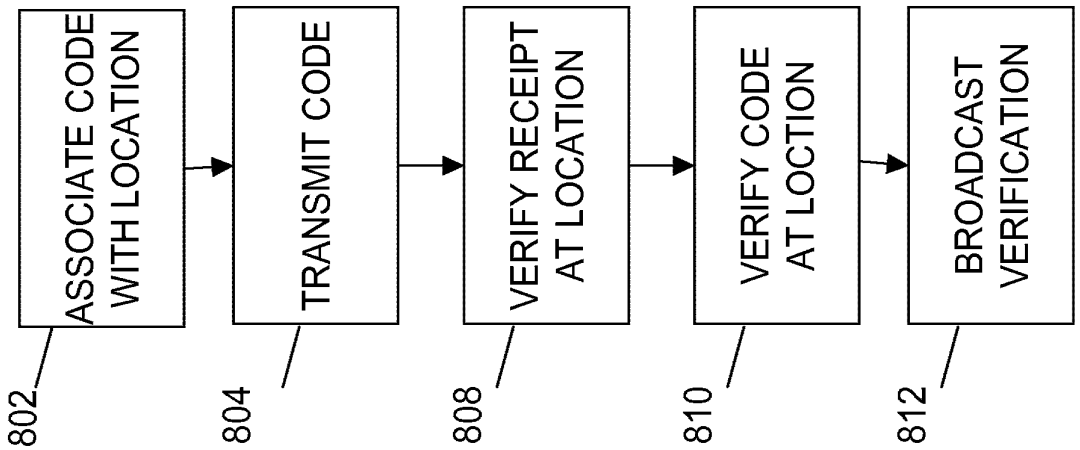

ASSOCIATE CODE WITH LOCATION
TRANSMIT CODE
VERIFY RECEIPT AT LOCATION
VERIFY CODE AT LOCTION
BROADCAST VERIFICATION
802
804
808
810
812

Fig. 8

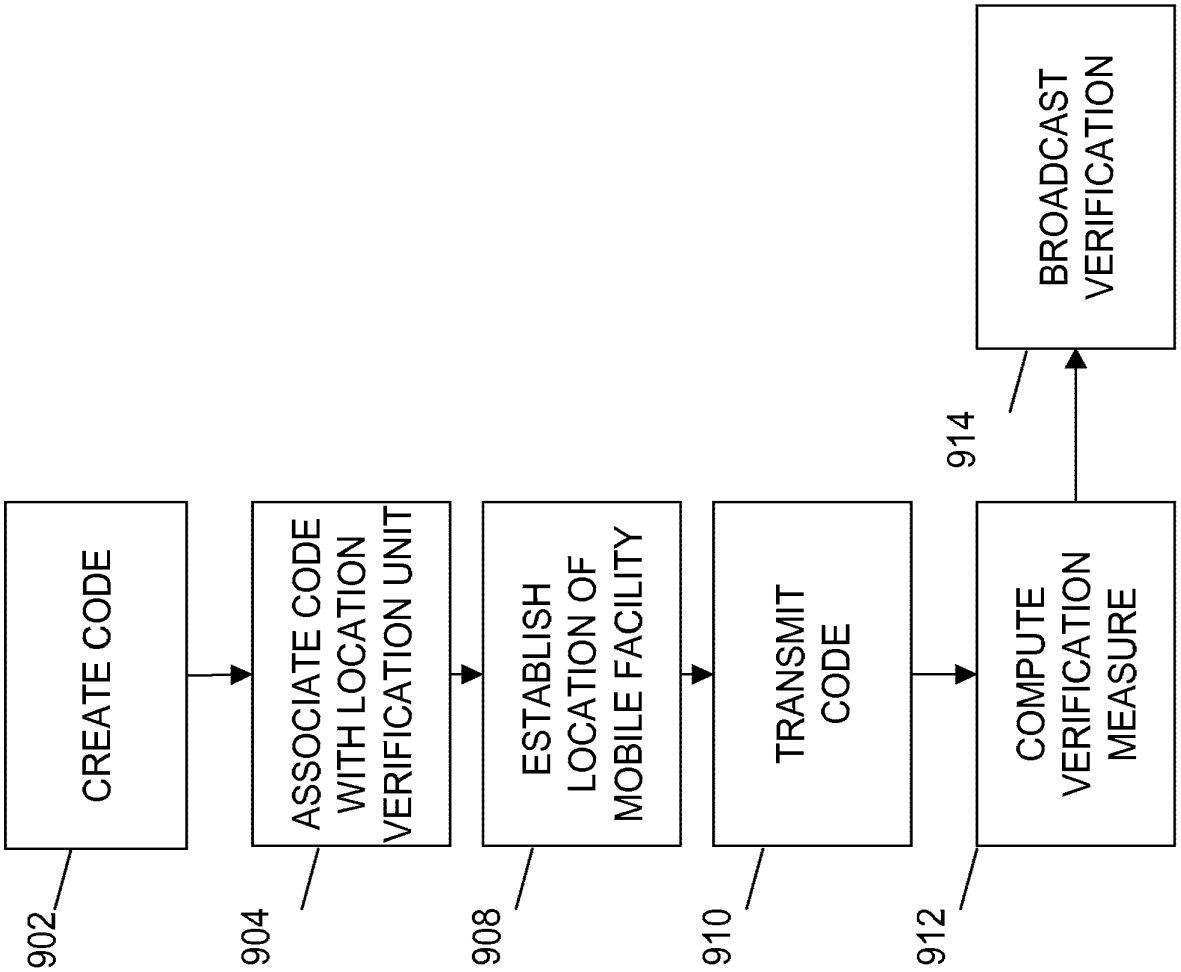

CREATE CODE
ASSOCIATE CODE WITH LOCATION VERIFICATION UNIT
ESTABLISH LOCATION OF MOBILE FACILITY
TRANSMIT CODE
COMPUTE VERIFICATION MEASURE
BROADCAST VERIFICATION
902
904
908
910
912
914

Fig. 9

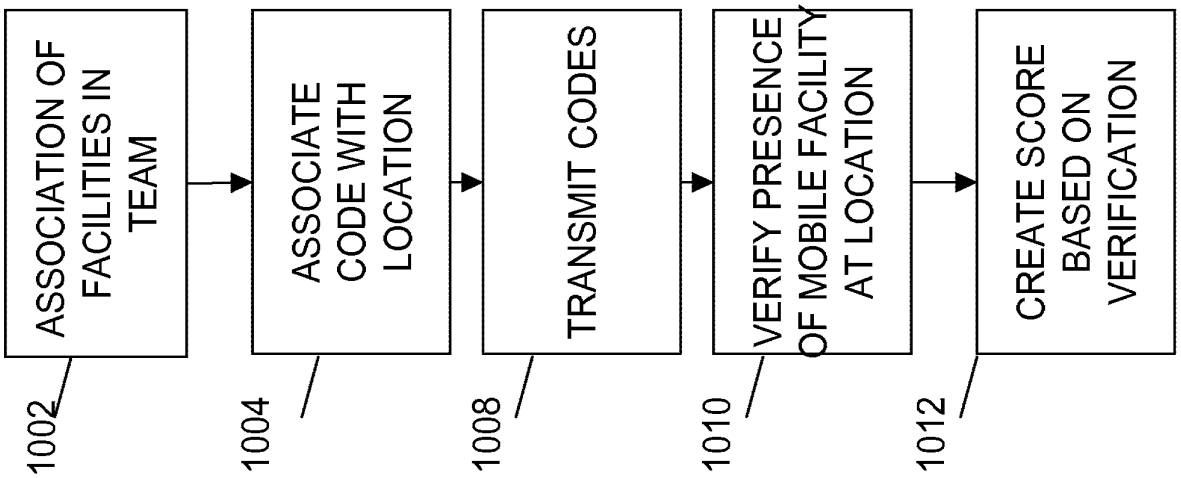

ASSOCIATION OF FACILITIES IN TEAM
ASSOCIATE CODE WITH LOCATION
TRANSMIT CODES
VERIFY PRESENCE OF MOBILE FACILITY AT LOCATION
CREATE SCORE BASED ON VERIFICATION
1002
1004
1008
1010
1012

Fig. 10

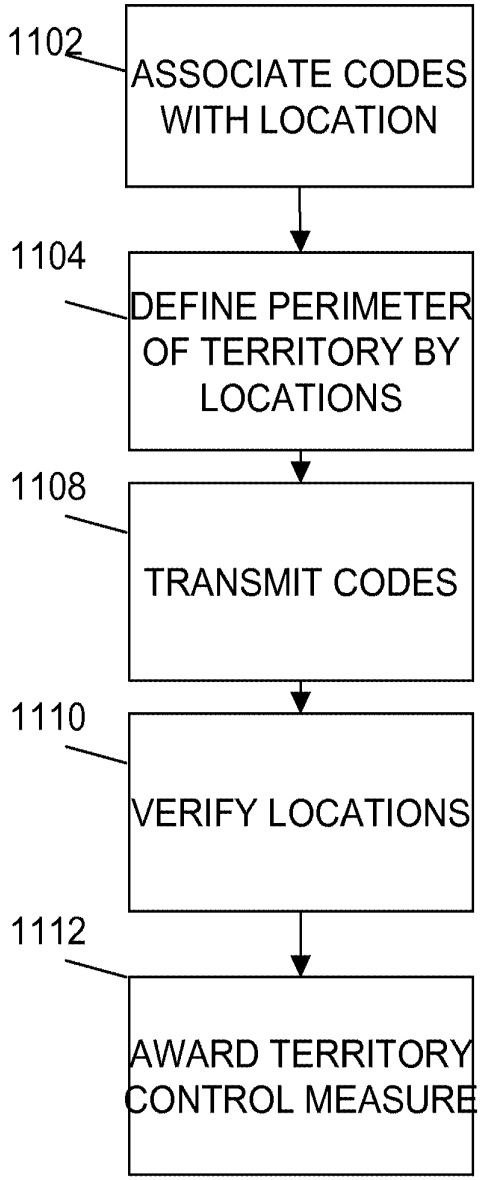


Fig. 11

FanDuel Ex. 1002-0514
FanDuel Ex. 1002-0514

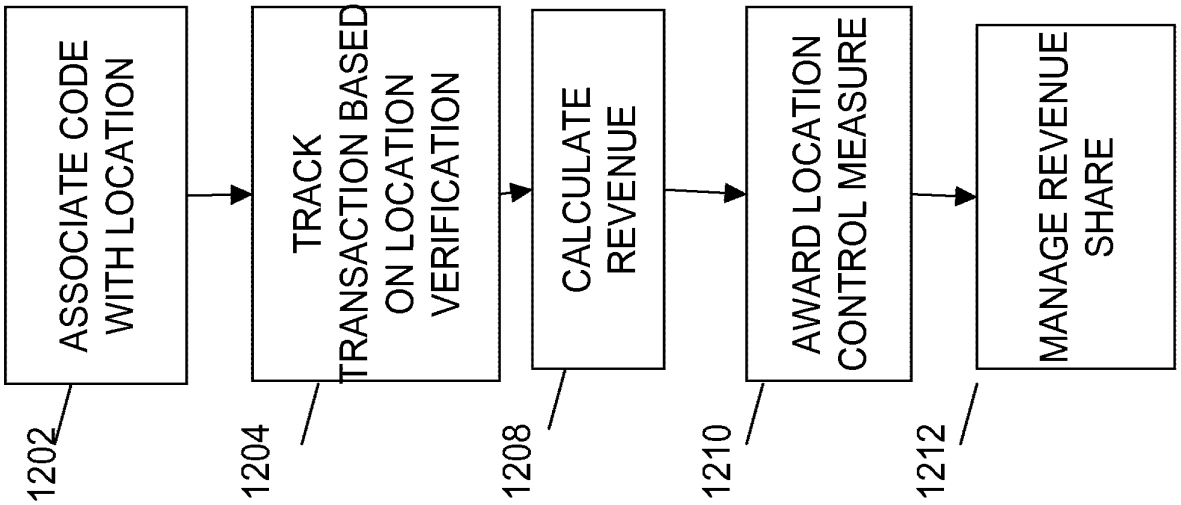

ASSOCIATE CODE WITH LOCATION
TRACK TRANSACTION BASED ON LOCATION VERIFICATION
CALCULATE REVENUE
AWARD LOCATION CONTROL MEASURE
MANAGE REVENUE SHARE
1202
1204
1208
1210
1212

Fig. 12

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2008/057213

A. CLASSIFICATION OF SUBJECT MATTER

H04Q 7/24(2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 8 : H04Q 7/24

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean Utility models and applications for Utility Models since 1975

Japanese Utility models and applications for Utility Models since 1975

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKIPASS(KIPO internal) "location, control, code, associate, multi-player, game"

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 01758412 A1 (Huawei Technologies Co., Ltd.) 28 Feb. 2007 See abstract, figure 3, claims 1-21, and paragraphs [0041]-[0043]	1-238
A	US 2004-0147323 A1 (Cliff, David Trevor et al.) 29 Jul. 2004 See abstract, figures 1,3, claims 1-17, and paragraphs [0037]-[0044], [0049]-[0057]	1-238
A	US 2004-0179492 A1 (Zhang, Hang et al.) 16 Sep. 2004 See abstract, figure 2, claims 1-15, and paragraphs [0156]-[0166]	1-238
A	US 2004-0259626 A1 (Akram, Zakir et al.) 23 Dec. 2004 See abstract, figure 1, claims 1-13, and paragraphs [0045]-[0059]	1-238
A	KR 10-2005-0056416 A (ELECTRONICS AND TELECOMMUNICATIONS RESEARCH INSTITUTE) 16 Jun. 2005 See abstract, figure 1, claims 1-3, and page 3	1-238

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents,such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
22 AUGUST 2008 (22.08.2008)	**22 AUGUST 2008 (22.08.2008)**

Name and mailing address of the ISA/KR

Korean Intellectual Property Office
Government Complex-Daejeon, 139 Seonsa-ro, Seo-gu, Daejeon 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

KIM, Kwang Sik

Telephone No. 82-42-481-8355

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.
PCT/US2008/057213

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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		EP 1758412 A4	14.11.2007
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		US 2007-167237 A1	19.07.2007
		WO 2006-047929 A1	11.05.2006
US 2004-0147323 A1	29.07.2004	GB 200225419 A0	11.12.2002
		GB 200324429 A0	19.11.2003
		GB 2394675 A1	05.05.2004
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US 2004-0259626 A1	23.12.2004	CA 2426236 A1	22.10.2004
		CA 2465027 A1	22.10.2004
KR 10-2005-0056416 A	16.06.2005	None	

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International Bureau

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(74) Agent: **EISENBERG, Michael**; 3263 Caminito Eastbluff, Suite 198, La Jolla, California 92037 (US).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— *without international search report and to be republished upon receipt of that report*

WO 2008/027811 A2

(54) Title: SYSTEM AND METHOD FOR MEASURING THE PERFORMANCE OF A PLAYER

(57) Abstract: A system for measuring the performance of participant in a game, wherein the game is comprised of a series of discreet trials where for each trial the participant receives a score selected from one of a finite set of discreet scores based on the participant's performance for each trial. The system may be configured to receive over the network a set of counts corresponding to the numbers of each score from the discreet set received by the participant for each trial during the game. The system may compute a weighted score based on an assigned set of weight factors for each type of score and an entered set of counts. Users of the system may be entered into a tournament based on the users' weighted score rankings and a winner is determined based on the weighted score. A method for ranking golf courses by their level difficulty is provided.

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SYSTEM AND METHOD FOR MEASURING THE PERFORMANCE OF A PLAYER

Cross-Reference to Related Applications

[0001] This application claims priority from U.S. Provisional Application Serial Number 60/823,646 filed August 26, 2006, and which is hereby incorporated herein by reference in its entirety.

Background of the Invention

[0002] The subject invention generally relates to a system and methods for measuring the performance of players. Some embodiment relate to measuring the performance of golfers. Some embodiments include a system and method implemented on servers and over a network. Other embodiments relate to a social networking system and a tournament that utilizes a network and a prize for the winner of the tournament.

[0003] One current method to measure performance of a golfer is the golf handicap. One golf handicap method relies on slope and course rating of the courses played by the golfer to compute a numerical score. The golf handicap measures only the potential to perform, not total performance. For example, in one method of the handicap, the worst scores of the golfer are disregarded. It would be desirable to have a system that measures total performance and that does not depend on slope and course rating. For example, the batting average in baseball is a number that is independent of the pitchers the batter has faced and the stadiums in which he has hit. Similarly, it would be desirable to have a system to measure performance for other games or sports such as bowling.

Brief Summary of Embodiments of the Invention

[0004] According to one embodiment of the invention, a method of measuring the performance of a game, contest or sporting event participant is provided. The method includes providing an interface to prompt a user for inputting the number of eagles, birdies, pars, bogeys, double bogeys, and triple bogeys respectively into a system over a network via a web browser.

[0005] In one embodiment, a system for measuring the performance of participant in a game is provided. The game may be comprised of a series of discreet trials wherein for each trial the participant receives a score selected from one of a finite set of discreet scores based on the participant's performance for each trial. The system may be implemented on a computer readable medium in communicative contact with a network and have a database. In one example, the network is the Internet and the computer readable medium is a servers.

[0006] Continuing with the above example embodiment, the system may be configured to receive over the network a set of counts corresponding to the numbers of each score from the discreet set received by the participant for each trial during the game. In one example, the participants enter in their scores via the system's website. The system may compute a weighted score. The weighted score may be based on (1) an assigned set of weight factors for each type of score in the discreet set and (2) an entered set of counts of each score from the discreet set. The computed weighted score corresponds to the performance of a participant in a game.

[0007] In another embodiment, the system for measuring the performance of a participant in a game includes the game of golf and the trials may comprise each hole played by the participant. The discreet set may contain scores comprising an eagle, a birdie, a par, a bogie, a double bogie and a triple bogie.

[0008] In yet another embodiment, the system for measuring the performance of a participant in a game may include the game of golf where the weight factors are selected so that: the weight factor assigned to an eagle is greater than the weight factor assigned to a birdie; the weight factor assigned to a birdie is greater than the weight factor assigned to a par; the weight factor assigned to a par is greater than the weight factor assigned to a bogie; the weight factor assigned to a bogie is greater than the weight factor assigned to a double bogie; and the weight factor assigned to a double bogie is greater than the weight factor assigned to a triple bogie. In another embodiment, the system may specify that an eagle score corresponds to two strokes or fewer for a hole and a triple bogie corresponds to three strokes or more received by the participant for a hole played and user may input their scores to the system accordingly.

[0009] In still another embodiment, the system for measuring the performance of a participant in a game includes measuring the performance of a plurality of participants by: computing weighted scores for each participant; storing the computed weighted scores associated with each

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participant in a ranking database; and ranking the plurality of participants based on the computed weighted score associated with each participant.

[0010] In yet a further embodiment of the system for measuring the performance of a participant in a game, the system is configured to select a set of participants from the ranking database and store data representing the participants in a tournament qualifier database. The participants in the tournament qualifier database may be selected to compete in a game tournament for a prize. In one example, the game tournament is a golf tournament.

[0011] In another embodiment of the system for measuring the performance of a participant in a game, the system may be configured to request a verification of the entered set of counts of each score from the discreet set from a second participant. The system may be configured to communicate the entered set to the second participant and the system may be configured to query the second participant to either confirm the accuracy of the entered set or deny the accuracy of the entered set. An entered set that has been confirmed by a second participant is a verified set, and in one embodiment the system only stores data in the tournament qualifier database if it is based on verified sets.

[0012] In a further embodiment of the system for measuring the performance of a participant in a game, the ranking of the plurality of participants based on the computed weighted score of each participant may comprise ranking only members of a particular group. The particular group may be ranked based on any one of the following: all participants of the same age in years; all participants of the same skill level; all participants of the same gender; all participants who played on the same golf courses; all participants of the same postal zip code of residence; all participants who share the same employer; all participants of the same state of residence; or all participants of the same of the same country of residences.

[0013] In still another embodiment of the system for measuring the performance of a participant in a game, the system may be configured to output the computed score to a user on the network. The system may be configured to request a verification of the entered set of counts of each score from the discreet set from a second participant. The system may communicate the entered set to the second participant and the second participant and queries the second participant to either confirm the accuracy of the entered set or deny the accuracy of the entered set.

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[0014] In yet a further embodiment of the system for measuring the performance of a participant in a game, the system may be configured to determine a first average computed weighted score for each participant for all games played by participants who have obtained at least one computed weighted score from playing the game at a first location where the game is played. The system may be configured to determine a second average computed weighted score for each participant for all games played only at the first location by the participant. The system may be configured to compare the first and second average computed weighted scores. If two or more participants have the same average computed weighted scores, the system may be configured to assign different rankings to each of the two or more participants based on the comparison of the first and second average computed weighted scores. For example, in one embodiment, the computed weighted score is the Splashie score as defined below. If two golfers have the same Splashie score, then the system will assign a higher rank to the golfer who has obtained more scores than the other golfer, on golf courses where the average golfer obtains lower Splashie scores than the average golfer's overall average on other courses.

[0015] In another embodiment a method for measuring the performance of a plurality golfers in a game of golf is provided. The game is comprised of 18 holes and for each hole the golfer receives a score based on the number of strokes executed to complete the hole. The method may comprise receiving a set of scores for the 18 holes of golf played by a golfer and computing a weighted score based on an assigned set of weight factors for each type of score received by the golfer on the holes played. The computed weighted score corresponds to the performance of a participant in the game.

[0016] In a further embodiment of the method for measuring the performance of a plurality golfers in a game of golf, all scores that correspond to completing a hole in two strokes below par or are treated identical to one another for computing the weighted score. All scores that correspond to completing a hole in three strokes above par or more are treated identically for computing the weighted score.

[0017] In still another embodiment of the method for measuring the performance of a plurality golfers in a game of golf, an eagle score corresponds to two strokes or fewer for a hole and a triple bogie corresponds to three strokes or more received by the participant for a hole played.

[0018] In yet a further embodiment of the method for measuring the performance of a plurality golfers, the weight factors are selected so that weight factor assigned to an eagle is greater than the

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weight factor assigned to a birdie. The weight factor assigned to a birdie is greater than the weight factor assigned to a par. The weight factor assigned to a par is greater than the weight factor assigned to a bogie. The weight factor assigned to a bogie is greater than the weight factor assigned to a double bogie. The weight factor assigned to a double bogie is greater than the weight factor assigned to a triple bogie.

[0019] In another embodiment of the method for measuring the performance of a plurality golfers in a game of golf, the method may include computing weighted scores for each golfer and ranking the plurality of golfers based on the computed weighted score associated with each golfer.

[0020] In a further embodiment of the method for measuring the performance of a plurality golfers in a game of golf, the method may include selecting a set of golfers having the highest rankings based on the computed weighted scores and entering the selected golfers into a golf tournament. The golfers in the tournament compete in a golf tournament for a prize.

[0021] In still another embodiment of the method for measuring the performance of a plurality golfers in a game of golf, the method may include verifying the received set of scores for the 18 holes of golf played by the golfer. The verification may comprise receiving a confirmation or a denial of the scores from a second golfer that played with the golfer on all 18 holes corresponding to the received scores. The method may include selecting only golfers having a received set of scores that have been verified to compete in the golf tournament.

[0022] In yet a further embodiment of the method for measuring the performance of a plurality golfers in a game of golf, ranking the plurality of golfers based on the computed weighted score of each golfer may comprise ranking only members of a particular group. The particular group may be ranked based on any one of the following: all golfers of the same age in years; all golfers of the same skill level; all golfers of the same gender; all golfers who played on the same golf courses; all golfers of the same postal zip code of residence; all golfers who share the same employer; all golfers of the same of the same state of residence; or all golfers of the same of the same country of residences.

[0023] In another embodiment, a system for ranking the degree of difficulty of a golf course is provided. The system may be implemented on a computer readable medium, such as a server, in communicative contact with a network, such as the Internet, and have a database. The system may be configured to receive scores resulting from rounds of golf played at golf courses and receive the

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identity of the golf course on which the game that produced the scores was played. The system may be configured to determine a first average of scores received by the system for all rounds of golf played by golfers that have obtained at least one score from a round of golf at the golf course. The system may determine a second average score for the golfers for all games played only at the golf course and compare the first and second average scores. The system may be configured to assign a ranking to the golf course based on the comparison.

[0024] Other features and aspects of the invention will become apparent from the following detailed description, taken in conjunction with the accompanying drawings, which illustrate, by way of example, the features in accordance with embodiments of the invention. The summary is not intended to limit the scope of the invention, which is defined solely by the claims attached hereto.

Brief Description of the Drawings

[0025] The present invention, in accordance with one or more various embodiments, is described in detail with reference to the following figures. The drawings are provided for purposes of illustration only and merely depict typical or example embodiments of the invention. These drawings are provided to facilitate the reader's understanding of the invention and shall not be considered limiting of the breadth, scope, or applicability of the invention. It should be noted that for clarity and ease of illustration these drawings are not necessarily made to scale.

[0026] Some of the figures included herein illustrate various embodiments of the invention from different viewing angles. Although the accompanying descriptive text may refer to such views as "top," "bottom" or "side" views, such references are merely descriptive and do not imply or require that the invention be implemented or used in a particular spatial orientation unless explicitly stated otherwise.

[0027] Fig. 1 is an illustration of a preferred embodiment of the system for measuring the performance of a player in accordance with the principles of the invention;

[0028] Fig. 2 is a block diagram of a system for measuring the performance of a player;

[0029] Fig. 3 is a block diagram of a control panel and/or profile page of a user of a system for measuring the performance of a player;

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[0030] Fig. 4 is a flow chart of a method for determining who competes in and who is the winner of a golf tournament utilizing a system for measuring the performance of a player;

[0031] Fig. 5 is a flow chart of a method for verifying scores on a system for measuring the performance of a player; and

[0032] Fig. 6 is a flow chart of a method for ranking the difficulty of a golf.

[0033] The figures are not intended to be exhaustive or to limit the invention to the precise form disclosed. It should be understood that the invention can be practiced with modification and alteration, and that the invention be limited only by the claims and the equivalents thereof.

[0034] The figures are not intended to be exhaustive or to limit the invention to the precise form disclosed. It should be understood that the invention can be practiced with modification and alteration, and that the invention be limited only by the claims and the equivalents thereof.

Detailed Description of the Embodiments of the Invention

[0035] The present invention is directed toward a system and method for measuring the performance of a player in a game or sport. Before describing the invention in detail, it is useful to describe an example environment with which the invention can be implemented. One such example is that of a network based golf tournament, for example, utilizing the Internet.

[0036] From time-to-time, the present invention is described herein in terms of example environments. Description in terms of these environments is provided to allow the various features and embodiments of the invention to be portrayed in the context of an exemplary application. After reading this description, it will become apparent to one of ordinary skill in the art how the invention can be implemented in different and alternative environments.

[0037] Unless defined otherwise, all technical and scientific terms used herein have the same meaning as is commonly understood by one of ordinary skill in the art to which this invention belongs. All patents, applications, published applications and other publications referred to herein are incorporated by reference in their entirety. If a definition set forth in this section is contrary to or otherwise inconsistent with a definition set forth in applications, published applications and other publications that are herein incorporated by reference, the definition set forth in this document prevails over the definition that is incorporated herein by reference.

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[0038] Fig. 1 illustrates a block diagram of a preferred embodiment of a system 100 for measuring the performance of a golfer. The system 100 is network based and may be implemented on servers 108 in communication via the Internet 105 through conventional web browsers. The system 100 may include a golf tournament 110, a social networking system 115, an instant messenger 120, blogs 125, a golf course difficulty ranking system 130, and a performance based scoring system 135. Users may access the system 100 through web browsers on user devices 140 such as PCs, mobile phones, PDAs and the like.

[0039] Fig. 2 depicts a more detailed block diagram of system 100 in accordance with the principles of the invention. In one embodiment, the system 100 includes a homepage 200 where a user may navigate to by using an Internet browser to register to become a member of the system 100. A user may click on a link to navigate to a registration page 205 where the user may be prompted to enter the user's personal information such as name, gender, email address, date of birth, residence address, golf course most often played, skill level, a photograph of the user and choose a system ID and system password. Skill levels may include junior, for child golfers; hacker, for low skill golfers; scratch for high skill golfers; pros for professional golfers; and senior, for old golfers.

[0040] Once the user has registered the system 100 starts tracking the user's performance and a user profile 213 is generated by the system 100 where the user's performance may be viewed by other users registered in the system 100. The user may also submit a payment to participate in one or more tournaments 210 where a prize is awarded to the winner based up the user with the highest Splashie score (as defined below). In some embodiments no payment is necessary for entry into the tournament 210 or other tournaments. For already registered users, the user may enter in his score 208 at the homepage 200 and then may be prompted to log into they system 210. For example, a registered user may enter in 1 eagle (2 strokes or less under par), 3 birdies (1 stroke under par), 5 pars, 4 bogies (1 stroke over par), 3 double bogies (2 strokes over par) and 2 triple bodies (3 strokes or more over par). Par ranges from 3 to 5 strokes for a hole and varies depending on the length of the hole. The par for individual holes may be determined by the golf course the user plays on.

[0041] Referring to Figs. 2 and 3, once the user has registered, he may navigate to a user control panel 212. The control panel 212 allows the user access various features of the system 100. For example, the control panel 212 may display the user's Splashie Score 300. The system

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200 computes the user's Splashie Score based on an 18 hole round of golf played by the user. A user plays a round of golf and enters the number of eagles, birdies, pars, bogeys, double bogeys, triple bogeys they received as defined above into the system 100. In one preferred embodiment, the Splashie score may be defined as:

[0042] Splashie score = aU + bV + cW + dX + eY + fZ. Where U, V, W, X, Y, Z are the number of eagles, birdies, pars, bogeys, double bogeys, and triple bogeys respectively, and a, b, c, d, e, and f their corresponding weights, Where U + V + W + X + Y + Z = 18, since there a round of gold is 18 holes played.

[0043] Referring to Fig. 4, the system may be configured to perform the following steps. In a step 400, the system receives a set of scores for 18 holes of golf played by a golfer. In a step 410, the system assigns weight factors for each type of score such that the weight factor for a score is always higher than the weight factor for a worse score. In a step 420, the system computes a Splashie score based on an assigned set of weight factors for each type of score received by the golfer on the holes played. In a step 430, the system enters top ranked golfers into a golf tournament. In a step 440, the winner of the tournament is determined based on the Splashie score received during the tournament 440.

[0044] In one alternative embodiment, the Splashie score weights (i.e. a, b, c, etc.) may also be chosen so that the Splashie score is greater for one player versus another, so that a weaker player may play against a professional golfer or a player of greater ability via the system 100 and pose a challenge to the stronger player. By varying the weights assigned to players of different levels, a Splashie score may be used to compare a standard weighted Splashie score to a nonstandard weighted Splashie score. In one preferred embodiment, the weights are chosen such that: the weight of an eagle is greater than a the weight of a birdie; the weight of a birdie is greater than the weight of a par; the weight of a par is greater than the weight of a bogie; the weight of a bogie is greater than the weight of a double bogie; and the weight of a double bogie is greater than the weight of a triple bogie. If the weights are chosen as mentioned immediately above then the golfer who played the least strokes will have the highest Splashie score. In one embodiment, the system treats an eagle score as any score that is two strokes or fewer for a hole and the system treats a triple bogie as three strokes or more received by a user for a hole played.

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[0045] For the game of bowling, the system may be implemented so that instead of eagles, pars bogies etc. being reported for each frame, a strike, a spare, a nine, an eight and a seven is inputted into the system.

[0046] A system 100 that utilizes a Splashie score may be capable of enabling individuals in different geographic locations to create golf leagues on the system 100 and play and compete with each other year round. Since the Splashie score does not depend on parameters such as course rating and slope, the method and system 100 provide a simple way for golfers to keep track of their performance.

[0047] In one embodiment, the system 100 may display various computations of a user's Splashie scores in a Splashie score section 302 of the user's control panel 212 or profile page 213. For example, the Splashie score section 302 may contain an overall Splashie score for a user which is the arithmetic mean of every Splashie score entered by the user. The section 302 may include an overall verified Splashie score which is the arithmetic mean of all verified Splashie scores for the user. The section 302 may further include a numerical rank of the user based on his Splashie scores among all the users in the system 100. Other values may include the average Splashie score for a particular year, the user's average Splashie score over a recent time period, for example, the most recent five rounds of golf played. With reference to Figs. 3 and 4, in one embodiment a user has the option to select which Splashie score information is computed and displayed by the system 100, and examples may include: lifetime Splashie score; annual Splashie score; monthly Splashie score; weekly Splashie score; and Splashie score ranking by postal zip code, age, level of play, gender, state, country, county, or golf course played.

[0048] In another embodiment, the user may configure his profile 213 via the control panel 212 to include a blog 125, a bio 305, and a friends list 308 which may include a graphical display of a list of other users mutually selected by the user and the other users on the list. The user may also configure his display handle, and upload pictures 228 displayed by a link 312. The profile 212, 213 may display data regarding the user's gender, age, skill level, location and date of last login. In some embodiments, the data regarding the user may be configurable by the user.

[0049] With further reference to Figs. 2 and 3, the profile page 213 may include a function section 315 that can provide functions available to other users viewing a user's profile page 213. For example, the function section 315 may have links that another user may click: to send a message 215 to the user; to challenge 218 the user; to verify a score 220 of the user; to request that

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viewing user be added to user's friends list 222; to add the user to a league; to chat with the user via an instant messenger; and to invite the user to play a round of golf in real time 225.

[0050] In one embodiment, users may establish leagues on the system 100 where a separate ranking is computed by the system within the group of players in the league. Leagues may be based on any number of criteria. For example, a league may be composed of users who are all employed at a particular company. In another example, a league may be based on users who play at a particular golf course. In one example implementation, members of different leagues may compete against one another. Two leagues comprised of members from two individual companies may compete with each other for the top Splashie score after a predetermined number of rounds of golf. In some embodiments, the rounds do not have to be played at the same locations as some users may be separated by large geographical distances.

[0051] In a further embodiment, the system may be configured to verify a first golfer's score. Referring to Fig. 5, in a step 500, the system is configured to receive a set of scores for the 18 holes of golf played by the first golfer. In a step 510, the system is configured to receive from the first golfer the identity of a second golfer who played with first golfer during the acquisition of the set of scores 510. In a step 520, the system is configured to display the received scores from the first golfer to the second golfer. In a step 530, the system is configured to query the second golfer to either confirm or deny accuracy of the set of scores. In a step 540, the system is configured to receive either a confirmation or denial of the accuracy of the scores. If a confirmation is received, then the system assigns a status of verified to the score.

[0052] If the leagues contain unequal numbers of members competing in a league tournament, in one embodiment, the system 100 may take the mean of the top Splashie scores of both teams. The number of top Splashie scores is determined by choosing a number less than or equal to the number of users in the smaller league. For example, if one league has 5 users and another 10 users, the system 100 may use the mean of the top 5 Splashie scores of each league to determine the winner based on the highest mean Splashie score.

[0053] In another embodiment, the system for measuring the performance of a participant may be implemented on a computer readable medium in communicative contact with a network and having a database. The system is configured to compute a Splashie score (as defined above) for each user. The system may store the computed Splashie scores associated with each user in a ranking database. The system may rank a plurality of users based on their Splashie scores

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associated with each of them. The system may be configured to select a set of users from the ranking database and store data representing the users in a tournament qualifier database, wherein the participants in the tournament qualifier database are selected to compete in a game tournament for a prize. The winner of the tournament may be determined by the player having the highest Splashie score for the tournament after all rounds of golf played during the tournament.

[0054] In another embodiment, the system is configured to request a verification of a score entered by a user. The system may communicate the entered score to a second user and query the second user to either confirm the accuracy of the entered score or deny the accuracy of the entered score. An entered set that has been confirmed by a second user a verified score. The system will only stores data in the tournament qualifier database if it is based on verified scores. Thus, the selection of which user is entered into the tournament is based only on verified scores. In a preferred embodiment, the second user is a golfer played all 18 holes with the first user in the same group, for example, the same foursome. It is typical for golf courses to group golfers into fours to play the course together.

[0055] In another embodiment, the system is also configured to rank the degree of difficulty of a golf course. The system may be implemented on a computer readable medium in communicative contact with a network and have a database to store data regarding users who input their scores obtained on the golf course. The system may be configured to receive scores resulting from rounds of golf played at golf courses. A user plays a round of golf at a particular golf course. Referring to Fig. 6, in steps 600 and 610 respectively, the system receives the identity of the golf course, and the score from the user.

[0056] In a preferred embodiment, the user inputs the individual respective numbers of eagles, birdies, pars, bogies, double bogies, and triple bogies, into the system. Therefore, the system does not need to know the par for the course. In a preferred embodiment, the system if configured to perform the following steps. In a step 620, the system may determine an overall average of Splashie scores received by the system for all rounds of golf played by the user. In a step 630, the system also determines the average Splashie score of the user for all rounds of golf played only at the golf course. In a step 650, the system compares the user's overall average and the user's average Splashie score for only rounds played by the user at the golf course scores. In a step 640, the system may repeat this for many other golfers who played on the golf course and determine an average difference from users' overall average and average for the golf course only. In a step 660,

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the system may be configured to assign a ranking to the golf course based on the comparison. In one method of ranking, if there are 1000 golf courses compared by the system, the most difficult course is assigned a ranking of 1000 and the easiest is assigned 1. Step 650 may be performed by utilizing the information obtained from step 640. For example, a golf course that is more difficult compared to other courses will have a higher percentage of users with average Splashie scores for the course that are lower than the users' overall average Splashie score for all courses. A golf course that is less difficult compared to other courses will have a lower percentage of users with average Splashie scores for the course that are higher than the users' overall average Splashie score for all courses.

[0057] In a further embodiment, when two or more users have the same Splashie score the system may assign different rankings to the users based on one or more methods. In one embodiment, the user having played more than 5 rounds is assigned a rank higher than a person having played less than 5 rounds. If there is a tie between users that have played more than 5 rounds then this rule cannot break the tie and another method is utilized (even if a user may have played 110 rounds and the other only 6 rounds).

[0058] In another embodiment, when two or more users have the same Splashie score, the user with the highest average Splashie score for the immediate previous four rounds of golf played determines the higher ranked user.

[0059] In another alternative embodiment, when two or more users have the same Splashie score, the system considers the trend over the immediately previous four rounds of golf played. The user that has been continually improving their score over the previous four rounds is assigned a higher rank. This method operates as follows: If the scores for the previous four rounds are a, b, c, d with d being the most recent round, the following number is computed: (a-b) + (b-c) + (c-d). The user with the highest number is assigned a higher rank.

[0060] In still another embodiment, the system may be configured to receive the scores for each hole played during each round of golf entered into the system by a user. For example, the system may be configured so that the user may specify either he obtained an eagle, birdie, par, bogie, double bogie or triple bogie for each of the 18 holes and specify which hole each score was earn on. When two or more users have the same Splashie score, the system may determine the user with the most bogeys immediately followed by a birdie over the immediately previous three rounds and assigns this user the higher rank. This method indicates a user who may be mentally

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strong while played under pressure. In another example, any bogie whether double triple etc. followed by a birdie counts in the determination of breaking the tie as specified above.

[0061] In a further embodiment, when two or more users have the same Splashie score, the system may determine the person having the longest uninterrupted streak of pars, birdies, and/or eagles without having any type of bogey, over the immediately previous four rounds. This method rewards consistent good play.

[0062] In yet another embodiment, when two or more users have the same Splashie score, the system may subtract points from the Splashie score for triple bogeys, double bogeys and bogeys.

[0063] In still another embodiment, when two or more users have the same Splashie score, the system may be configured to assign a higher rank to the user whose scores were verified by other users who on average have a higher Splashie score than the other user with the same Splashie score. Having users with higher average Splashie scores verify a first user's score would indicate that the first user plays with other users with high proficiency in golf.

[0064] In another embodiment, the Splashie score obtained for a particular round of golf played on a golf course is adjusted for the ranking of the golf course based on it difficulty. For example, assuming there are 1001 golf courses in the system that ranked by difficulty with the most difficult assigned a rank of 1001. The 501st golf course is the median and is assigned a weight factor of 1.0. In one example, weight factors are defined from 0.5 to 1.5, however any desired range can be used depending on how one wants to scale the adjusted Splashie score. 0.5 divided by 500 equals 0.001. The assignment of weight factors for each course is as follows. The 502nd ranked course is assigned 1.0 + 0.001 = 1.001. The 503rd is assigned 1.0 + 2 x (0.001) = 1.002. The 504th is assigned 1.0 + 3 x (0.001) = 1.003. Thus the 1001st ranked course will be assigned 1.0 + 500 x (0.001) = 1.5 and the 1st ranked course is assigned 1.0 – 500 x (0.001) = 0.5. Similarly, the 500th and 499th are assigned 1.0 – 1 x (0.001) = 0.999 and 1.0 – 2 x (0.001) = 0.998 respectively. In this example, a Splashie score adjusted for having obtained the score on the 750th ranked difficult golf course may be determine by (Splashie score) x [1.0 + 249 x (0.001)] = 1.249(Splashie Score).

[0065] While various embodiments of the present invention have been described above, it should be understood that they have been presented by way of example only, and not of limitation. Likewise, the various diagrams may depict an example architectural or other configuration for the

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invention, which is done to aid in understanding the features and functionality that can be included in the invention. The invention is not restricted to the illustrated example architectures or configurations, but the desired features can be implemented using a variety of alternative architectures and configurations. Indeed, it will be apparent to one of skill in the art how alternative functional, logical or physical partitioning and configurations can be implemented to implement the desired features of the present invention. Also, a multitude of different constituent module names other than those depicted herein can be applied to the various partitions. Additionally, with regard to flow diagrams, operational descriptions and method claims, the order in which the steps are presented herein shall not mandate that various embodiments be implemented to perform the recited functionality in the same order unless the context dictates otherwise.

[0066] Although the invention is described above in terms of various exemplary embodiments and implementations, it should be understood that the various features, aspects and functionality described in one or more of the individual embodiments are not limited in their applicability to the particular embodiment with which they are described, but instead can be applied, alone or in various combinations, to one or more of the other embodiments of the invention, whether or not such embodiments are described and whether or not such features are presented as being a part of a described embodiment. Thus the breadth and scope of the present invention should not be limited by any of the above-described exemplary embodiments.

[0067] Terms and phrases used in this document, and variations thereof, unless otherwise expressly stated, should be construed as open ended as opposed to limiting. As examples of the foregoing: the term "including" should be read as meaning "including, without limitation" or the like; the term "example" is used to provide exemplary instances of the item in discussion, not an exhaustive or limiting list thereof; the terms "a" or "an" should be read as meaning "at least one," "one or more" or the like; and adjectives such as "conventional," "traditional," "normal," "standard," "known" and terms of similar meaning should not be construed as limiting the item described to a given time period or to an item available as of a given time, but instead should be read to encompass conventional, traditional, normal, or standard technologies that may be available or known now or at any time in the future. Likewise, where this document refers to technologies that would be apparent or known to one of ordinary skill in the art, such technologies encompass those apparent or known to the skilled artisan now or at any time in the future.

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[0068] A group of items linked with the conjunction "and" should not be read as requiring that each and every one of those items be present in the grouping, but rather should be read as "and/or" unless expressly stated otherwise. Similarly, a group of items linked with the conjunction "or" should not be read as requiring mutual exclusivity among that group, but rather should also be read as "and/or" unless expressly stated otherwise. Furthermore, although items, elements or components of the invention may be described or claimed in the singular, the plural is contemplated to be within the scope thereof unless limitation to the singular is explicitly stated.

[0069] The presence of broadening words and phrases such as "one or more," "at least," "but not limited to" or other like phrases in some instances shall not be read to mean that the narrower case is intended or required in instances where such broadening phrases may be absent. The use of the term "module" does not imply that the components or functionality described or claimed as part of the module are all configured in a common package. Indeed, any or all of the various components of a module, whether control logic or other components, can be combined in a single package or separately maintained and can further be distributed across multiple locations.

[0070] Additionally, the various embodiments set forth herein are described in terms of exemplary block diagrams, flow charts and other illustrations. As will become apparent to one of ordinary skill in the art after reading this document, the illustrated embodiments and their various alternatives can be implemented without confinement to the illustrated examples. For example, block diagrams and their accompanying description should not be construed as mandating a particular architecture or configuration.

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Claims

I Claim:

1. A system for measuring the performance of participant in a game, wherein the game is comprised of a series of discreet trials wherein for each trial the participant receives a score selected from one of a finite set of discreet scores based on the participant's performance for each trial, the system implemented on a computer readable medium in communicative contact with a network and having a database, the system configured to:

receive over the network a set of counts corresponding to the numbers of each score from the discreet set received by the participant for each trial during the game;

compute a weighted score based on an assigned set of weight factors for each type of score in the discreet set and an entered set of counts of each score from the discreet set;

wherein the computed weighted score corresponds to the performance of a participant in a game.

2. The system for measuring the performance of a participant in a game of claim 1, wherein the game is golf and the trials comprise each hole played by the participant.

3. The system for measuring the performance of a participant in a game of claim 1, wherein the discreet set contains scores comprising an eagle, a birdie, a par, a bogie, a double bogie and a triple bogie.

4. The system for measuring the performance of a participant in a game of claim 1 wherein the weight factors are selected so that weight factor assigned to an eagle is greater than the weight factor assigned to a birdie and the weight factor assigned to a birdie is greater than the weight factor assigned to a par and the weight factor assigned to a par is greater than the weight factor assigned to a bogie and the weight factor assigned to a bogie is greater than the weight factor assigned to a double bogie and the weight factor assigned to a double bogie is greater than the weight factor assigned to a triple bogie.

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5. The system for measuring the performance of a participant in a game of claim 1 wherein an eagle score corresponds to two strokes or fewer for a hole and a triple bogie corresponds to three strokes or more received by the participant for a hole played.

6. The system for measuring the performance of a participant in a game of claim 1, wherein the system is configured to measure the performance of a plurality of participants by:

computing weighted scores for each participant;

storing the computed weighted scores associated with each participant in a ranking database; and

ranking the plurality of participants based on the computed weighted score associated with each participant.

7. The system for measuring the performance of a participant in a game of claim 6, wherein the system is configured to select a set of participants from the ranking database and store data representing the participants in a tournament qualifier database, wherein the participants in the tournament qualifier database are selected to compete in a game tournament for a prize.

8. The system for measuring the performance of a participant in a game of claim 6, wherein the system is configured to request a verification of the entered set of counts of each score from the discreet set from a second participant, wherein the system communicates the entered set to the second participant and the system is configured to query the second participant to either confirm the accuracy of the entered set or deny the accuracy of the entered set, wherein an entered set that has been confirmed by a second participant is a verified set, and wherein the system only stores data in the tournament qualifier database if it is based on verified sets.

9. The system for measuring the performance of a participant in a game of claim 6, wherein the ranking of the plurality of participants based on the computed weighted score of each participant comprises ranking only members of a particular group, the particular group is ranked based on any one of the following:

all participants of the same age in years;

all participants of the same skill level;

all participants of the same gender;

all participants who played on the same golf courses;

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all participants of the same postal zip code of residence;

all participants who share the same employer;

all participants of the same state of residence; or

all participants of the same of the same country of residences.

10. The system for measuring the performance of a participant in a game of claim 1, wherein the system is configured to output the computed score to a user on the network.

11. The system for measuring the performance of a participant in a game of claim 1, wherein the system is configured to request a verification of the entered set of counts of each score from the discreet set from a second participant, wherein the system communicates the entered set to the second participant and queries the second participant to either confirm the accuracy of the entered set or deny the accuracy of the entered set.

12. The system for measuring the performance of a participant in a game of claim 6, wherein the system is configured to:

determine a first average computed weighted score for each participant for all games played by participants who have obtained at least one computed weighted score from playing the game at a first location where the game is played;

determine a second average computed weighted score for each participant for all games played only at the first location by the participant; and

compare the first and second average computed weighted scores;

wherein if two or more participants have the same average computed weighted scores, the system is configured to assign different rankings to each of the two or more participants based on the comparison of the first and second average computed weighted scores.

13. A method for measuring the performance of a plurality golfers in a game of golf, wherein the game is comprised of 18 holes and for each hole the golfer receives a score based on the number of strokes executed to complete the hole, the method comprising:

receiving a set of scores for the 18 holes of golf played by a golfer; and

computing a weighted score based on an assigned set of weight factors for each type of score received by the golfer on the holes played;

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wherein the computed weighted score corresponds to the performance of a participant in the game;

14. The method for measuring the performance of a plurality golfers in a game of golf of claim 13, wherein all scores that correspond to completing a hole in two strokes below par or are treated identical to one another for computing the weighted score and all scores that correspond to completing a hole in three strokes above par or more are treated identically for computing the weighted score.

15. The method for measuring the performance of a plurality golfers in a game of golf of claim 13, wherein an eagle score corresponds to two strokes or fewer for a hole and a triple bogie corresponds to three strokes or more received by the participant for a hole played.

16. The method for measuring the performance of a plurality golfers in a game of golf of claim 13, wherein the weight factors are selected so that weight factor assigned to an eagle is greater than the weight factor assigned to a birdie and the weight factor assigned to a birdie is greater than the weight factor assigned to a par and the weight factor assigned to a par is greater than the weight factor assigned to a bogie and the weight factor assigned to a bogie is greater than the weight factor assigned to a double bogie and the weight factor assigned to a double bogie is greater than the weight factor assigned to a triple bogie.

17. The method for measuring the performance of a plurality golfers in a game of golf of claim 13, further comprising:

computing weighted scores for each golfer; and

ranking the plurality of golfers based on the computed weighted score associated with each golfer.

18. The method for measuring the performance of a plurality golfers in a game of golf of claim 17, further comprising, selecting a set of golfers having the highest rankings based on the computed weighted scores and entering the selected golfers into a golf tournament, wherein the golfers in the tournament compete in a golf tournament for a prize, the winner of the tournament being determined by the golfer with the highest computed weighted score for the tournament.

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19. The method for measuring the performance of a plurality golfers in a game of golf of claim 18, further comprising:

verifying the received set of scores for the 18 holes of golf played by the golfer, the verification comprising receiving a confirmation or a denial of the scores from a second golfer that played with the golfer on all 18 holes corresponding to the received scores; and

selecting only golfers having a received set of scores that have been verified to compete in the golf tournament.

20. The method for measuring the performance of a plurality golfers in a game of golf of claim 17, wherein ranking the plurality of golfers based on the computed weighted score of each golfer comprises ranking only members of a particular group, the particular group is ranked based on any one of the following:

all golfers of the same age in years;

all golfers of the same skill level;

all golfers of the same gender;

all golfers who played on the same golf courses;

all golfers of the same postal zip code of residence;

all golfers who share the same employer;

all golfers of the same state of residence; or

all golfers of the same country of residences.

21. The method for measuring the performance of a plurality golfers in a game of golf of claim 13, further comprising:

verifying the received set of scores for the 18 holes of golf played by the golfer, the verification comprising receiving a confirmation or a denial of the scores from a second golfer that played with the golfer on all 18 holes corresponding to the received scores.

22. A system for ranking the degree of difficulty of a golf course, the system implemented on a computer readable medium in communicative contact with a network and having a database, the system configured to:

receive scores resulting from rounds of golf played at golf courses;

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receive the identity of the golf course on which the game that produced the scores was played;

determine a first average of scores received by the system for all rounds of golf played by golfers that have obtained at least one score from a round of golf at the golf course;

determine a second average score for the golfers for all games played only at the golf course; and

compare the first and second average scores;

wherein the system is configured to assign a ranking to the golf course based on the comparison.

FanDuel Ex. 1002-0540

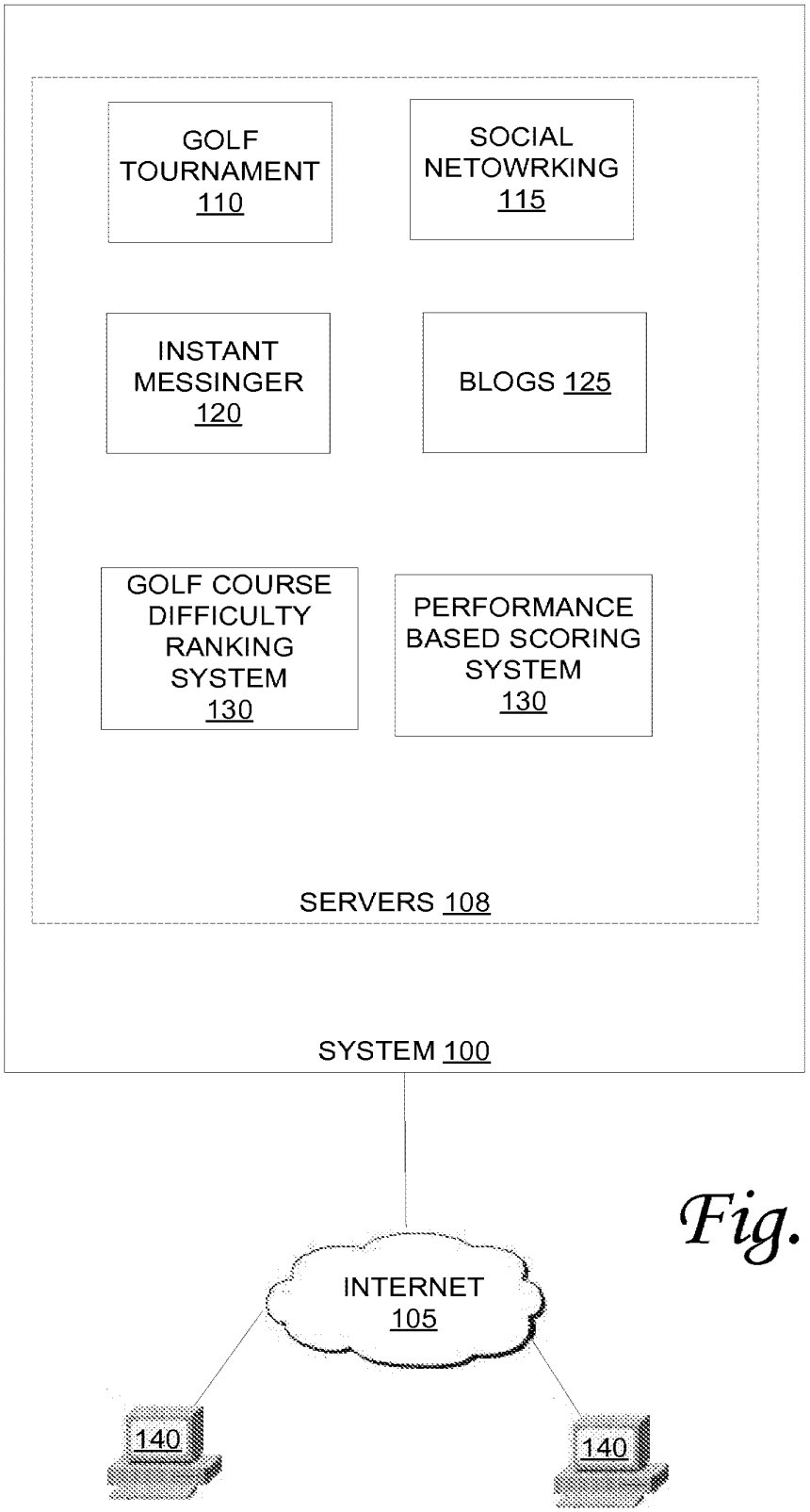


Fig. 1

FanDuel Ex. 1002-0541

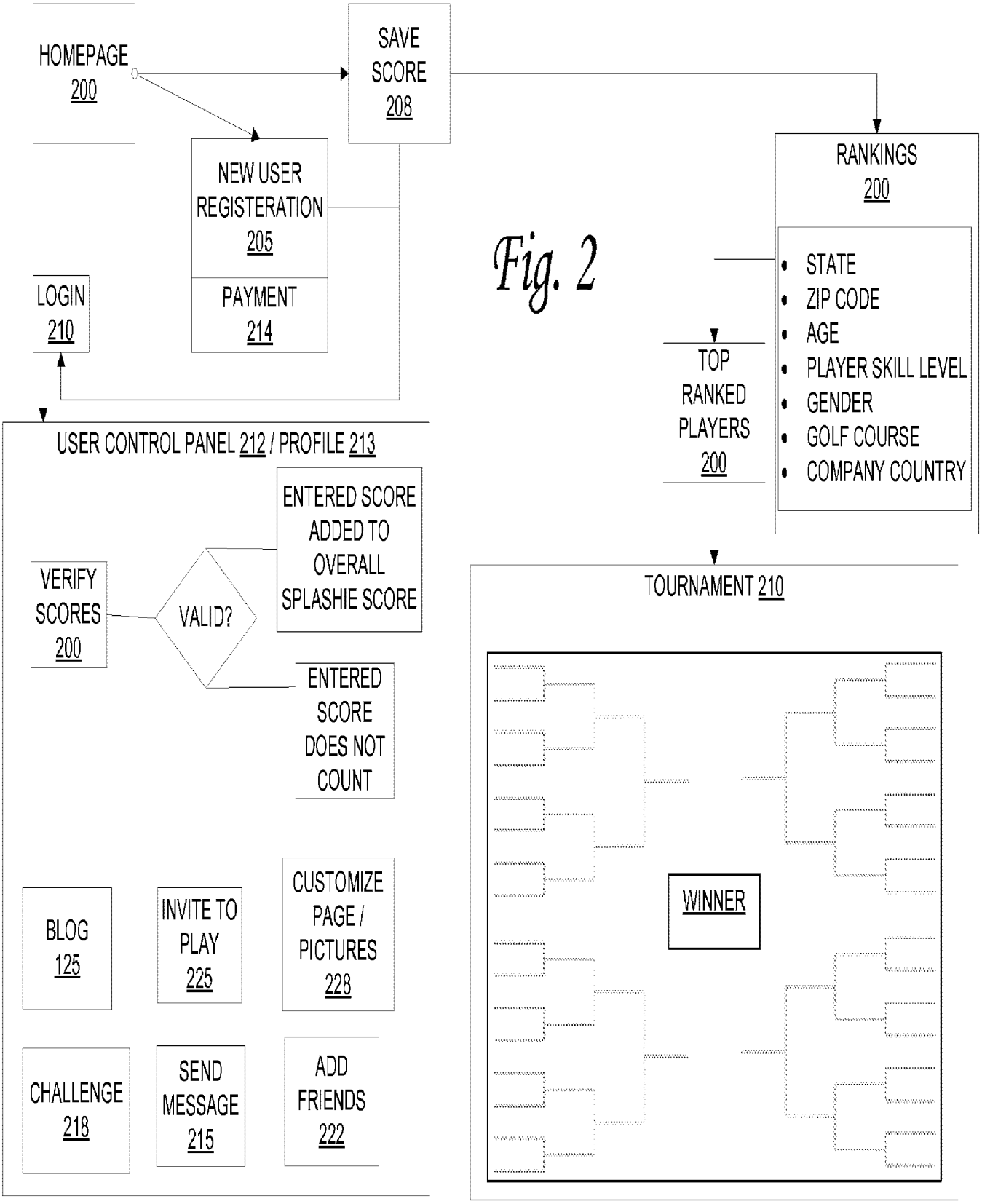
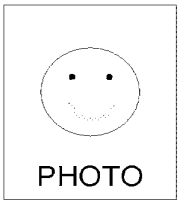


Fig. 2

FanDuel Ex. 1002-0542

NAME 310



MALE
HACKER
35 YEARS OLD
LOS ANGELES
CALIFORNIA

MY PICS 312

LAST LONGIN: 8/22/07

ONLINE NOW

315

SEND MESSAGE VERIFY SCORE

CHANLLENGE ADD TO FRIENDS

ADD TO LEAGUE CHAT

INVITE TO PLAY A ROUND

- ENTER SPLASHIE TOURNAMENT

302

SPLASHIE SCORES:

TOURNAMENTS:

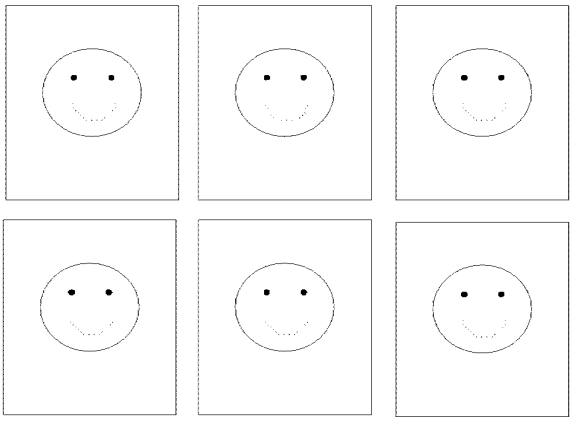
OVERALL	.436
RANK	3,567
2007 SPLASHIE	.436
LIFETIME SPLASHIE	.526
LAST 5 ROUNDS	.450

ABOUT ME: 305

BLOG 125

INTERESTS:

FRIENDS (132) 308



LEAGUES:

CALENDAR

AUGUST 2007

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11

Fig. 3

CONTROL PANEL 212 PROFILE PAGE 213

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Fig. 4

FanDuel Ex. 1002-0544

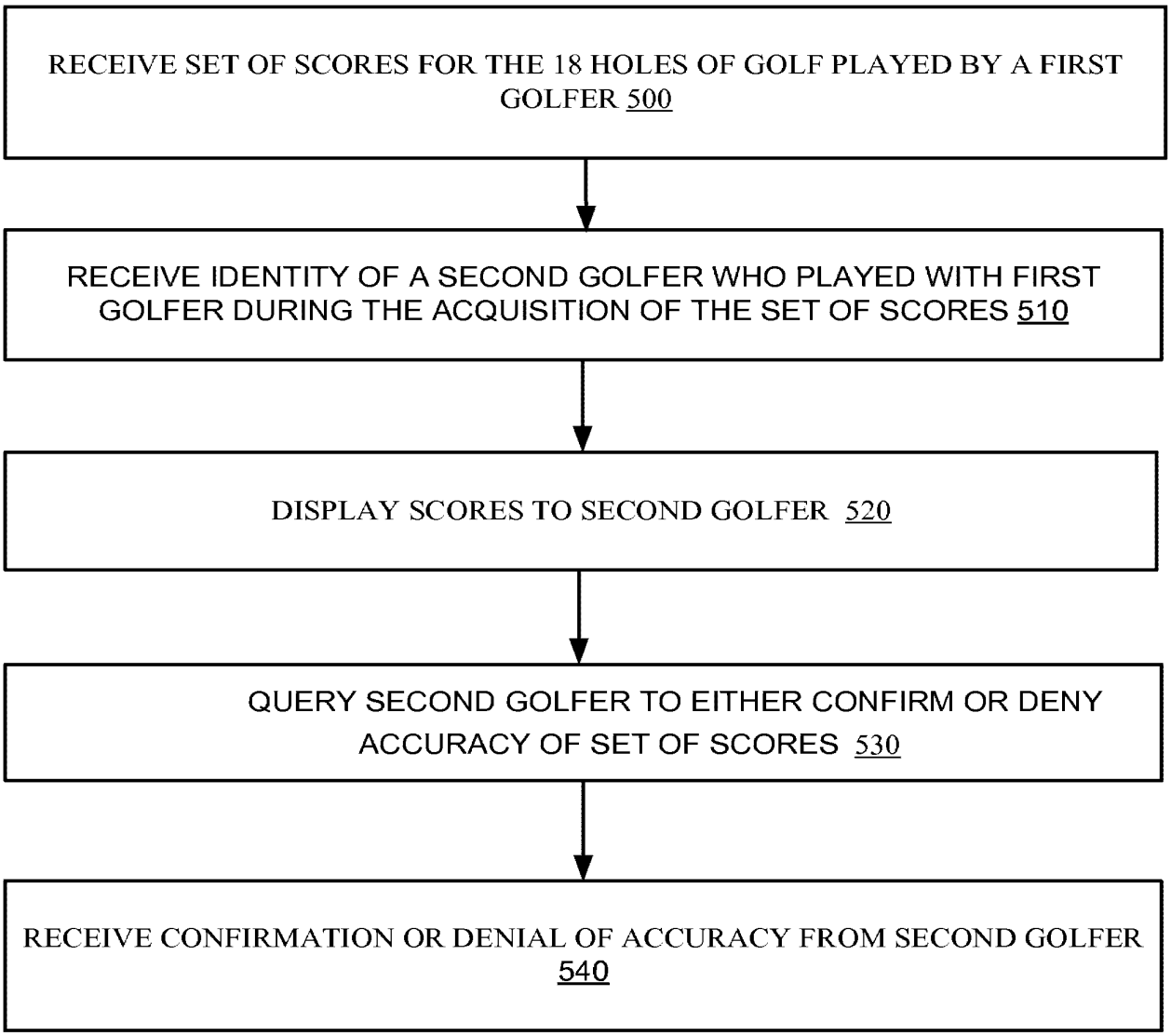


Fig. 5

FanDuel Ex. 1002-0545

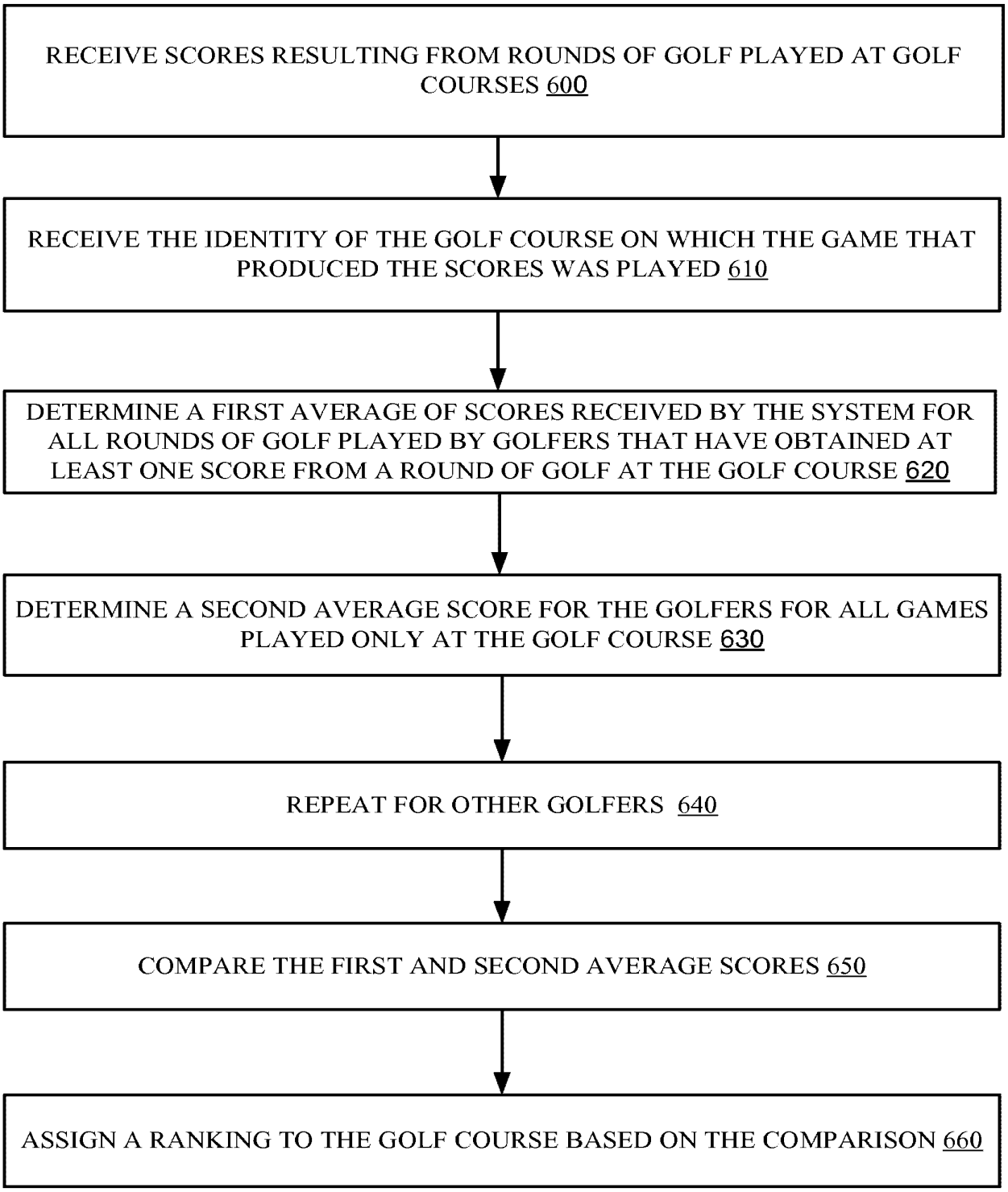


Fig. 6

FanDuel Ex. 1002-0546

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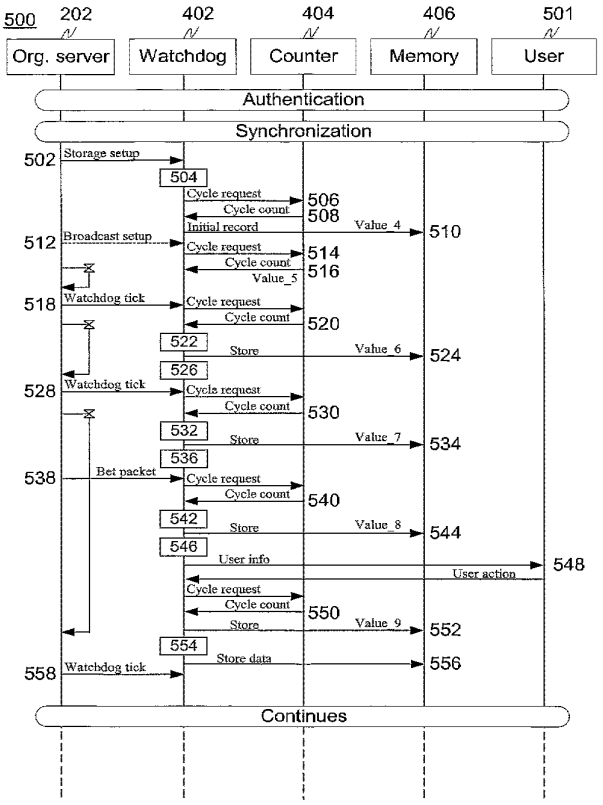
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[Continued on next page]

(54) Title: METHOD AND ARRANGEMENT FOR REAL-TIME BETTING WITH AN OFF-LINE TERMINAL



(57) Abstract: The invention relates generally to a method and arrangement for real-time betting with an off-line terminal, and especially to the technological field of keeping reliable time in the off-line terminal when handling, within a communications system comprising a distributed domain and a central domain, electronic records that contain predictions of the outcome of a certain incident. Within the distributed domain a multitude of electronic records that contain predictions of the outcome of the incident are generated and furnished with a cryptographically protected proof of a certain moment of the distributed domain's local time associated with the generation of the electronic record.

WO 2005/064506 A1

FanDuel Ex. 1002-0547

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Method and arrangement for real-time betting with an off-line terminal

TECHNICAL FIELD OF THE INVENTION

The invention relates generally to a method and arrangement for real-time betting with an off-line terminal. Especially the invention relates to the technological field of keeping reliable time in the off-line betting terminal.

BACKGROUND OF THE INVENTION

Betting can be generally defined as an activity where a number of participants try to predict the outcome of a certain well-defined incident, such as e.g. a sports event, an election or simply the arbitrary drawing of a small group of numbers or other symbols (in the latter case the terms "lotto" or "lottery" are more commonly used than "betting"). Typically placing a bet means putting down a certain sum of money or other commodity of value, so that those who succeeded in predicting the outcome of the incident in question get their investment back with a certain profit that is financed from the collected stakes of the unsuccessful participants. An important feature of betting is that all bets must be placed before a certain time instant after which it would be possible to know the result or anticipate it with an increased level of certainty.

In a manual betting system where all bets must be placed before an officer of the organiser of the game it is easy to take care of the timing aspects of betting. The organiser which accepts the bets closes at the moment after which no more bets are accepted, and opens again for paying the profits after the outcome of the incident is known. In electronic betting arrangements the situation is somewhat more complicated.

A feature common to typical known electronic betting systems is their relative slowness in receiving bets. Large betting systems must accept even tens of millions of bets concerning a single incident. Even when very fast communications and storage technology are used, there exists a limit for the rate at which the bets can be communicated and stored into the central database. This feature has limited the applicability of the whole principle of betting so that the incidents the results of

which are objects of betting are themselves rather large and long lasting, like a complete football game or a complete horse race.

A solution for above mentioned drawbacks is described for example in prior art document WO 02/27674, where electronic records that contain predictions of the outcome of a certain incident are handled within a communications system comprising a distributed domain and a central domain. Within the distributed domain there is generated, before the outcome of the incident is known, a multitude of electronic records that contain predictions of the outcome of the incident. The electronic records are conveyed from the distributed domain to the central domain. After the outcome of the incident is known, the central domain finds out which of the electronic records, if any, contain correct predictions of the outcome of the incident. Each of the electronic records is furnished, within the distributed domain, with a cryptographically protected proof of a certain moment of time associated with the generation of the electronic record. The central domain accepts only those of the electronic records conveyed thereto as valid for which the cryptographically protected proof of a certain moment of time associated with the generation of the electronic record shows that said certain moment of time was not later in time than a certain time limit.

In prior art methods the clock signal used for time-stamping bet records are generated either internally by the distributed domain or externally by another party. An exemplary prior art method is illustrated in figure 1, where clock signal, either internally or externally produced, is used for generating time-stamped bet records. In figure 1 a unidirectional algorithm is used to convert the actual contents of the bet and the clock signal into a bet record that is authenticated by encrypting it with a private key of the player placing the bet and encrypted with the public key of the organiser. As a part of the conversion a checksum is calculated and added into the bet record. The result is an authenticated, encrypted and time-stamped bet record that can only be decrypted with the private key of the organiser. The authentication based on the player's private key can only be reversed with the same player's public key.

There are, however, some drawbacks also in prior art solution mentioned above, namely, the integrity of the used clock signal. The internal clock signal may be fingered, and it is difficult to know within the central domain if the clock signal of distributed domain is fingered or not. Further, the externally produced clock signal may be stolen, caught or seized before reached on the distributed domain and re-sent a moment later to the distributed domain, for example. In addition the

externally produced clock signal may be fingered, especially if its protection can be cracked.

SUMMARY OF THE INVENTION

An object of the invention is to enable a secure offline real-time betting system. Specifically an object of the invention is to keep reliable time in a hostile environment, such as an off-line terminal, without communicating upstream, such as to a game organiser, during the game. An additional object of the invention is to store bet records reliably with cryptographic time-stamps in a hostile environment using reliable local time of the hostile environment to time-stamp the bet records without communicating upstream during a game.

The objects of the invention are achieved by using an off-line terminal for betting so that local time of the off-line terminal is synchronised at first corresponding to local time of an organiser by help of at least two of first separately broadcasted information packets, called beacon tick packet, received by the off-line terminal and values of a free running counter within the off-line terminal. In addition the object of the invention is achieved by using a second broadcasted information packets, called watchdog tick packet, comprising time information of a local time of the organiser, for verifying validity of local time of the off-line terminal. More specifically the objects of the invention are achieved by a method according to claim 1, a computer program product according to claims 14 and 15, a terminal according to claim 16, an organiser server according to claim 31, and an arrangement according to claim 34 and a circuit means according to claim 38. Further the additional object of the invention can be achieved according to additional features described in dependent claims.

The invention relates to a method for real-time betting, within a communications system comprising a distributed domain and central domain, by handling electronic records that contain predictions of the outcome of a certain incident, comprising the steps of:

- generating, within the distributed domain, a multitude of electronic records that contain predictions of the outcome of the incident, according to a players' inputs,

- furnishing, within the distributed domain, each of the electronic records with a cryptographically protected proof of a certain moment of a distributed domain time associated with the generation of the electronic record,

which is characterized in that the method further comprises the steps of:

- receiving, within the distributed domain, repetitive beacon tick packets and watchdog tick packets, comprising time information of a local time of the central domain at the moment the packet was sent,
- synchronising local time of the distributed domain, with time equated with the central domain time information received by the beacon tick packets, by help of values of a counter in the distributed domain and time information in received beacon tick packets, and
- verifying validity of local time of the distributed domain regarding to the central domain's local time by comparing local time of the distributed domain to time information relating to the local time of the central domain received by the watchdog tick packets.

The invention relates also to a computer program product directly loadable into the internal memory of a digital computer, which is characterised in that the computer program product comprises software code portions for performing the steps of the above method when said product is run on a computer.

Further the invention relates to a computer program product stored on a computer usable medium, which characterised in that the computer program product comprises computer readable program means for causing a computer to perform the steps of the above method when said product is run on a computer.

Further the invention relates to a terminal for real-time betting, within a communications system comprising a distributed domain and a central domain, where the terminal belongs to the distributed domain, by handling electronic records that contain predictions of the outcome of a certain incident, is arranged to:

- generate, within the distributed domain, an electronic record that contains a prediction of the outcome of the incident, according to a player's input,
- furnish, within the distributed domain, the electronic record with a cryptographically protected proof of a certain moment of a distributed domain time associated with the generation of the electronic record,

which is characterized in that the terminal is further arranged to:

- receive, within the distributed domain, repetitive beacon tick packets and watchdog tick packets, comprising time information of a local time of the central domain at the moment the packet was sent,

- synchronise a local time of the distributed domain, with time equated with the central domain time information received by the beacon tick packets, by help of values of a counter in the distributed domain and time information in received beacon tick packets, and
- verify validity of local time of the distributed domain regarding to the central domain's local time by comparing local time of the distributed domain to time information relating to the local time of the central domain received by the watchdog tick packets.

Further the invention relates also to an organiser server for real-time betting, within a communications system comprising a distributed domain and a central domain, where the organiser server belongs to the central domain, by handling electronic records that contain predictions of the outcome of a certain incident, is arranged to:

- receive from the distributed domain a multitude of electronic records that contain predictions of the outcome of the incident and,
- process for finding out, after the outcome of the incident is known, which of the electronic records, if any, contain correct predictions of the outcome of the incident,

which is characterized in that the organiser server is further arranged to:

- send repetitive beacon tick packets and watchdog tick packets, comprising time information of a local time of the central domain at the moment the packet was sent, to the distributed domain, in order that within the distributed domain a local time of the distributed domain is synchronised with time equated with the central domain time information received by the beacon tick packets, by help of values of a counter in the distributed domain and time information in received beacon tick packets, and verify validity of local time of the distributed domain regarding to the central domain's local time by comparing local time of the distributed domain to time information relating to the local time of the central domain received by the watchdog tick packets.

Further the invention relates to an arrangement for real-time betting, comprising a distributed domain and a central domain, by handling electronic records that contain predictions of the outcome of a certain incident, is arranged to:

- generate, within the distributed domain, a multitude of electronic records that contain predictions of the outcome of the incident, according to a players' inputs,

- furnish, within the distributed domain, each of the electronic records with a cryptographically protected proof of a certain moment of a distributed domain time associated with the generation of the electronic record,

which is characterized in that the arrangement is further arranged to:

- receive, within the distributed domain, repetitive beacon tick packets and watchdog tick packets, comprising time information of a local time of the central domain at the moment the packet was sent,
- synchronise a local time of the distributed domain, with time equated with the central domain time information received by the beacon tick packets, by help of values of a counter in the distributed domain and time information in received beacon tick packets, and
- verify validity of local time of the distributed domain regarding to the central domain's local time by comparing local time of the distributed domain to time information relating to the local time of the central domain received by the watchdog tick packets.

Furthermore the invention relates to a circuit means for real-time betting, within a communications system comprising a distributed domain and a central domain, where the circuit means belongs to the distributed domain, by handling electronic records that contain predictions of the outcome of a certain incident, is arranged to:

- generate, within the distributed domain, an electronic record that contains a prediction of the outcome of the incident, according to a player's input,
- furnish, within the distributed domain, the electronic record with a cryptographically protected proof of a certain moment of a distributed domain time associated with the generation of the electronic record,

which is characterized in that the circuit means is further arranged to:

- receive, within the distributed domain, repetitive beacon tick packets and watchdog tick packets, comprising time information of a local time of the central domain at the moment the packet was sent,
- synchronise a local time of the distributed domain, with time equated with the central domain time information received by the beacon tick packets, by help of values of a counter in the distributed domain and time information in received beacon tick packets, and
- verify validity of local time of the distributed domain regarding to the central domain's local time by comparing local time of the distributed domain to time information relating to the local time of the central domain received by the watchdog tick packets.

The following notions are used in this application:

"Beacon tick" is protected information packet broadcasted to a distribution domain advantageously regularly, comprising for example time information, such as delay information of next coming beacon tick and central domain (organiser's server) local time, or more precisely central domain's (organiser's server) time-stamp of a moment the beacon tick was sent from the central domain. The delay information is, however, optional, especially in a case, where beacon tick packets are broadcasted by constant time interval. Further the beacon tick comprises security parameters, digital signature and possible message authentication code. Beacon ticks received by the distributed domain are used for synchronising local time of the distributed domain by help of a free running counter within the distributed domain. Beacon tick packets may be broadcasted from the central domain, or from another reliably and authorized party, such as Digital Audio Broadcasting transmitter arrangement or Digital Video Broadcasting transmitter arrangement. The beacon tick packet broadcasting process is typically of point-to-multipoint type.

"Bet end packet" is information packet comprising information data regarding a betting incident, game data, such as targets, rates and options, time information (clock time-stamp of a moment the bet end packet was sent from the central domain), security parameters and authentication code, for example. Especially a player is announced with the bet end packet that a certain individual betting incident has ended and the players are not allowed to place bets longer. Alternatively the bet end packet may comprise an ending time, which means the moment after which the placing of bets is no longer possible. The bet end packet broadcasting process is typically of point-to-multipoint type.

"Bet start packet" is information packet comprising data regarding a betting incident, game data, such as targets, rates and options, time information (clock time-stamp of a moment the bet start packet was sent from the central domain), security parameters and authentication code. Especially a player is announced with the bet start packet that a certain individual betting incident has begun and the players may start placing bets. Alternatively the bet start packet may comprise a starting time, which means the moment after which the placing of bets is allowed. The bet start packet broadcasting process is typically of point-to-multipoint type.

"Broadcaster" can be considered as a network means acting as a channel of information exchange between a distributed domain or a terminal and a central domain or an organiser (technically organiser's server). The broadcaster is, for

example, a Digital Audio Broadcasting transmitter or Digital Video Broadcasting transmitter arrangement. According to an embodiment of the invention the broadcaster may also act as a broadcaster of beacon tick packets, but this is, however, an optional feature of the invention. In addition, according to another embodiment of the invention the broadcaster may be a trusted party which is well aware of local time of the central domain and the broadcaster can time-stamp data packets it broadcasts with local time of the central domain, but again the trusted party feature is an optional feature of the invention and it is not required according to the best mode of the invention.

"Central domain" is separated domain from a distributed domain, and the central domain may be considered as a reliable environment. The central domain's local time is legal time in the betting environment according to the invention. An organiser and organiser's server, for example, belong to the central domain.

"Distributed domain" is separated environment from a central domain, and the distributed domain may be considered as a hostile environment. Players and terminals belong to the distributed domain.

"Organiser" maintains games, i.e. controls an opening and closing of bets, collects the bets, calculates profits according to the outcome of the incident which was the object of betting, and arranges the distribution of stakes, for example by updating accounts of players, so that the winning players can collect their profits and the losing players lose their stakes. Organiser may be imagined technically as a server within the central domain, which is at least partly implemented by a software means, and thereby a term of organiser server is also used in this document.

"Terminal" or an off-line terminal is a device belonging to a distributed domain, by which players can take part in a betting process, such as receive bet start/end packets and send their bets to a central domain. Off-line terminal (or betting) means that the off-line terminal can take place at any time before or after the closing time even without two-way connection during the game. Here the closing time is the moment, when the organiser closes the betting. This could be for example a moment after which the outcome of the incident is either known or possible to anticipate with an increased level of certainty.

"Time" relating to local time of a domain (either central domain, organiser's server, and/or distributed domain or terminal), means in this document an electric signal

relating to local time, which can be used for time-stamping of information packets, such as beacon tick, watchdog tick, bet start/end packets, bet records, and results.

"Watchdog" is an arrangement in a terminal belonging to a distributed domain, which is liable for legally operation of the terminal. Watchdog is most advantageously implemented by a software means, but according to an embodiment of the invention it can be implemented also, at least partly, by a hardware means. The watchdog also requires according to an embodiment of the invention a new cryptographic key or suchlike data packet to be supplied to it according to a predefined time schedule, so that a missing or wrong key or other data packet interrupts the operation of the watchdog, which in turn makes it impossible to compose, time-stamp and/or transmit any more bet records. This is what it meant by the watchdog: if it is not functioning properly, the whole betting application or at least an essential part of it must fail in the terminal arrangement. The keys or suchlike data packets to the watchdog come most advantageously through transmissions from the network; they can come for example from the organiser's server but this it not a requirement of the invention.

"Watchdog tick" is protected information packet broadcasted to a distributed domain, comprising at least central domain's (organiser's server) local time (or more precisely central domain's (organiser's server) time-stamp of a moment the watchdog tick was sent from the central domain). According to an advantageous embodiment of the invention the watchdog tick packets are broadcasted by constant time interval. However, it is optional, that the watchdog tick packets are broadcasted repetitive and by non-constant time interval, whereupon it is advantageous that the watchdog tick packets comprise also information of delay to the next watchdog tick to be broadcasted to the distributed domain. Further the watchdog tick packets may comprise security parameters, such as watchdog key updates, digital signatures and message authentication code, and also a field telling whether the game is just going, just beginning or closed, and whether the player may join the game. Watchdog tick may comprise also information of permissible delay or time interval during which the next watchdog tick must be received to be accepted. Watchdog ticks are used mainly for verifying validity of local time of the distributed domain, and they are broadcasted most advantageously from the central domain.

The electronic betting environment according to an exemplary embodiment of the present invention comprises a distributed domain, central domain, and a network acting as a channel of information exchange between the distributed domain or

terminals therein, and the central domain or an organiser and server means therein. Actually the "network" concept reaches both to the distributed domain and to the central domain, because each terminal that is used for betting constitutes a terminal node in the network, and the system of the organiser constitutes a central node in the network. Due to the large number of terminals and the small number of organiser's system nodes the network resembles a tree-like structure where the root of the tree is at the organiser's system node(s) and numerous branches are directed therefrom towards the players' terminals. Further, the electronic betting environment comprises also a broadcaster, which maintains the network and especially information traffic in the network, and broadcasts for example bet start/end packets and watchdog tick packets from the central domain to the terminals. Moreover the broadcaster broadcasts beacon tick packets to the terminals of the distributed domain.

According to an exemplary embodiment of the present invention information traffic between the central domain and terminals is encrypted. Encryption is implemented for example using disposable keys by the central and distributed domain. The central domain may at the beginning, when the player and/or the used terminal have been authenticated, deliver initial key material to the terminal via two-way network link or alternatively by sending a session start packet via the broadcaster, where the session start packet is individualised to a certain terminal. After this the terminal may encrypt data, such as bet records, to be stored in a memory means of the terminal or to be delivered to the central domain via the network. The central domain typically sends new key update in every information packet broadcasted to the terminal, and the used or outdated keys are deleted. It is also typical, but not required, to the present invention that when receiving, sending or storing information the terminal chains the used key and data or data comprising time information relating to the event, encrypts data with chained key and data or data comprising time information and stores encrypted data to its memory means for later collection or other use.

When the terminal receives the bet start packet after the session start packet, it shows the content of the bet packet to the player to place his/her bet. The bet start packet typically comprises identification data of the incident, game data, time information, security parameters, and message authentication code. An electronic record is then generated from the player's input (bet) and identification information (ID) relating to the players' input (bet) and furnished with a cryptographically protected proof of a certain moment of terminal time associated with the generation

of the electronic record. The used time is a local time of the terminal. The information relating to local time of the terminal is advantageously chained and stored with the data of an event, for example, when receiving initial key materials, watchdog tick packets and bet start and end packets.

According to an exemplary embodiment of the present invention local time of the terminal used in the generation of the electronic bets is kept reliable and in time partly by externally generated first and second kinds of data packets broadcasted to the terminal. Before betting, the clock signal of the terminal is synchronised with time equated with the central domain's local time by broadcasting first kind of data packets, called beacon tick packets, to the terminal to use beacon tick packets for synchronising process, which is clarified next in more details.

The terminal of the distributed domain comprises also a (at least one) free running counter, advantageously an independent free running counter, whereupon when receiving beacon tick packets broadcasted by a predetermined time interval, the terminal reads in the synchronising process a value of the free running counter at a moment of receiving beacon ticks. After this the terminal sends a request to the central domain to send a response to the terminal to indicate accurate central domain's local time at the moment of receiving the request and at the moment of sending the response, and creates a conversion (or in other words, mapping) factor proportional to the interval of the received beacon ticks and to the values of the free running counter. Also a local clock of the terminal is initialised. When the terminal receives the response from the central domain and read a value of the free running counter at a moment of receiving the response, the terminal constructs a clock offset by help of the mapping factor and values of the free running counter and central domain time information received in the response, and adjusts the terminal's local time essentially to time equated with the central domain's local time by help of the constructed clock offset.

The terminal is also arranged to receive second kind of data packets called watchdog ticks to use them to verify validity of the terminal's local time regarding the central domain's local time by comparing local time of the terminal to time information of the central domain received by the watchdog tick packet. Watchdog tick packets may also comprise delay information of the next coming watchdog tick packet, and delay of next coming watchdog tick packet is verified at the moment of receiving it whether it is received at right time. If watchdog tick packet is not received at right time, betting process may be stopped in the terminal and no more, or even none of bets placed in the terminal are allowed. Alternatively one or more

missed watchdog tick packets may be accepted and the terminal local time may be tried to synchronize, but if a certain numbers of watchdog tick packet is missed, the betting process is stopped in the terminal and no more, or even none of bets placed in the terminal are allowed. Also the player and organiser may be alerted, and information of the (alert) event stored.

It should be noted that the synchronising process is typically continuous process in the background being invisible to the player, whereupon the beacon ticks are also broadcasted continuously to the terminal. According to an advantageous embodiment of the invention the betting environment may be divided to four layers in virtually, where the first layer associates with the central domain and its events and features. One of the most fundamentally feature of the central domain (first layer) is that central domain local time is the most legal time of the whole betting environment. The second layer associates with a user interface in the terminal (distributed domain), such as provides a user display time, which by nature is insecure. The third layer associates with a secured local time within the terminal. Further the fourth layer associates with the most protected event of the terminal, such as independent free running counter(s). The terminal advantageously comprises at least two counters, where the first counter is associated with layer four events only (for internal log of events), and the second counter for time service of layer three. The rates of the counters are independent from each other, but it is required that the rates are essentially constant. The nature of layers of the betting environment is discussed in greater detail with the drawings and descriptions of the drawings.

Before the betting process, a bet record storage, which typically locates in a memory means of the terminal in the distributed domain, is initialised. The bet record storage may be initialised for example with initial data comprising value of the free running counter(s) of the terminal at the moment of initialisation, mapping factor proportional to the interval of the received beacon ticks and to the values of the free running counter generated in the synchronisation process, and clock offset. The aim of the initialisation of the bet record storage is to generate the bet record storage comprising starting values for chaining the next records.

The used broadcast parameters are also conveyed between the terminal and central domain at least before the betting process starts. The broadcast parameters may be changed advantageously also during a game, whereupon the new broadcast parameters are conveyed to the terminal, for example within bet packets, beacon tick and watchdog tick packets. The broadcast parameters may inform the terminal

of used source from where the beacon tick packets are broadcasted (organiser's server or broadcaster, for example), and used frequency, channel, and bit pattern in a frame.

BRIEF DESCRIPTION OF THE DRAWINGS

Next the invention will be described in greater detail with reference to exemplary embodiments in accordance with the accompanying drawings, in which

Figure 1 illustrates an art method for real-time betting with an off-line terminal,

Figure 2 illustrates an exemplary communication environment for real-time betting between a central domain and an off-line terminal according to an advantageous embodiment of the present invention,

Figure 3 illustrates an exemplary authentication process of a terminal according to an advantageous embodiment of the present invention,

Figure 4 illustrates an exemplary synchronisation process of a terminal time according to an advantageous embodiment of the present invention,

Figure 5 illustrates an exemplary real-time betting process with a terminal according to an advantageous embodiment of the present invention,

Figure 6 illustrates an exemplary diagram of use of a free running counter of a terminal according to an advantageous embodiment of the present invention,

Figure 7 illustrates another exemplary diagram of use of a free running counter of a terminal according to an advantageous embodiment of the present invention,

Figure 8 illustrates an exemplary timing process when receiving data packets within a terminal according to an advantageous embodiment of the present invention,

Figure 9 illustrates an exemplary chart of timing process when receiving data packets within a terminal according to an advantageous embodiment of the present invention,

Figure 10 illustrates an exemplary description of a layer nature of a betting environment according to an advantageous embodiment of the present invention,

Figure 11 illustrates exemplary components in a betting environment according to an advantageous embodiment of the present invention,

Figure 12 illustrates an exemplary architecture of a terminal according to an advantageous embodiment of the present invention, and

Figure 13 illustrates an exemplary architecture of a circuit means according to an advantageous embodiment of the present invention.

DETAILED DESCRIPTION

Figure 1 has already been discussed above in connection with the description of the prior art.

Figure 2 illustrates as a chart a simplified exemplary communication method 200 and environment for real-time betting between an organiser or a central domain 202 and an off-line terminal belonging to a distributed domain 204 through a network advantageously administered or implemented by a broadcaster 206 according to an advantageous embodiment of the present invention. The communication between the parties in figure 2 is discussed in more details in connection with figures 3, 4 and 5.

Before betting processes the organiser at the central domain 202 may preliminarily broadcast, for example, announcements relating to games to be played to the terminals 204 at step 208, whereupon players can browse and choose the games to which they want to take part by registering themselves in the betting system of the organiser. Alternatively the player may send a request via two-way network to the central domain at step 208 to get a game list, for example. The registering is advantageously implemented with the terminal by sending at least identification data of the player and/or terminal and the games to be played. At the step 208 both the player (terminal) and the organiser must authenticate themselves to the other party so that secure communications connections may be set up therebetween later. Authentication means in this context that the true identity of both the original transmitter and the final receiver are known. In connection with step 208 the

organiser may also set up a user account for the player. Financial transactions, such as crediting and debiting, between the organiser and the player are however not discussed in this document in more details. Further the time of the local of the terminal is synchronised at step 208 according to an exemplary embodiment of the invention.

The player may also send a request at step 208 to join a game. Advantageously the watchdog tick packet may comprise information, whether the game is just going, beginning, or closed and whether is it possible to join still the game.

At step 210 the organiser may announce the next occasion of a betting game or a number of betting games by broadcasting a session start packet to the terminal. The session start packet, such as also the previously discussed announcement, is a broadcast message of point-to-multipoint type, so basically it can be made either as a general packet broadcasting in the packet-switched network or through the digital broadcasting network. The session start packet of step 210 comprises general information regarding the oncoming (number of) betting game(s), such as event identification information. In addition the session start packet comprises also time information of local time of the organiser (central domain), used security parameters and authentication code. The local time of the terminal is synchronised at step 212 by help of information of the received beacon tick packet.

The beacon tick packets used for synchronising local time of the terminal and keeping it in time during the betting game can be broadcasted solely by the authorized broadcaster (solid line), which is aware of exact time of the organiser (central domain), or alternatively the organiser may broadcast the beacon ticks (dashed line) to the terminal(s) over the broadcaster. The synchronising process is explained in more detail later in this document.

When the player has registered himself to taking part to betting, a bet start packet is broadcasted at step 214 to player's terminal. The bet start packet comprises information regarding the betting incident, game data, such as targets, rates and options, timing information, security parameters and authentication code. Especially the player is announced with the bet start packet that a certain individual betting incident has begun and the players may start placing bets. Alternatively the bet start packet may comprise a starting time, which means the moment after which the placing of bets is allowed. The bet start packet broadcasting process is again of point-to-multipoint type.

After receiving the bet start packet the terminal displays its content to the player so that the player can place his bet at step 216, whereupon the terminal (within the distributed domain) generates an electronic record, that contain predictions of the outcome of the incident (player's bet), and where the electronic record is time-stamped or more precisely furnished with a cryptographically protected proof of a certain moment of the terminal (distributed domain) time associated with the generation of the electronic record. The cryptographically protected proof of a certain moment is advantageously electric clock signal representing local time of the terminal. Alternatively, according to another advantageous method of the present invention, the electronic record is furnished ("time-stamped") with a cryptographically protected proof of value of a free running counter(s) of the terminal at the certain moment associated with the generation of the electronic record, where the value used to "time-stamping" are unambiguously connectable to the terminal local time synchronised with the organiser's local time.

At some later time the incident the outcome of which was the object of betting is over, and the outcome becomes known, which means that it is not reasonable to allow players to place bets anymore. In practise the organiser closes betting before the outcome becomes known. The moment after which it must be impossible to place valid bets is presented by dashed line 218 as the actual closing time. For the sake of example it is shown also the attempted placing of a bet at step 220, which is after the actual closing time. The organiser broadcasts an announcement of the end of betting at step 222 by a bet end packet. However, the concept of guard period is applied, so the moment of transmitting the message of step 222 is not decisive: the time for placing valid bets ended at moment 218. The invention does not require a guard period to be used, and the invention allows the guard period to have even a different sign than that shown in figure 2. The latter means that the time for placing valid bets may even continue after the delivery of the message of step 222, so that the message of closing time comes first and the actual closing time only thereafter.

The reception at the player's terminal of the message that indicates that no more bets are allowed should immediately disable the terminal arrangement from generating any more such bet records related to the closed betting game that could under any conditions be interpreted as having been validly time-stamped. This should happen regardless of the reading or even availability of a local real time clock signal in the terminal at the moment of receiving the message.

After the bet end packet an incident result packet, comprising for example identification data of the incident, result, time information, security parameters and

message authentication code, is broadcasted at step 224 to the terminal. The incident result packet is typically encrypted, whereupon the outcome is calculated in the terminal at step 226 and shown to the player. Betting can be continued furthermore broadcasting new bet start packets to player's terminal, such as illustrated at step 214, until the organiser sends a session end packet at step 228 to the terminal(s), whereupon the game session will be closed. The session end packet typically comprises information of event identification, timing information, security parameters, and message authentication code. Again the time for placing valid bets (session) may even continue after the delivery of the message of step 228, so that the message of closing time of the session comes first and the actual closing time only thereafter.

According to the principle of off-line electronic betting the terminal of the invention does not need to transmit the time-stamped bet record to the organiser immediately (although the invention does not prevent him/her from doing so), but the time-stamped bet records can be stored in a bet record storage of the terminal and transmitted or collected afterwards, as at step 230 in figure 2. After the time-stamped bet records has been collected, the organiser checks all received, time-stamped bet records to make sure that it has received complete reports from all those terminals that were registered to the game earlier at step 208. If the deadline expires without a complete report having been received from a certain player, the organiser may freeze the user account of that player and prevent the player from accessing the betting system again. The bet placed at step 220 is rejected at the latest at step 232 when it's time stamp is checked, because it has been placed after the organiser has closed betting at step 218. Alternatively the terminal may already reject the bet placed at step 220 before bet record collection. At step 232 the player's accounts are also updated. At the end of the betting session final results are changed between the organiser and terminal at step 234, and final report is shown to the player with the terminal at step 236.

It should be noticed from figure 2 that during the game (between session start and end events) the information traffic between the central domain and the terminal is only one-way and especially from central domain to the terminal being characteristic to the present invention.

Figure 3 illustrates an exemplary authentication process 300 of a terminal according to an advantageous embodiment of the present invention. At first a watchdog at the player's terminal at step 302 requests player to input PIN number as a response to the watchdog at step 304 to activate the watchdog for authentication and betting

process. If PIN was valid (PIN input by the player is compared to the valid PIN stored advantageously in the memory means of the terminal) the watchdog informs the player about the success response at step 306, and at step 308 sends a connect request comprising at least terminal identification data to the central domain (more specifically to the organiser's server in the central domain) for authentication process. At step 310 the organiser sends an authentication request to the terminal comprising challenge, after which the watchdog at the terminal computes a response to the challenge at step 312 and sends it to the organiser at step 314. The organiser verifies the response at step 316, and if the response is valid, computes a response at step 318 and sends it to the terminal 320, after which the watchdog at the terminal verifies the response at step 322. At step 324 both the watchdog at the terminal and the organiser generate keys, after which the communication is encrypted and MACced (Message Authentication Code computation).

The player authentication request is sent from the central domain to the terminal and again to the player at step 326, to which the player responds at step 328 by a response comprising his/her username and password, for example. The watchdog at the terminal computes a final response to the request and sends it to the organiser at step 330, which verifies the response at step 332 and grants access at step 334, if the response is valid.

This is an exemplary process of the authentication of the terminal, organiser and player, but it can be implemented also using other authentication process known by a person skilled in the art. However, it is essential feature of the invention that the player and/or the terminal are authenticated somehow.

Figure 4 illustrates an exemplary synchronisation process 400 of the terminal time according to an advantageous embodiment of the present invention, where the terminal comprises a watchdog 402, free running counter 404 and memory means 406. At first in the synchronisation process 400 the organiser at the central domain 202 may send a broadcast setup information packet to the watchdog 402 at step 512, but this is, however, optional step in the synchronisation process and may be transacted also after the synchronisation process, which is discussed in more detail in connection with figure 5.

The organiser at the central domain 202 (or alternatively the broadcaster) starts to send beacon tick packets comprising timing information, security parameters and message authentication code at step 408 to the terminal(s), where the watchdog at the moment of receiving the beacon tick packet sends cycle request to the counter

404 to ask value of the counter at the moment, and reads time information, for example, of the next coming beacon tick packet (tick_interval, in millisecond, for example). Beacon tick packet comprises typically also time information of the central domain's local time, preferably at the moment when the beacon tick packet was sent. At step 410 the counter responds by sending counter value (value_0) at the moment, whereupon at next the watchdog 402 stores identification data of the received beacon tick packet with counter value to the memory means 406 at step 412.

At the same time at step 414 the organiser at the central domain 202 (or alternatively the broadcaster) waits a predetermined time interval (announced within the previous beacon tick packet) and after the time interval sends a second beacon tick packet at step 416 to the terminal, whereupon the watchdog 402 at the moment of receiving the second beacon tick packet sends cycle request to the counter 404 to ask value of the counter at the moment, and reads timing information, for example, of the next coming beacon tick packet (tick_interval). At step 418 the counter responds by sending counter value (value_1) at the moment, whereupon at next the watchdog 402 stores identification data of the received beacon tick packet with counter value to the memory means 406 at step 420.

Next at step 422 the watchdog computes a conversion (mapping) factor by dividing tick interval (time interval between the first and second received beacon tick packets in milliseconds, for example) by the difference of counter values at the moments of receiving the first and second beacon tick packets (value_1 – value_0), which is illustrated in a formula (1). The organiser at the central domain is also informed of counter values by sending counter values to it (value_0 and value_1) at step 424. Further the watchdog initialises the local clock of the terminal at step 426 (value of the local clock right after initialisation is denoted by t_0 from now on). The value (t_0) of local clock after initialisation may be arbitrary. Now it should be noticed that the counter is independent free running counter and it's values changes all the time depending on the rate of the counter (for example hundreds or thousands times in second). In addition local time of the terminal is updated with help of counter values, received beacon tick packets and mapping factor only when necessary.

$$map := \frac{tic\_interval}{value\_1 - value\_0} \quad (1)$$

Right after initialisation the watchdog requests new counter value from the counter at step 428, and the counter responds at step 430 by sending counter value (value_2), whereupon the watchdog sends to the organiser's server a request at step 432 to ask central domain's local time at the moment when the organiser gets the request and at the moment when the organiser sends a response to the request. When the organiser receives the request it denotes time at the moment of receiving by t_1 (receiving time of the request) and when transmitting the response denotes time at the moment of transmitting by t_2 at step 434. The organiser sends t_1 and t_2 in the response to the terminal at step 436, where the watchdog immediately requests counter value of the counter at the moment of receiving the response. The counter replies by sending a value of the counter at the moment (value_3) at step 438 and the watchdog denotes the moment of receiving the response (value_3) by t_3 being terminal's local time according to the terminal's clock.

Now at step 440 the watchdog can synchronise the terminal's local time by the following exemplary steps (illustrated by a formula (2)): at first by adding to its local time a value, which is achieved by multiplying the difference of counter value_3 and value_2 by the mapping factor illustrated in formula (1), and denoting this new local time by t_4 (a nature of t_4 is only an ancillary value). Secondly an average clock-offset is determined by computing an average value of time intervals between the t_1 and t_0, and t_2 and t_3. Last the watchdog updates the local time of the terminal by adding the clock-offset value to the t_4, whereupon the local time of the terminal corresponds local time of the central domain.

$$\begin{aligned} t_4 &:= local\_clock + map \cdot (value\_3 - value\_2); \\ clock\_offset &:= \frac{(t_1 - t_0) + (t_3 - t_2)}{2}; \\ local\_clock &:= t_4 + clock\_offset; \end{aligned} \tag{2}$$

It should be noted that the synchronising process of local time of the terminal is typically continuous process in the background being invisible to the player, whereupon the beacon tick packets are broadcasted and received continuously. Also it should be noted that the method illustrated above is only exemplary and other more progressive method may also be used, such as method, which would notice previous values, such as values of clock offset and local clock.

Figure 5 illustrates an exemplary real-time betting process 500 after authentication and synchronisation process with a terminal according to an advantageous embodiment of the present invention, where at first at step 502 an organiser 202

sends initial key material comprising a seed for keys to the terminal to initialise a bet record storage. At step 504 the watchdog at the terminal creates a storage encryption key by computing for example two encryption keys from initial key material a seed for keys received from the organiser at step 502. The first key may be derived from the seed for example by adding a first random number to the seed and computing a hash value, and the second key by adding a second random number to the seed and computing a hash value. Further the watchdog may also create a storage chain key from chained time information of local time of the terminal and initial key material received from the organiser at step 502, for example. From now on each stored record can be encrypted and chained with current keys and time information of local time of the terminal (or alternatively with value of the counter on behalf of time information). In addition at step 506 the watchdog requests value of the counter and the counter responses at step 508 by counter value (value_4) at the moment, after which the watchdog initialises bet record storage locating in the memory means 406 by an initial record comprising at least counter value (value_4) and initial (seed) data at step 510.

At step 512 the organiser sends broadcast setup information packet comprising a broadcast encryption key and signature key. The step 512 is, however optional step, and may be transacted also at least partly at earlier step in connection with the synchronisation process, for example (see figure 4). Further the organiser informs the watchdog by delay information (in milliseconds, for example) to a first watchdog tick packet to be broadcasted to the terminal (watchdog_tick_start_delay), and at step 514 the watchdog at the terminal requests value of the counter at the moment of receiving broadcast setup information packet sent by the organiser at step 512. The counter responses by counter value (value_5) at step 516. At the same time the organiser at the central domain 202 waits the predetermined time interval (announced within the broadcast setup information packet) and after the time interval sends the first watchdog tick packet at step 518 to the terminal, whereupon the watchdog at the moment of receiving the first watchdog tick packet sends a request to the counter 404 to ask a value of the counter at the moment. The watchdog tick packet comprises information of organiser's server local time (central domain time, server_time_0), key update and signature, and optionally delay to the next coming watchdog tick packet (next_wd_tick_delay_0), especially if the delay is not constant. At step 520 the counter responds by sending counter value (value_6) at the moment.

The watchdog verifies the organiser's signature received by the watchdog tick packet and if the signature is valid decrypts the watchdog tick packet at step 522. Further the watchdog creates a new storage encryption key by computing hash value of storage encryption key and key update received by the watchdog tick packet from the organiser at step 518 [storage_enc_key := hash(storage_enc_key, key_update)], and in addition a new storage chain key from storage chain key, time information of local time of the terminal and key update stored into the memory means earlier [storage_chain_key := hash(storage_chain_key, key_update)], where the key_update advantageously comprises also time information. The hash value is exemplary and may be replaced by computing MAC value, for example. At step 524 the watchdog stores counter's value (value_6) with packet identification information (packet_id) to the memory means 406.

The watchdog also updates the local time of the terminal (if needed) after receiving watchdog tick packet, but only if the watchdog tick packet was received at right time, so before updating the watchdog computes at step 526 the time interval between the broadcast setup information packet received at step 512 and the first watchdog tick packet received at step 518 by multiplying the difference of the counter values at the moments of receiving broadcast setup information packet and the first watchdog tick packet by the mapping factor [delay := map·(value_6 – value_5)], where the mapping factor is determined by the formula (1). The watchdog also updates the local time of the terminal at step 526 by adding the delay computed above to the earlier local clock [local_clock := local_clock + delay].

Further at step 526 the watchdog verifies that the delay it computed is equal (or essentially equal within predetermined limit or tolerance) to the delay announced in the broadcast setup information packet at step 512 [delay = watchdog_tick_start_delay], and that local time of the terminal after synchronising is equal (or essentially equal) to the organiser's server local time (central domain time) [local_clock := server_time_0]. If result of delay and local time verification is acceptable, the watchdog allows the betting process 500 to going on, and if not alerts the player (and alternatively also the organiser) and freezes the betting process. However a predetermined tolerance in verification may be allowed, whereupon the watchdog may furthermore updates the local time of the terminal at step 526 corresponding to central domain's local time announced in the watchdog tick packet received at step 518. It should be noticed that the watchdog updates only the local time of the terminal, and does not change or affect value or rate of the counter(s).

At the same time when the watchdog performs the verification and updating process at step 526, the organiser at the central domain 202 waits the predetermined time interval (next_wd_tick_delay_0, announced within the previous (first) watchdog tick packet) and after the time interval sends the second watchdog tick packet at step 528 to the terminal, whereupon the watchdog at the moment of receiving the second watchdog tick packet again sends a request to the counter 404 to ask a value of the counter at the moment. The watchdog tick packet comprises information of organiser's server local time at the time of sending the packet (central domain time, server_time_1), key update, signature and optionally also delay to the next coming watchdog tick packet (next_wd_tick_delay_1). At step 530 the counter responds by sending counter value (value_7) at the moment.

The watchdog verifies the organiser's signature received by the watchdog tick packet and if the signature is valid decrypts the watchdog tick packet at step 532. Further the watchdog creates a new storage encryption key by computing hash value of storage encryption key and key update received by the watchdog tick packet from the organiser at step 528 [storage_enc_key := hash(storage_enc_key, key_update)], and in addition a new storage chain key from storage chain key, time information of local clock of the terminal and key update stored into the memory means earlier [storage_chain_key := hash(storage_chain_key, key_update)], where the key_update advantageously comprises also time information.. At step 534 the watchdog stores counter's value (value_7) with packet identification information (packet_id) to the memory means 406.

The watchdog also updates the local time of the terminal (if needed) after receiving watchdog tick packet, but only if the watchdog tick packet was received at right time, so before updating the watchdog computes at step 536 the time interval between the first watchdog tick packet received at step 518 and the second watchdog tick packet received at step 528 by multiplying the difference of the counter values at the moments of receiving the first watchdog tick packet and the second watchdog tick packet by the mapping factor [delay := map·(value_7 – value_6)], where the mapping factor is determined by the formula (1). The watchdog also updates the local clock of the terminal at step 536 by adding the delay computed above to the earlier local clock [local_clock := local_clock + delay].

Further at step 536 the watchdog verifies that the delay it computed is equal to the delay announced in the first watchdog tick packet at step 518 [delay = next_wd_tick_delay_0], and that local time of the terminal after synchronising is

equal to the organiser server time (central domain time) [local_clock := server_time_1]. If result of delay and local time verification is acceptable, the watchdog allows the betting process 500 to going on, and if not alerts the player (and alternatively also the organiser) and freezes the betting process. However a predetermined tolerance in verification may again be allowed, whereupon the watchdog may furthermore updates the local time of the terminal at step 536 corresponding to central domain's local time announced in the watchdog tick packet received at step 528. It should be noticed that the watchdog updates only the local time of the terminal, and does not change or affect value or rate of the counter(s).

As an example the organiser sends at step 538 a bet packet to the terminal, where the bet packet comprises betting data, such as targets, rates and options, and organiser's server local time (central domain time, server_time_2), key update, and signature, whereupon the watchdog at the moment of receiving the bet packet sends a request to the counter 404 to ask a value of the counter at the moment. At step 540 the counter responds by sending counter value (value_8) at the moment.

The watchdog verifies the organiser's signature received by the bet packet and if the signature is valid decrypts the bet packet at step 542. Further the watchdog creates a new storage encryption key by computing hash value of storage encryption key and key update received by the bet packet from the organiser at step 538 [storage_enc_key := hash(storage_enc_key, key_update)], and in addition a new storage chain key from storage chain key, time information of local clock of the terminal and key update stored into the memory means earlier [storage_chain_key := hash(storage_chain_key, key_update, time)]. At step 544 the watchdog stores counter's value (value_8) with bet packet identification information (packet_id) to the memory means 406.

The watchdog also updates the local time of the terminal at step 546 by computing the time interval between the last action (the second watchdog tick packet received at step 528) and the bet packet received at step 538 by multiplying the difference of the counter values at the moments of receiving the second watchdog tick packet and the bet packet by the mapping factor and adding the result to the local clock updated earlier at step 536 [local_clock := local_clock + map·(value_8 – value_7)], where the mapping factor is determined by the formula (1). The watchdog also verifies at step 546 that the updated local time is (essentially) equal to the central domain's local time (server-time_2, received by the bet packet at step 538), and if result of verification is acceptable, the watchdog allows the betting process 500 to going on,

and if not alerts the player (and alternatively also the organiser) and freezes the betting process.

If the result of verification was acceptable the watchdog informs the player 501 by the content of the received bet packet at step 548, whereupon the player 501 may response for example by placing his/her bet. When receiving the player's response the watchdog sends a request to the counter 404 to ask a value of the counter at the moment. At step 550 the counter responds by sending counter value (value_9) at the moment, after which the watchdog stores counter's value (value_9) with layer's response identification information (user_input_id) to the memory means 406 at step 552. Further the watchdog also updates the local time of the terminal at step 554 by computing the time interval between the last action (receiving the bet packet at step 538) and the player response at step 548 by multiplying the difference of the counter values at the moments of receiving the bet and the player's response by the mapping factor and adding the result to the local clock updated earlier at step 546 [local_clock := local_clock + map·(value_9 – value_8)], where the mapping factor is determined by the formula (1). Moreover the watchdog stores local time information, data of the received bet packet and the player's response to the bet record storage of the memory means 406 at step 556.

Again at the same time the organiser has waited the predetermined time interval (announced within the second watchdog tick packet) and after the time interval sends the third watchdog tick packet at step 558 to the terminal, comprising information of organiser server time at the time of sending the third watchdog tick packet (central domain time, server_time_3), key update, signature, and optionally also delay to the next coming watchdog tick packet (next_wd_tick_delay_1). The betting process 500 may continue onwards essentially by same way than described herein, until the organiser sends the bet end and/or session end packet and collects the stored data, such as placed bet with time information (bet records), from the memory means 406 of the terminal.

Figure 6 illustrates an exemplary diagram 600 of use of a free running counter 404a of a terminal according to an advantageous embodiment of the present invention, where the rate of the counter 404a is constant. The uppermost line illustrates local time of the organiser's server time (central domain) 602, the line 604 illustrates time line of network input of the terminal and the lowermost line 606 is player input action line.

When the beacon tick packet 608 is sent from the organiser's server, time information relating to the local time of the organiser's server (central domain) is stored into the beacon tick packet. The sloping arrow from the uppermost line 602 to the line 604 illustrates time delay when the beacon tick packet is broadcasted from the organiser's server (or alternatively from the broadcaster) to the terminal. Time delay from the organiser's server (or alternatively from the broadcaster) to the terminal is essentially constant and depends internal delays of the broadcasting elements and delays of transmission paths between the organiser's server (or alternatively the broadcaster) and the terminal. When the beacon tick is received on the terminal a value of the free running counter 404a is read (T_0). The beacon tick packet may also comprise information of delay to the next coming beacon tick packet (t_0).

Every time when some information packet is received at the terminal, or player is made some action, such as placed his/her bet, a value of the free running counter 404 is read and advantageously stored in a memory means of the terminal for later user or verification. Information packet received by the terminal may be, for example, beacon tick packets (T_0, T_1, T_n, T_{n+1}), bet start packets (S_1), bet end packets (E_1) and bet result packets (R_1), and player actions may be, for example, bet place (U1). The free running counter 404 of the terminal is used for example to measure adjacent received beacon tick packet intervals in terms of local clock cycles, and to measure the interval from a player input to the (two) surrounding beacon tick packets.

It should be noticed that the procedure and use of the free running counter illustrated in figure 6 is advantageously related to a layer 4 events, and that there can be more than one free running counter dedicated to the layer 4, such as first counter for internal log of events and second counter for layer 3 time service, for example (the layer nature of the invention is illustrated in figure 10).

Figure 7 illustrates another exemplary diagram 700 of use of free running counter of the terminal according to an advantageous embodiment of the present invention, where the rate of the counter is essentially constant. The line 404b illustrates values of mapped free running counter and the local time of the terminal is illustrated by line 710. Local time of the terminal is managed advantageously by a layer 3 described more details in connection with figure 10. The uppermost line 702 illustrates time of the organiser's server local time (central domain), the line 704 illustrates time line of network input of the terminal and the lowermost line 706 is player input action line. In this example the cycle of the free running counter is

mapped (by the mapping factor, provided by the layer 3) so that one cycle of line 404b corresponds with a certain time, such as one cycle corresponds with one millisecond, for example.

When the watchdog tick packet 708 is sent from the organiser's server, time information relating to local time of the organiser's server (central domain) is stored in the watchdog tick packet. The sloping arrow from the uppermost line 702 to the line 704 illustrates time delay when the watchdog tick packet is broadcasted from the organiser's server (or alternatively from the broadcaster) to the terminal. Time delay from the organiser's server (or alternatively from the broadcaster) to the terminal is essentially constant and depends internal delays of the broadcasting elements and delays of transmission paths between the organiser's server (or alternatively the broadcaster) and the terminal.

When the watchdog tick packet is received on the terminal a mapped value of the free running counter 404b is read (T_0), or local time of the terminal by help of the counter 404b, actually, and time of the central domain announced by the watchdog tick packet is compared to the local time of the terminal (line 710). The watchdog tick packet is accepted only, if local time of the terminal is essentially same than time information relating to the central domain's local time announced by the received watchdog tick packet (terminal clock $\approx$ server clock). The shaded area in the line 710 of the local time of the terminal illustrates allowed tolerance between the clocks of the terminal and central domain. The terminal clock here relates to the layer 3 clock, discussed more detail in connection with figure 10, for example. If the watchdog tick packet is accepted (local time of the terminal is essentially same than local time of the central domain announced by the received watchdog tick packet) local time of the terminal is updated to the same time with central domain's local time announced by the received watchdog tick packet. Further the clock offset can also be updated.

The watchdog tick packet may comprise information of delay to the next coming watchdog tick packet, whereupon the delay is verified when the next watchdog tick packet is received at the terminal. Alternatively the delay may be essentially constant and predetermined, whereupon the delay when the next watchdog tick packet must come can be calculated beforehand, for example. Furthermore, when receiving a bet start packet, time information relating to the organiser's server (central domain) local time stored in the bet start packet is compared to local time of the terminal, and if local time of the terminal is essentially same than time information relating to the central domain announced by the received bet start

packet, the bet start packet is accepted. Otherwise the player is alerted (and alternatively also the organiser) and the betting process is frozen. Also when the player places his/her bet (U_2) local time of the terminal is read and stored with the player's bet into the bet record storage, for example. The recorded local time information is verified when the bet end packet is received, and if the recorded local time is less than bet end time announced in the received bet end packet, the bet can be allowed, but if the recorded local time is more than bet end time announced in the received bet end packet, the bet can be rejected.

It should be noticed that the procedure and use of the free running counter illustrated in figure 7 is advantageously related to a layer 3 events, and that there can be more than one free running counter dedicated to the layer 3 (the layer nature of the invention is illustrated in figure 10). The counter 404b is advantageously used for staying in sync between the watchdog tick packets.

Figure 8 illustrates an exemplary timing process 800 when receiving data packets, and especially watchdog tick packets, within the terminal according to an advantageous embodiment of the present invention, where at step 802 it is checked whether the received data packet is watchdog tick packet. If the received data packet is not watchdog tick packet, but is a beacon tick or bet start/end, or result packet comprising local time of the central domain, for example, the time information of the packet is checked and compared to local time of the terminal at step 808. If local time of the central domain announced in the received data packet is essentially same than local time of the terminal, the packet is allowed and a betting process is continued at step 810. Otherwise the player is alerted (and alternatively also the organiser) and the betting process is frozen at step 806.

If the data packet received at step 802 is a watchdog tick packet, the receiving time is verified at step 804, because every watchdog tick packet comprises information of delay to the next coming watchdog tick packet, or alternatively the delay is constant and the right receiving time is calculated beforehand, whereupon the valid receiving time of the received watchdog tick packet can be verified based on the information of the previous watchdog tick packet (or broadcast setup information packet, if the received watchdog tick packet is the first received watchdog tick packet), or alternatively based on the calculation in a case of constant delay. In the case of constant delay it is not required for watchdog tic packets to comprise delay information. If the watchdog tick packet is received at the right time, time information relating to the central domain's local time announced in the received watchdog tick packet is compared to local time of the terminal at step 808. If the

watchdog tick packet is not received at the right time, the player may be alerted (and alternatively also the organiser) and the betting process frozen at step 806.

Figure 9 illustrates an exemplary chart of timing process 900 when receiving data packets, especially watchdog tick packets or other data packets, which may comprise information of delay of next coming data packet or where delay is otherwise known, within the terminal according to an advantageous embodiment of the present invention. The delay of next coming data packet is verified when the next data packet is received at the terminal. Also local time of the central domain announced by the received data packet is compared to the local time of the terminal, and the data packet is accepted only, if local time of the terminal is essentially same than local time of the central domain announced by the received data packet, and the received data packet is received at the moment announced by the delay information of the previous data packet or delay which is otherwise calculated. The shaded area 902 in the line 710 illustrates allowed tolerance between the clocks of the terminal and central domain, and the area 904 between the shaded are in the line 710 illustrates delay of next coming data packet. It should be noticed that according to an advantageous embodiment of the invention data packets to be broadcasted comprises also information of the allowed tolerance 902, and the tolerance may be changed to longer or shorter, if needed.

Figure 10 illustrates an exemplary description of the layer nature 1000 of the betting environment according to an advantageous embodiment of the present invention, where the layer 1 relates to events within the organiser's server on the central domain, and being thus out of hacking. The layer 1 offers central domain's local time (the most legal time of the whole betting system) to the distributed domain, for example, by sending time information within data packets broadcasted to the terminals of the distributed domain. Layer 1 may also comprise a broadcaster, but this optional.

The layer 4 is the most protected functionality within the terminal of the distributed domain, to which the independent free running counter (or counters) belongs. One counter of the layer 4 may be dedicated for internal log of event only, being completely protected so that value of the counter is not readable outside, for example. Another counter of the layer 4 may be dedicated for layer's 3 time service so that time of the local of the terminal which is needed for verifying validity of the receiving moments of the received data packets and to time stamping placed bets (which are layer's 3 events), for example, is provided by the counter belonging to the layer 4.

The layer 3 relates mainly to secured local time of the terminal, and secured functions of the terminal, such as watchdog, bet record construction (from received bet packets, player inputs and local of the terminal) and synchronisation of the local time of the terminal by help of received data packets (beacon ticks, watchdog ticks, bet start/end packets, and results) and values of the counter(s) of the layer 4. According to the invention at least one counter of the layer 4 provides layer 3 secured time.

The layer 2 relates to insecure events (insecure for user manipulation) within the terminal, such as offers regularly updated application clock time for player on a display of the terminal. Time displayed may be received/derived for example straight from watchdog tick and bet start/end packets, or alternatively time displayed for the player is derived from the layer's 3 secured local time. However, the purpose of the displayed time is to aid the player by providing a more accurate time, which is essentially same as local time at the organiser's server.

Figure 11 illustrates exemplary components in a betting environment 1100 according to an advantageous embodiment of the present invention comprising a central domain 1102 and distributed domain 1104, which is in practice a terminal, comprising a protected environment 1106 to which a watchdog functionality 402 and counter(s) 404 belong, for example. Further the distributed domain or terminal comprises also at least a user interface 1108 and bet record storage 1110. Next the functionality of the betting environment 1100 is discussed more details in a view of place a bet.

The watchdog 402 uses two-way data link for receiving data from the central domain 1102 in order to synchronise offset of local of the terminal, initialise the bet record storage and also for receiving broadcast parameters. The two-way link is also used for collecting bet records from the bet record storage to the organiser's server within the central domain. The watchdog 402 uses also one-way data link for receiving beacon tick and watchdog tick packets (regular external clock signal), watchdog key update packets, and bet start/end packets and results from central domain to the terminal.

The watchdog 402 locally generates a clock signal by help of received data packets and values of counter(s), as previously described, for the purposes of keeping reliable local clock time at the terminal and also for furnishing each of the placed bets or electronic records with a cryptographically protected proof of a certain moment of distributed domain's local time associated with the generation of the

electronic record. Before the bet generation the watchdog 402 receives a bet start packet from the central domain through one-way link, authenticates the sender of the bet start packet, decrypts the packet and displays the content of the bet start packet to the player. The player may then place his/her bet(s) using user interface means 1108, whereupon the watchdog means may generate a (multitude) of electronic record(s) containing prediction(s) of the outcome of the incident (bet(s) placed by the player).

The watchdog may use advantageously an algorithm for generating the electronic records, and then furnishing (time-stamped) them with a cryptographically protected proof of a certain moment of distributed domain's (terminal) local time associated with the generation of the electronic record. The watchdog may furnish (time-stamp) the electronic records either with local time of the terminal or alternatively with value(s) of the counter(s), which is/are unambiguously associable to local time of the terminal and/or moment of generation of the electronic record.

The watchdog functionality is advantageously performed within a protected integrated circuit in order to secure generation of electronic record and time-stamping process against unauthorised access. An advantageous way of performing the time-stamping for example in the environment of figure 11 is such that both the generation of the local clock signal and the actual time-stamping take place within a single protected integrated circuit belonging to the protected terminal, namely watchdog 402, for example. The time-stamping means then that a bet record is input into the protected integrated circuit, and time information of the local located within the circuit is combined to the bet record with a cryptographic algorithm, which itself is also permanently stored in a memory means within the protected integrated circuit. An unauthorised party does not know the key and can not deduce it by analysing performed time-stampings due to its pseudorandom, cryptographic nature. According to an exemplary embodiment of the invention the watchdog comprises such a protected integrated circuit (watchdog hardware).

Next couple of example to generate electronic records from placed bet and furnish them with time information relating to local time of the terminal is described. According to a first embodiment, the watchdog may furnish each of the electronic records with a cryptographically protected proof of a certain moment of local time associated with the generation of the electronic record by generating a time-stamped electronic record through the watchdog algorithm, which uses the plaintext contents of the electronic record and a clock signal relating to local time as input information.

According to a second embodiment, the watchdog may generate an authenticated and encrypted electronic record through the watchdog algorithm which uses the plaintext contents of the electronic record, but also a private key of the party generating the electronic record (terminal's or watchdog's private key) and a public key of an intended recipient of the time-stamped, authenticated, encrypted electronic record (organiser's public key) as input information to the algorithm.

Further the watchdog may encrypt the generated electronic record using a clock signal and it's private key as input information. The generated and time-stamped electronic record is then stored into the bet record storage for later bet record collection to the organiser's server (central domain).

Within the organiser's server (central domain) the generated and time-stamped electronic record is accepted as valid on the condition if the cryptographically protected proof of a certain moment of local time of the distributed domain shows that said certain moment of time was not later in time than a certain time limit, when the betting was ended. Further within the central domain, after the outcome of the incident is known, and if the generated and time-stamped electronic record was accepted as valid, it is found out whether the generated and time-stamped electronic record contains a correct prediction of the outcome of the incident.

Figure 12 illustrates an exemplary architecture of the (betting) terminal 1200 belonging to the distributed domain according to an advantageous embodiment of the present invention. The terminal 1200 advantageously comprises user interface 1202, such as keyboard and display, memory means 406 for bet record storage implemented by flash RAM, for example, and memory means 1204 implemented by RAM/ROM for other purposes. Further the terminal 1200 comprises data network access means 1206 for establishing two-way data link between the terminal and organiser within the central domain, for example. Two-way data link is needed for local clock offset synchronisation of the terminal, bet record storage initialisation and transferring of broadcast parameters. Furthermore the terminal 1200 comprises broadcast reception means 1208 for establishing one-way data link between the terminal and organiser within the central domain (more precisely: from central domain to the terminal), for example. One-way data link is needed for transferring beacon tick and watchdog tick packets (regular external clock signal), watchdog key update packets, and bet packets from central domain to the terminal 1200.

The terminal 1200 comprises also a protected environment for most secured functionalities, and it is advantageously implemented by watchdog hardware means 1210 comprising authentication means 1212 for implementing authentication procedure illustrated in figure 3, such as authentication of watchdog data, and identity of the terminal and organiser's server (central domain). The watchdog hardware means 1210 comprises also timing means 1214, which is responsible for assigning counter 404 values with terminal events (packet received, player input), controlling that watchdog tick packets are received and that they are received at right time, and adjusting local time of the terminal according to received data packets.

In addition the watchdog hardware means 1210 comprises communication protection means 1216 for encrypting and decrypting communication and checking signatures, storage key management means 1218 for creating and updating keys for storing data, such as placed bets, and storage entry generation means 1220 for encrypting and chaining entries, and adding time-stamps and/or counter values to data, such as placed bets. The watchdog hardware means 1212 comprises also at least one counter 404. Moreover the terminal 1200 comprises watchdog software means 1222, which is responsible for authentication of a player, and processing of application data, for example.

According to an essential feature of the invention the terminal is arranged to handle electronic records that contain predictions of the outcome of a certain incident, by generating a multitude of electronic records that contain predictions of the outcome of the incident, and by furnishing each of the electronic records with a cryptographically protected proof of a certain moment of distributed domain's local time associated with the generation of the electronic record. Further the terminal is arranged to receive beacon tick and watchdog tick packets, comprising time information of the central domain's local time, and broadcasted from the central domain by a predetermined time interval. The terminal is arranged also to synchronise its local time with the central domain's local time by help of values of the free running counter and time information in received beacon tick packets broadcasted from the central domain by a predetermined time interval. Furthermore the terminal is arranged to verify a validity of local time of the terminal regarding to the central domain's local time by comparing local time of the terminal to the time information in received watchdog tick packets, beacon tick packets, bet start/end packets and any other information packets containing time-stamp or other time

information of the central domain's (organiser's server) local time and received from the central domain (organiser's server).

Moreover the invention relates to a computer program product directly loadable into the internal memory of a digital computer. The product advantageously comprises software code portions for performing the steps illustrated in figures 2-9, and in particularly the steps of claim 1, relating to methods for real-time betting, authentication and synchronisation of local time of the distributed domain, when said product is run on a computer. In addition the invention relates to a computer program product stored on a computer usable medium. The product advantageously comprises computer readable program means for causing a computer to perform the steps illustrated in figures 2-9, and in particularly the steps of claim 1, relating to methods for real-time betting, authentication and synchronisation of local time of the distributed domain, when said product is run on a computer.

Furthermore figure 13 illustrates an exemplary architecture of a circuit means 1300, such as protected integrated circuit means, for real-time betting, within a communications system comprising a distributed domain and a central domain, where the circuit means belongs to the distributed domain, by handling electronic records that contain predictions of the outcome of a certain incident, according to an advantageous embodiment of the present invention. The circuit means 1300 comprises typically number of software 1302 and hardware 1034 means, by help of which the circuit means 1300 is arranged to generate, within the distributed domain, an electronic record that contains a prediction of the outcome of the incident, according to a player's input, and furnish, within the distributed domain, the electronic record with a cryptographically protected proof of a certain moment of a distributed domain time associated with the generation of the electronic record. Further the circuit means 1300 is arranged, by help of the software 1302 and hardware 1304 means, to receive, within the distributed domain, repetitive beacon tick packets and watchdog tick packets, comprising time information of local time of the central domain at the moment the packet was sent, synchronise local time of the distributed domain, with time equated with the central domain time information received by the beacon tick packets, by help of values of a counter in the terminal and time information in received beacon tick packets, and verify validity of local time of the distributed domain regarding to the central domain's local time by comparing local time of the distributed domain to time information relating to the local time of the central domain received by the watchdog tick packets.

The invention has been explained above with reference to the aforementioned embodiments, and several advantages of the invention have been demonstrated. It is clear that the invention is not only restricted to these embodiments, but comprises all possible embodiments within the spirit and scope of the inventive thought and the following patent claims.

Claims

1. A method for real-time betting, within a communications system comprising a distributed domain and central domain, by handling electronic records that contain predictions of the outcome of a certain incident, comprising the steps of:

- generating, within the distributed domain, a multitude of electronic records that contain predictions of the outcome of the incident, according to players' inputs,
- furnishing, within the distributed domain, each of the electronic records with a cryptographically protected proof of a certain moment of a distributed domain time associated with the generation of the electronic record,

characterized in that the method further comprises the steps of:

- receiving, within the distributed domain, repetitive beacon tick packets and watchdog tick packets, comprising time information of local time of the central domain at the moment the packet was sent,
- synchronising local time of the distributed domain, with time equated with the central domain time information received by the beacon tick packets, by help of values of a counter in the distributed domain and time information in received beacon tick packets, and
- verifying validity of local time of the distributed domain regarding to the central domain's local time by comparing local time of the distributed domain to time information relating to local time of the central domain received by the watchdog tick packets.

2. A method according to claim 1, **characterized** in that the synchronisation of local time of the distributed domain comprises the steps of:

- receiving, within the distributed domain, repetitive first and second beacon tick packets broadcasted by a predetermined time interval and reading a value of the counter at the moment of receiving the first and second beacon tick packets, in order to create a conversion factor comparable to the interval of the first and second received beacon tick packets and to the values of the counter at the moments of receiving the first and second beacon tick packets,
- sending a request from the distributed domain to the central domain to send a response to indicate accurate central domain's local time at the moment of receiving the request (t_1) and at the moment of sending the response (t_2),
- initialising a clock indicating local time of the distributed domain (t_0),

- receiving the response from the central domain and reading time information of the central domain's local time (t_1 and t_2) and a value of the counter at a moment of receiving the response, in order to construct a clock offset by computing an average delay between t_1, t_0 and t_3, t_2, and
- updating new local time of the distributed domain essentially equating to the central domain's local time by adding to latest local time (t_0) of the distributed domain the clock offset and a value derived by multiplying with the conversion factor the difference of the values of the counter at the moment of receiving the response from the central domain and at the moment of sending the request to the central domain.

3. A method according to claim 1, **characterized** in that the betting process is an off-line betting process.

4. A method according to claim 1, **characterized** in that the beacon tick packets and watchdog tick packets are broadcasted by a predetermined time interval.

5. A method according to any of preceding claims, **characterized** in that the beacon tick packet, being protected information packet broadcasted to a distribution domain regularly, comprises at least one of the following information: time information relating to central domain's local time at a moment the beacon tick packet was sent from the central domain, delay of the next coming beacon tick packet to be broadcasted to the distributed domain, security parameters, and message authentication code.

6. A method according to claim 1, **characterized** in that the watchdog tick packet comprises at least one of the following information: time information relating to central domain's local time at a moment the watchdog tick packet was sent from the central domain, delay of the next coming watchdog tick packet to be broadcasted to the distributed domain, security parameters, key updates and message authentication code.

7. A method according to claim 1, **characterized** in that delay of the next coming watchdog and/or beacon tick packet is compared to delay information announced in the previous watchdog and/or beacon tick packet, and the watchdog and/or beacon tick packet is accepted only if the delay of the next coming watchdog and/or beacon tick packet is valid.

8. A method according to claim 1, **characterized** in that the beacon tick packets and watchdog tick packets are broadcasted from the central domain.

9. A method according to claim 1, **characterized** in that the beacon tick packets are broadcasted by a Digital Audio Broadcasting transmitter arrangement and/or a Digital Video Broadcasting transmitter arrangement.

10. A method according to claim 1, **characterized** in that an interval from the player's input to latest and/or to next beacon tick packet is measured either in terms of counter values or of distributed domain's local time, and stored in a cryptographically form with the player's input to the electronic record.

11. A method according to claim 1, **characterized** in that a value of the counter and/or an electric clock signal representing the local time of the distributed domain at the said moment is used as an input in generating a cryptographically protected proof of a certain moment of a distributed domain.

12. A method according to claim 1, **characterized** in that the counter is a free running independent counter, and the distributed domain comprises more than one counter the rate of which are constant and independent of each other, and in that values of the first counter are used for internal log of events and returned to the central domain, and values of the second counter are used for time service of the distributed domain.

13. A method according to claim 1, **characterized** in that stored data, a value of the counter and/or an electric clock signal representing the local time of the distributed domain are chained by help of a key.

14. A computer program product directly loadable into the internal memory of a digital computer, **characterised** in that it comprises software code portions for performing the steps of claim 1 when said product is run on a computer.

15. A computer program product stored on a computer usable medium, **characterised** in that it comprises computer readable program means for causing a computer to perform the steps of claim 1 when said product is run on a computer.

16. A terminal for real-time betting, within a communications system comprising a distributed domain and a central domain, where the terminal belongs to the distributed domain, by handling electronic records that contain predictions of the outcome of a certain incident, is arranged to:

- generate, within the distributed domain, an electronic record that contains a prediction of the outcome of the incident, according to a player's input,

- furnish, within the distributed domain, the electronic record with a cryptographically protected proof of a certain moment of a distributed domain time associated with the generation of the electronic record,

characterized in that the terminal is further arranged to:

- receive, within the distributed domain, repetitive beacon tick packets and watchdog tick packets, comprising time information of local time of the central domain at the moment the packet was sent,
- synchronise local time of the distributed domain, with time equated with the central domain time information received by the beacon tick packets, by help of values of a counter in the terminal and time information in received beacon tick packets, and
- verify validity of local time of the distributed domain regarding to the central domain's local time by comparing local time of the distributed domain to time information relating to the local time of the central domain received by the watchdog tick packets.

17. A terminal according to claim 16, **characterized** in that the terminal is, when synchronising of local time of the distributed domain, arranged to:

- receive, within the distributed domain, repetitive first and second beacon tick packets broadcasted by a predetermined time interval and read a value of the counter at the moment of receiving the first and second beacon tick packets, in order to create a conversion factor comparable to the interval of the first and second received beacon tick packets and to the values of the counter at the moments of receiving the first and second beacon tick packets,
- send a request from the distributed domain to the central domain to send a response to indicate accurate central domain's local time at the moment of receiving the request (t_1) and at the moment of sending the response (t_2),
- initialise a clock indicating local time of the distributed domain (t_0),
- receive the response from the central domain and read time information of the central domain's local time (t_1 and t_2) and a value of the counter at a moment of receiving the response, in order to construct a clock offset by computing an average delay between t_1, t_0 and t_3, t_2, and
- update a new local time of the distributed domain essentially equating to the central domain's local time by adding to latest local time (t_0) of the distributed domain the clock offset and a value derived by multiplying with the conversion factor the difference of the values of the counter at the moment of receiving the response from the central domain and at the moment of sending the request to the central domain.

18. A terminal according to claim 16, **characterized** in that the terminal is and off-line terminal.

19. A terminal according to claim 16, **characterized** in that the terminal is arranged to compare delay of the next coming watchdog and/or beacon tick packet to delay information announced in the previous watchdog and/or beacon tick packet, and accept only the watchdog and/or beacon tick packet if delay of the next coming watchdog and/or beacon tick packet is valid.

20. A terminal according to claim 16, **characterized** in that terminal is arranged to measure an interval from the player's input to latest and/or to next beacon tick packet either in terms of counter values or of distributed domain's local time, and store it in a cryptographically form with the player's input to the electronic record.

21. A terminal according to claim 16, **characterized** in that terminal is arranged to use a value of the counter and/or an electric clock signal representing local time of the distributed domain at the said moment as an input in generating a cryptographically protected proof of a certain moment of a distributed domain.

22. A terminal according to claim 16, **characterized** in that the counter is a free running independent counter, and the terminal comprises more than one independent counter the rate of which are constant and independent of each other, and in that values of the first counter are used for internal log of events and returned to the central domain, and values of the second counter are used for time service of the distributed domain.

23. A terminal according to claim 16, **characterized** in that the terminal is arranged to read a value of the free running counter and store it in a memory means of the terminal for later user or verification, when at least one of the following event occurs: an information packet is received within the terminal, and the player makes an action, such as places his/her bet.

24. A terminal according to claim 16, **characterized** in that the terminal comprises a watchdog for performing functional steps of any method claims 1-13.

25. A terminal according to claim 24, **characterized** in that the watchdog is arranged to inform the central domain of values of the counter by sending information of counter values to the central domain.

26. A terminal according to claim 24, **characterized** in that the watchdog is performed within a protected integrated circuit.

27. A terminal according to claim 16, **characterized** in that the terminal comprises a data network access means (1206) for establishing two-way data link between the terminal and the central domain for bet record storage initialisation and transferring broadcast parameters.

28. A terminal according to claim 16, **characterized** in that the terminal comprises a broadcast reception means (1208) for establishing one-way data link between the terminal and the central domain for transferring beacon tick packets and watchdog tick packets, watchdog key update packets, and bet start/end packets from central domain to the terminal (1200).

29. A terminal according to claim 24, **characterized** in that the watchdog (1210) comprises also timing means (1214) being responsible for controlling that watchdog tick packets are received and that they are received at right time, and for adjusting local time of the terminal according to received data packets.

30. A terminal according to claim 24, **characterized** in that the watchdog (1210) comprises a communication protection means (1216) for encrypting and decrypting communication and checking signatures, storage key management means (1218) for creating and updating keys for storing data, such as placed bets, and storage entry generation means (1220) for encrypting and chaining entries, adding time-stamps and/or counter values to data, such as placed bets, and watchdog software means (1222), which are responsible for authentication of a player, and processing of application data.

31. An organiser server for real-time betting, within a communications system comprising a distributed domain and a central domain, where the organiser server belongs to the central domain, by handling electronic records that contain predictions of the outcome of a certain incident, is arranged to:

- receive from the distributed domain a multitude of electronic records that contain predictions of the outcome of the incident and,
- process for finding out, after the outcome of the incident is known, which of the electronic records, if any, contain correct predictions of the outcome of the incident,

characterized in that the organiser server is further arranged to:

- send repetitive beacon tick packets and watchdog tick packets, comprising time information of local time of the central domain at the moment the packet was sent, to the distributed domain, in order that local time of the distributed domain is synchronised with time equated with the central domain time information received by the beacon tick packets, by help of values of a counter in the distributed domain and time information in received beacon tick packets, and verify validity of local time of the distributed domain regarding to the central domain's local time by comparing local time of the distributed domain to time information relating to the local time of the central domain received by the watchdog tick packets.

32. An organiser server according to claim 31, **characterized** in that the organiser server, when synchronising of local time of the distributed domain, is arranged to:

- send repetitive first and second beacon tick packets in predetermined time interval to the distributed domain, in order to create, within the distributed domain, a conversion factor comparable to the interval of the first and second received beacon tick packets and to the values of the counter at the moments of receiving the first and second beacon tick packets within the distributed domain, and
- respond to a request of the distributed domain to send a response to indicate accurate central domain's local time at the moment of receiving the request (t_1) and at the moment of sending the response (t_2).

33. An organiser server according to claim 31, **characterized** in that the organiser server is arranged to wait a predetermined time interval announced in the previous beacon/watchdog tick packet, until send the next beacon/watchdog tick packet.

34. An arrangement for real-time betting, comprising a distributed domain and a central domain, by handling electronic records that contain predictions of the outcome of a certain incident, is arranged to:

- generate, within the distributed domain, a multitude of electronic records that contain predictions of the outcome of the incident, according to a players' inputs,
- furnish, within the distributed domain, each of the electronic records with a cryptographically protected proof of a certain moment of a distributed domain time associated with the generation of the electronic record,

characterized in that the arrangement is further arranged to:

- receive, within the distributed domain, repetitive beacon tick packets and watchdog tick packets, comprising time information of local time of the central domain at the moment the packet was sent,
- synchronise local time of the distributed domain, with time equated with the central domain time information received by the beacon tick packets, by help of values of a counter in the distributed domain and time information in received beacon tick packets, and
- verify validity of local time of the distributed domain regarding to the central domain's local time by comparing local time of the distributed domain to time information relating to the local time of the central domain received by the watchdog tick packets.

35. An arrangement according to claim 34, **characterized** in that an information traffic between the central domain and distributed domain is encrypted.

36. An arrangement according to claim 34, **characterized** in that the arrangement comprises a two-way data link used for collecting bet records from the bet record storage within the distributed domain to the central domain.

37. An arrangement according to claim 34, **characterized** in that the arrangement comprises an one-way data link for transferring beacon tick packets and watchdog tick packets, watchdog key update packets, and bet start/end packets and results from central domain to the terminal within the distributed domain.

38. A circuit means for real-time betting, within a communications system comprising a distributed domain and a central domain, where the circuit means belongs to the distributed domain, by handling electronic records that contain predictions of the outcome of a certain incident, is arranged to:

- generate, within the distributed domain, an electronic record that contains a prediction of the outcome of the incident, according to a player's input,
- furnish, within the distributed domain, the electronic record with a cryptographically protected proof of a certain moment of a distributed domain time associated with the generation of the electronic record,

characterized in that the circuit means is further arranged to:

- receive, within the distributed domain, repetitive beacon tick packets and watchdog tick packets, comprising time information of local time of the central domain at the moment the packet was sent,
- synchronise local time of the distributed domain, with time equated with the central domain time information received by the beacon tick packets, by help

of values of a counter in the terminal and time information in received beacon tick packets, and

- verify validity of local time of the distributed domain regarding to the central domain's local time by comparing local time of the distributed domain to time information relating to the local time of the central domain received by the watchdog tick packets.

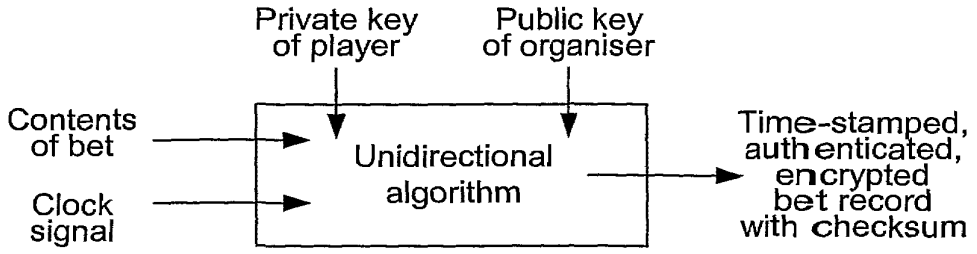


FIG. 1 PRIOR ART

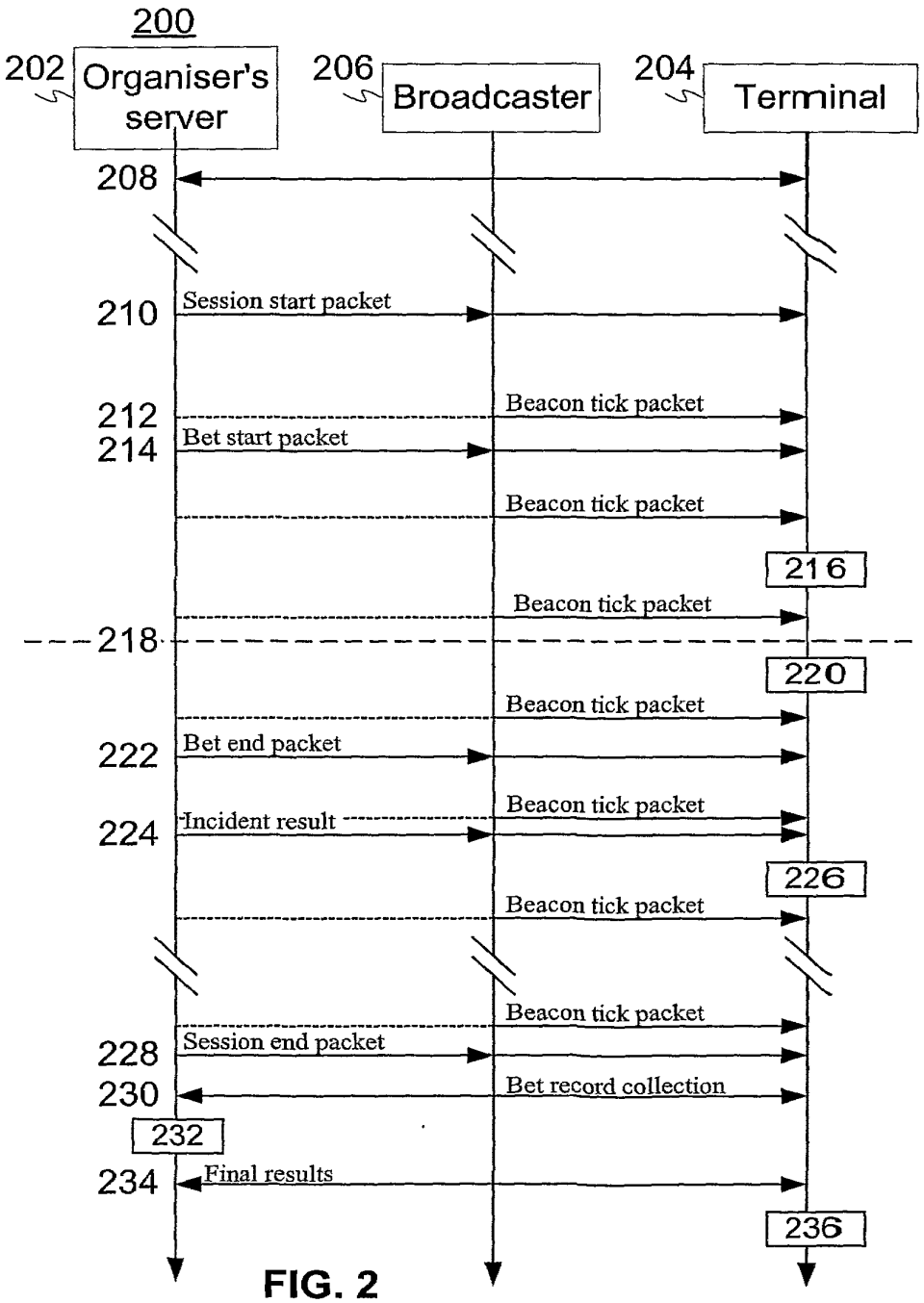


FIG. 2

FanDuel Ex. 1002-0593

300

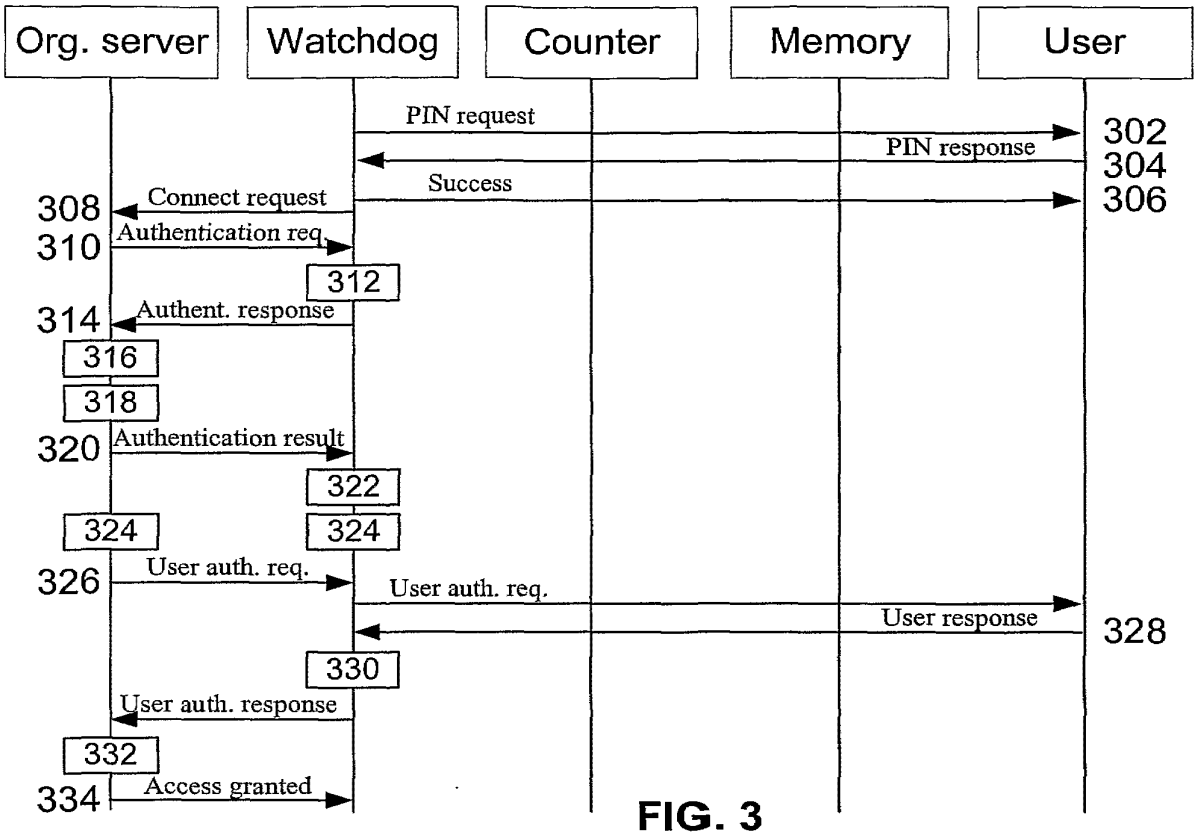


FIG. 3

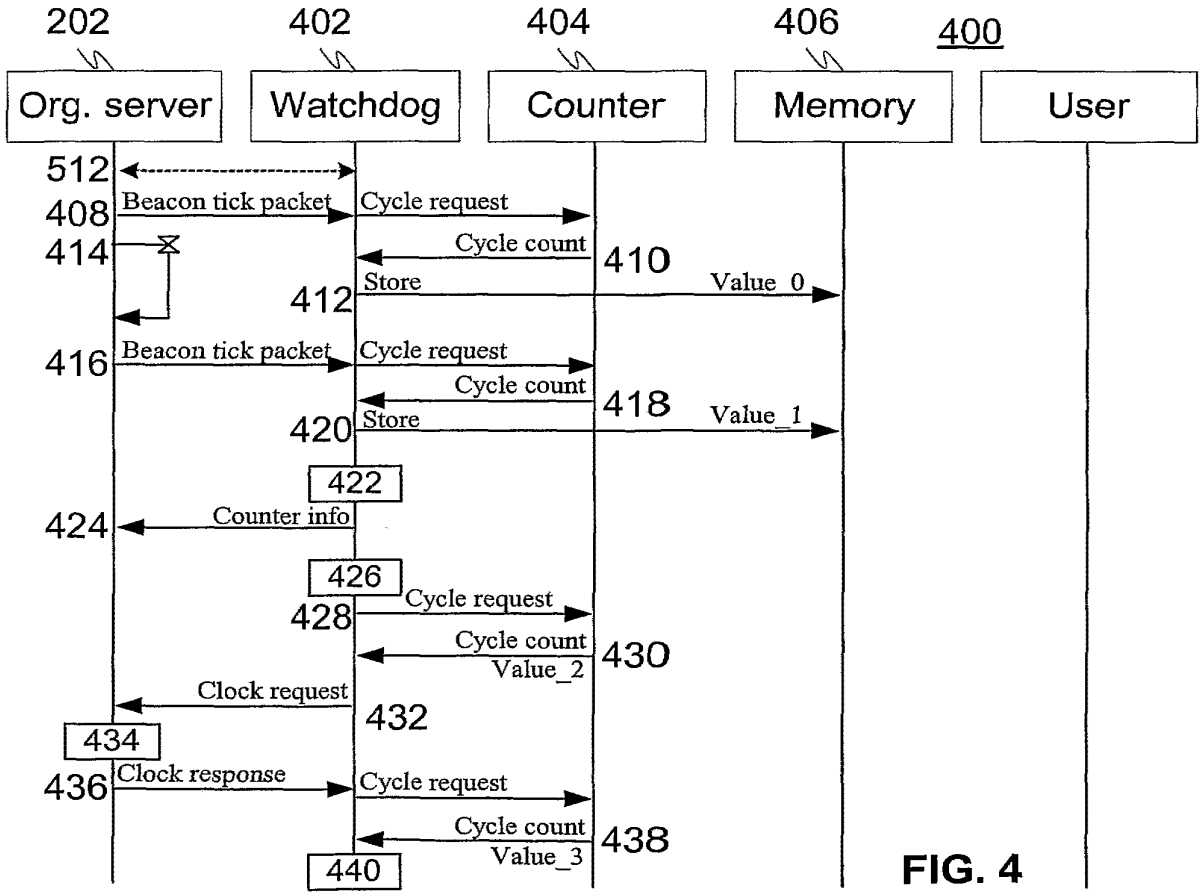


FIG. 4

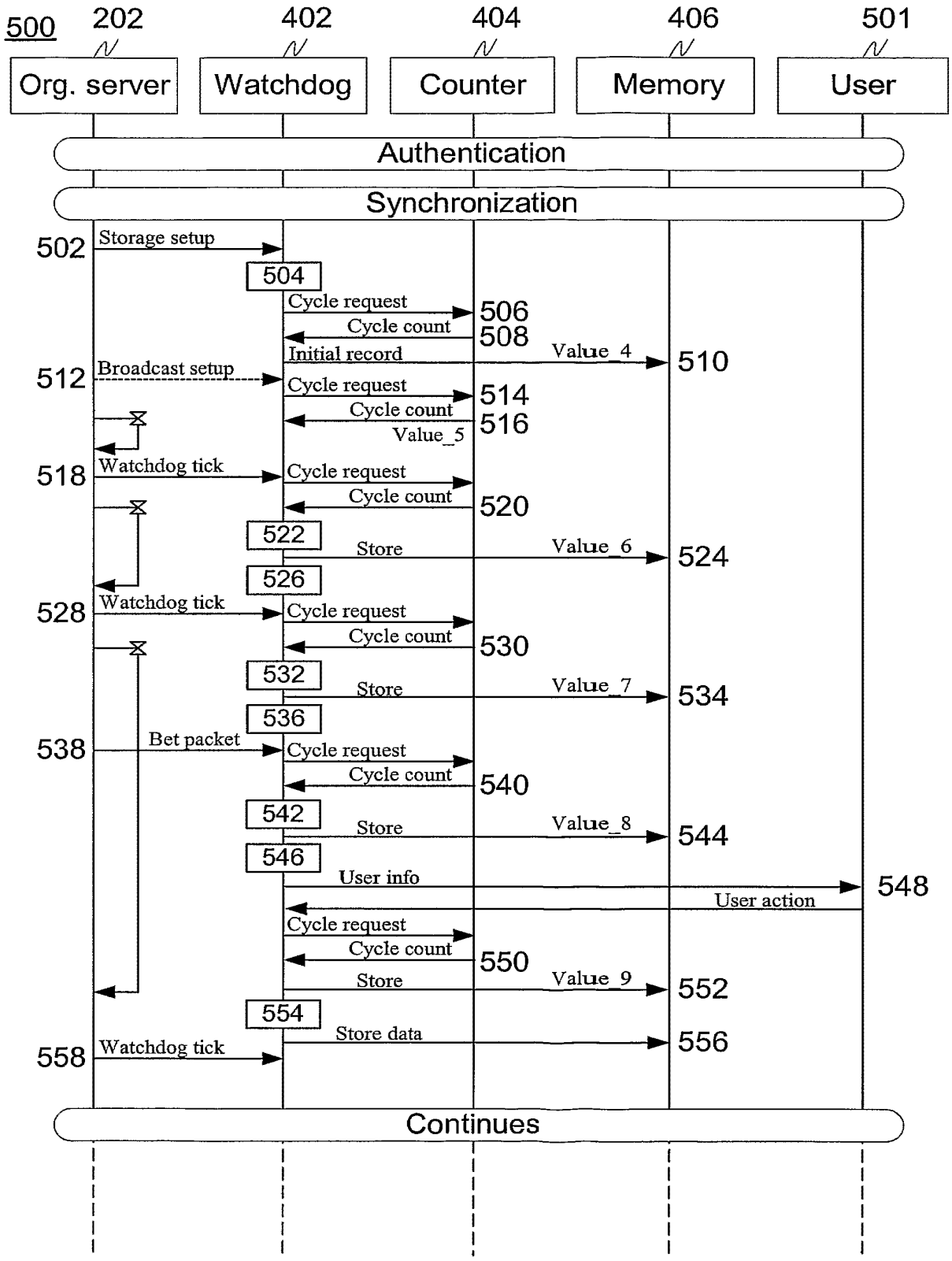

500
202
402
404
406
501
Org. server
Watchdog
Counter
Memory
User
Authentication
Synchronization
502
Storage setup
504
Cycle request
506
Cycle count
508
Initial record
Value_4
510
512
Broadcast setup
Cycle request
514
Cycle count
516
Value_5
518
Watchdog tick
Cycle request
Cycle count
520
522
Store
Value_6
524
526
528
Watchdog tick
Cycle request
Cycle count
530
532
Store
Value_7
534
536
538
Bet packet
Cycle request
Cycle count
540
542
Store
Value_8
544
546
User info
548
User action
Cycle request
Cycle count
550
Store
Value_9
552
554
Store data
556
558
Watchdog tick
Continues

FIG. 5

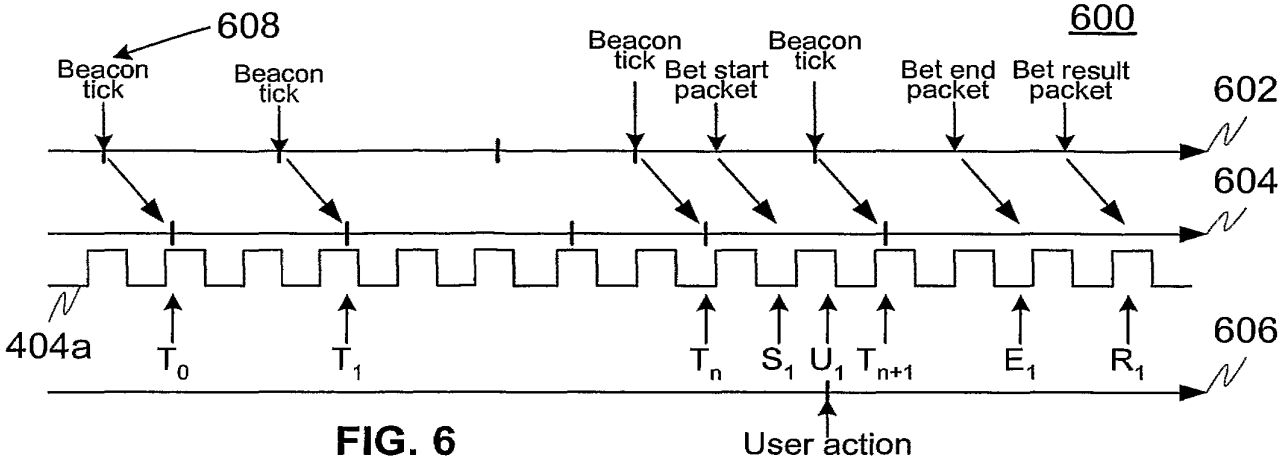


FIG. 6

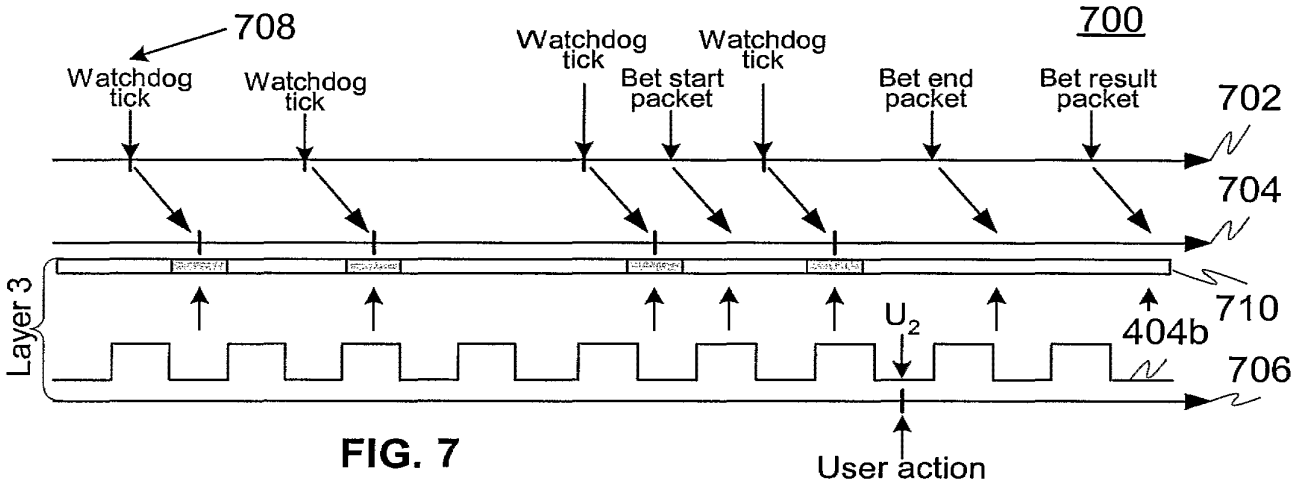


FIG. 7

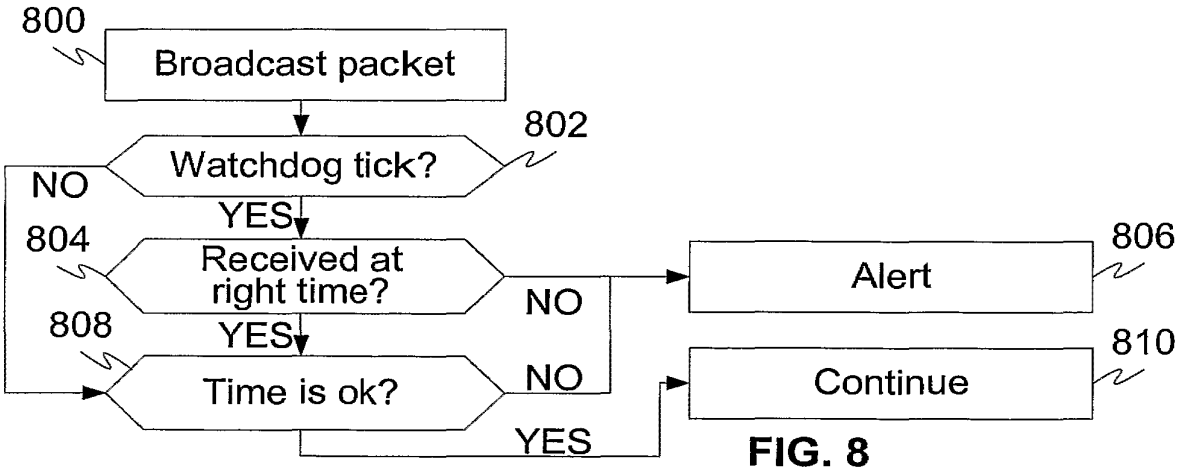


FIG. 8

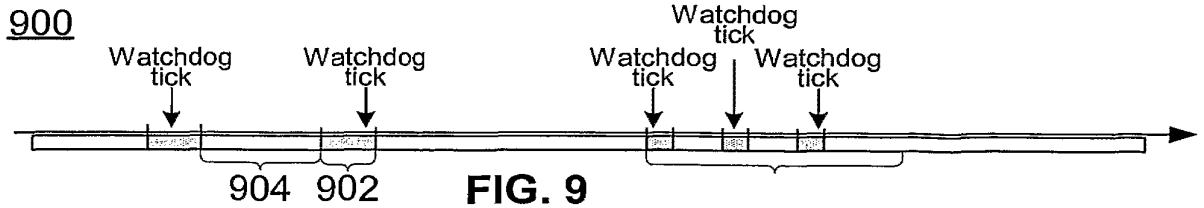


FIG. 9

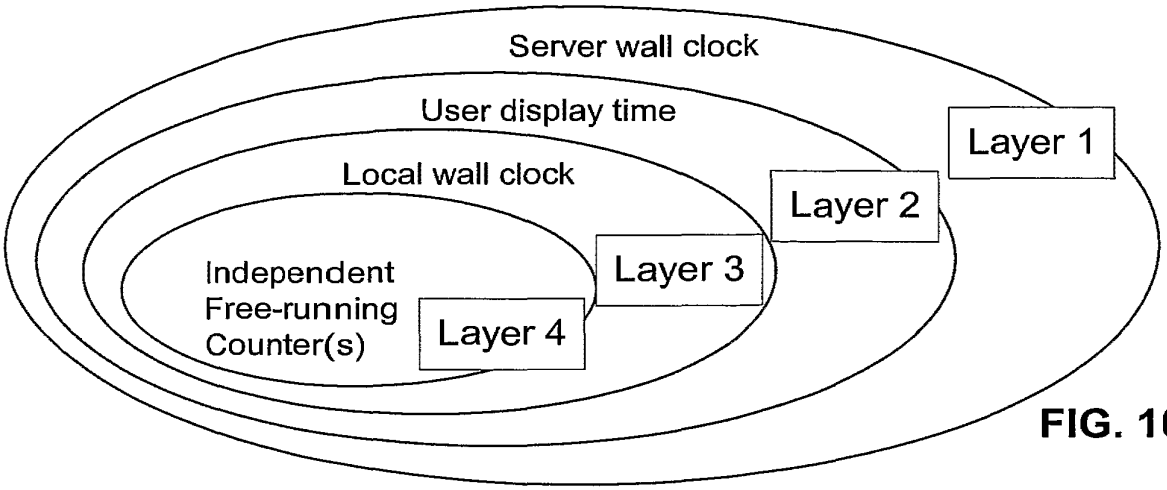


FIG. 10

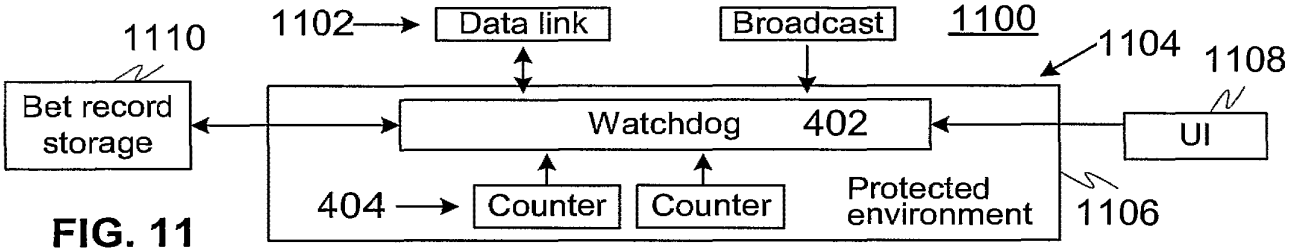


FIG. 11

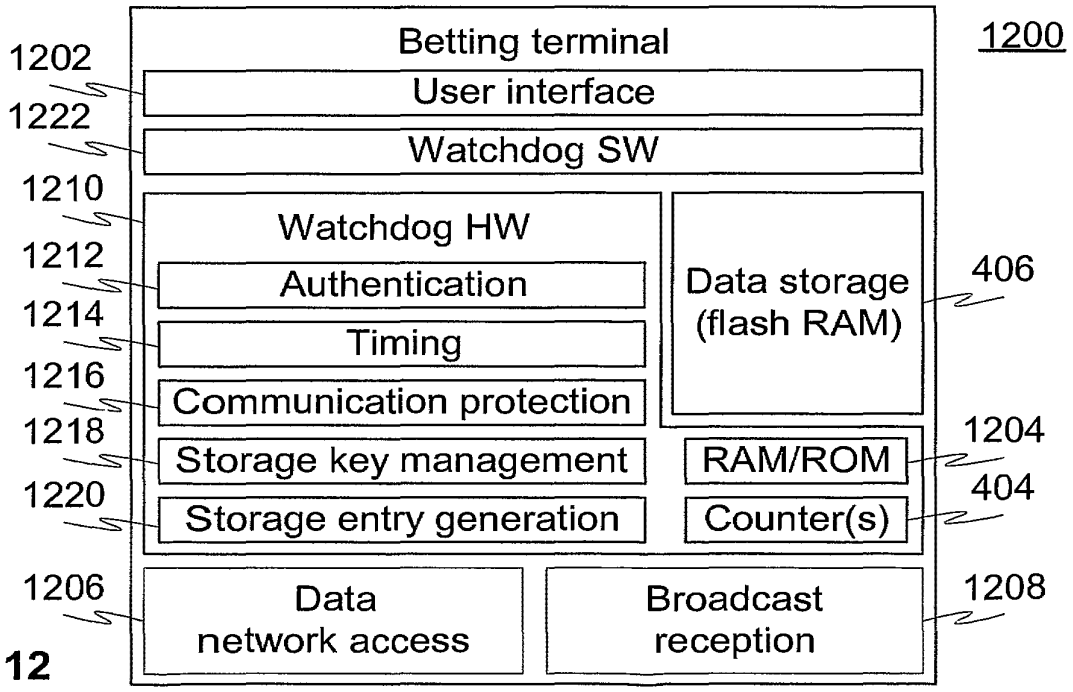


FIG. 12

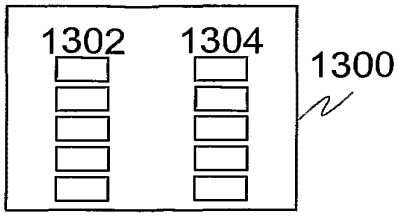


FIG. 13

INTERNATIONAL SEARCH REPORT

International application No.
PCT/FI 2004/000803

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: G06F 17/60, H04L 9/32
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: G06F, H04L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-INTERNAL,WPI,PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	Hamalainen P et al "Offline Architecture for Real-Time Betting" IEEE International Conference on Multimedia & Expo (ICME 2003),Baltimore,USA;July 6-9,2003 --	1-38
A	WO 0227674 A1 (OY VEIKKAUS AB), 4 April 2002 (04.04.2002), abstract --	1-38
A	US 20030023853 A1 (A.WAJS), 30 January 2003 (30.01.2003), page 1, line 24 - line 32; page 2, line 29 - line 53; page 3, line 36 - line 43 --	1-38

[X] Further documents are listed in the continuation of Box C. [X] See patent family annex.

* Special categories of cited documents:
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"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
3 May 2005	04 -05- 2005
Name and mailing address of the ISA/ Swedish Patent Office Box 5055, S-102 42 STOCKHOLM Facsimile No. +46 8 666 02 86	Authorized officer Tomas Erlandsson / itw Telephone No. +46 8 782 25 00

FanDuel Ex. 1002-0598

INTERNATIONAL SEARCH REPORT

International application No.
PCT/FI 2004/000803

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5871398 A (B.SCHNEIDER ET AL), 16 February 1999 (16.02.1999), abstract ---	1-38
P,A	WO 2004036396 A1 (CONAX AS), 29 April 2004 (29.04.2004), abstract --- --------	1-38

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				FI	113713	B	00/00/0000
				FI	20002146	A	30/03/2002
				NO	20031446	A	28/05/2003
				US	20040015442	A	22/01/2004
				ZA	200302413	A	13/02/2004
US	20030023853	A1	30/01/2003	BR	0202846	A	20/05/2003
				CA	2395026	A	26/01/2003
				CN	1407806	A	02/04/2003
				EP	1280350	A	29/01/2003
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				WO	9702074	A	23/01/1997
WO	2004036396	A1	29/04/2004	NONE			

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

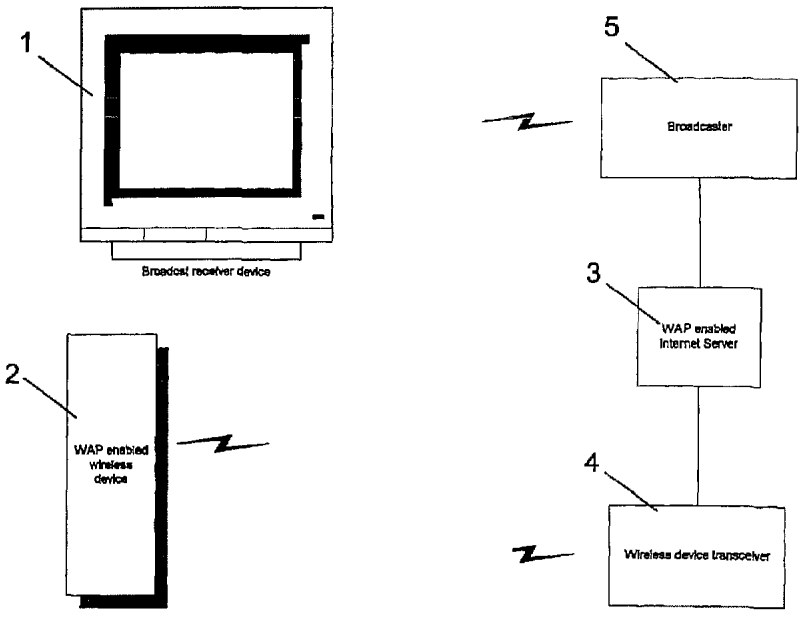
(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML,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

Declaration under Rule 4.17:
— *of inventorship (Rule 4.17(iv)) for US only*

Published:
— *with international search report*

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

(54) Title: INTERACTIVE BROADCAST SYSTEM



(57) Abstract: A receiving arrangement for receiving a broadcast programme in interactive fashion comprises a television receiver (1) and a wireless network device such as a WAP-enabled mobile telephone (2) controlled by the recipient of the programee (ie the user). The user uses the wireless network device to generate and transmit digital data to the programme broadcaster in interactive fashion. For example the broadcast programme may be a quiz show and the user may send answers to the quiz questions from the wireless network device. A WAP-enabled Internet site is hosted on a server (3) and is synchronised with the broadcast programme.

WO 02/03698 A1

FanDuel Ex. 1002-0601

Interactive broadcast system

The present invention relates to a system, method and apparatus for interactive broadcasting, more particularly but not exclusively to interactive TV systems.

Interactive TV is conventionally carried out by a user being connected to the broadcaster by means of a set top box, which provides the user with interactivity using a remote control unit.

These conventional interactive broadcast (TV / radio) systems have restrictions and limitations; for example, additional equipment is needed, (e.g. a set top box) to receive the interactive program software and means to superimpose the user interaction interface (graphics and text) on top of or alongside a broadcast programme are also required.

Because of these requirements, only a small proportion of the population have the facility to receive TV or other broadcasts in interactive fashion.

FanDuel Ex. 1002-0602

An object of the present invention is to alleviate at least some of the above disadvantages.

According to one aspect of the invention, there is provided an interactive programme broadcast system comprising:-

a broadcast transmitter;

computer apparatus coupled to the transmitter and operable for making available information related to and synchronised with the content of a programme broadcast by the transmitter; and

at least one user station including a broadcast receiver for receiving a programme broadcast by said transmitter, and a separate two-way digital wireless-communication network device operable independently of said broadcast receiver for receiving digital signals indicative of the programme related information from the computer apparatus and for sending to the computer apparatus digital signals representing user reponses entered via said device.

Preferably, said device is a mobile telephone. for example a WAP enabled mobile telephone or a mobile telephone operable to use packet-based transmission.

Said computer apparatus can comprise an Internet server and said device can be operable for communicating with the server via the Internet.

According to a second aspect of the invention, there is provided an interactive programme broadcasting method comprising broadcasting a programme via a transmitter to receivers at respective user stations and, using computer apparatus coupled to the transmitter, making available information related to and synchronised with the content of said programme for said information to be received at said user stations via respective two-way digital wireless-communication network devices, the devices being operable independently of said receiver and said computer also being operated for receiving user responses entered via said devices.

According to a third aspect of the invention, there is provided receiver apparatus for use in an interactive programme broadcast system which includes a broadcast transmitter and computer apparatus coupled to the transmitter and operable for making available information related to and synchronised with the content of a programme broadcast by the transmitter; said receiver apparatus comprising:-

a broadcast receiver for receiving a programme broadcast by said transmitter, and

a separate two-way digital wireless-communication network device operable independently of said broadcast receiver for receiving digital signals indicative of the programme related information from the computer apparatus and for sending to the computer apparatus digital signals representing user reponses entered via said device.

According to a fourth aspect of the invention, there is provided transmitter apparatus for use in an interactive programme broadcast system having at least one user station that includes a broadcast receiver for receiving a broadcast programme and a separate two-way digital wireless-communication network device operable independently of said broadcast receiver, the apparatus comprising:-

a broadcast transmitter for transmitting said programme; and

computer apparatus coupled to the transmitter and operable for making available to said device information related to and synchronised with the content of said programme, and for receiving digital signals representing user reponses entered via said device

The computer apparatus may comprise an Internet server arranged to host a time-coded Internet site which corresponds to the broadcast programme.

Preferably the wireless network device is hand-held.

Preferably the wireless network device is a mobile telephone, e.g. a WAP 'phone. In other embodiments the wireless network device could for example be a pager, PDA. Palm-top computer or other device having the facility to communicate over a communications network such as the Internet or public telephone system.

Because the wireless network device is distinct from (and bypasses) the programme receiver apparatus, the broadcast can be received by a conventional receiver apparatus, e.g. a conventional television.

Preferably the server is coupled to the Internet. Preferably the server is included in an arrangement for receiving WAP signals from programme recipients.

Preferably the wireless network devices are WAP 'phones.

Many people do have a wireless device (e.g. mobile phone) and a lot of these users will be in the near future, upgrading their mobile phones; to be WAP (wireless application protocol) enabled. Market research suggests that there will be at least 100 million WAP phones in operation by the end of 2000.

The WAP mobile phone is a wireless device that has the ability to view, access and interact with WAP enabled applications and services available on the Internet.

Just like Web pages on the Internet, WAP applications are written in a hypertext language and are available in the same manner and on the same computer servers (with some additional software) as Internet websites, and just like the Internet anyone with a WAP enabled device would be able to access a WAP website by typing in the web page address (e.g.www.playalong.com\wap).

The present invention relates particularly but not exclusively to the methods and apparatus for interacting with a TV or radio broadcast. In one embodiment the invention provides a wireless interactive broadcast system that enables a user (i.e. recipient) to interact with a broadcast programme, available on a television, radio or other broadcast medium by using a WAP enabled wireless device that has the means to send, receive and display data related to a broadcast programme. The WAP enabled wireless device is preferably operable by the user to interact simultaneously with said broadcast related data and preferably the system includes means to compare said interaction with predefined interaction, e.g. answers to questions included in the broadcast programme.

FanDuel Ex. 1002-0607

For the purposes of this specification the word "interact" includes, but is not limited to mean participate, play along, (game show/quiz), request (services/ goods), select, choose.

The wireless device may for example be connected to or be integral to may be a mobile phone, pager, PDA palm-top or any hand held device that has the means to display, send and receive data, (e.g. graphics and text) by means of a wireless communications.
The broadcast programme may for example be a game, game show, quiz, sports event, film, documentary, children's programme, advertisement or any broadcast programme a user could interact with.

In the case of a broadcast game show anyone with a suitable wireless device maybe able to play along with the broadcast on his or her wireless device. The system may be arranged so that many players can compete against one another during a broadcast. In this case each player may be scored according to his accuracy and or speed of answering questions. Each players score may then be transmitted back to the broadcaster or game operator in order to find a winner.

Players may be able to pre-book entry into a competition, wherein a short while before the broadcast begins the broadcaster send a SMS, page or other notification advising the player that a broadcast show is about to begin.

FanDuel Ex. 1002-0608

The wireless device may have the means to restrict access to the interactive services by means of a PIN (personal identification number) or other access control system or combination thereof.

A preferred embodiment of the present invention will now be described by way of example only with reference to the accompanying illustration, which is a block diagram of the components and operable parts necessary to this particular embodiment of the present invention.

In one embodiment of the present invention a user of a WAP enabled mobile phone may be able to play along with a broadcast television quiz show. In order for this to be achieved, the questions and answers along with their time-codes (time lapsed from beginning) in the broadcast quiz show, would need to be available prior to the broadcast, for creating a WAP enabled interactive application of the broadcast quiz show, which would be simultaneously, available on a WAP enabled Internet website, as the broadcast.

A unit of the example depicted comprises a broadcast receiver 1. In this example a television receiver 1. Which provides the user with the means to view a broadcast programme, a wireless device 2. In this example a WAP enabled mobile phone, to view and interact with a WAP enabled application, a WAP enabled Internet server 3, to host the said broadcast's WAP application, a wireless transceiver 4. to allow the WAP enabled wireless

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device 2. to connect, send and receive data from the WAP enabled sever 3. available on the Internet, the broadcaster 6. who broadcasts the quiz show this may be by means of a satellite, cable, ADSL or terrestrial transmission.

In this embodiment of the invention the user input and interacts by selecting the appropriate buttons by means of a keypad on the WAP enabled wireless device 2.

When a user of a WAP enabled wireless device 2. wants to interact or play along, with the WAP enabled broadcast, in this example a quiz show; he inputs the Internet address of the quiz show's WAP enabled website, on his WAP enabled wireless device 2. The WAP enabled wireless device 2. then connects to the wireless device transceiver 4., which then connects the user to the quiz show's WAP enabled Internet website on the WAP enabled internet server 3.

Previous to the broadcast of the quiz show, the questions and answers along with their respective time-codes (time lapsed from the beginning), would be needed prior to the broadcast, so that a time coded WAP enabled internet application of the broadcast quiz show could be created. Which would then be simultaneously running on the WAP enabled Internet server 3. as the broadcast of the quiz show. So that as the questions are announced on the broadcast quiz show, they simultaneously appear on the display of the WAP enabled wireless device 2. These questions may be available to the user as a

multiple-choice interface, and as the answers are announced on the broadcast receiver 1. the user's selections are scored according to their accuracy.

When the broadcaster 5. starts to broadcast of the quiz show; the broadcaster 5. Send a signal to the WAP enabled Internet server 3. to simultaneously run the broadcast related interactive WAP enabled application, on the WAP enabled Internet server 3. The broadcast and the Interactive WAP enabled application run simultaneously and synchronised.

As the questions become available to the user on television receiver 1. They are simultaneously displayed on the user's WAP enabled wireless device 2. Via the WAP enabled Internet server 3. He may then answer the questions, which may be presented to him in a multiple-choice format.

In another embodiment of the present invention the complete WAP enabled application may be downloaded to the WAP enabled wireless device 2. prior to the broadcast. In this case the broadcaster would send a signal to the WAP Internet website instructing it to send a signal to the WAP enabled wireless device to begin the application, thereby synchronising it with the broadcast.

In another embodiment of the present invention the WAP enabled application may be download in sections, in this case, each time a section of

the application is downloaded it is synchronised with the broadcast. This may happen at predefined time intervals in order to keep the WAP server synchronised with the broadcast.

Yet in another embodiment of the present invention the broadcast may be a radio broadcast.

This invention is not limited to WAP as new means of wireless communications are being developed which will become available, therefore consideration should be given to NTT, DoCoMois, iMmode or the like, which are excellent WAP alternatives. Other new wireless communications that may be used include, but not limited to, Packet based wireless communications which will be introduced soon e.g. packet switched GPRS (GSM packet radio systems) and later Universal mobile telecommunications systems (UMTS).

These advances in wireless communications will mean faster data retrieval and transmission, with constant and immediate two-way data communications ("On-always") which will not need to make a dial-up link every time data is sent or received.
Therefore in another embodiment of the present invention a user of a wireless device, with any one of the next generation of wireless communications, may have the means to interact with a broadcast, anytime without having to make a connection every time information or an

interaction is required. In this case the broadcasters may by-pass the use of the Internet (WAP) and communicate directly with the wireless device.

In another example of the present invention advertisements may be displayed on a users wireless device, these may be synchronised with broadcast advertisement or may be available independently (like banner advertising on the Internet). This feature could create a revenue stream for the operator (especially with the next generation of "On-always" wireless communications).

The interactive advertisements, available on the wireless device may be arranged so that a user may be able to purchase goods and / or services from a broadcast advertisement. The means to download vouchers may also be incorporated, i.e. if you watch / interact with an advertisement, a 25% off voucher is downloaded to your wireless device. This may then be printed off or redeemed by an electronic means (e.g. Bluetooth).

Claims

1. An interactive programme broadcast system comprising:-

a broadcast transmitter;

computer apparatus coupled to the transmitter and operable for making available information related to and synchronised with the content of a programme broadcast by the transmitter; and

at least one user station including a broadcast receiver for receiving a programme broadcast by said transmitter, and a separate two-way digital wireless-communication network device operable independently of said broadcast receiver for receiving digital signals indicative of the programme related information from the computer apparatus and for sending to the computer apparatus digital signals representing user reponses entered via said device.

2. A system according to claim 1, wherein said device is a mobile telephone.

3. A system according to claim 2, wherein the device is a WAP enabled mobile telephone.

4 A system accordin to claim 2, wherein the device is a mobile telephone operable to use packet-based transmission.

5 A system according to any preceding claim, wherein said computer apparatus comprises an Internet server and said device is operable for communicating with the server via the Internet.

6 An interactive programme broadcasting method comprising broadcasting a programme via a transmitter to receivers at respective user stations and, using computer apparatus coupled to the transmitter, making available information related to and synchronised with the content of said programme for said information to be received at said user stations via respective two-way digital wireless-communication network devices, the devices being operable independently of said receiver and said computer also being operated for receiving user responses entered via said devices.

7 A method according to claim 6, wherein said computer apparatus is an Internet server and said information is made available via a WAP accessible Internet page.

8 A method according to claim 6, wherein said information is made accessible via packet-based radio communications devices.

9. A method according to claim 6, 7 or 8, wherein said user responses are compared with predefined values.

10 A method according to claim 9, wherein the programme includes setting one or more questions for the users, said method including comparing user responses with predetermined answers to said questions

11 A method according to any one of claims 6 to 10, wherein advertisements are broadcast in the programme and said devices are arranged to carry corresponding interactive advertisements which enable the recipient to purchase the advertised goods or services.

12 Receiver apparatus for use in an interactive programme broadcast system which includes a broadcast transmitter and computer apparatus coupled to the transmitter and operable for making available information related to and synchronised with the content of a programme broadcast by the transmitter; said receiver apparatus comprising:-

a broadcast receiver for receiving a programme broadcast by said transmitter, and

a separate two-way digital wireless-communication network device operable independently of said broadcast receiver for receiving digital signals indicative of the programme related information from the computer

apparatus and for sending to the computer apparatus digital signals representing user reponses entered via said device.

13. Apparatus according to claim 12, wherein said device is a mobile telephone.

14 Apparatus according to claim 13, wherein the device is a WAP enabled mobile telephone.

15 Apparatus according to claim 13, wherein the device is a mobile telephone operable to use packet-based transmission.

16 Apparatus according to any one of claims 12 to 15, wherein said computer apparatus comprises an Internet server and said device is operable for communicating with the server via the Internet.

17 Transmitter apparatus for use in an interactive programme broadcast system having at least one user station that includes a broadcast receiver for receiving a broadcast programme and a separate two-way digital wireless-communication network device operable independently of said broadcast receiver, the apparatus comprising:-

a broadcast transmitter for transmitting said programme; and

computer apparatus coupled to the transmitter and operable for making available to said device information related to and synchronised with the

content of said programme, and for receiving digital signals representing user reponses entered via said device

18 Apparatus according to claim 17, wherein said device is a mobile telephone.

19 Apparatus according to claim 18, wherein the device is a WAP enabled mobile telephone.

20 Apparatus accordin to claim 18, wherein the device is a mobile telephone operable to use packet-based transmission.

21 Apparatus according to any one of claims 17 to 20, wherein said computer apparatus comprises an Internet server and said device is operable for communicating with the server via the Internet.

22 Apparatus according to claim 21, wherein the server is arranged to host a time-coded Internet site which corresponds to the broadcast programme.

23 Apparatus according to claim 19 which is arranged to download a WAP-enabled application to the WAP telephones.

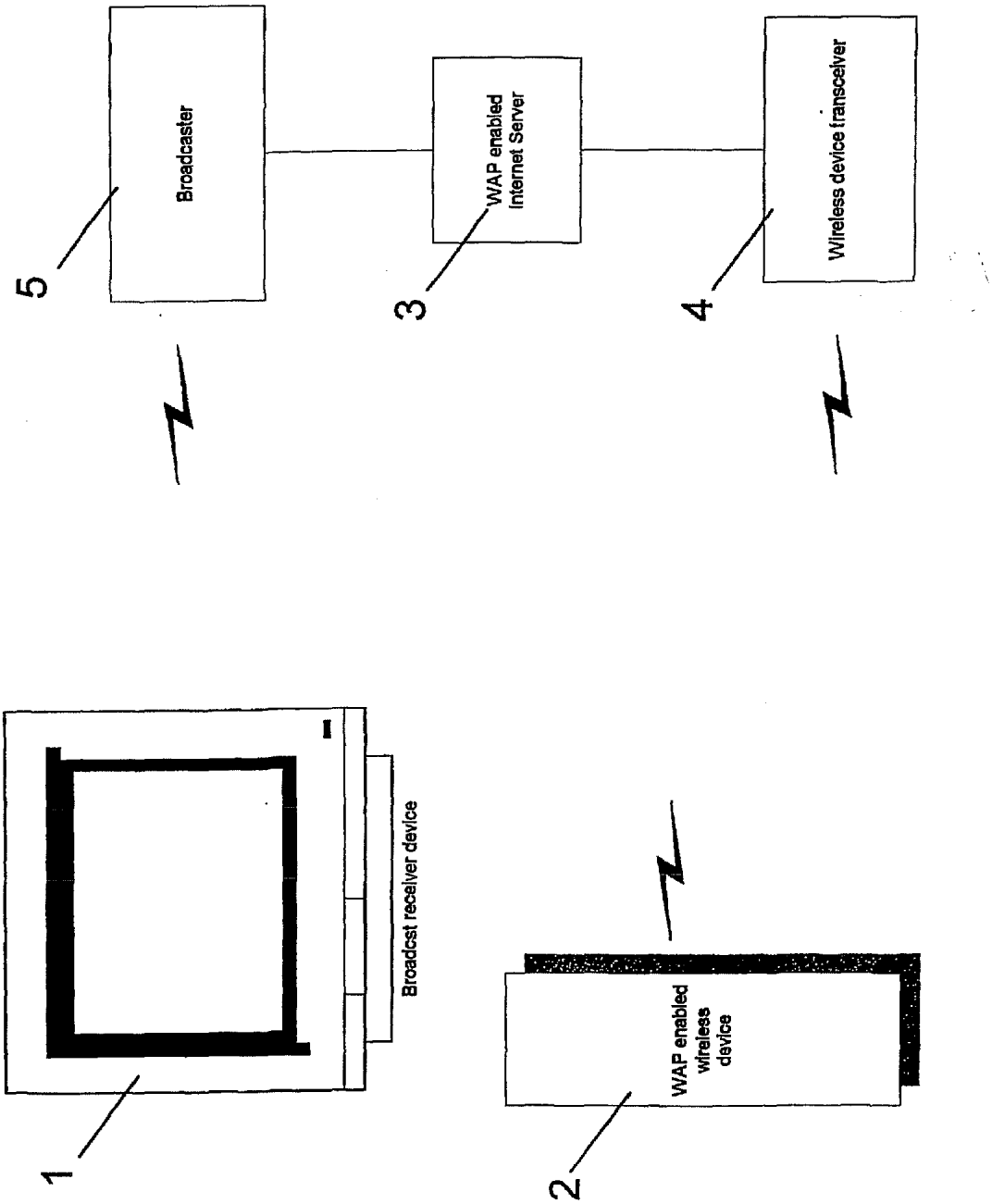
24 Apparatus according to claim 23, which is arranged to download a WAP-enabled application in sections synchronised with the broadcast.

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25 Apparatus according to any one of claims 17 to 24, further comprising means for comparing interactive responses from the recipients with a predefined interaction.

26 Apparatus according to claim 25, wherein the broadcast programme includes questions and the comparing means is arranged to receive answers from the recipients of the programme.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
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According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H04N A63F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, WPI Data, PAJ, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 99 04568 A (FERRIS GAVIN ROBERT ;RADIOSCAPE LTD (GB); FLORENCE PETER CHARLES () 28 January 1999 (1999-01-28)	1,2,6, 11-13, 17,18
Y		3-5,7,8, 14-16, 19-21
A		9,10,25, 26
	page 7, paragraph 2 page 12, paragraph 4 -page 13, paragraph 1 page 13, paragraph 4 -page 14, paragraph 1 page 25, paragraph 2	

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[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

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"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
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INTERNATIONAL SEARCH REPORT

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
Y	EP 0 999 678 A (CITIBANK NA) 10 May 2000 (2000-05-10) paragraph '0015! paragraph '0019! paragraph '0028! paragraph '0084!	3-5,7,8, 14-16, 19-21
A	ERLANDSON C ET AL: "WAP - THE WIRELESS APPLICATION PROTOCOL" ON - ERICSSON REVIEW, ERICSSON. STOCKHOLM, SE, no. 4, 1998, pages 150-153, XP000792053 ISSN: 0014-0171 page 152, right-hand column, paragraph 1	3-5,7,8, 14-16, 19-21

Form PCT/ISA/210 (continuation of second sheet) (July 1992)

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INTERNATIONAL SEARCH REPORT

Inter al Application No
PCT/GB 01/02987

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WO 9904568 A	28-01-1999	EP 0995313 A1	26-04-2000
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EP 0999678 A	10-05-2000	AU 5828099 A	11-05-2000
		CN 1259822 A	12-07-2000
		EP 0999678 A2	10-05-2000
		JP 2000232528 A	22-08-2000

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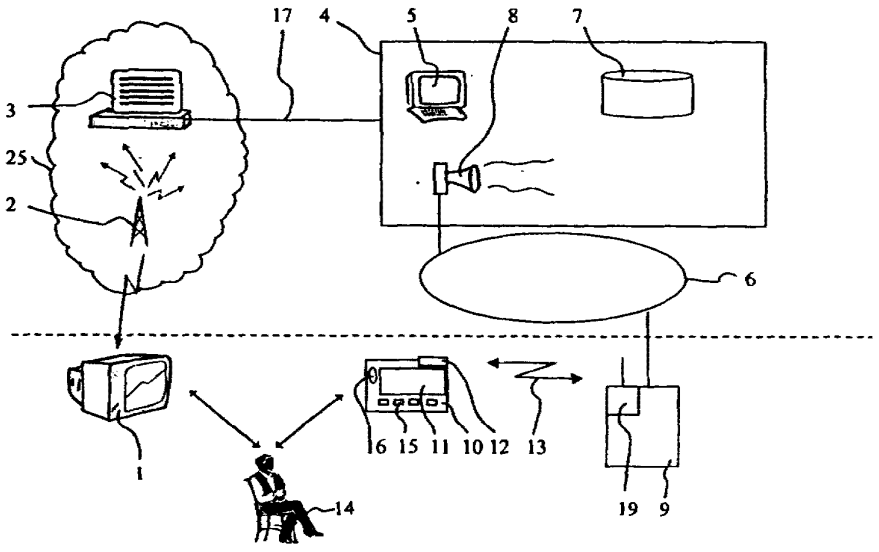
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: PRESENTING PROGRAMS



(57) Abstract: The invention relates to provision of improved services in connection with presenting a program for a user (14). Information of the user is stored in a remote management unit (4), preferably in a database (7) thereof. A broadcasting system (25) provides a terminal (1) with a program signal and the program is presented to the user. Upon detection of a predefined event data is transported between the remote management unit and a user device (10) that is operable by the user while he/she is experiencing the program. The transportation occurs over a data network (6) and a wireless data communication link (13) arranged between the data network and the user device. The data that associates with the program is personalised based on said stored information.

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PRESENTING PROGRAMS

The present invention relates to presentation of programmes, and in particular, but not exclusively, to provision of further content and/or interactivity for users of program presentation terminals by means of a data communication system.

Broadcasting systems for transmitting programs, such as TV or radio programmes, to be represented by a receiver apparatus to the users ("audience") thereof are known. For example, the skilled person is aware of the basic principle and operation of a television program broadcasting system and the concept of displaying television programmes to the viewers of television sets, and therefore the operation thereof will not be explained in detail. It is sufficient to note that the broadcasting systems include systems that are based on wireless program signal transmission, satellite transmission and cable transmission and so on and that the program signal transmission may comprise transmission of analogue or digital signals and/or a combination of these.

The programmes may be transmitted as live transmissions or as recorded programmes. The live transmissions show an event, such as a football game, news or a lottery draw, substantially in real-time for the viewers. The recorded programmes have been prepared beforehand and will be transmitted and shown later on to the viewers at an appropriate time. Recorded programs may also be represented from a storage media, such as video or audio tape, compact disk (CD) or digital video disk (DVD) e.g. by means of a video player, video disk or CD player or a tape player. The recording may contain a program that has

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been broadcast earlier or a recording that has been prepared to be distributed e.g. through video shops or record stores.

The programmes can also be divided in several categories, such as news, sport, game shows, entertainment programs, comedies, drama series, movies, children programmes, educational programmes, documentaries, and so on. For example, the purpose of the educational programmes is to help the viewers thereof to learn new things and to develop their knowledge and/or skills. The educational programmes may be viewed by various groups of people, such as small children or schoolchildren, students, adults, or anybody else wishing to learn new things. The game shows may include, for example, entertainment games with no prices or only modest prices and gambling, such as lottery or betting.

Programmes, such as documentaries, educational programmes and/or game shows, may include various stimulating features or events, such as questions to be answered or special tasks to be performed by the viewers or listeners or other events to which the remote audience may wish to give feedback or from which the viewers may wish to receive more information. Individuals watching dramas or comedies might wish to have influence over the story and/or the end of the story. People watching documentaries may wish to receive some further information of the facts and/or background and so on.

It is believed that interactivity may make the programmes in general more interesting and/or increase the efficiency of the educational programmes. For example, the viewer of a TV program may wish to have the possibility to respond to questions, events or other stimulating features of the programmes they are currently viewing. The conventional one-

way broadcasting systems, however, may not be able to provide feasible, easy-to-use and affordable interactivity to as the remote audience might wish to have.

The viewer (or listener) may also wish to receive further content that associates with the program he is viewing. The content could be any associating information such as further information of the events or characters of the program, background information, information of the rules of a game that is to be presented and so on. The further content could also comprise views from another angle(s), replay of certain events, additional views or parts of the program not presented by the broadcasting system and so on.

The previous proposals have suggested use of public switched telecommunication networks (PSTN) or other conventional telephone networks for interaction with the program. In accordance with the earlier proposals the viewer or listener needs to have a telephone in order to make a telephone call to the television studio. The viewer may also contact the studio through a personal computer (PC) connected to the Internet to give his answer or give some other feedback or to fetch further information. The broadcasting systems in general may not have been enabled to provide any tailored communication towards selected users other than by a telephone (or Internet) call between the viewer and e.g. the presenter of the program through the public telephone network. Some viewers may find it inconvenient to make a call to a particular number provided by the program. Although the Internet may be used for the communication, not everyone has a home PC that is connected to the Internet. A percentage of people may also find the PCs and Internet subscriptions too expensive and/or difficult to install and/or use and/or operate.

The previous proposals may thus not have been able to deliver a cost-effective solution for interaction with the broadcasting system, such as for interactive learning or for game shows or for fetching further content that associates with the program. This has been held back by lack of solutions offering an affordable and workable solution for providing a communication channel towards the broadcasting system or any other source of further content. The present proposals may not be able to provide personalised interactivity and/or further content to individual users in a satisfactory manner.

The users may also wish to have mobility while viewing or listening to the program. The mobility may be restricted by a wired connection between a terminal that may be used for the interactive communication and the telecommunication system. Furthermore, the present arrangements may also provide only limited possibilities for providing interactivity and/or further content in association with recorded programs.

The embodiments of the present invention aim to address one or several of the above problems. The specific embodiments aim to provide tailored interactivity and/or further content to the users of a conventional program representation system by means of a user device that may communicate via a different communication media than what is used for the provision of the programs.

According to one aspect of the present invention there is provided a method for presenting a program for a user. In the method information that associates with the user is stored in a remote management unit, preferably to a database thereof. A program representation device is provided with a program

signal by means of a program signal broadcasting system, whereafter the program is presented to the user based on the program signal. A predefined event is monitored for, and upon detection thereof, data is transported between the remote management unit and a user device operable by the user while experiencing the program. The transportation occurs over a data network and a wireless data communication link between the data network and the user device. The data that associates with the program is personalised based on said stored information.

According to another aspect of the present invention there is provided a method for presenting a program for a user. In the method information that associates with the user is stored in a remote management unit. A program signal is generated by means of replaying apparatus and subsequently provided to a program representation device. The program is then represented to the user based on the program signal. A predefined event is monitored for and in response to detection of the predefined event, data is transported between the remote management unit and a user device operable by the user while experiencing the program. The data transportation occurs over a data network and a wireless data communication link between the data network and the user device. The data associated with the program is personalised based on said stored information.

According to another aspect of the present invention there is provided a method for providing interactivity for a viewer of a television program that has been provided by a television system. The television program is displayed to the viewer based on a signal from the television system. The method comprises further a step of generation of a packet data message that is to be transmitted between a remote management

unit and a handheld controller operable by the viewer while viewing the program. The management unit is connected to a packet switched data communication system and comprises processor means for processing and storage means for storing information that associates with the viewer. The management unit also stores information that associates with the program. The handheld controller is associated with a wireless module enabling a wireless data communication link between the controller and the packet switched communication network. In accordance with a further method step the packet data message is transmitted between the wireless module and the packet switched telecommunication system via the wireless data communication link, the packet data message and the signal from the television system being transported are separate communication systems.

According to another aspect of the present invention there is provided a system for presenting a program. The system comprises a program representation terminal for representing the program to a user and a broadcasting system for providing the program to the program representation terminal. A data communication network is also provided. A remote management unit is connected to the data communication network, said remote management unit comprising a processor for processing data that associates with the program and a storage unit for storing information that associates with the user. Said processor is adapted to personalise data that associates with the program based on the information that associates with the user. The system comprises further a user device operable by the user while experiencing the program. The user device is adapted for communication over the data network by means of a wireless data communication link between the data communication network and the user device and to present

information to the user based on data that is received via the wireless data communication link from the remote management unit while the user is experiencing the program.

According to still another aspect of the present invention there is provided a system for presenting a program. The system comprises a program representation terminal for representing the program to a user and program replaying apparatus for providing the program to the program representation terminal. A packet data communication network is also provided. A remote management unit is connected to the packet data communication network, said remote management unit comprising a processor for processing data that associates with the program and a storage unit for storing information that associates with the user. Said processor is adapted to personalise data that associates with the program based on the information that associates with the user. A user device that is operable by the user while experiencing the program is also provided. The user device is adapted for communication over the packet data network by means of a wireless data communication link between the data communication network and the user device and to present information to the user based on data that is received via the wireless data communication link from the remote management unit while the user is experiencing the program.

According to yet another aspect of the present invention there is provided a system for presenting television programs. The system comprises a television terminal for displaying the television program based on a program signal and a program signal provision system adapted to provide the television terminal with the program signal. A packet data communication system is provided for data communication. A management unit

is connected to the packet switched data communication system. Said management unit comprises a database for storing personalised information associated with a viewer of the television program, and a processor adapted to process data associated with the television program. The system comprises further a portable user device adapted to be operable by the viewer while viewing the television program. The portable user device comprises a communication module enabling data communication over a wireless interface between the portable user device and the packet data communication system. The portable user device and the management unit are adapted to communicate data that associates with the television program over said wireless interface and packet data communication system at the same time when the television program is presented to the viewer based on the program signal provided through the program signal provision system.

According to yet another aspect of the present invention there is provided a portable user device operable by a viewer of a television program while viewing the program presented by a television terminal adapted to receive a television signal from a television system. The user device comprises a communication module enabling data communication over a wireless interface between the portable user device and a packet data communication system, said packet data communication system being an independent system from the television system. The user device comprises also a controller that is adapted to process data received from or to be transported to a remote management unit that is connected to the packet data communication system. The portable user device is adapted to communicate data that associates with the television program and has been personalised based on the personal characteristics of the viewer over said wireless

interface at the same time when the television program is presented to the viewer.

In a more specific embodiment of the invention, the data transportation may originate from the remote unit. Information that associates with the program may also be stored in the remote unit. Data may also or alternatively be transported from the user device. A broadcasting system or apparatus for replaying recorded programs may provide the representation device with the program signal. The user device may comprise a portable or handheld controller. Wireless communication may be arranged between the controller and other apparatus of the system.

The packet data communication network is preferably based on one of the third generation telecommunication standards. The wireless link may comprise a short range radio link. The wireless link may operate in an unlicensed radio frequency band. The wireless link may employ frequency hopping, wherein the frequency may be changed between subsequent data packets.

The data transported over the wireless link may comprise control instructions for the user device, additional information that associates with the program, and/or further content that associates with the program. The data transportation between the user device and the remote management unit may provide interaction between a viewer of a television program and the television system.

The program may include at least one event to which the user may react, e.g. by inputting a response into the user device. The user device may present an audio message and/or a visual message based on data transported from the remote unit. Voice

messages may be transported based on the voice over internet protocol (VOIP). The data transportation may be triggered by a predefined event in the program or based on monitoring of a time-code that associates with the recording media used for storing the program. The user may also trigger the data transportation by inputting a speech message into the controller or by pressing an appropriate key or keys. At least one element of the user device may be operated based on data received from the remote management unit.

Data to be transported to the user device is preferably personalised before transportation based on the information stored in a database of the remote management unit. The user may be enabled to modify the information stored in the database.

The embodiments of the invention may provide a cost effective way for enabling e.g. the viewer of a TV programme to interact with it and/or to receive further content and associated information that associates with the program. No apparatus may be required to be provided at the premises where the program is experienced for the provision of linking and or synchronisation between the program and the preferably two-way communication by the user. The embodiments may thus enable an easy and/or affordable interaction with a program. The embodiments may be used in any home today with the existing television or radio receiver sets. The embodiments may enable provision of selective and/or tailored data to the users. The tailoring can be based on personal characteristics of individual users of the system. The embodiments may make programs that are based on interactive learning and/or children programs and/or gaming programs and the like more interesting for the viewers. The embodiment may also enable

more feasible and affordable real-time communication between the users and the program service providers than in the conventional solutions.

For better understanding of the present invention, reference will now be made by way of example to the accompanying drawings in which:

Figure 1 shows one embodiment of the present invention;

Figure 2 is a flowchart illustrating an embodiment of the present invention;

Figure 3 shows further embodiments of the present invention;

Figure 4 shows an embodiment wherein data is communicated via a cellular network;

Figure 5 shows an architecture for a management unit in accordance with an embodiment of the present invention; and

Figure 6 is an example of an information record stored in the management unit of Figure 5.

Reference is made to Figure 1 which shows an embodiment of the present invention that relates to presentation of TV programs that are transmitted by means of a public television broadcast network 25. The television network 25 can be of any type, such as a conventional analogue network or a digital television network. The network 25 includes a wireless transmitter or antenna 2 for transmitting the television signal towards television apparatus 1. It should be appreciated that instead of distributing the television signal through antennae, the signal may be distributed through other media, such as cable or satellite subscriptions (not shown). It should also be appreciated that although only one antenna and TV set is shown for clarity reasons, the number of the antennae and TV sets connected to the TV network is typically much higher.

The television network system is also provided with a broadcasting apparatus 3 for the provision of the TV program signal to the antennae. It should be understood that the broadcasting apparatus typically includes various different elements in the TV studio and elsewhere in the television system. The apparatus that is required for the provision of the television program signal to the antenna 2 and the operation thereof is known and does not form a part of the invention as such, and will thus not be described in more detail.

The Figure 1 system includes further a data processing entity or management unit 4 comprising a processor facility 5 and storage means or database 7. The database 7 is provided for storing information on the individual users 14 of the system. That is, each of the users of the system may be individually registered onto the management unit 4 so that a personalised experience may be tailored for each user based on the information stored in the database. The information stored in the database 7 may be used e.g. to personalise communication towards individual users. For example, it is possible to personalise additional content that associates with a particular program, e.g. such that different viewers with different interests will receive different additional content.

In the simplest form the user related information may comprise indication that the user is allowed to fetch data from and/or transmit data to the management unit 4. The database 7 or a separate database is also preferably used for storing information that associates with the programs, such as additional content or background information. The management unit or 'hub' 4 may communicate via a connection 17 with one

or several elements of the television system 25, although this is not a necessity in all embodiments.

The management unit 4 is connected to appropriate gateway apparatus 8 for enabling communication via a packet data communication network 6. For example, the management unit 4 may be provided with voice over IP (Internet Protocol) gateway apparatus for enabling voice communication via a packet switched Internet protocol (IP) based data network. The skilled person is familiar with various possible gateway arrangements for connecting a data processing entity to a data network, and therefore they are not discussed in more detail.

The management unit 4 may be operated and run by an independent service provider providing interactivity and/or other content services. The management unit 4 may alternatively be controlled by the TV company itself. The presenter of a program and/or the production team of a TV program may also have a connection to the management unit 4 so that they may communicate with the viewers through the interaction system and/or control the communication between the viewer i.e. the user 14 and the management unit 4, as will be explained later.

The data communications network 6 may comprise any network that is capable of providing data transportation services for the management unit 4. The communication system provides preferably broadband communication services for the subscribers thereof. The broadband services is preferably provided to home users through a data communication system that is based e.g. on one of the third generation (3G) telecommunications standards. Examples of the 3G standards will be discussed in more detail later with reference to

Figure 4. The packet data network may also be based on technologies such as an integrated services digital network (ISDN) or an asynchronous data subscriber line (ADSL). A data communication system includes typically various elements, such as one or more network controllers, exchanges and/or routers (not shown for clarity reasons) and one or more gateways 8.

A home base station 9 is shown to be connected to the data communication network 6, and thus also to the management unit 4. The connection between the management unit 4 and the base station 9 may be based on any appropriate data transport protocol, such as the Internet Protocol (IP). The base station 9 is adapted to interface the data network 6 and one or several user devices in the location of the base station 9. The location can be e.g. a house, a suburban housing area or a block of flats.

The user 14 is provided with a portable user device. The user device may comprise a portable i.e. handheld on-site controller 10 that the user 14 may see and operate while watching the TV apparatus 1. The controller 10 provides an interactive remote station that may communicate over a wireless interface 13 with the base station 9. To enable this, the controller 10 of Figure 1 is provided with a radio communication module 12 that is enabled to have a wireless high speed data connection with the base station 9. Thus the data network 6 and the base station 9 are enabled to provide broadband communication between the management unit 4 and the portable controller 10.

In case a public data communication network that provides wireless services for the user thereof is used, the user device 10 may be adapted to communicate directly with a base

station of the data network. This embodiment will be described in more detail with reference to Figure 4. Alternatively, the wireless link 13 between the controller 10 and the base station 9 may be based on a communication protocol that is capable of providing a local low power wireless service. The low power wireless service may be different from the standard and protocols of the data network 6. The low power wireless link may be provided by a short range radio link (SRRL) between any two or more stations that are close enough to each other. The short range low power wireless services operate typically in a unlicensed frequency range, such as in frequencies over 2 GHz. For example, in the USA unlicensed ISM bands 2.4 to 2.5. GHz and 5.725 to 5.875 GHz are permitted.

The controller 10 and the base station 9 are provided with appropriate wireless communication modules 12 and 19, respectively such that duplex traffic between the two stations is enabled. The wireless modules 12 and 19 are preferably based on standardised low power radio service components. It should be appreciated that although this description describes a base station comprising a wireless module, the base station 9 may in its simple form constitute of a wireless transmitter and/or receiver and means for interfacing the transmitter and/or receiver to the data network 6.

An appropriate low power wireless service that may be used in the embodiments is based on a so called Bluetooth™ protocol. The term Bluetooth™ refers to a technology specification by the Bluetooth special interest group (SIG) for small factor, low-cost, short range radio links (SRRL) between various devices, such as mobile stations, portable personal computers, and other portable devices. Bluetooth™ facilitates real-time voice and data transmissions. If the controller 10 is equipped

with a Bluetooth™ wireless module 12, a connection may be established between the controller and the base station 9 that is also provided with a Bluetooth™ wireless module 19. The Bluetooth™ technology allows for a replacement of any cables that conventionally have connected devices to each other with a universal short range radio link. The wireless Bluetooth™ modules operate in an unlicensed ISM band at 2.4 GHz that is globally available. The connection may be established and maintained even when the controller 10 and the base station 9 are not within line of sight, e.g. are located in different rooms. The short range link may cover a radio service area of, for example, about 10 meters, but the range can also be extended to around 100 meters, e.g. by means of an amplifier.

The Bluetooth™ basement protocol is a combination of circuit and packet switching. Slots can be reserved for synchronised data packets. A data packet nominally covers a single slot, but can be extended to cover up to five slots, or even more. The Bluetooth™ specification defines a fast acknowledgement and frequency hopping scheme to improve the robustness of the wireless link and to combat interference and fading. Bluetooth™ wireless modules are adapted to avoid interference from other signals by hopping to a new frequency after transmitting or receiving a data packet. The use of short data packets and fast hopping may also limit the impact of other devices such as microwave ovens or other receivers and/or transmitters. A shaped, binary FM modulation is applied to minimise the complexity of the transceiver of the wireless module.

The Bluetooth™ radio service can support an asynchronous data channel, up to three simultaneous synchronised voice channels or a channel which simultaneously supports asynchronous data

and synchronised voice. The gross data rate of the present Bluetooth™ applications is 1MB per second. Each voice channel may support a 64 kb/s synchronous link. At present the asynchronous channel can support an asymmetric link of 721 kb/s in either direction while permitting 57.6 kb/s in the return direction, or a 432.6 kb/s symmetric link. A time division duplex scheme may be used for full duplex transmission. The network topology of the Bluetooth™ system may support both point-to-point and point-to-multipoint connections, thereby enabling communication between several devices at the same time.

The size of the Bluetooth™ wireless module is relatively small and typically comprises a single chip. A Bluetooth™ chip may comprise all necessary processors, radio part, interface means and so on. Since the chip is a standardised element, the implementation costs of the wireless controller 10 may be relatively low. The power consumption of a typical Bluetooth™ arrangement is also low. The fast frequency hopping scheme enables robust radio links between the controller 10 and the base station 9.

The controller 10 may be provided with voice input/output means 16 and/or various trigger sensors in the body thereof. A graphics display 11 and selection buttons 15 may also be provided in the controller. The display 11 may be adapted to show still images or video images that are based on signals received via the wireless transmission from the base station 9. The display 11 may also comprise a so called touch screen function. The controller 10 may be IP enabled. The controller 10 may have a customised application loaded into it.

With reference now also to Figure 2, operation of an embodiment of the present invention is explained in more detail. The TV programme production company may create a program which make use of the interactive controller 10. The programme may be a recorded or live program and transmitted in a conventional fashion. The generation of messages to be communicated between the controller 10 and the management unit 4 may associate with predetermined events in the production. According to a preferred embodiment a time-code of the film constitutes an event that triggers signalling from the management unit 4 towards the controller 10. The progression of the program can be followed and/or the time-code detected by the element 3 of the broadcasting system 25. The element 3 may be used to generate and transmit a request for the management unit 4 over the connection 17 to transmit data towards the controller 10. According to a possibility the element 3 or the management unit 4 monitors for a predefined event, e.g. a predefined sound effect or visual effect in the program, and upon detection thereof initiates the data transmission. The sound effect detection or visual effect detection may be based on digital sound or image processing techniques. The triggering of the messaging may also be based on combination of several events, e.g. such that a time-code condition and a visual effect has to be met before any message is generated and/or transmitted or that it is enough that one event of several possible events is detected. The transmission of data from the management unit 4 may also be initiated upon receiving a request from the controller 10. The data that may be sent to the controller 10 may take, for example, the form of voice data, video data and control instruction data.

The user 14 may receive personalised content from the management unit 4 and may thus be provided with an enhanced

and tailored television viewing experience. Each user may be personalised in the management unit or service provider portal based on information stored in the database 7 thereof. The personalised information may be obtained e.g. when a controller is purchased. The buyer may complete a registration form identifying the owner of the controller or the users of the controller (e.g. all members of a family). In this way, the controller and/or interaction can be personalised to each individual. One or more of the following criteria may be used as part of the personalisation process: first name; last name; date and/or place of birth; sex; colour of eyes; colour of hair; personal interests/preferences; hobbies; nationality; preferred language; address information; email address; telephone number; and so on. Even detailed health information, such as eyesight or information regarding difficulties in hearing, can be stored in the database, as this may be used e.g. when providing programs to special groups. Figure 6 illustrates a possible listing of personal details stored in the management unit.

The personal information can also be submitted e.g. by post, Internet, (e.g. through Hyper Text Mark-up Language HTML pages), telephone or personal visit to the provider of the interactive services or by any other appropriate way. This information will be stored in the database 7 and the controller is personalised to each viewer based on the stored information. The stored data may be used when predefined events in the program or a request by the controller trigger the procedure for data transmission to the controller.

The triggered message and personalisation data may be combined to form a "video event" or a "Sound Event". An example of the latter is a birthday song that is presented to a person on

his/hers birthday. The generated event is sent to a gateway 8 where e.g. the sound file is converted using e.g. Voice Over IP protocol and transmitted over a data network 6 to the controller 10.

The user 14 may activate the controller 10 whilst watching a program. The user may input various information, such as his/hers identity, information regarding the channel he/she is watching and so on. This information may also be provided by the receiver apparatus, either via a connection with the controller 10 or base station 9. To enable the communication with the other devices in the household, the TV may be provided with a similar wireless module as the controller, or the communication may occur e.g. via a conventional infrared link. The controller may then generate and transmit a message to the management unit, and more particularly, to the processor 5 thereof. Based on the message from the controller 10 and/or information stored in the database 7, the processor 5 generates a content entity that is transported back to the controller and presented to the user 14 thereof.

According to an embodiment the controller is associated with a toy, such as a teddy bear 10 of Figure 4. It should be appreciated that in the following description any reference to Teddy 10 is also a reference to any portable on-site controller, whenever appropriate. When a toy, is not used as an interface towards the TV system, it can be played with in a normal manner. When a particular broadcast starts, the child may activate the toy e.g. by squeezing the toy's nose or by touching or pressing other predefined parts or activation means of the toy. The toy is activated, i.e. 'comes to life', and as the broadcast continues, the toy may ask questions in relation to the broadcast. The child may interact with the

program by sending responses through the Teddy (e.g. by pressing one or several of the buttons thereof, by touching an element of the toy given to him/her by the program or simply by speaking to the toy). The answers may be verified by the management unit 4, and feedback may be given to the child regarding the correctness of the answers.

Sound messages may be output by one or more speakers built into the Teddy (for example, in the mouth of the teddy bear). The sound message may be based on the signal fed by the VoIP conversion. A microphone may also be built into the Teddy (e.g. in one or both ears 16) allowing the child to talk back. The input may again be encoded using VoIP and transmitted back to the control system 4, where a speech recognition software could interpret what has been said. The control system 4 may then generate an appropriate response.

In accordance with a further embodiment the design of the controller 10 is such that mechanical movement of at least some parts thereof are enabled. This may affect the amount of battery power required, but also adds to the over-all design. For example, if the controller is in a form of a toy, e.g. the Teddy, movement of the mouth, eyes, head, limbs and ears of the toy are all possible. The movement may be controlled by the management unit 4 via the data network. For example, the movements of the various elements of the Teddy bear may follow the story of the program, or give feedback to the child based on the responses he/she has given to the questions. It should be appreciated that a similar control instruction mechanism may be employed to control the operation of any controller and/or the various components thereof that may be employed when implementing the embodiments of the present invention.

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A further embodiment of the invention will now be described with reference to Figure 3. A video recorder 20 is shown to comprise a wireless module 21 that is capable to communicate with a base station 9, preferably via a Bluetooth™ wireless link. The video recorder or similar program replaying apparatus is adapted to detect a time code or any other indication in the recorded program. The detection of the indication triggers signalling from the video recorder (VCR) towards the base station 9, and further to a management unit 4 via a data network 6. In response the management unit 4 may generate and transmit predefined content to be presented to the user of the recorder. The embodiment enables interactive viewing of recorded programs, the difference to Figure 1 embodiment being that the triggering event may originate from the video recorder 20 that is typically at the location of the viewer 14 rather than from the broadcasting system 25.

The video recorder 20 may include in the transmission information that identifies the program and/or the user and so on. The presentation of the content to the user may occur either by means of the video recorder 20 (that is typically connected to a TV apparatus) or by a controller unit 10. The controller 10 may be similar to the ones described in connection with Figures 1 and 2.

It should be appreciated that the replaying device 20 may be any device capable of presenting a program on a storage media, such as on a video tape, digital video disk (DVD), on computer disk and so on and that the program to be shown via the TV screen does not necessarily need to be broadcast via a broadcasting system.

According to a further embodiment, the video recorder 20 or the TV apparatus and the controller 10 may communicate with each other over a wireless link 23 or via the base station 9. In the latter case the base station acts as an interfacing element between the various devices, such as 10 and 20 connected thereto.

According to an embodiment, the video recorder 20 or the TV apparatus is provided with means for detecting a predefined event from the broadcast signal. The means may comprise e.g. a dongle adapted to interpret the time-code from the broadcast signal. After detection of the event, a message is sent over the short range link either to the base station 9 or the controller 10. This embodiment enables an arrangement where it is not necessary to have a communication link (such as link 17 in Figure 1) between the broadcasting system 25 and the management unit 4. This is enabled even in instances where the user is viewing a program that is not recorded and/or replayed by the recorder 20, but is only received and immediately represented by the TV apparatus. In addition, the embodiment may enable presentation of the additional content by means of the TV apparatus, e.g. via an additional window opened on the screen thereof or by replacing the picture on the screen that is based on the broadcast signal by a picture that is based on data communicated from the management unit 4.

The messaging between the video recorder 20 and the base station 9 may also "hop" via the controller 10. Before the next hop, the user of the controller 10 may confirm that data is actually to be transmitted to the remote management unit 4 or to the video recorder 20 and/or the TV apparatus.

Figure 4 shows a preferred alternative for the wireless data communication interface. In the Figure 4 embodiment the data network 6 comprises a network that is capable of providing wireless packet switched data communication services, such as a General Packet Radio Service GPRS network, EDGE (enhanced data rate for GSM evolution) Mobile Data Network or an appropriate third generation telecommunication system such as a CDMA (code division multiple access) or TDMA (time division multiple access) based 3rd generation telecommunication systems referred to as Universal Mobile Telecommunication System (UMTS). The GPRS network is described in more detail for example in 3GPP technical specification 3G TS 23.060 "General Packet Radio Service (GPRS); Service Description; Stage 2", January 2000. This document is incorporated herein by reference. A UMTS system that is based on a WCDMA (wideband code division multiple access) is described in more detail e.g. in UMTS related 3GPP technical specifications. Other suitable packet data telecommunication standards include, without limiting to these, IS-95, International Mobile Telecommunication System 2000 and i-Phone.

If the data communication is based on use of the public land line mobile networks (PLMN), then the base station 9 would be provided by means of a base station of the PLMN system instead of a short range radio link home base station of Figure 1. The controller 10 may be enabled to communicate directly with said PLMN base station 9. To enable this, the controller 10 may contain e.g. a GPRS transceiver module and an appropriate data processing unit, such as a Symbian EPOC micro-processor. The EPOC platform may be used because it supports Wireless Application Technology (WAP) and may be used with a Voice Over IP (VoIP) client. According to an alternative embodiment the

short range radio link home base station is enabled to communicate with the base station of the PLMN systems.

Data rates up to 115kbit/s may be transmitted via the wireless interface in accordance with the present GPRS specifications, although the rate may be even more in the future applications. This enables wireless transmission of information at a speed that may be used in the embodiments. The introduction of GPRS (General Packet Radio Service) is one of the key steps in the evolution of today's 2nd generation networks, such as the GSM (Global System for Mobile) to third generation systems, and the first commercial GPRS services are believed to be launched in near future. Following the arrival of GPRS, a further step in the bandwidth model is believed to occur with EDGE, with speeds of up to 384kbit/s being possible. The bandwidth potential of the 3rd generation systems such as the UMTS or IMT 2000 (International Mobile Telecommunication System 2000) or IS-95 is in the first phase believed to be up to 2Mbit/s, and even more in the future. The inventor has found that the wireless packet switched services will enable the embodiments of the invention due to their capability of providing wireless high speed data connection that was not facilitated by the conventional circuit switched wireless connections.

An advantage of the packet switched services when compared to the conventional data services is that the packet switched service will always be available. The packet switched service are thus also referred to as connectionless services, as there will not be any communication circuits. Instead, each of the data packets is provided with an address and the individual packet are routed to the destination based on the address information. This means that the users are always connected and always on-line, and thus the management unit 4 will be

easy and quick to access. Another benefit is that the user of the packet switched services may pay only for the content used and not the length of time connected. This enables a seamless access to a whole range of new and existing Internet Protocol (IP) based services. The viewers will be able to stay permanently logged-on to the interactive services and to send data to and to receive data the management unit with large file attachments in an instant. Since the viewers may be always connected and always on-line, the interactive services will be easy and quick to access and, with the capability to charge per data bit sent and received, customers will be able to pay only for the usage of the data transmission resources, e.g. per a data packet transmitted.

According to an embodiment, wireless application protocol (WAP) technology may be employed for the wireless transmission. For example, the display and selection buttons built into the controller 10 may also be based on the use of the wireless application protocol (WAP).

Figure 5 shows a possible architecture for the management unit. Interaction control function 50 controls interaction between a broadcasting system (via interface 17), a user device (via inputs/outputs 8) and a data base 7.

Information associated with the user and stored in a database of the management unit may be divided into a plurality of subcategories. Figure 6 shows a possibility for the division. More particularly, the information can be classified in categories such as personal details and user device information. The user device information may be divided further to historical telemetry and event telemetry.

The history information may comprise information such as the time when the device was last used and/or is typically used, length of time of the last and/or typical usage, total length of time used, types of programmes viewed and so on. Billing related information may also be stored, such as total billing, the bill accumulated for the present month, the bill for the last month/year and so on.

The event information i.e. active telemetry information may comprise e.g. the status of the user device, a programme tag, information associated with the quality of the signals and/or possible device tests.

The device information may be linked to elements of the provider of the data communication service used for communication towards the user device. For example, a communication may be provided between the management unit and a subscriber register (such as the home location register) or billing database of the operator.

Figure 5 shows also a function block 51 for interaction and timing with a program. Block 51 provides a function by means of which a content partner or production company can input the desired interaction script for their programme. The management unit may create and provide templates which will allow for non-technical persons to input this information using e.g. a WWW based graphical user interface. For example, the following fields may be included in an interaction and timings description entity for a program.

Main Fields: Programme ID (Each programme may retain a unique ID in the management unit); Scheduled Start Date; Scheduled Start Time; Event 1; Event 2; ...; Event N.

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Each Event within the interaction may contain e.g. the following subfields:

Timing to Broadcast; Type (Data/Voice); Script; Expected Response (e.g. a Correct Answer); Out of Range Response (Incorrect Answer); Out of Range Script (a subscript allowing further interaction to allow the user to find the right answer).

The following is an example of interaction and timings based on use of the above fields:

Interaction and Timings
- Main fields
  - Programme ID
  - Schedule Start Date/Time
  - Event 1
    - Timing
    - Type
    - Script
    - Expected Response -Is input correct?
    - Out of Range Response
      - Out of Range Script
      - Expected Response -In input correct?
  - Next Event

The user may also be able to customise the interactive service based e.g. on an HTML interface and a PC. In addition to receiving content and/or interacting with the programs, the user may also use the controller to other purposes, such as for ordering e.g. video-on-demand type services or goods/services offered by the broadcast program.

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According to a further embodiment, the management unit 4 may be used for selective marketing towards the users of the system. For example, the unit 4 may trigger commercial or other content to be transported to a selected user based on the information of the user and also of the program he/she is currently viewing. A user who has registered as a fan of football club A would receive different information than a user who is registered as a club B fan, and so on.

According to a further embodiment, instead of being rather an entertainer or an information provider, the user device may be used as a companion or security device for the user thereof. The user device 10 may be adapted to be used as a reminder device under the control of the management unit 4. It may also comprise a "panic button" type function, which may be used e.g. by the elderly to get help. The panic button function may be activated by pressing a key or by a voice prompt.

It should be appreciated that whilst embodiments of the present invention have been described in relation to some specific types of programs and user equipment, embodiments of the present invention are applicable to any other suitable type of control equipment and programmes. For example, the programs may ask the viewers to express their opinion or give their vote in issues raised by the program.

It is also noted herein that while the above describes exemplifying embodiments of the invention, there are several variations and modifications which may be made to the disclosed solution without departing from the scope of the present invention as defined in the appended claims.

Claims

1. A method for presenting a program for a user, comprising:

storing information that associates with the user in a remote management unit;

providing a program representation device with a program signal by means of a program signal broadcasting system;

presenting the program to the user based on the program signal; and

in response to a predefined event, transporting data between the remote management unit and a user device operable by the user while experiencing the program, the transportation occurring over a data network and a wireless data communication link between the data network and the user device, and said data associating with the program and being personalised based on said stored information.

2. A method as claimed in claim 1, wherein data is transported from the remote management unit.

3. A method as claimed in claim 1 or 2, wherein data is transported from the user device.

4. A method as claimed in any preceding claim, wherein the user device comprises a portable controller.

5. A method as claimed in any preceding claim, wherein the user device processes data packets received from or to be transported to the management unit.

6. A method as claimed in any preceding claim, comprising a further step of storing data that associates with the program in the remote unit.

7. A method as claimed in any preceding claim, wherein a base station interfaces the wireless data communication link to the data network.

8. A method as claimed in any preceding claim, wherein the wireless link comprises a short range radio link.

9. A method as claimed in any preceding claim, wherein data is transported over the wireless link in an unlicensed radio frequency band.

10. A method as claimed in claim 9, wherein the wireless link operates at a frequency band that is about 2.4 GHz.

11. A method as claimed in any preceding claim, comprising transportation of data packets.

12. A method as claimed in any preceding claim, wherein the wireless link employs frequency hopping.

13. A method as claimed in claims 11 and 12, wherein the frequency used for the wireless link is changed between subsequent data packets of the packet data transmission.

14. A method as claimed in any preceding claim, wherein the wireless link is based on a universal short range radio link protocol defined by Bluetooth™ Special Interest Group.

15. A method as claimed in any preceding claim, wherein the data transported over the wireless link comprises control instructions for the user device.

16. A method as claimed in any preceding claim, wherein the data transported between the management unit and the user device comprises additional information that associates with the program.

17. A method as claimed in any preceding claim, wherein the data transported between the management unit and the user device comprises further content that associates with the program.

18. A method as claimed in any preceding claim, wherein the data transportation between the user device and the remote management unit provides interaction between a viewer of a television program provided by a television system and the television system.

19. A method as claimed in any preceding claim, wherein a packet data message is generated at the user device in response to an input by the user, the generated message is subsequently transported from the user device to the remote management unit, and in response to receiving the packet data message, the remote management unit generates a further packet data message to be transported to the user device.

20. A method as claimed in any preceding claim, wherein the program includes at least one event to which the user may react by inputting a response into the user device.

21. A method as claimed in any preceding claim, wherein the user device presents to the user an audio message based on data transported from the remote management unit.

22. A method as claimed in any preceding claim, wherein the user device presents to the user a visual message based on data transported from the remote management unit.

23. A method as claimed in any preceding claim, wherein one or more questions or tasks are presented to the user by the user device based on data transported from the remote management unit.

24. A method as claimed in claim 23, wherein the user inputs response to said one or more questions or tasks, data based on the response is transported to the management unit, and the management unit generates ands transmits a feedback message regarding the response to the user device.

25. A method as claimed in any preceding claim, comprising transportation of voice messages based on the voice over internet protocol (VOIP).

26. A method as claimed in any preceding claim, wherein the data transportation is triggered by a predefined event that associates with the program.

27. A method as claimed in any preceding claim, wherein the data transportation is triggered based on monitoring of a time-code that associates with recording media used for storing the program.

28. A method as claimed in claim 27, wherein an element of the broadcasting system monitors for the time-code.

29. A method as claimed in claim 27, wherein apparatus for replaying recorded programs monitors for the time-code.

30. A method as claimed in claim 27, wherein the user device monitors for the time-code.

31. A method as claimed in claim 26, wherein the event detection is based on detection of a predefined audio effect or visual effect in the program.

32. A method as claimed in any preceding claim, wherein the user triggers the data transportation by inputting a speech message into the controller, the speech message is modified for the transmission over the wireless link and the data network, and the speech message is recognised in the remote management unit.

33. A method as claimed in any preceding claim, wherein at least one element of the user device is operated based on data received from the remote management unit.

34. A method as claimed in claim 33, wherein the at least one element is moved based on control instructions in the data message generated by the remote management unit.

35. A method as claimed in any preceding claim, wherein the data network provides broadband data transportation services for the users thereof.

36. A method as claimed in any preceding claim, wherein the data network comprises a third generation mobile telecommunication network.

37. A method as claimed in any preceding claim, wherein the data network is based on at least one technology that is

selected from the following possibilities: an Asynchronous Data Subscriber Line; an Integrated Services Digital Network; a General Packet Radio Service; Enhanced Data Rate for GSM Evolution; a Universal Mobile Telecommunication Service, IS-95; International Mobile Telecommunication System 2000.

38. A method as claimed in any preceding claim, wherein data to be transported to the user device is personalised before the transportation.

39. A method as claimed in any preceding claim, wherein the user modifies said information stored in the database.

40. A method as claimed in any preceding claim, wherein data is routed to the user device based on said information stored in the database.

41. A method as claimed in any preceding claim, wherein the information of the user stored in the management unit comprises information regarding at least one of the following personal characteristic: first name; last name; date of birth; place of birth; sex; colour of eyes; colour of hair; personal interests/preferences; hobbies; nationality; preferred language; health; address information; telephone number; email address.

42. A method as claimed in any preceding claim, wherein information associated with usage of the user device is stored in the remote management unit.

43. A method as claimed in any preceding claim, wherein the user device associates with a toy.

44. A method as claimed in claim 42, wherein the toy is a cuddly toy, a dolly or the like.

45. A method as claimed in any preceding claim, wherein the program is one of the following selection: an educational program; a game show, a documentary; a news program; a sports program; an entertainment program; a comedy; a drama; a movie; a children program.

46. A method for presenting a program for a user, comprising:

storing information that associates with the user in a remote management unit;

generating a program signal by means of replaying apparatus;

providing a program representation device with the program signal;

presenting the program to the user based on the program signal; and

in response to a predefined event, transporting data between the remote management unit and a user device operable by the user while experiencing the program, the transportation occurring over a data network and a wireless data communication link between the data network and the user device, and said data associating with the program and being personalised based on said stored information.

47. A method as claimed in claim 46, wherein the user is provided with interaction with a program stored in a recording medium at the time the user desires to experience the recorded program.

48. A method as claimed in claim 46 or 47, wherein the user is provided with additional data associated with a program stored

in a recording medium at the time the user desires to experience the recorded program.

49. A method as claimed in any of claims 46 to 48, comprising further steps of broadcasting the program and recording the program by the replaying apparatus prior provision of the signal to the representation device.

50. A method as claimed in any of claims 46 to 49, wherein the occurrence of the predefined event is monitored by the user device.

51. A method as claimed in any of claims 46 to 50, wherein, in response to detection of the event, the user device transports a packet data message to the remote management unit.

52. A method as claimed in any of claims 46 to 51, wherein the occurrence of the predefined event is monitored by the replaying apparatus.

53. A method as claimed in claim 52, wherein, in response to detection of the event, the replaying apparatus transmits a notification to the user device.

54. A method as claimed in any of claims 46 to 53, further comprising wireless communication between the user device and the replaying apparatus.

55. A method as claimed in any of claims 46 to 54, wherein data is transmitted in hops between said apparatus for replaying recorded programs, the user device and the data network.

56. A method for providing interactivity for a viewer of a television program provided by a television system, comprising:

displaying the television program to the viewer based on a signal from the television system;

generating a packet data message that is to be transmitted between a remote management unit and a handheld controller operable by the viewer while viewing the program, wherein the management unit is connected to a packet switched data communication system and comprises processor means for processing and storage means for storing information that associates with the viewer and also information that associates with the program, and wherein the handheld controller is associated with a wireless module enabling a wireless data communication link between the controller and the packet switched communication network; and

transmitting the packet data message between the wireless module and the packet switched telecommunication system via the wireless data communication link, wherein the packed data message and the signal from the television system are transported is separate communication systems.

57. A system for presenting a program, comprising:

a program representation terminal for representing the program to a user;

a broadcasting system for providing the program to the program representation terminal;

a packet data communication network;

a remote management unit that is connected to the packet data communication network, said remote management unit comprising a processor for processing data that associates with the program and a storage unit for storing information that associates with the user, said processor being adapted to

personalise data that associates with the program based on said information that associates with the user; and

a user device operable by the user while experiencing the program, the user device being adapted for communication over the packet data network by means of a wireless data communication link between the data communication network and the user device and to present information to the user based on data that is received via the wireless data communication link from the remote management unit while the user is experiencing the program.

58. A system as claimed in claim 57, wherein the user device comprises a portable controller that is provided with means for presenting to the user an audio message based on data received from the management unit.

59. A system as claimed in claim 57 or 58, wherein the user device comprises a portable controller that is provided with means for presenting to the user a visual message based on data received from the management unit.

60. A system as claimed in any of claims 57 to 59, comprising a base station for interfacing the wireless data communication link with the packet data network.

61. A system as claimed in any of claims 57 to 60, wherein the wireless data communication link comprises a short range radio link.

62. A system as claimed in any of claims 57 to 61, wherein the wireless link is adapted to employ frequency hopping.

63. A system as claimed in claim 62, wherein the frequency of the wireless link is adapted to be changed between subsequent data packets.

64. A system as claimed in any of claims 57 to 63, wherein the data transportation between the user device and the remote management unit provides interaction between a viewer of a television program provided by the broadcasting system and the television program.

65. A system as claimed in any of claims 57 to 64, comprising monitoring means for monitoring for a predefined event.

66. A system as claimed in claim 65, wherein the system is adapted to transport data between the management unit and the user device in response to detection of the predefined event by the monitoring means.

67. A system as claimed in claim 65 or 66, wherein the predefined event is detected based on a time-code associated with the program.

68. A system as claimed in any of claims 57 to 67, wherein the broadcasting system distributes the program signals to a plurality of representation terminals, the arrangement being such that each individual user of the plurality of terminals may receive data that has been personalised based on individual characteristic information stored in the remote management unit.

69. A system as claimed in any of claims 57 to 68, wherein the packet data communication network comprises a third generation mobile telecommunication network standards.

70. A system as claimed in any of claims 57 to 69, wherein the user device comprises speech recognition means.

71. A system as claimed in any of claims 57 to 70, wherein the user device comprises at least one element that is controllable based on data received from the remote management unit.

72. A system as claimed in claim 71, wherein the at least one element is moved based on control instructions in the data message generated by the remote management unit.

73. A system for presenting a program, comprising:

a program representation terminal for representing the program to a user;

program replaying apparatus for providing the program to the program representation terminal;

a packet data communication network;

a remote management unit that is connected to the packet data communication network, said remote management unit comprising a processor for processing data that associates with the program and a storage unit for storing information that associates with the user, said processor being adapted to personalise data that associates with the program based on the information that associates with the user; and

a user device operable by the user while experiencing the program, the user device being adapted for communication over the packet data network by means of a wireless data communication link between the data communication network and the user device and to present information to the user based on data that is received via the wireless data communication

link from the remote management unit while the user is experiencing the program.

74. A system for presenting television programs, comprising:

a television terminal for displaying the television program based on a program signal;

a program signal provision system adapted to provide the television terminal with the program signal;

a data communication system;

a management unit connected to the data communication system, said management unit comprising

a database for storing personalised information associated with a viewer of the television program, and

a processor adapted to process data associated with the television program; and

a portable user device adapted to be operable by the viewer while viewing the television program, the portable user device comprising a communication module enabling data communication over a wireless interface between the portable user device and the data communication system,

whereby the portable user device and the management unit are adapted to communicate data that associates with the television program over said wireless interface and data communication system at the same time when the television program is presented to the viewer based on the program signal provided through the program signal provision system.

75. A system as claimed in claim 74, wherein the management unit and the portable user device are adapted to provide the viewer with a possibility to interact with the television program.

76. A system as claimed in claim 74 or 75, wherein the management unit and the portable user device are adapted to provide the viewer with further content that associates with the television program.

77. A system as claimed in any of claims 74 to 76, wherein the data communication is adapted to be triggered by a predefined event associated with the television program

78. A system as claimed in claim 77, wherein the predefined event comprises a time-code.

79. A system as claimed in any of claims 74 to 78, wherein the management unit is located in a remote location from the television terminal and the television signal provision system.

80. A portable user device operable by a viewer of a television program while viewing the program presented by a television terminal adapted to receive a television signal from a television system, comprising:

a communication module enabling data communication over a wireless interface between the portable user device and a packet data communication system, said packet data communication system being an independent system from the television system; and

a controller adapted to process data received from or to be transported to a remote management unit that is connected to the packet data communication system, whereby the portable user device is adapted communicate data that associates with the television program and has been personalised based on the personal characteristics of the viewer over said wireless

interface at the same time when the television program is presented to the viewer.

81. A portable user device as claimed in claim 80, comprising audio means for representing audio messages.

82. A portable user device as claimed in claim 80 or 81, comprising display means for representing visual messages.

83. A portable user device as claimed in any of claims 80 to 82, comprising speech recognition means for receiving a user input.

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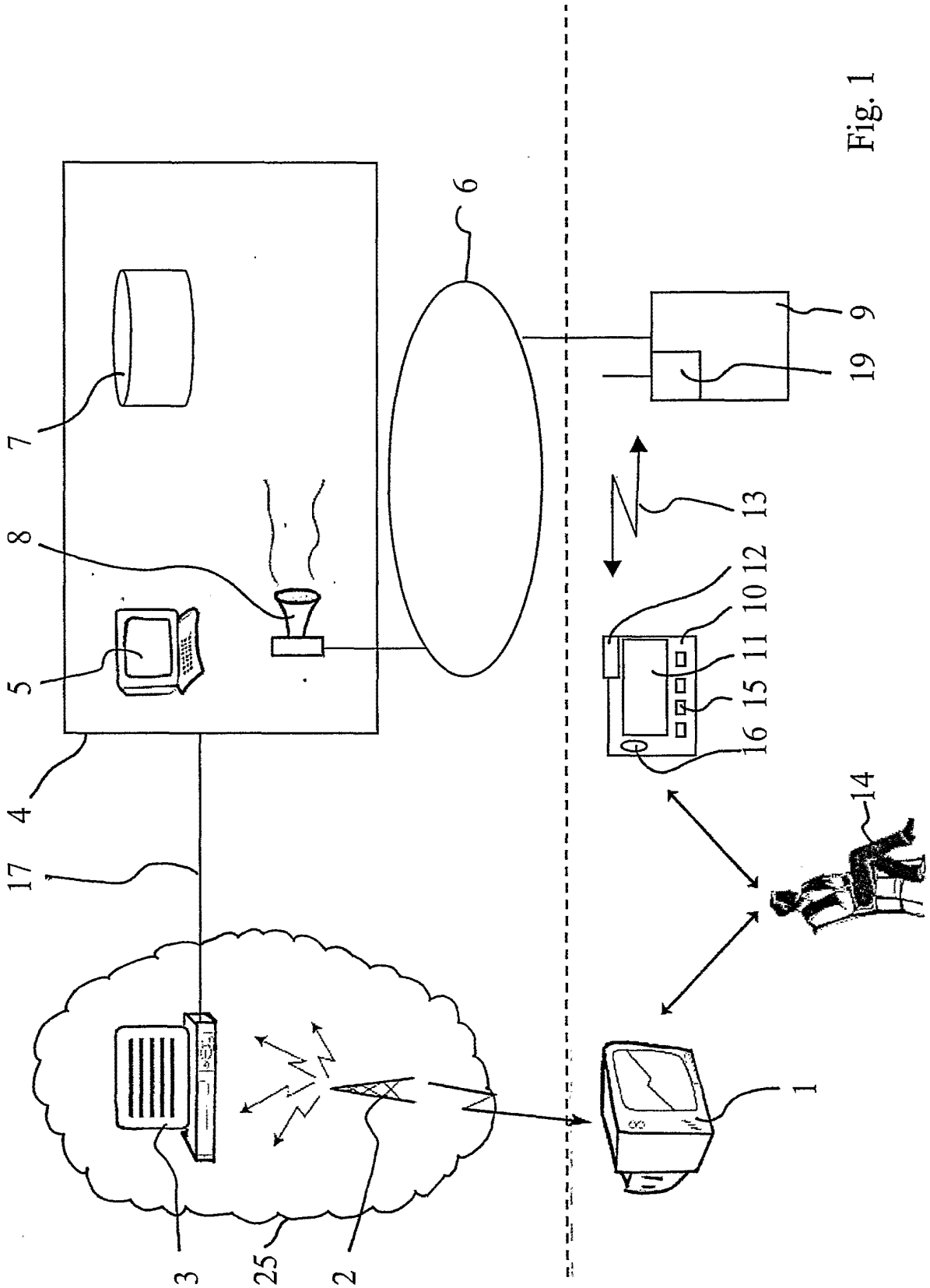


Fig. 1

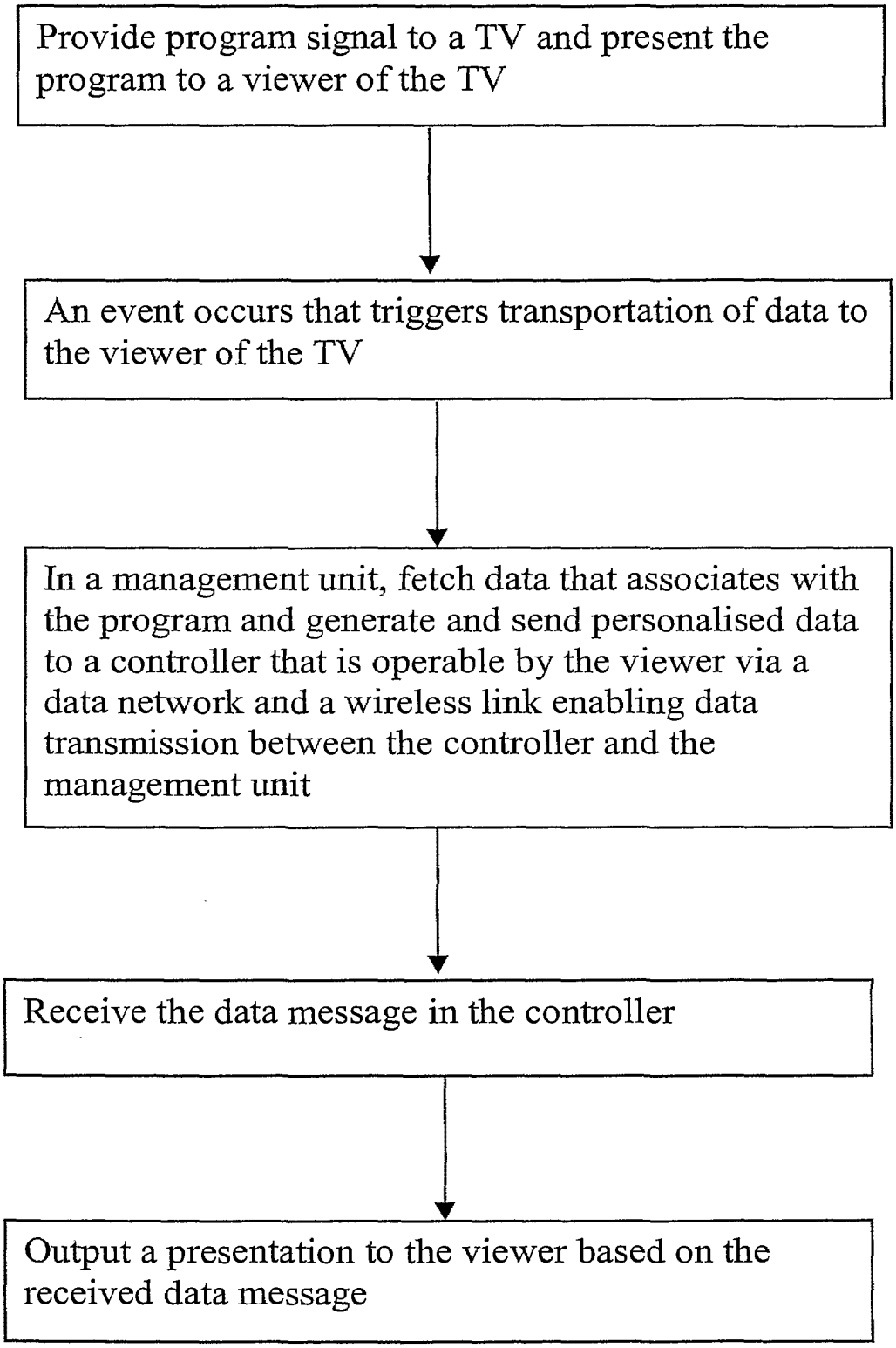

Provide program signal to a TV and present the program to a viewer of the TV
An event occurs that triggers transportation of data to the viewer of the TV
In a management unit, fetch data that associates with the program and generate and send personalised data to a controller that is operable by the viewer via a data network and a wireless link enabling data transmission between the controller and the management unit
Receive the data message in the controller
Output a presentation to the viewer based on the received data message

Fig. 2

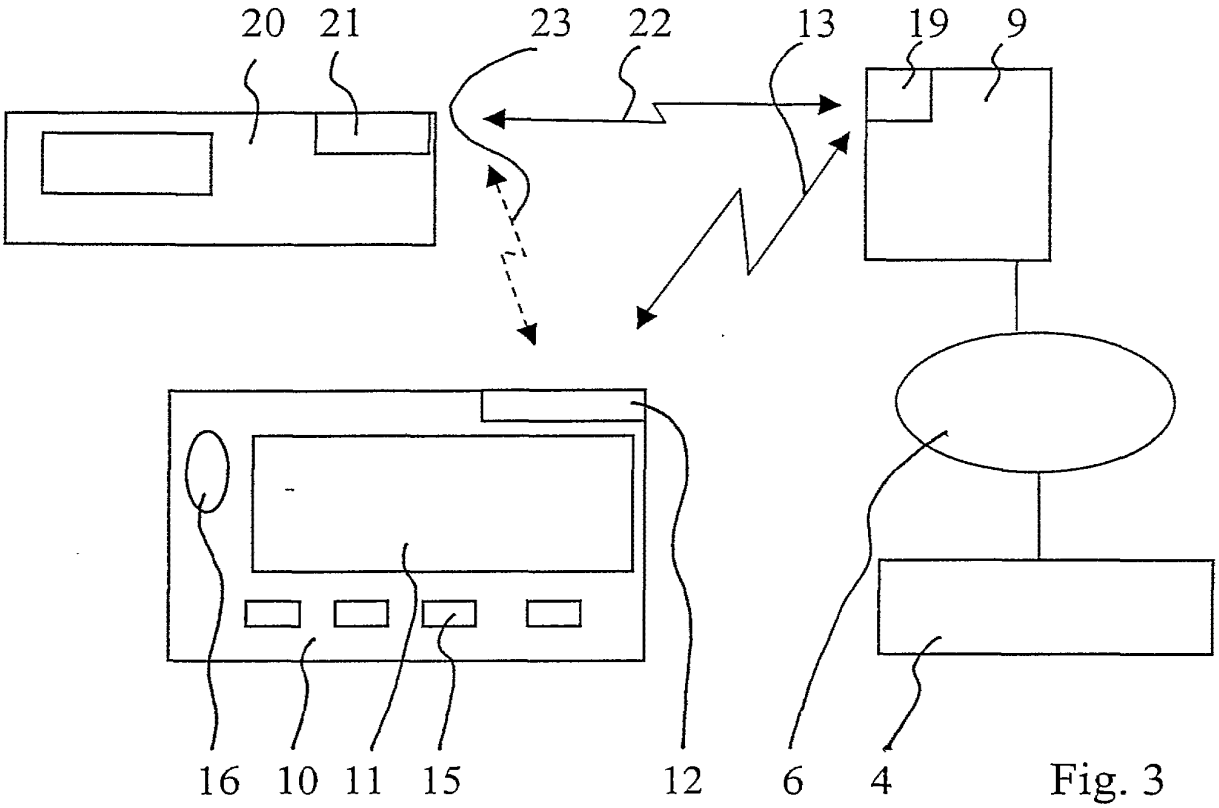

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Fig. 3

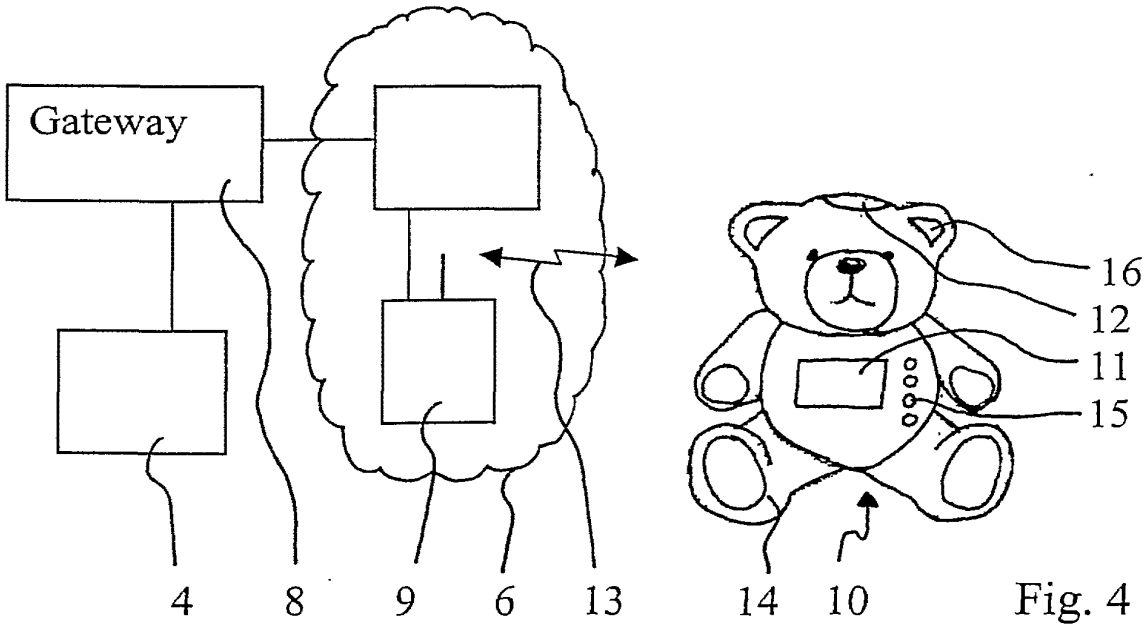

Gateway
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Fig. 4

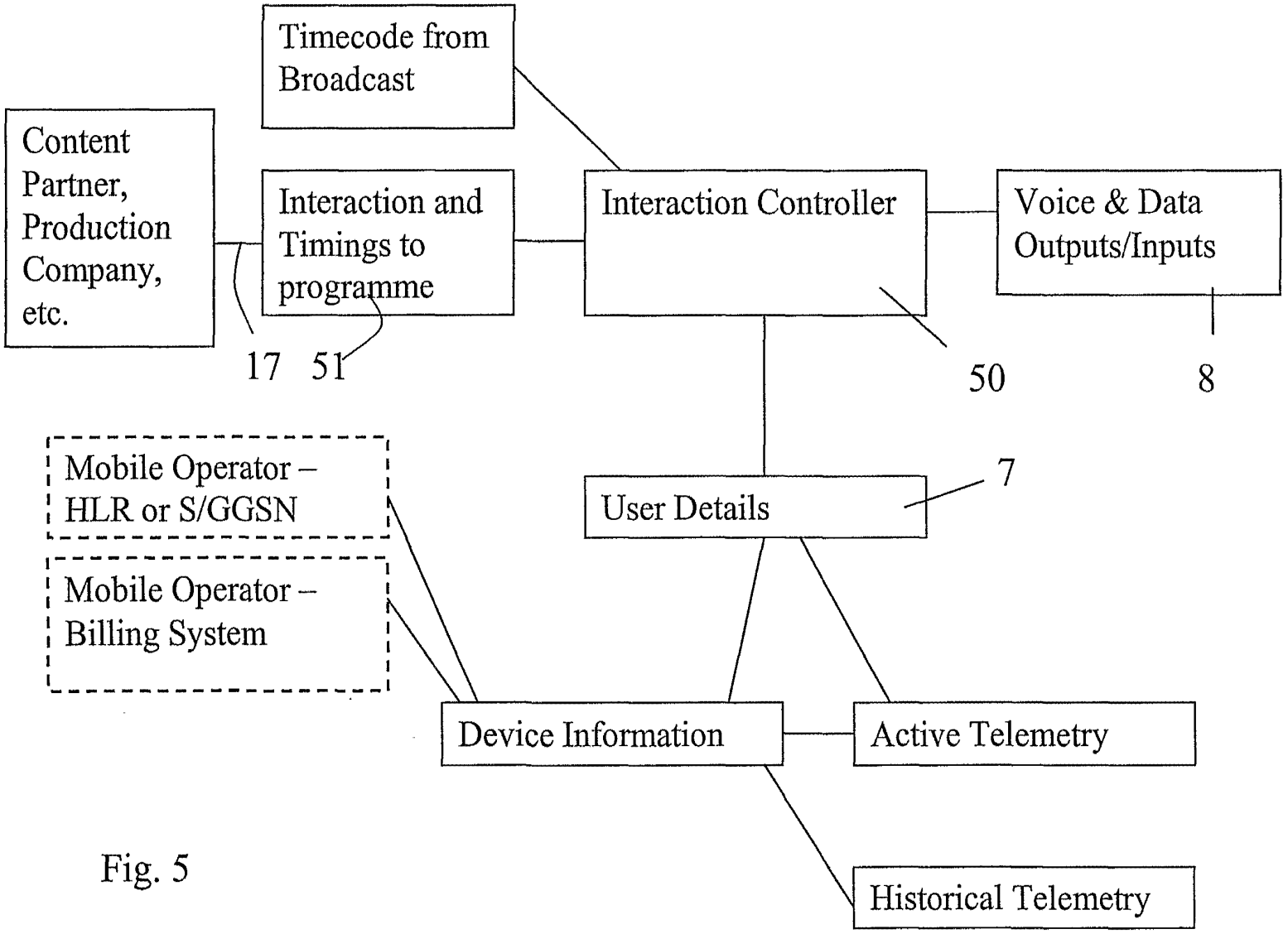


Fig. 5

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Personal Details	Historical Telemetry	Event Telemetry
Device ID – the Bear	Date device was last used	Device active/inactive now
Surname	Length of time last used	Programme tag
First name	Total length of time used	
Date of birth	Types of programmes	Quality of signal
Age		Device test OK/not OK
Sex	Total billed spend	
Language 1	Bill accumulated this month	
Language 2	Bill – last month	
Address		
Town		
Postcode		
Telephone		
Parent/billed individual		
Address		
Town		
Postcode		
Telephone		
Bank sort code		
Bank account number		

Fig. 6

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FanDuel Ex. 1002-0673

INTERNATIONAL SEARCH REPORT

International Application No
PCT/GB 01/00857

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04H1/00 H04H9/00 H04N7/16 H04L29/06 G09B5/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H04H H04N H04L G09B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 733 131 A (PARK MICHAEL C) 31 March 1998 (1998-03-31)	1,2,4, 6-17,21, 23,26-45
Y	column 4, line 9 -column 16, line 8	3,5, 18-20, 24,56-83
Y	WO 99 00979 A (MICROSOFT CORP) 7 January 1999 (1999-01-07) page 12, line 6 -page 30, line 6	3,5, 18-20, 24,56-83
A	US 5 945 988 A (SHAH-NAZAROFF ANTHONY A ET AL) 31 August 1999 (1999-08-31) the whole document	

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[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier document but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
6 June 2001	18/06/2001

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo nl, Fax: (+31–70) 340–3016	Willems, B

Form PCT/ISA/210 (second sheet) (July 1992)

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INTERNATIONAL SEARCH REPORT

Intern al Application No
PCT/GB 01/00857

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 191 615 A (MACINTYRE HAZEN L ET AL) 2 March 1993 (1993-03-02) the whole document	

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/GB 01/00857

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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		DE 69507306 D	25-02-1999
		DE 69507306 T	26-08-1999
		WO 9604635 A	15-02-1996
		EP 0772857 A	14-05-1997
		ES 2129216 T	01-06-1999
		US 5664948 A	09-09-1997
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		EP 0992158 A	12-04-2000
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		WO 9110490 A	25-07-1991

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New Zealand No. 330242
International No. PCT/

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Priority dates: 22.04.1997;

Complete Specification Filed: 21.04.1998

Classification:(6) H04N7/14; A63F9/22

Publication date: 28 October 1998

Journal No.: 1433

NEW ZEALAND

PATENTS ACT 1953

COMPLETE SPECIFICATION

Title of Invention:

Interactive, predictive game control system

Name, address and nationality of
applicant(s) as in international
application form:
TWO WAY TV LIMITED, a British company of The Chiswick Centre, 414 Chiswick High Road, London W4 5TW, United Kingdom

330242

NEW ZEALAND

PATENTS ACT, 1953

No:

Date:

INTELLECTUAL PROPERTY OFFICE OF N.Z.
21 JAN 93
RECEIVED

COMPLETE SPECIFICATION

INTERACTIVE, PREDICTIVE GAME CONTROL SYSTEM

We, TWO WAY TV LIMITED, a British company, of The Chiswick Centre, 414 Chiswick High Road, London W4 5TW, United Kingdom, do hereby declare the invention for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:

(Followed by page 1a)

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The invention relates to an interactive, predictive game control system for use in conjunction with a live TV broadcast.

In an interactive, predictive game played in conjunction with a live TV broadcast, remote players attempt to predict certain events which may or may not occur during the broadcast and will be awarded prizes, monetary or otherwise, if they are successful. Examples of interactive, predictive games include horse racing where the players can try to predict winners or place bets on particular horses to win or be placed in a race, and football matches where players may try to predict the final score or the time of occurrence of certain events such as the time of the first goal, first booking etc. Other examples are rugby, motor racing, tennis and cricket. An example of an interactive system is described in US-A-4592546. This document describes in detail how the remote units are organised and controlled but provides very little information on the central location.

In order to enhance the enjoyment of such games, it is desirable to be able to present players with information relating to the game in advance of, and on occasion during, the playing of the game so that they can make intelligent predictions. For example, in the case of a horse race, it would be desirable to give the players information regarding the horses, the jockeys, the course and the odds while for a football game, players would like to have details of the teams, past form and current position in a league table. Much of this information, in particular information on odds and the like, will change in the run-up to the game and consequently there is a continuing need for instantaneous updates.

In accordance with one aspect of the present invention, an interactive, predictive game control system for use in conjunction with a live TV broadcast received by

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one or more remote players comprises a central controller for generating game playing data for transmission with a TV broadcast to the remote player(s) and for receiving information from the remote player(s); an input device connected to the central controller; and a database connected to the central controller for storing data relating to the content of the live broadcast and known in advance of the live broadcast, the central controller being responsive to signals from the input device:

a) prior to the live broadcast, to select data from the database for transmission to the remote user(s) in advance of and/or during the live broadcast, and

b) during or after the live broadcast, to record the time of occurrence of one or more events relating to the live broadcast which are to be predicted by the remote player(s), as indicated by an operator to the central controller via the input device.

In accordance with a second aspect of the present invention, a method of controlling an interactive, predictive game in conjunction with a live TV broadcast received by one or more remote players comprises:

a) prior to a live broadcast, selecting data from a database which stores data relating to the content of the live broadcast and known in advance of the live broadcast, and transmitting the selected data with a TV broadcast to remote player(s) in advance of and/or during the live broadcast, and

b) during or after the live broadcast, recording the time at which one or more events occur within the live broadcast and which are to be predicted by the remote player(s).

We have devised a control system and method which allows an operator to achieve as much preparation as possible prior to the commencement of a live TV broadcast. Typically, the database will store information relevant to future predictions. The operator is able to select data appropriate to the live TV broadcast from the database and

arrange for this to be assembled as appropriate into a display format which can then be transmitted in association with a TV broadcast, either in advance of and/or during the live TV broadcast, to the remote player(s). This then allows the operator to concentrate on monitoring the live broadcast for the occurrence of events which are to be predicted by the remote player(s) without having to enter large amounts of data through the input device.

The time at which the event(s) occur during the live broadcast may be entered by the operator later, for example after the live broadcast has ended but preferably the operator indicates the time of occurrence immediately. The time of occurrence can then be recorded as the actual time at which an operator provides an indication or as the actual time when amended to take account of the operator's and system's response time.

In the preferred control system, therefore, the central controller computes the actual time of occurrence of an event by monitoring the time of a signal generated by the input device in response to operator activation, and modifies that time to take account of the operator's and system's response time.

Typically, an operator will undergo a test procedure in which his response time and the system latency is determined by the central controller and this response time and latency is then stored for later use in computing the actual time of occurrence of events in the live broadcast.

In order to communicate times between the control system and the remote player(s), it is necessary to encode those times into signals which are transmitted between the two locations. This is most conveniently achieved by a process known as "time stamping" in which data defining the times are attached to messages between the two. Time stamped signals supplied to the remote player(s) can be used in a variety of ways at the remote location. For example, the signal can be used as a lock-out command preventing further predictions being made by the remote

player(s). It can also be used, of course, to enable the remote player(s) to determine whether or not he has made a successful prediction.

Typically, each remote player will be provided with a local control unit including a microprocessor which can respond to signals from the control system and to locally generated signals by the player to effect local control of the game. In some cases, players predictions are communicated back to the central controller for adjudication but in other systems the local unit is able to determine, following information received from the central controller, whether or not the associated player has won and can then communicate that information to the central controller only in the case of a winning player. This reduces the amount of time needed to communicate with the central controller and the number of remote units which have to communicate at the same time.

Typically, communication from the remote player(s) to the central controller will be via an existing communication network such as public switched telephone network and the like although a permanent connection is also possible.

In some cases, the action of updating the database can cause a time to be recorded by the central controller. This could be, for example, the case where fixed odds stored within the database are updated and the time of updating is then recorded by the central controller in response to signals from the database.

An example of a control system and method according to the invention will now be described with reference to the accompanying drawings, in which:-

Figure 1 is a schematic block diagram of the control system and an interactive broadcast network incorporating the control system;

Figures 2-5 illustrate examples of screen displays presented to an operator during preparation for a live football game referred to as PlayLive Football;

Figures 6 and 7 illustrate screen displays presented to a remote player of PlayLive Football;

Figures 8 to 10 illustrate screens presented to an operator during a PlayLive Football game;

Figures 11-14 illustrate screen displays presented to an operator during preparation for a live horse racing game referred to as PlayLive Racing; and,

Figures 15-17 illustrate screen displays presented to a player during a PlayLive Racing game.

The interactive broadcast network shown in Figure 1 comprises a game control system A including a central controller 1 which will include a computer such as a PC operating a Windows based system, connected to an input device 2 such as a keyboard and/or mouse and the like and to an output device 3 which may include a monitor and/or printer. A database 4A stores data relating to service functions and remote users, which can be accessed and amended by the central controller 1, while a Live File store 4B is provided for storing data relating to the game being or to be broadcast. The central controller 1 generates data which can be converted to TV display signals and other control signals associated with various service functions, on a land line 5 connected to a combining unit 6 defining an insertion point of a TV broadcast system B. The combining unit 6 receives television broadcast signals from a studio 7 (or outside broadcast (OB) location, in the case of a live event), and combines these with the signals on the line 5 so that they are transmitted simultaneously by a transmitter 8 to remote users or players C. In other applications, the signals from the central controller 1 and the studio or OB 7 will be transmitted separately.

The signals applied to the combiner 6 may be transmitted to the remote units within a vertical banking interval (VBI) of the normal TV signal or on a separate radio FM-SCA channel or other data format such as a cable modem.

Each remote user C has a home or remote unit 9 having a television receiver 10 connected to an aerial 11 and a monitor 12. The home unit 9 includes an address/databus 13 connected to the receiver 10, the bus 13 being connected to a microprocessor 14, a memory 15, such as a ROM, storing programme instructions for the processor 14, one or more input devices 16 such as a keyboard or mouse, and a control memory (RAM) 17. Signals transmitted by the processor 14 can be communicated to the central controller 1 via a public switched telephone network 18 which is selectively accessed by a telephone interface unit 19 connected to the bus 13.

Alternative media such as cable or the internet can be used for the return signals (as for the signals transmitted to the remote unit C). In general the return signals will be transmitted over a different medium to the incoming signals.

The game control system A can be used to control a variety of games including interactive, predictive games and two examples of such interactive, predictive games will be described below. In the first example, play live football, the remote players are able to attempt to predict certain events prior to commencement of a live football match which is broadcast by the transmitter 8 and can also attempt to predict certain events during the live broadcast.

Initially, prior to commencement of the live broadcast, an operator uses the input device 2 to set up certain predetermined information relating to the live broadcast for transmission to the remote players. In this example, the operator is first presented with a screen as shown in Figure 2 in which he can select a home team and an away team from a list of such teams which have been previously stored in the database 4A. Using the input device 2, such as a mouse, he can select the appropriate home and away teams and then click the OK button. This information is then stored in the Live File store 4B. The

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database 4A stores information relating to each team squad which will typically include more players than those actually selected to play the match. Shortly before commencement of the match, the actual team will be announced and this information will be conveyed to the operator. He then causes the central controller 1 to display all members of the squad of each team (Figure 3) allowing the operator to indicate which members of the squad have been picked to play and at the same time, he can define the type of player, for example goalkeeper, attacker, midfield or defender. Once that information has been indicated, it is then stored in the Live File store 4B.

Also, before the game begins, the operator takes a calibration of his own reaction time and the system latency. This can be obtained during a test procedure in which the central controller 1 presents a particular display on a monitor of the output device 3 to which the operator must react as quickly as possible. The central controller 1 then determines the time between initiating the display and the time at which a response is sensed and this will be a latency value which is used to adjust future times of occurrence of events which are entered by the operator. This process can be repeated at intervals during the game either automatically or on operator request. This enables the latency to be updated to take account of variation in the operator's response times.

The operator also sets up the particular types of event which can be predicted during the live broadcast. In this example, these events include the time of the first goal, the time of the first booking etc. Examples of such events are indicated by the line of buttons at 50 in Figure 4.

Once all the information for the live broadcast has been set up by the operator, a screen such as that shown in Figure 4 is displayed which at this time is inactive since the interactive game has not commenced. It will be noted,

however, that the operator has been able to set up a significant amount of information in advance of the live broadcast itself.

At the appropriate time, but before commencement of the football game, the operator will bring up the screen shown in Figure 5 and by clicking the button 51, the predefined information will then be transmitted to the combiner 6 and broadcast to all the remote players C where it will be stored in each memory 17.

If a remote player wishes to play the interactive game, he operates his input device 16 to indicate to the processor 14 that the game is to be initiated and the processor 14 will respond to the information supplied from the central controller 1 and stored in the memory 17 to display a screen similar to that shown in Figure 6. This indicates to the player the type of prediction which he can attempt. A comparison of Figures 4 and 6 will show that six of the events selected by the operator for prediction set out in the line 50 are displayed on the display of Figure 6.

The remote player can then select one or more of the predictions. For example, if he selects, using the input device 16, the "Time Slot of First Goal", the screen shown in Figure 7 will be displayed which defines six different 15 minute periods during the playing of a football game. The player can then indicate one of those periods using the input device 16, for example, the period 16-30 minutes, and this prediction is then stored in the memory 17. In a similar way, the player can predict any one or more of the other items set out in Figure 6.

Immediately the game commences, the operator clicks on the "Start First Half" button 59 (Figure 5) and this will cause the central controller 1 to display the screen of Figure 8 asking the operator to confirm. Following confirmation, the screen of Figure 9 is displayed allowing the operator to lock out further predictions at the start of the game. In response the central controller 1 will

issue a lock-out signal which is broadcast to the remote units C and to which each processor 14 responds to prevent any further predictions from being entered. The lock-out signal will carry a time stamp which defines the instant at which the operator clicked on the button 60 but back stamped by an appropriate number of frames corresponding to the earlier determined calibration of the operator response time and system latency. Each microprocessor 14 responds to the received lock-out signal to lock-out any future predictions and also any previous predictions which occurred after the back adjusted time stamp.

In order to obtain accurate synchronisation between the central controller clock and each remote unit C, all parts of the interactive network work to a common universal system clock. Synchronisation is maintained by the central controller 1 repeatedly issuing synchronisation signals as part of the messages which are broadcast. Each microprocessor 14 monitors the time of arrival of a synchronisation signal and compares this with its own clock and if there is a discrepancy gradually adjusts its clock to agree with the synchronisation signal.

As the game develops, various events may or will occur. For example, when the first goal is scored, the operator clicks on the First Scorer button 61 to enable him to select the appropriate score and also clicks on the First Goal button 62 to indicate the time of the first goal. This information is then confirmed by the operator by clicking the Resolve button 63 and the information is then transmitted in the usual manner to the remote players.

The time of the first goal transmitted to the remote players will be the time at which the button 62 was pressed adjusted by the prestored latency. This is sent as a time stamp to the remote players.

Similarly, at half time, clicking the Half Time button 64 will allow the operator to enter the half time score which is then transmitted to the remote players where it can be compared with their predictions.

During and/or after a game, the respective microprocessors 14 compare the associated player's predictions with the actual events as time stamped and supplied from the central controller 1. If the local player was successful in his prediction then the microprocessor 14 will indicate this to the player and will also pass that information via the PSTN 18 to the central controller 1. This is particularly useful where players will be rewarded with a financial prize or token allowing them additional use of certain games which require payment. In other applications, however, where no financial or other prize is awarded, communication with the central controller 1 is not necessary.

If there are any penalties at the end of the football match, the remote players are given the opportunity to predict whether a penalty kick will be scored, missed or saved, the operator controlling these predictions via the button 65 on the screen of Figure 10.

The central controller 1 also allows a further game to be played by the remote players during the live broadcast of the football match. This is known as "Action Ball". During the football game, when the operator identifies a shot on target, a goal or a corner kick, he/she immediately registers this action by pressing the event button 53. A counter 65 begins countdown from 10 giving the operator 10 seconds to define the event as a shot on target, goal or corner kick by pressing one of the three buttons 54,55,56 or cancelling the indication by pressing the Deny button 58. Clicking one of the buttons 54-56 causes the central controller 1 to send an appropriate message to each of the remote players C in conjunction with a TV broadcast and each microprocessor 14 responds to receipt of that message by awarding points to those remote players who have correctly anticipated that one or the three events had occurred. Each remote player has 15 opportunities per half to anticipate that a shot on target, goal or corner kick will occur by operating his input device 16 which will

initiate a 10 second period. The action by the remote player of pressing any blue button on his input device records a time stamp on the memory 17. The time that the event occurs as input by the operator, after suitable back stamping, will be broadcast as a time stamp to each remote player C. Each microprocessor 14 compares the time stamp supplied to it corresponding to the time at which the event button 53 was clicked and if the remote player pressed his blue button in less than ten seconds from the time stamp received by the microprocessor 14 then the player will have been successful and receive points.

In the second example, the PlayLive Racing game will be described. In this example, the central controller 1 will receive details about available races including declared riders and runners and this information will be stored in the database 4A and the operator will decide which races are to be included in the game. The database 4A will include details of all available races and in this example, the operator selects three using the screen shown in Figure 11 and the input device 2, the selected information being stored in the Live File store 4B.

The operator then selects each race in turn and, for the first race, the screen shown in Figure 12 is displayed to the operator. This will display certain fixed information already provided in the Live File store 4B such as the going of the course but allows the operator to add further information in the Course Details box as may be appropriate on the day.

For each race, the operator then displays the screen shown in Figure 13 allowing him to select the names of all runners and non-runners as this information is received. Alternatively, this can be carried out automatically via the database 4A as that portion is updated.

For each horse, the database 4A holds information relating to the horse and the operator can display this and modify it as necessary as shown in the screen shown in Figure 14.

FanDuel Ex. 1002-0689

Once the operator has set up this predefined information in the Line File 4B, he will cause it to be made available to the remote units by broadcasting the information in the usual way. Each remote unit will receive the information and the microprocessor 14 will store that information in the control memory 17.

The odds for each horse can be manually entered by the operator as they change or this could be carried out upon loading the odds into the store 4B. In either event, on a change of odds, this information will be broadcast to the remote units together with a time stamp defining the time of the change. Again, this information can then be displayed by the remote user.

Finally, in preparation for the horse race, the operator will take a calibration of his own reaction time and the system latency as described above in connection with the PlayLive Football application. This calibration is then used to compensate input times by back stamping by the appropriate number of frames per second by which the action is delayed. Updates can also be obtained as before.

Once the operator has made his preparations, the information is transmitted to each remote player and stored in the memories 17. Each remote player can display the details of races, horses, odds and the like as necessary. For example, as shown in Figure 15, the remote player can display a list of horses and jockeys for a particular race.

Just prior to the start of a race, the remote players are given the opportunity to predict the outcome of that race using one of the variety of bets on offer (i.e. win, place, each way). The remote player can choose to place a bet via an appropriate screen (Figure 17) and once he has selected a bet and confirmed the amount of money he wishes to wager, he will receive confirmation that the bet has been accepted and these details will be stored by the microprocessor 14 in the memory 17.

As soon as the race begins, the operator will indicate this via the input device 2 and an appropriately back

stamped time stamp signal will be broadcast causing each microprocessor 14 to lock out all future predictions and to cancel any predictions made after the time defined by the back stamped time stamp. Once the race is finished, the operator sends out the results in two stages, first as unconfirmed results and then as confirmed results once these have been confirmed by the appropriate race authority. Each remote unit responds to the result information to determine whether the local player or players is successful and to determine the winning amount and displays this as appropriate, for example as shown in Figure 16. In this case, there are four local players.

WHAT WE CLAIM IS:

1. An interactive, predictive game control system for use in conjunction with a live TV broadcast received by one or more remote players, the system comprising a central controller for generating game playing data for transmission with a TV broadcast to the remote player(s) and for receiving information from the remote player(s); an input device connected to the central controller; and a database connected to the central controller for storing data relating to the content of the live broadcast and known in advance of the live broadcast, the central controller being responsive to signals from the input device:

a) prior to the live broadcast, to select data from the database for transmission to the remote user(s) in advance of and/or during the live broadcast, and

b) during or after the live broadcast, to record the time of occurrence of one or more events relating to the live broadcast which are to be predicted by the remote player(s), as indicated by an operator to the central controller via the input device.

2. A system according to claim 1, wherein the central controller computes the actual time of occurrence of an event by monitoring the time of a signal generated by the input device in response to operator activation, and modifies that time to take account of the operator's and system's response time.

3. A system according to claim 1 or claim 2, wherein the action of updating the database causes a time to be recorded by the central controller.

4. An interactive broadcast network comprising an interactive, predictive game control system according to any of the preceding claims; and a number of remote units for receiving signals, transmitted in association with a TV broadcast, from the central controller, each remote unit including a microprocessor responsive to signals received

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from the central controller and connected to an input device for use by a remote player.

5. A method of controlling an interactive, predictive game in conjunction with a live TV broadcast received by one or more remote players, the method comprising

a) prior to a live broadcast, selecting data from a database which stores data relating to the content of the live broadcast and known in advance of the live broadcast, and transmitting the selected data with a TV broadcast to remote player(s) in advance of and/or during the live broadcast, and

b) during or after the live broadcast, recording the time at which one or more events occur within the live broadcast and which are to be predicted by the remote player(s).

6. An interactive, predictive game control system substantially as hereinbefore described with reference to the accompanying drawings.

7. An interactive broadcast network substantially as hereinbefore described with reference to the accompanying drawings.

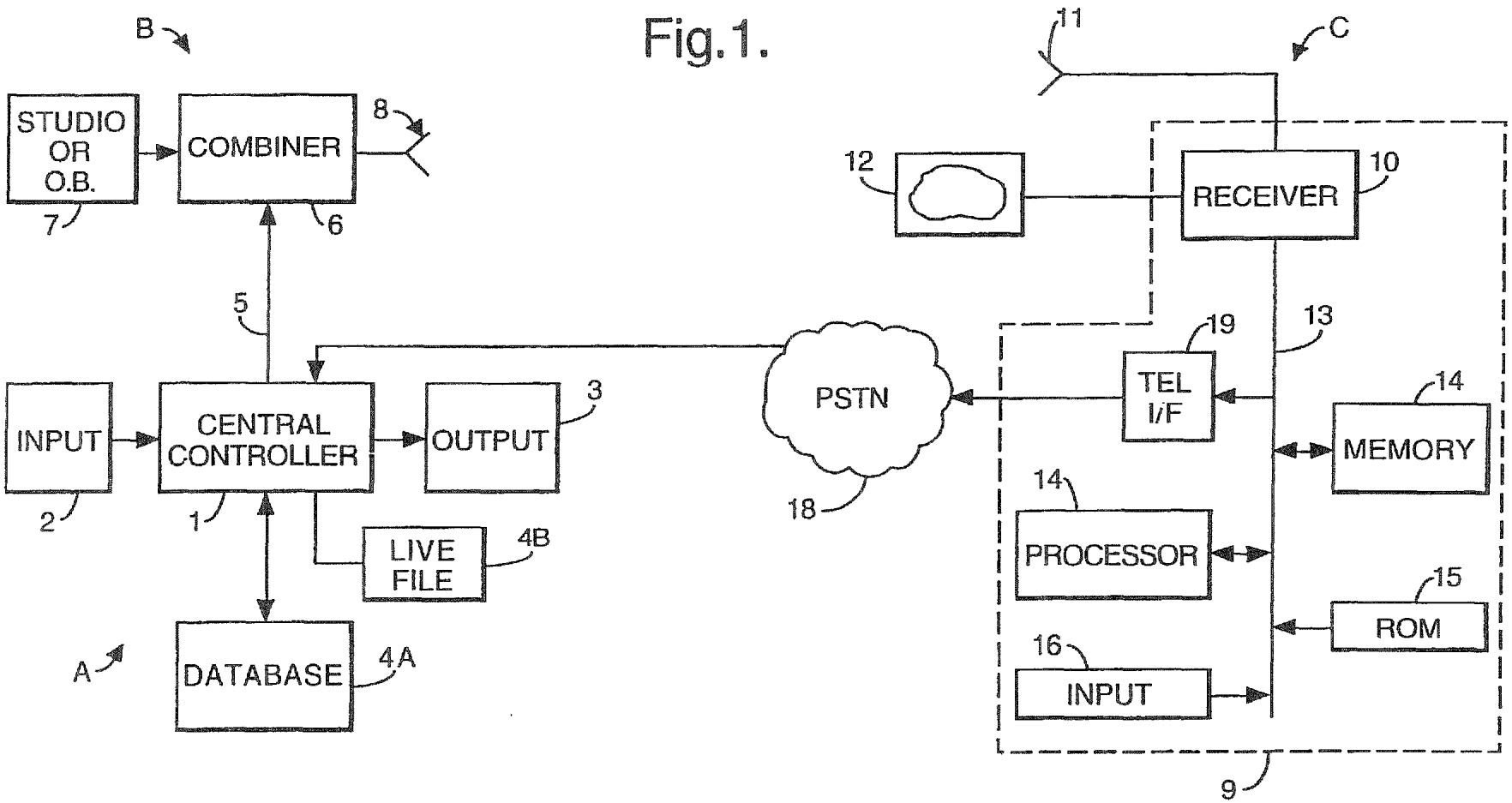
8. A method of controlling an interactive, predictive game in conjunction with a live TV broadcast received by one or more remote players substantially as hereinbefore described with reference to the accompanying drawings.

Two Way TV Limited
By the authorised agents
A. J. PARK & SON
Per

END OF CLAIMS

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Fig.1.



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Fig.2.

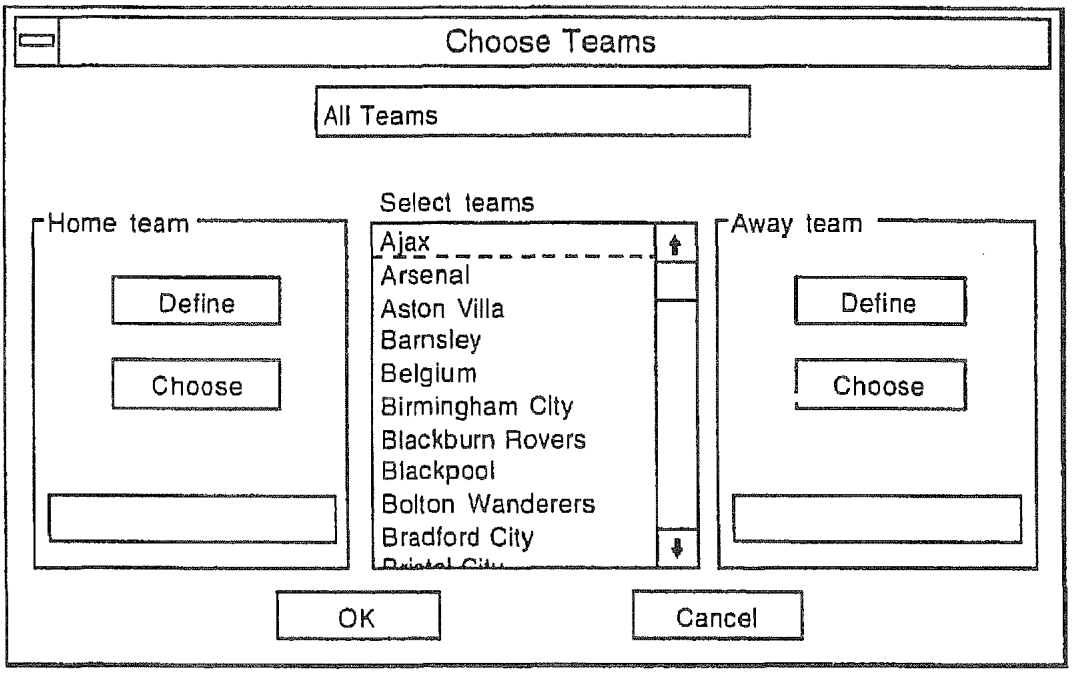
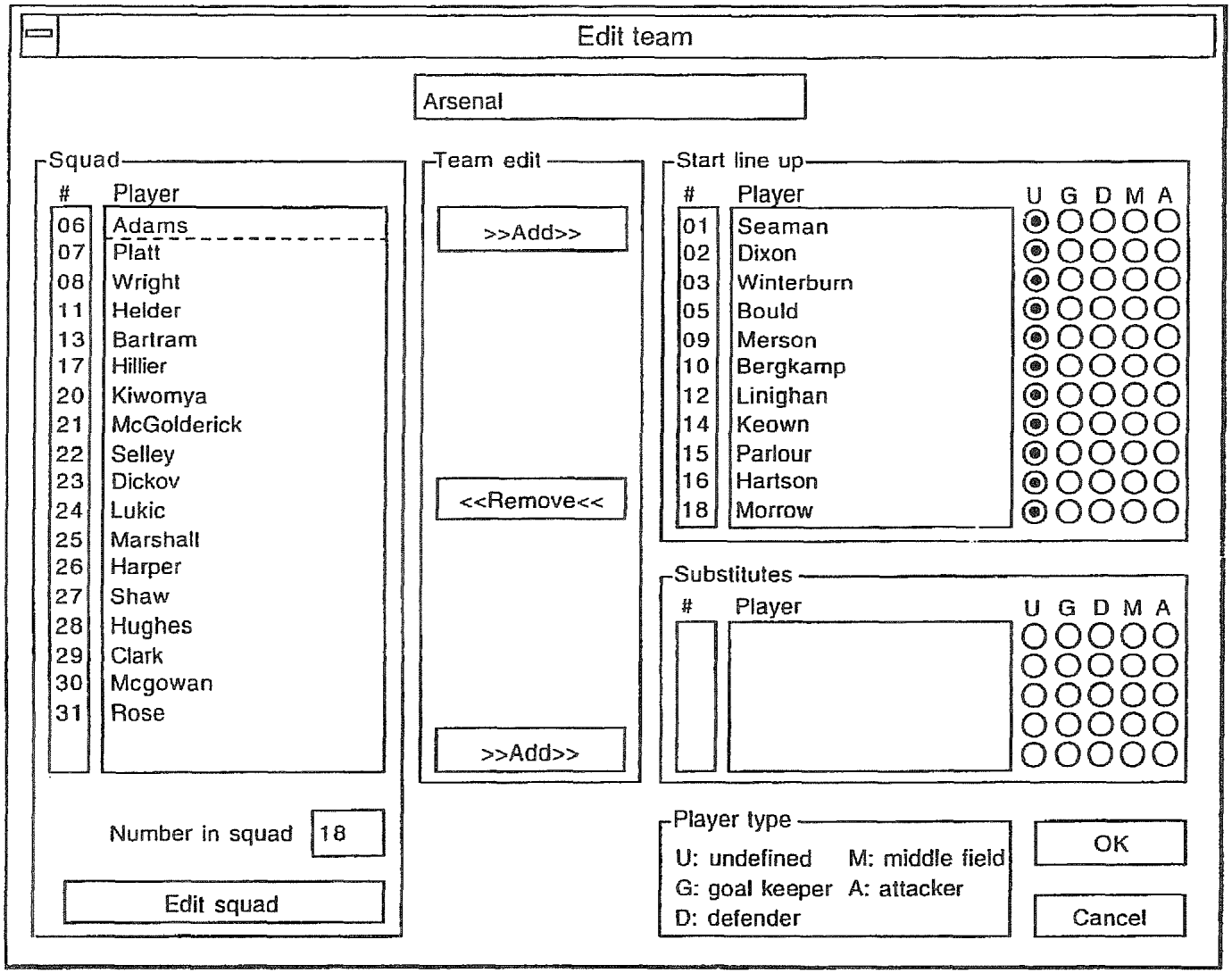

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All Teams
Select teams
Home team
Define
Choose
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Birmingham City
Blackburn Rovers
Blackpool
Bolton Wanderers
Bradford City
Away team
Define
Choose
OK
Cancel

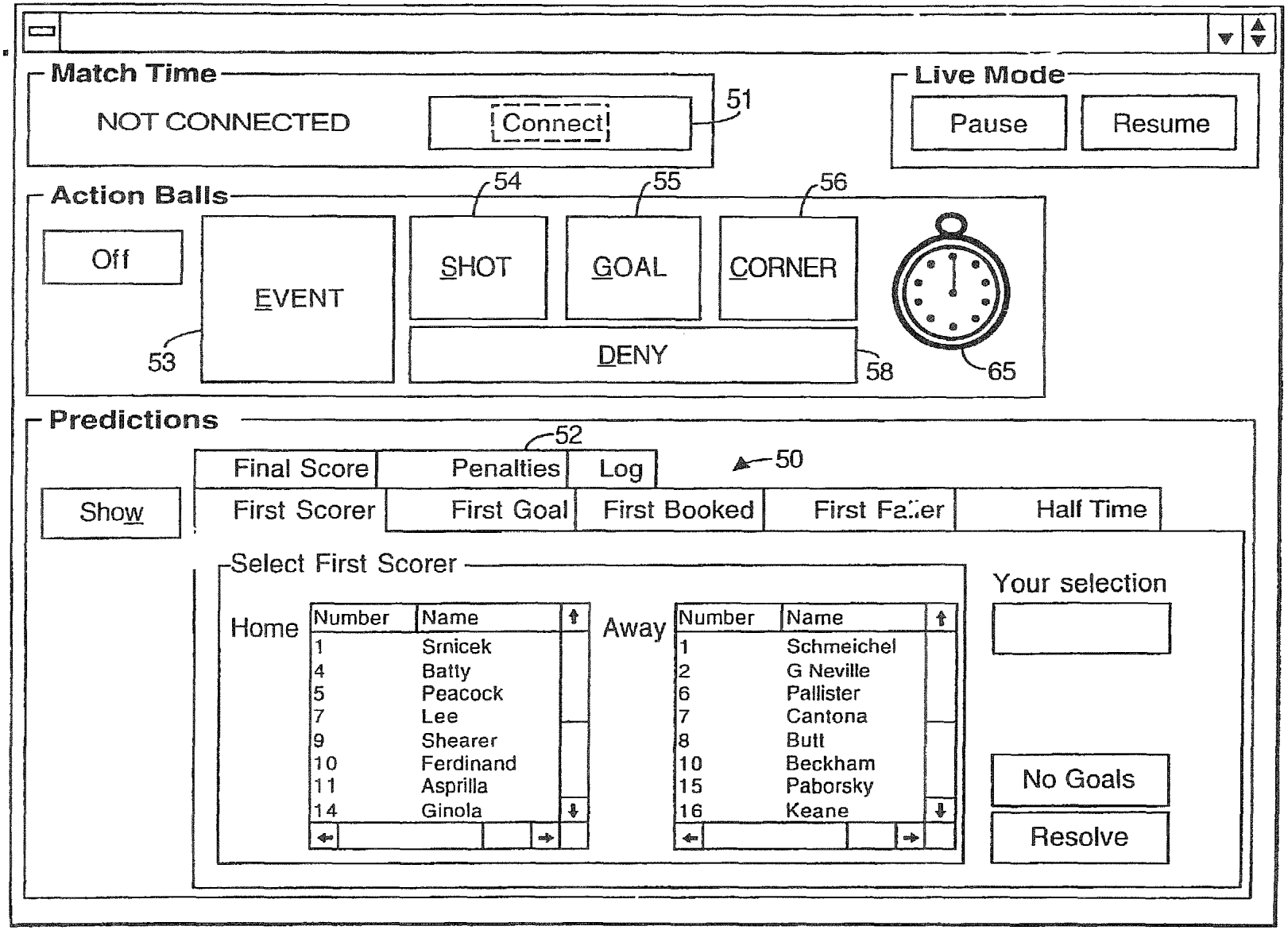
Fig.3.



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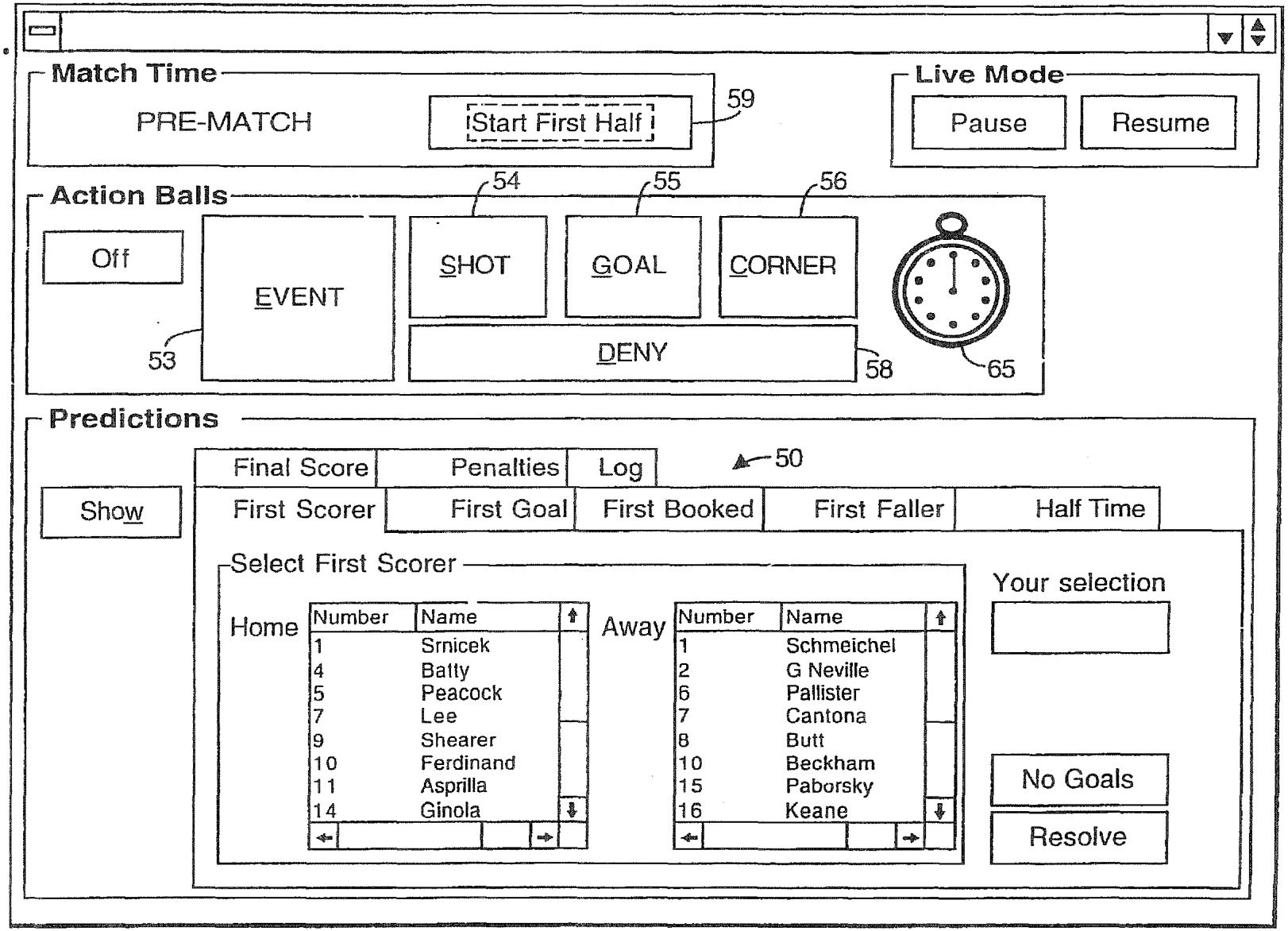
Fig.4.



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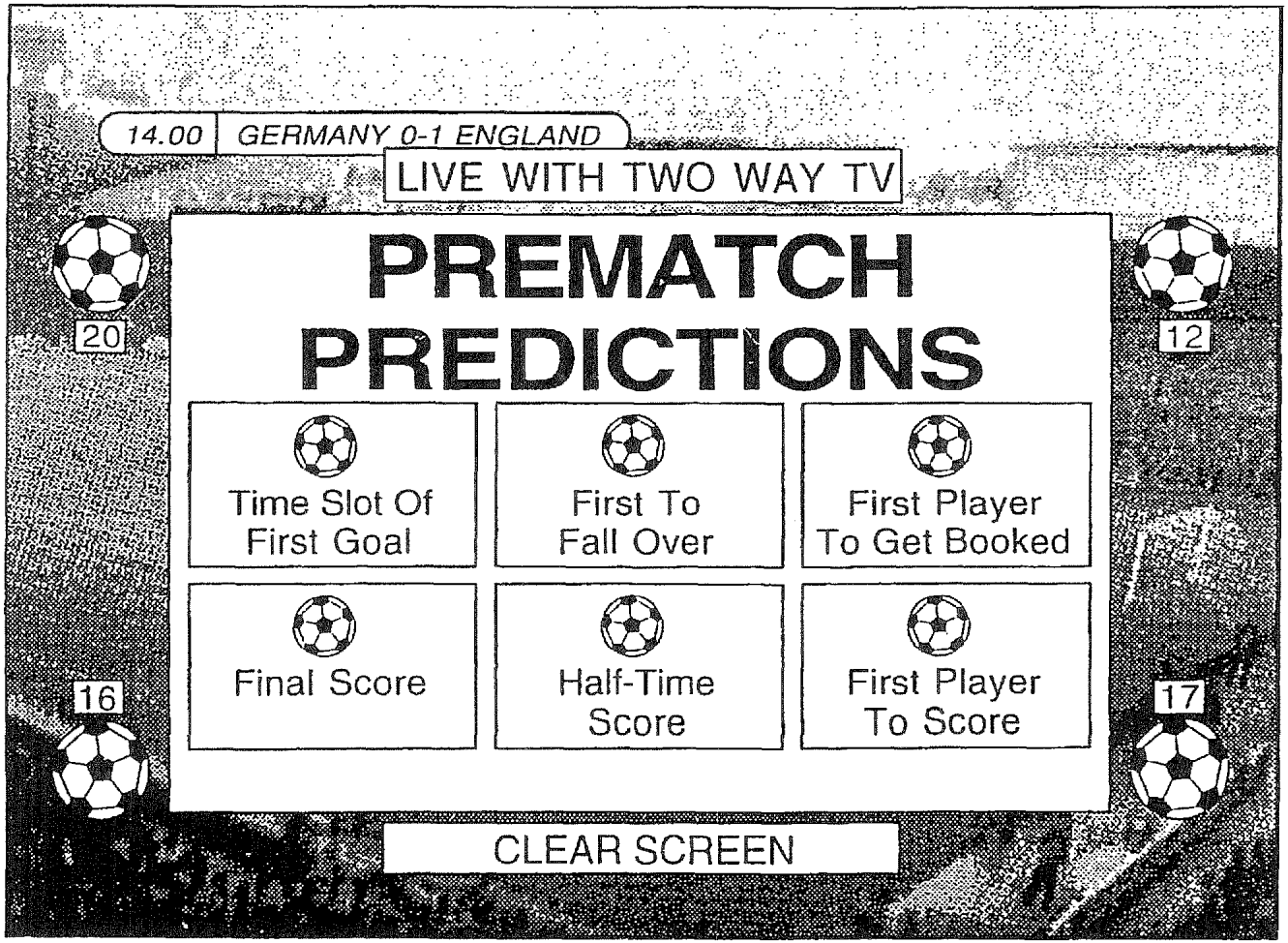
Fig.5.



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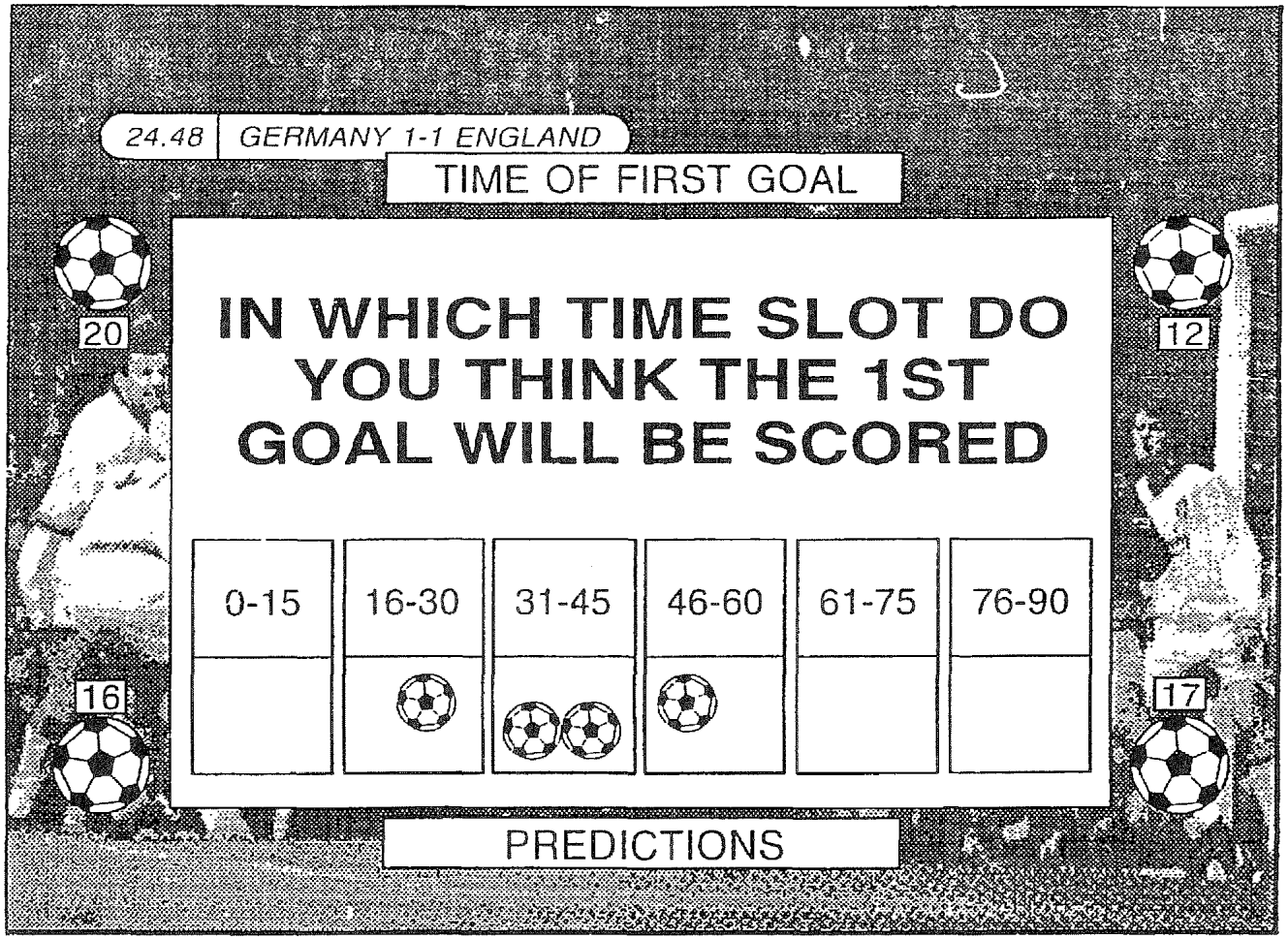
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FanDuel Ex. 1002-0698

Fig.6.



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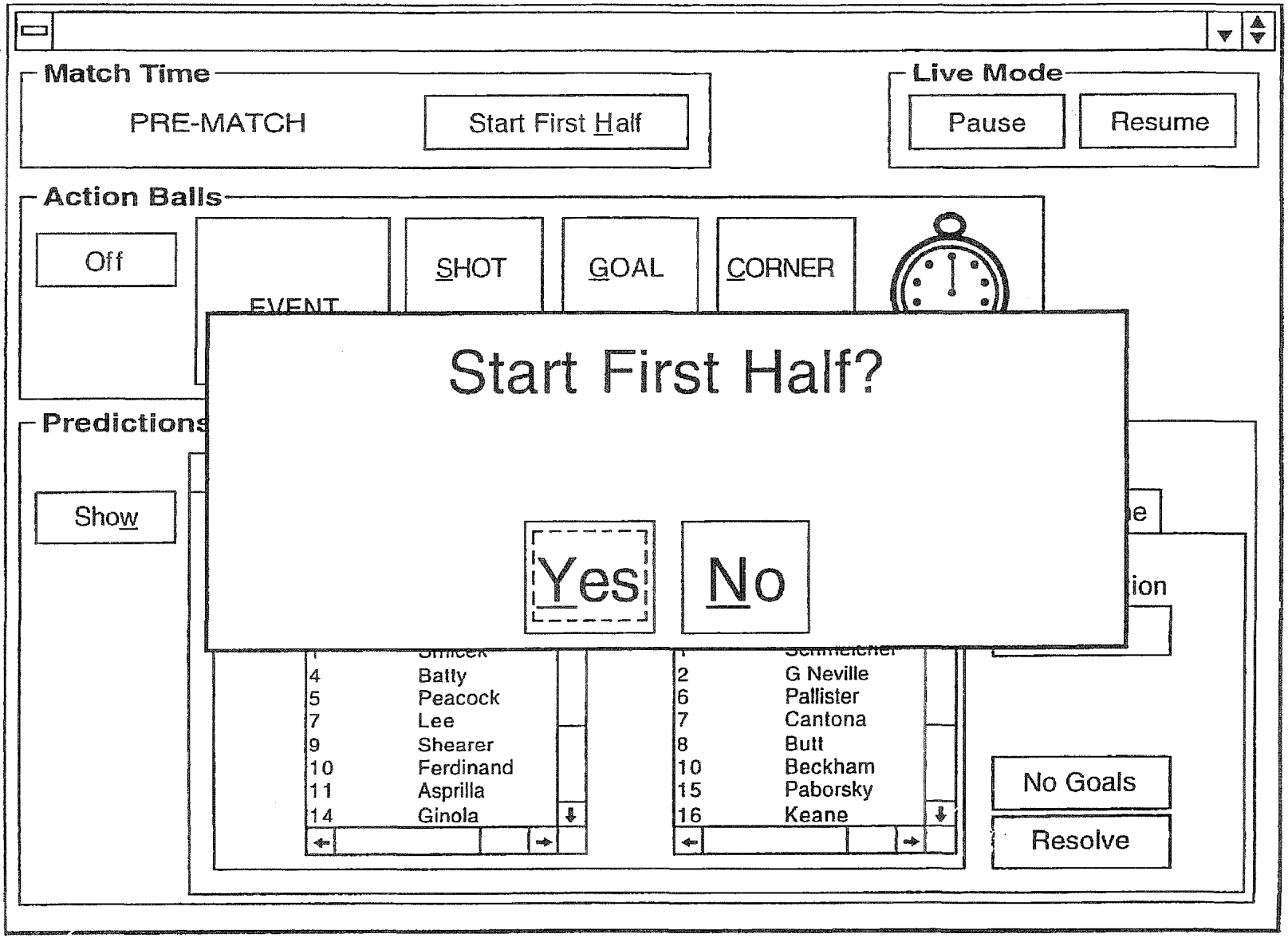
Fig.7.



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FanDuel Ex. 1002-0700

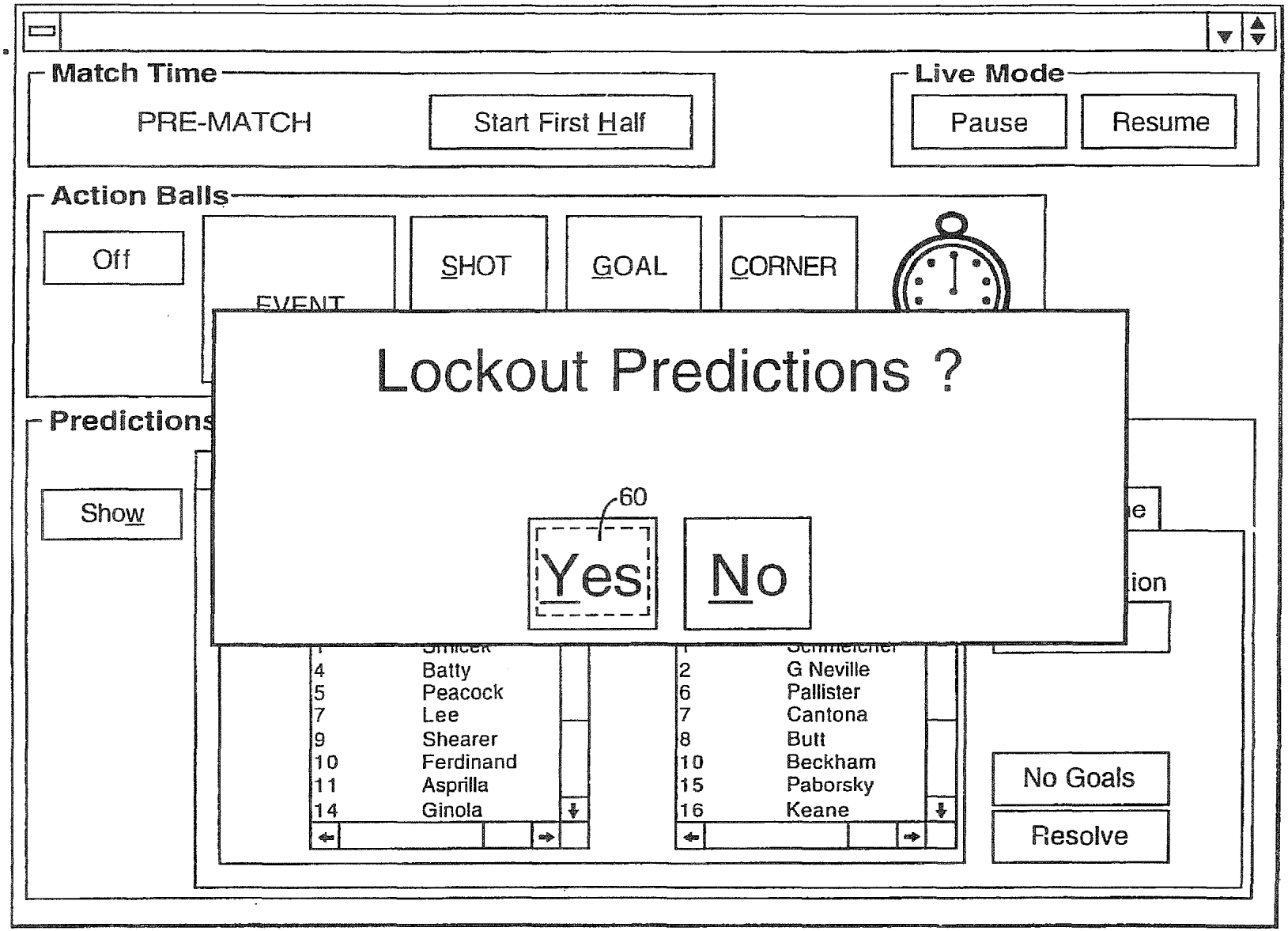
Fig.8.



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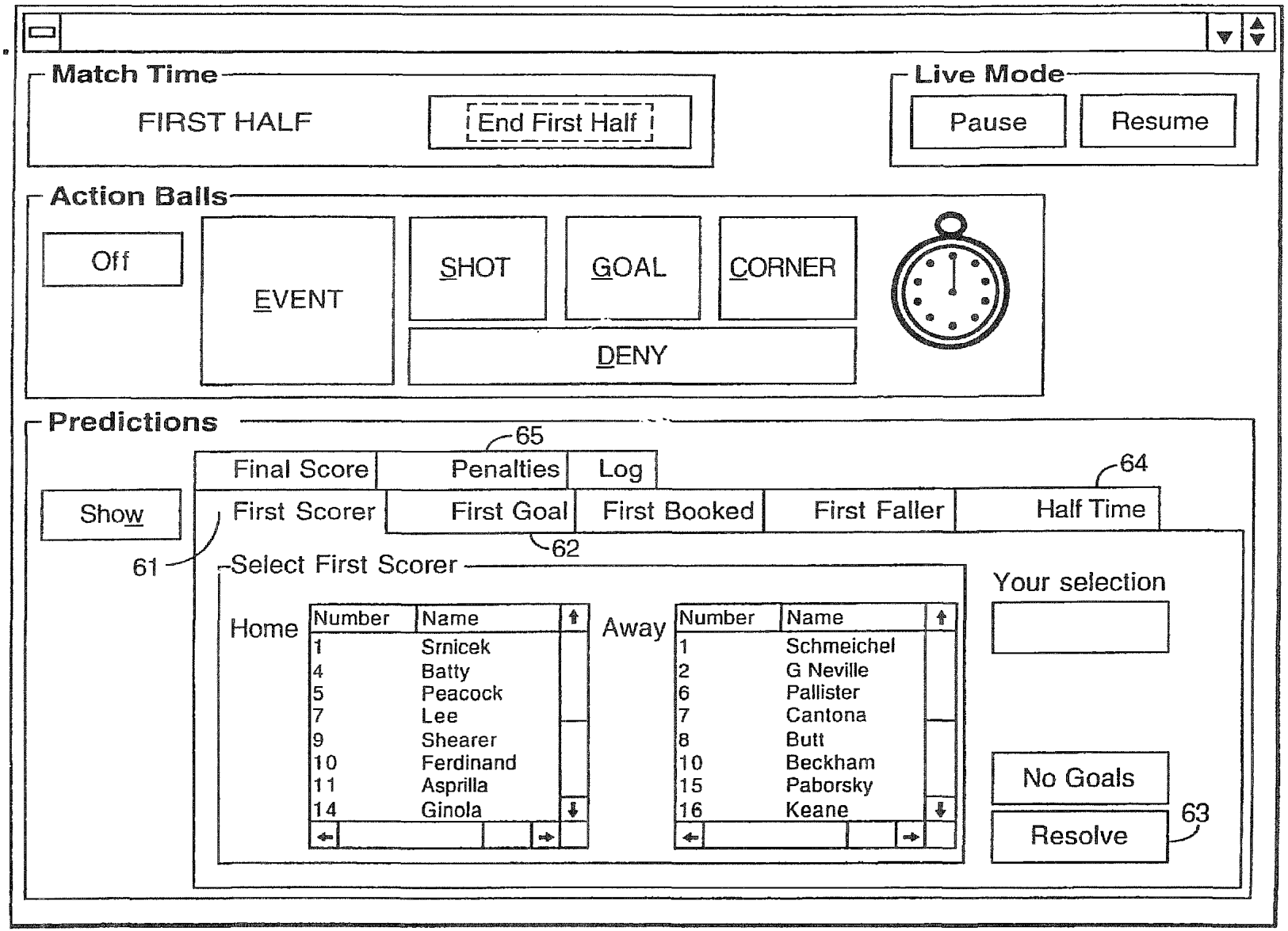
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FanDuel Ex. 1002-0701

Fig.9.



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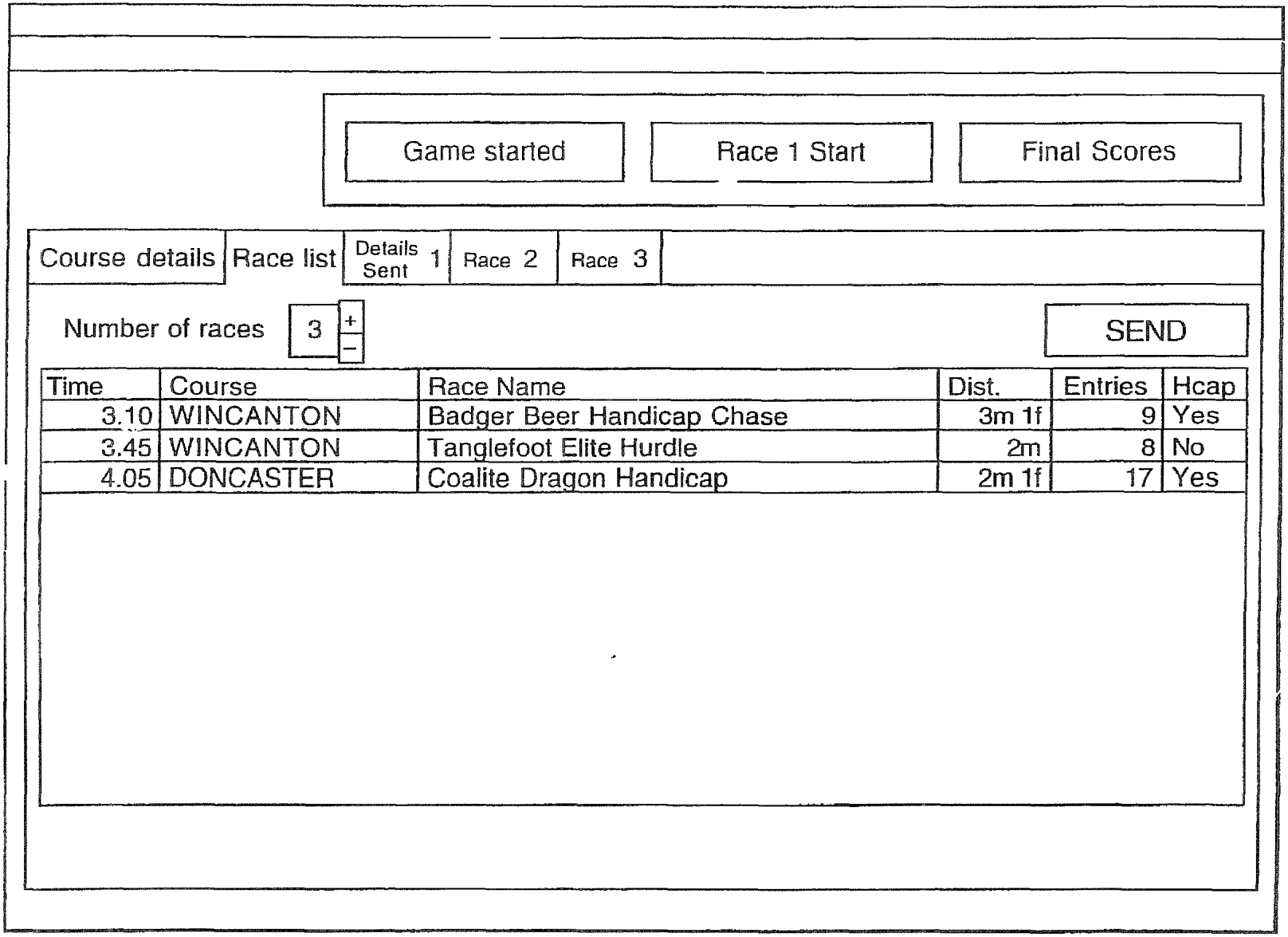
Fig.10.



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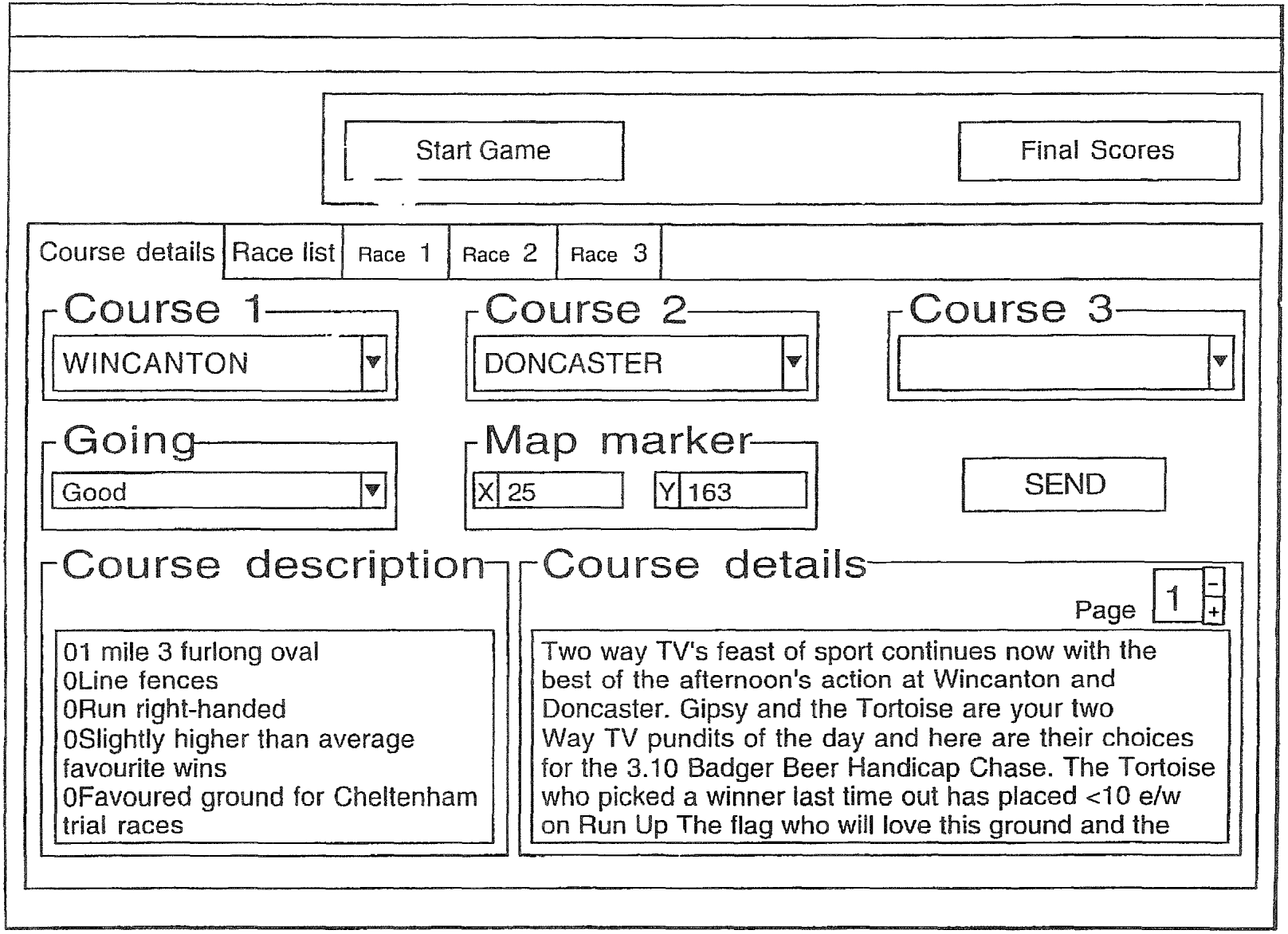
Fig.11.



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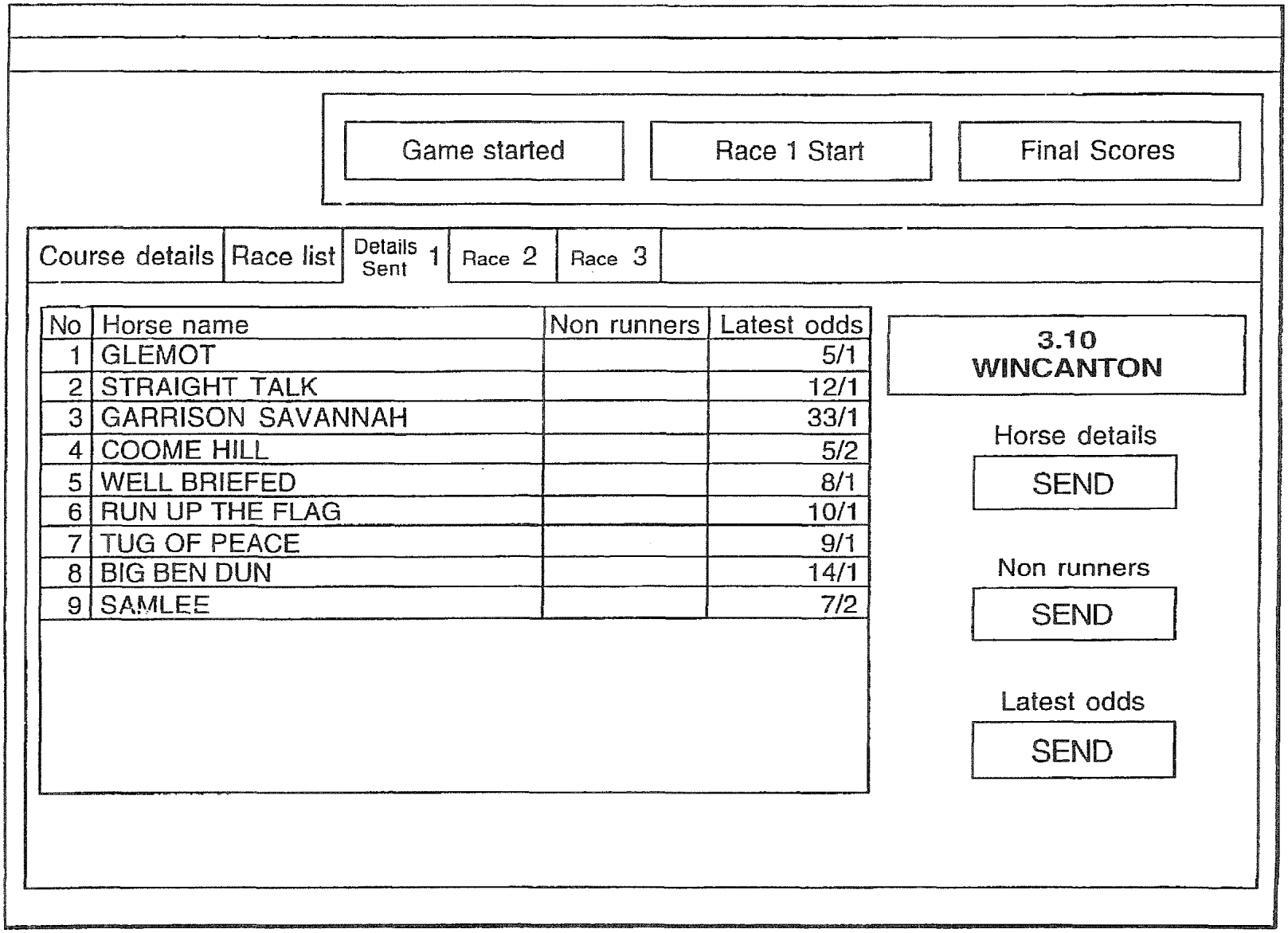
Fig.12.



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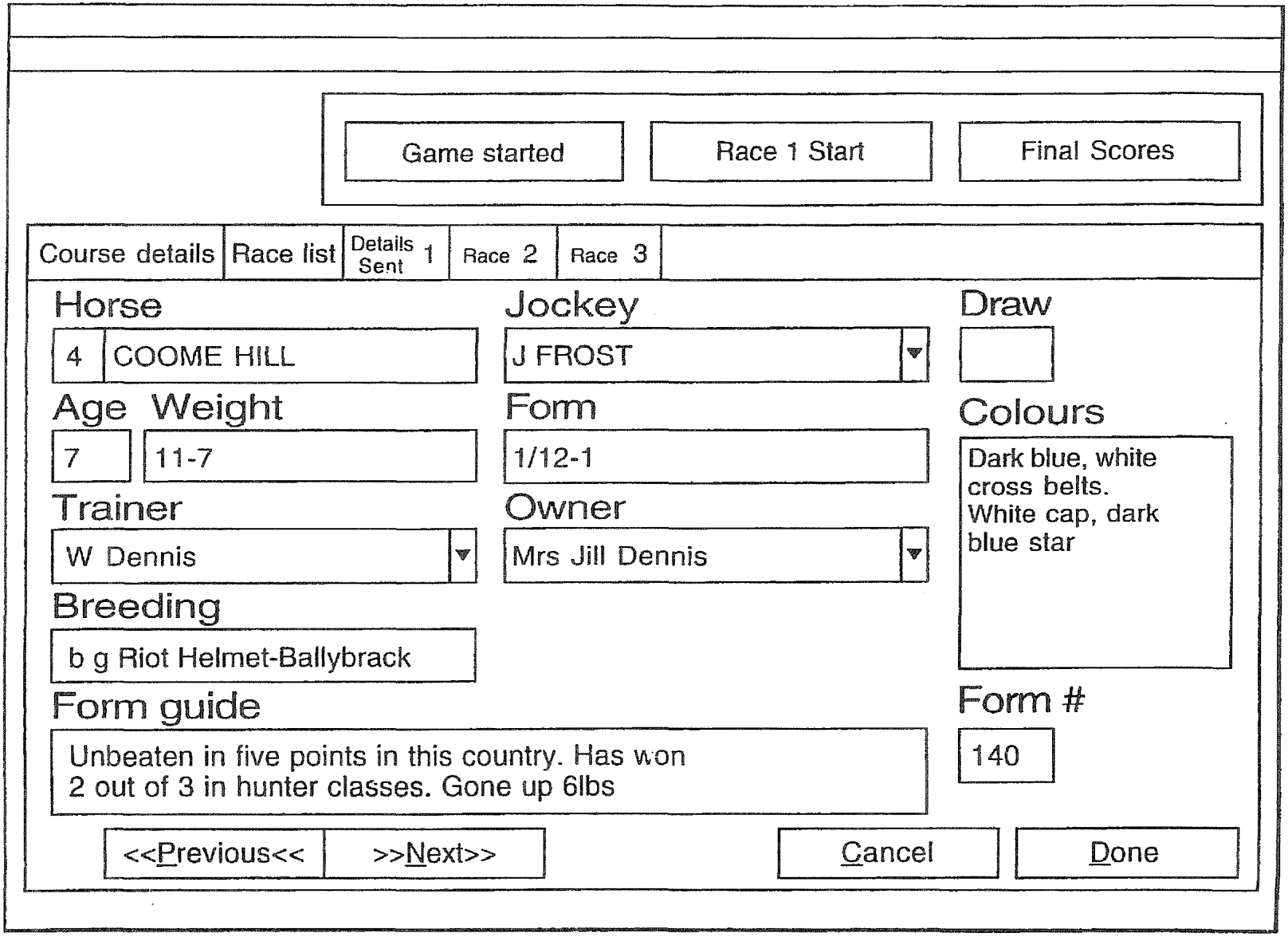
Fig.13.



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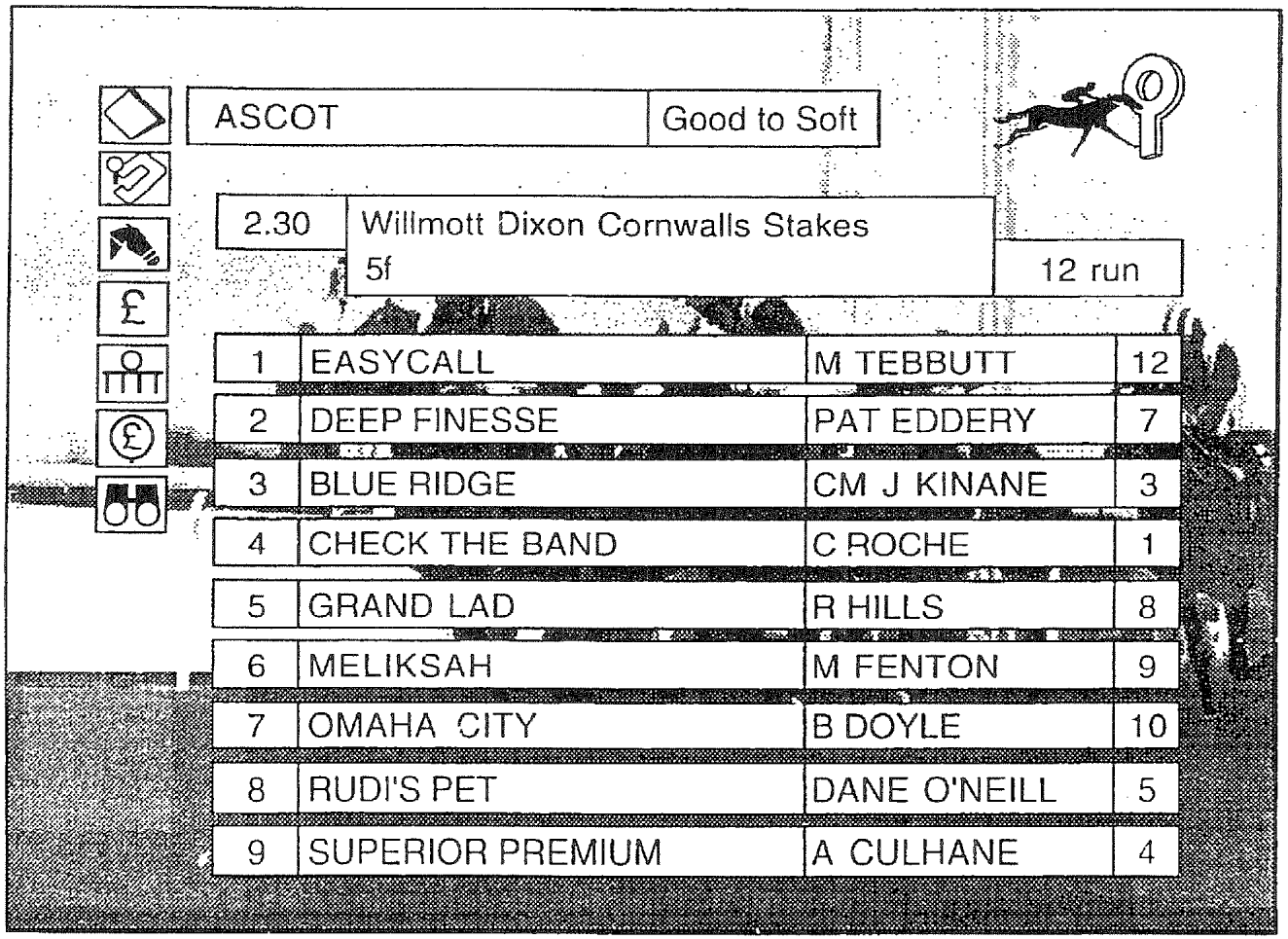
Fig.14.



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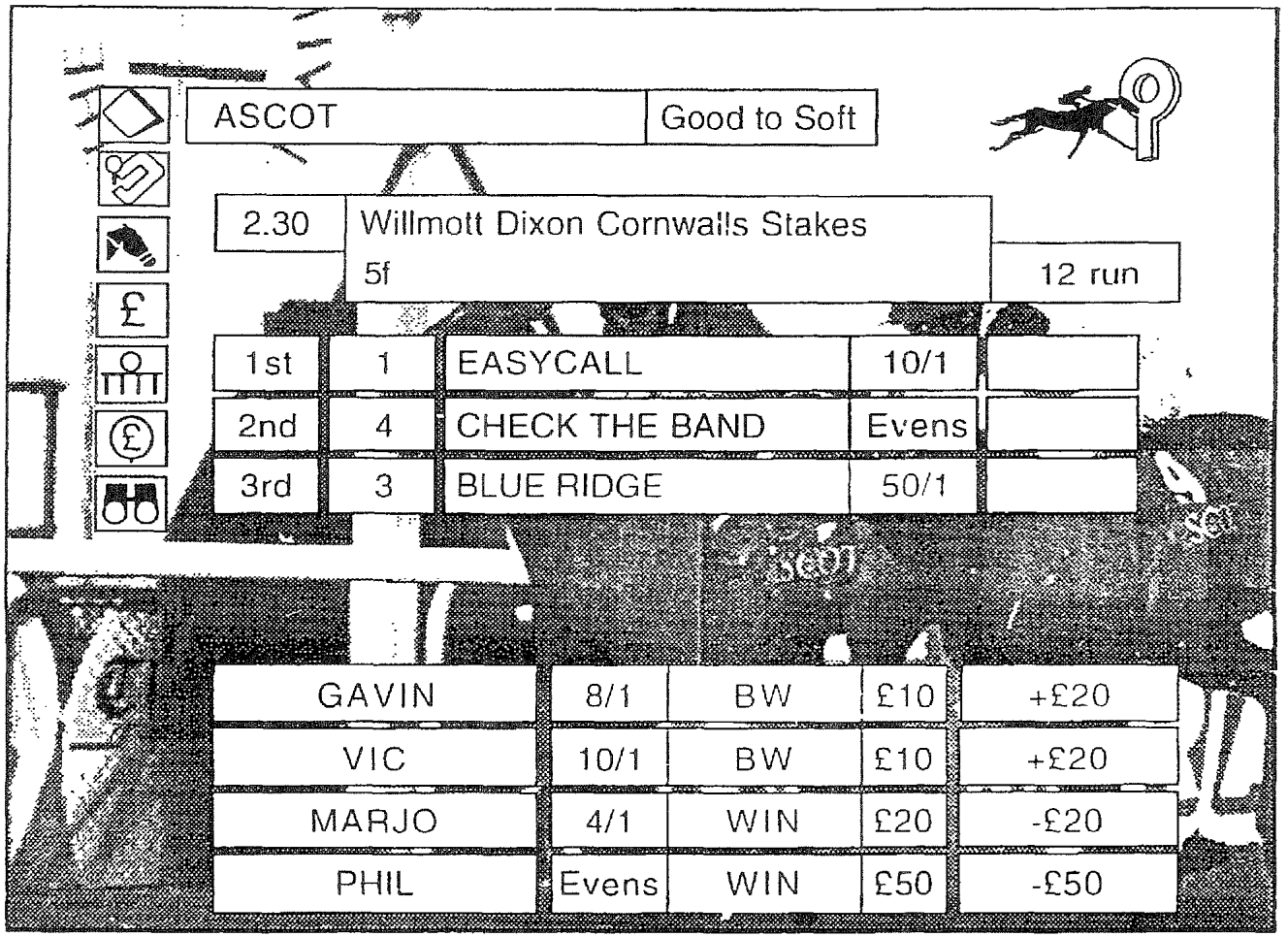
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Fig.15.



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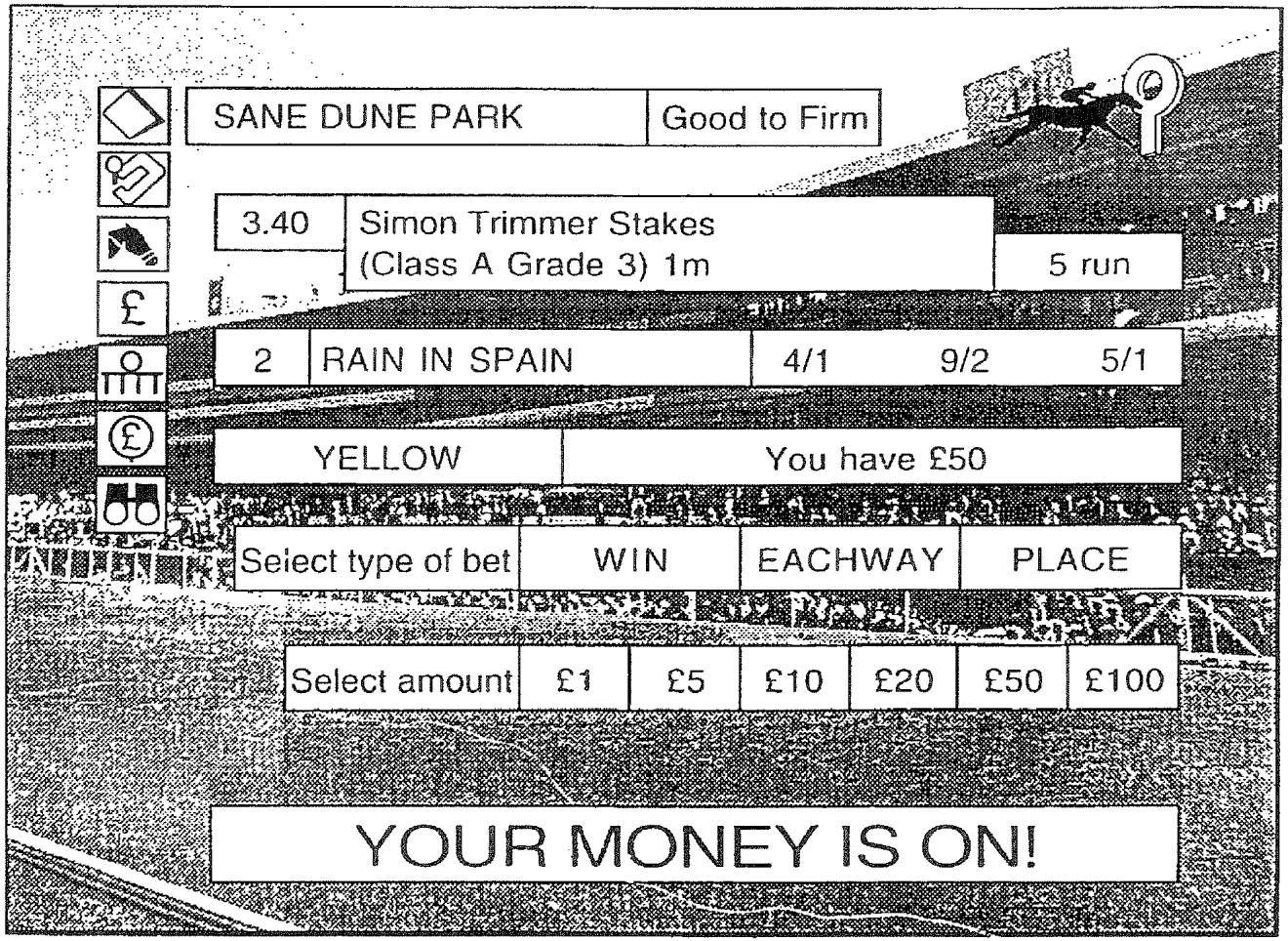
Fig.16.



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Fig.17.



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9/00			9/00	
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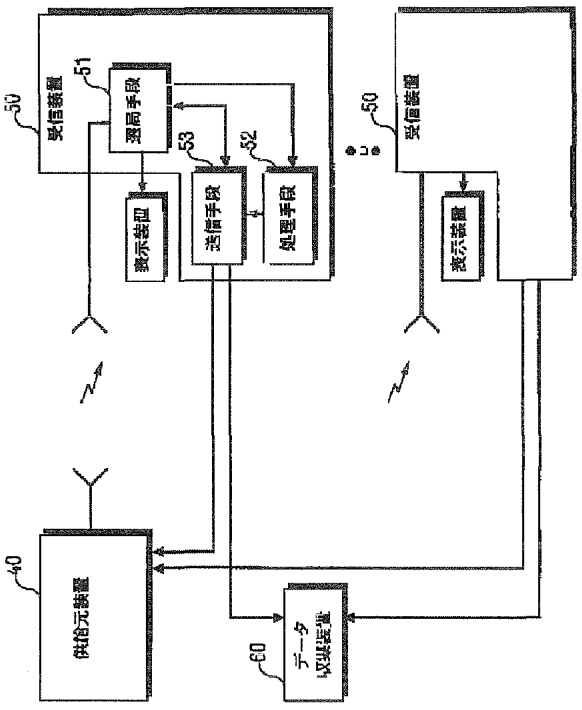
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(54)【発明の名称】　対話型テレビ放送システム

(57)【要約】
【課題】　正確な視聴率調査を可能にする対話型テレビ放送システム及び受信装置を提供する。
【解決手段】　対話型テレビ放送システムは、複数のテレビチャネルの番組とデータを放送を通じて供給する供給元装置４０と、複数の受信装置５０を有する。各受信装置５０は、供給元装置４０によって送信されたテレビチャネルのうち一つのテレビチャネルを受信するためにチャネル選択を行なう選局手段５１と、供給元装置４０から送信されるデータに応答して、受信装置５０がどのチャネルを受信しているかを判定する処理手段５２と、受信装置５０が受信中のチャネルに係わる情報を、共通に設けられたデータ収集装置６０に対して送信する送信手段５３とを備える。



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【特許請求の範囲】
【請求項１】　対話型テレビ放送システムにおいて、
複数のテレビチャネルの番組とデータを放送を通じて供給する供給元装置と、複数の受信装置であって、
前記供給元装置によって送信されたテレビチャネルのうち一つのテレビチャネルを受信するためにチャネル選択を行なう選局手段と、
前記供給元装置から送信されるデータに応答して、前記受信装置がどのチャネルを受信しているかを判定する処理手段と、
前記受信装置が受信中のチャネルに係わる情報を、共通に設けられたデータ収集装置に対して送信する送信手段と、をそれぞれ有する複数の受信装置と、
を有することを特徴とする対話型テレビ放送システム。
【請求項２】　前記各受信装置は、前記各受信装置がどのチャネルを受信しているかを判定するように前記処理手段を機能させるプログラムを格納するプログラム記憶装置をさらに有することを特徴とする請求項１記載の対話型テレビ放送システム。
【請求項３】　前記処理手段は、前記供給元装置から送られたＵＲＬに応じて、前記各受信装置がどのチャネルを受信しているかを判定するプログラムを呼び出すことを特徴とする請求項１記載の対話型テレビ放送システム。
【請求項４】　前記供給元装置が送信し前記処理手段が応答する前記データは、前記各受信装置がどのチャネルを受信しているかを前記処理手段が判定するためのプログラムを含むことを特徴とする請求項１記載の対話型テレビ放送システム。
【請求項５】　前記各処理手段は、前記供給元装置からの前記データに対してリアルタイムに応答することを特徴とする請求項１記載の対話型テレビ放送システム。
【請求項６】　前記供給元装置は、前記複数のテレビチャネルの番組とデータの送信を、地上波放送網、ケーブルＴＶ網、衛星放送網、インターネットのうち少なくとも一つを使用して行なうことを特徴とする請求項１記載の対話型テレビ放送システム。
【請求項７】　前記各送信手段は、地上波放送網、ケーブルＴＶ網、衛星放送網、公衆加入電話網、インターネットのうち少なくとも一つの伝送媒体に接続されているか、あるいは接続可能であることを特徴とする請求項１記載の対話型テレビ放送システム。
【請求項８】　前記各送信手段は、前記各受信装置が、前記供給元装置からの前記複数のテレビチャネルの番組とデータを受信するのに使用する伝送媒体と同じ伝送媒体に接続されているか、あるいは接続可能であることを特徴とする請求項１記載の対話型テレビ放送システム。
【請求項９】　前記各処理手段は、前記供給元装置から受信した複数の対話型アプリケーションを実行することを特徴とする請求項１記載の対話型テレビ放送システム。
【請求項１０】　前記データ収集装置は、前記供給元装置と同じ場所に設置されていることを特徴とする請求項１記載の対話型テレビ放送システム。
【請求項１１】　前記受信装置が受信中のチャネルに係わる情報は、（ａ）前記受信装置が現在選局中のチャネルと、（ｂ）前記受信装置があるチャネルに対して能動的に選局している時間と、（ｃ）前記受信装置の自己証明情報と、（ｄ）前記受信装置のユーザーの自己証明情報と、のうち、一つ以上の情報を含むことを特徴とする請求項１記載の対話型テレビ放送システム。
【請求項１２】　対話型テレビ放送システムで使用される受信装置において、
前記供給元装置によって送信されたテレビチャネルのうち一つのテレビチャネルを受信するためにチャネル選択を行なう選局手段と、
前記供給元装置から送信されるデータに応答して、前記受信装置がどのチャネルを受信しているかを判定する処理手段と、
前記受信装置が受信中のチャネルに係わる情報を、共通に設けられたデータ収集装置に対して送信する送信手段と、
を有することを特徴とする受信装置。
【発明の詳細な説明】
【０００１】
【発明の属する技術分野】本発明は、対話型テレビ放送システム及び同システムで使用される受信装置に関し、特に各ユーザーがどのテレビチャネルを現在選択しているかについて調査する機能を有する対話型テレビ放送システム、及び同システムで使用される受信装置に関する。
【０００２】
【従来の技術】対話型テレビ放送システムの開発によって、離れた場所にいる複数のユーザーが対話型ゲームに参加したり、商取引を行なったり、スポーツ放送を利用したゲームに参加したりすることが可能になった。多くの場合、こうした対話型のアプリケーションは、これと同時に放送されるテレビ番組に連携して実行される。このような対話型テレビ放送システムは、従来アナログ放送技術をベースにして開発されてきた。しかし、最近のディジタルテレビ放送の導入に伴って、提供される対話型アプリケーションの範囲は非常に広がってきた。また、より高度なアプリケーションが提供できるようになった。
【０００３】一方、テレビ放送事業者及び対話型アプリケーションを提供する事業者には、正確な視聴率を知りたいというニーズがある。従来の方法では、実際に視聴者にインタビューしたり、視聴者からアンケートをとったりして情報を集めていた。また、少数の家庭に視聴率調査専用の装置を設置して情報を集めることが行われて

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いた。従って、視聴率は少数の統計的サンプルから算出されていた。

【０００４】

【発明が解決しようとする課題】しかし、少数のサンプルだけでは母数となる実際の視聴者数を反映していないことがあるので、正確な視聴率を得ることが必ずしもできない。かと言って、視聴率調査のための専用の装置を全視聴者に配るわけにもいかないという問題点があった。

【０００５】本発明はこのような点に鑑みてなされたものであり、正確な視聴率調査を可能にする対話型テレビ放送システム、及び同システムで使用する受信装置を提供することを目的とする。

【０００６】

【課題を解決するための手段】本発明では上記課題を解決するために、図１に示す、複数のテレビチャネルの番組とデータを放送を通じて供給する供給元装置４０と複数の受信装置５０を備えた対話型テレビ放送システムが提供される。各受信装置５０は、供給元装置４０から送信されたテレビチャネルのうち一つのテレビチャネルを受信するためにチャネル選択を行なう選局手段５１と、供給元装置４０から送信されるデータに応答して、受信装置５０がどのチャネルを受信しているかを判定する処理手段５２と、受信装置５０が受信中のチャネルに係わる情報を、共通に設けられたデータ収集装置６０に対して送信する送信手段５３とを有する。

【０００７】供給元装置４０は、複数のテレビチャネルの番組とデータを複数の受信装置５０に向けて放送する。選局手段５１はこれらのテレビチャネルのうちの一つを受信するためにチャネル選択を行なう。処理手段５２は、供給元装置４０から送信される所定のデータに応答して、受信装置５０が現在どのチャネルを受信しているかを判定する。送信手段５３は、処理手段５２が判定した情報、すなわち視聴率に係わる情報を、共通に設けられたデータ収集装置６０に向けて送信する。

【０００８】受信装置５０はもともと対話型アプリケーションを利用するためにユーザーが使用するものであるが、本発明ではこれを視聴率情報の収集のために利用する。すなわち、対話型アプリケーションに参加するユーザーはそれぞれ自分の受信装置５０を持っている。従って、こうした受信装置５０を利用すれば、各ユーザーが特に何もしなくても、実際の視聴率を非常に正確に、しかも迅速に測定することが可能になる。本発明の方法によれば、従来のやり方に比べてはるかに短い時間で測定でき、実際の視聴者数そのものに基づいたデータを得ることができる。また、必要に応じて特定のタイミングでユーザーの応答を観測することも可能である。例えば、ある広告を何人が見ているかを判定したり、番組の合間に放送される広告でユーザーがチャネルを変えるかどうかといったことを調べることができる。

【０００９】このようなシステムを受信装置５０に作り込む方法はいろいろ考えられる。その一つは、各受信装置５０がどのチャネルを受信しているかを判定するように処理手段５２を機能させるプログラムを格納するプログラム記憶装置を各受信装置５０に内蔵することである。受信装置５０はこのようなプログラムがすでに組み込まれた状態で設置される。あるいは既にユーザーの住居等に設置された受信装置５０に、こうしたプログラムを後からダウンロードするようにしても良い。いずれにせよ供給元装置４０は、所定のトリガー信号を送信するだけでこうしたプログラムを起動することができる。このトリガー信号は、例えば供給元装置４０のオペレータが所定の操作をすることにより受信装置５０にリアルタイムに送られるようにしてもよいし、予め決められた時刻にトリガー信号が発生するようにしてもよい。後者の場合、トリガー信号は所定の時刻に供給元装置４０から送信されることになる。また、これに代わる方式として、供給元装置４０は所定の時刻を定義した情報を前もって受信装置５０に送り、受信装置５０はこの時刻情報を一旦格納し、受信装置５０のローカルクロックが当該時刻を示したら、その装置の処理手段５２がチャネル判定を行なうようにしてもよい。

【００１０】もう一つの構成例としては、供給元装置４０から送られたＵＲＬ（Ｕｎｉｆｏｒｍ　Ｒｅｓｏｕｒｃｅ　Ｌｏｃａｔｏｒ）に応じて、受信装置５０がどのチャネルを受信しているかを判定するプログラムを処理手段５２が呼び出すようにしてもよい。これはインターネットをベースにしたシステムに適用できる。すなわち、チャネル選局情報を判定するプログラムコードやその他のデータを保持するＷＥＢページを用意し、処理手段５２はＵＲＬで指定されたＷＥＢページにアクセスする。

【００１１】この方式の利点は、例えばＡＴＶＥＦ（Ａｄｖａｎｃｅｄ　ＴＶ　Ｅｎｈａｎｃｅｍｅｎｔｓ　Ｆｏｒｕｍ）のような標準化機関が、ＵＲＬトリガー信号を受信装置５０に送信する機構の規格を既に提案していることである。ただしこの提案はこれまでのところ、テレビ放送の強化のためにグラフィック系アプリケーション等のローディングにトリガー信号を使用するというものである。

【００１２】商品などの広告を対話形式で行なうアプリケーションでは、従来はある広告を見て反応を示した視聴者の数を知ることができた。しかし本発明をこのようなアプリケーションに適用すると、広告に反応した視聴者数だけではなく、実際の広告を見た視聴者の総数を把握できるという大きな利点を得ることが可能となる。

【００１３】さらに別の構成例では、供給元装置４０が供給するデータは、各受信装置５０がどのチャネルを受信しているかを判定するために処理手段５２が使用するプログラムを含むようにする。この場合、供給元装置４

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0はチャネル選局情報を必要とする局面において所定のプログラムを送信する。送られたプログラムは処理手段５２によって即時起動されるか、将来の所定の時刻に起動される。

【００１４】上述のように、各処理手段５２は通常、供給元装置４０から送られたデータにリアルタイムに応答する。しかし、即時ではなく一定の時間が経過した後（例えば所定の時刻になったら）応答するようにしてもよい。得られたデータは、共通に設置されたデータ収集装置６０にただちに送ってもよいし、あるいは一旦蓄えておいて、後で送ってもよい。

【００１５】なお、データ収集装置６０に送る情報は、次に挙げる情報のうち一つ以上の情報を含む。

（ａ）前記受信装置５０が現在選局中のチャネル

（ｂ）前記受信装置５０があるチャネルに対して能動的に選局している時間

（ｃ）前記受信装置５０の自己証明情報

（ｄ）前記受信装置５０のユーザーの自己証明情報

なお、本発明はどのような形態の伝送網にも適用できる。また、本発明は一つだけでなく複数のネットワークを使用して放送を行なうシステムにも適用できる。さらに、本発明は、インターネットを使った放送およびデータ送信にも適用できる。

【００１６】各受信装置５０内の送信手段５３は伝送媒体に恒久的に接続されたものであってもよいし、必要に応じて接続可能なものであってもよい。ここで言う伝送媒体とは、例えば、地上放送網、ケーブルＴＶ網、衛星放送網、公衆加入電話網、インターネットのうち一つ、あるいはそれ以上のものを指す。しかし本発明はこれらに限定されるものではない。

【００１７】また、本発明の各送信手段５３は、受信装置５０がテレビ放送とデータの送信を受信するのに使用する伝送媒体と同じ伝送媒体を使用してもよいし、異なる伝送媒体を使用してもよい。

【００１８】本発明のデータ収集装置６０は、供給元装置４０と同じ場所に設置してもよいし、使用ネットワーク上の別の場所に返送情報を送るようにしてもよい。本発明の受信装置５０は、テレビ受像機に付加するセットトップ・ボックス（ＳＴＢ）の形で実現してもよいし、テレビ受像機に内蔵してもよい。

【００１９】

【発明の実施の形態】以下、本発明の対話型テレビ放送システムの実施の形態を、図面を参照して説明する。

【００２０】まず、図１を参照して本発明の原理を説明する。図１は、本発明による対話型テレビ放送システムの概念を示すブロック図である。このシステムは、複数のテレビチャネルの番組とデータを放送を通じて供給する供給元装置４０と複数の受信装置５０を有する。ここで各受信装置５０は、供給元装置４０によって送信されたテレビチャネルのうち一つのテレビチャネルを受信するためにチャネル選択を行なう選局手段５１と、供給元装置４０から送信されるデータに応答して、受信装置５０がどのチャネルを受信しているかを判定する処理手段５２と、受信装置５０が受信中のチャネルに係わる情報を、共通に設けられたデータ収集装置６０に対して送信する送信手段５３と、を有する。

【００２１】供給元装置４０は、複数のテレビチャネルの番組とデータを複数の受信装置５０に向けて放送する。これは例えば、ゲーム番組などの対話型アプリケーションの映像・音声、制御データ、プログラムなどである。選局手段５１は複数のテレビチャネルのうち一つを受信するためにチャネル選択を行なう。処理手段５２は、供給元装置４０から送信されるデータに応答して、受信装置５０が現在どのチャネルを受信しているかを判定する。送信手段５３は、処理手段５２が判定した情報、すなわち視聴率に係わる情報を、共通に設けられたデータ収集装置６０に対して送信する。こうして各受信装置からチャネル選択に係わる情報が収集され、それを基にして番組の視聴率が計算される。

【００２２】次に、本発明の実施の形態について具体的に説明する。図２は、本発明の対話型放送システムを示すブロック図である。図２の対話型放送システムは、中央に設けられたゲーム制御システムＡと、テレビ放送システムＢと、ユーザー装置Ｃから構成される。

【００２３】ゲーム制御システムＡは、Ｗｉｎｄｏｗｓ（登録商標）ベースのパソコンなどのコンピュータを含むセントラルコントローラ１を中心に構成され、セントラルコントローラ１にはキーボードやマウス等の入力装置２や、表示装置やプリンタなどの出力装置３が接続される。各種サービス機能やユーザーに関するデータはデータベースとして記憶装置４に格納されており、セントラルコントローラ１からこれらをアクセスしたり修正したりすることができる。また記憶装置４は、アプリケーションデータを保持するライブファイル（Ｌｉｖｅ　Ｆｉｌｅ）を記憶している。アプリケーションデータとは、放送中のゲームまたはこれから放送されるゲームなどのアプリケーションに関するデータである。セントラルコントローラ１は、各種サービス機能に関連したテレビ表示信号や制御信号に変換可能なデータを生成し、これを地上回線５に載せてテレビ放送システムＢへの入力先である合成装置６に送る。合成装置６はテレビ放送用の信号をスタジオ７から（また生中継放送の場合はスタジオ外の中継地点から）受信し、この信号と地上回線５からの受信信号とを合成し、送信機及びアンテナを含む放送設備８を通じて、遠隔地のユーザー（ゲームプレーヤー）の装置Ｃに対して、テレビ放送と同時に送る。また別の形態として、セントラルコントローラ１からの信号と、スタジオ７またはスタジオ外の中継地点からの信号とを、別々の経路で送るように構成してもよい。

【００２４】セントラルコントローラ１から合成装置６

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に与えられた信号は、通常のテレビ信号の垂直帰線区間を利用してユーザー装置Cに送信される。また、FM-SCA無線チャネルを使用したり、またケーブルモデム、通信衛星、放送衛星、インターネットなどを使って、テレビ信号とは別の信号として送ることも考えられる。伝送信号は通常ディジタル信号であるが、本発明はアナログ信号にも適用可能である。

【0025】各ユーザー装置Cは、選局可能なテレビ受信回路10を備え、またセットトップ・ボックス（STB）として構成されたホームユニット（あるいはリモートユニットとも呼ぶ）9を備えている。テレビ受信回路10にはアンテナ11と表示装置12が接続されている。ホームユニット9は以下に述べるような構成になっている。

【0026】ホームユニット9の内部では、テレビ受信回路10の先にアドレス/データバス13が延びている。このバス13にはマイクロプロセッサ（以下、プロセッサ）14と、そのプログラムを格納するROM等のメモリ15と、赤外線受信機16と、メモリ（RAM）17とが接続されている。また、同バス13上には回線インタフェース19が設けられ、プロセッサ14から公衆加入電話網18にアクセスできるようになっている。プロセッサ14から送られた信号は、この公衆加入電話網18を通してセントラルコントローラ1、あるいはデータ収集装置20に伝送される。

【0027】このユーザー側装置Cからセントラルコントローラ1に向けての返送信号の送信については、別の形態としてケーブルテレビ網やインターネットなども利用できるが、セントラルコントローラ1からユーザー側装置Cへの信号伝送媒体とは別の媒体を使うのが一般的である。

【0028】ゲーム制御システムAは、対話型の予想ゲームなど各種のゲームを制御することができる。例えば欧州特許出願EP-A-0873772には対話型の予想ゲームとして二つの例が挙げられている。第1の例はサッカーの試合に関連するものであり、放送設備8から生中継放送される試合が実際に開始する前に、ゲーム参加者はある事象（イベント）の発生を予想することができる。また生放送中にも、事象の発生を予想することができる。二つ目の例は競馬の生中継を基に予想ゲームを行うものである。

【0029】ゲームに参加する各ユーザーは、ホームユニット9と通信するために、それぞれのハンドセット（HS）25a～25cを持っている。ハンドセットはホームユニット9と物理的には離れているが、赤外線信号を使用してワイヤレスで通信することができる。赤外線受信機16はハンドセット25a～25cからの赤外線信号受信し、これをデータに変換した後バス13を経由してプロセッサ14に与える。これらの機能については、欧州特許出願EP-A-0921657に詳細に記載されている。

【0030】本システムの使用に際しては、ユーザーはまず各自のハンドセット25a～25cを使用して自分が見たいと思うチャネルを選択する。これに呼応してプロセッサ14はテレビ受信回路10を適当なチャネルに合わせる。さらに、ユーザーは各自のハンドセット25a～25cを使用して例えばテレビ放送と同時に進行するゲームなどの対話型アプリケーションを選択する。

【0031】図1で説明した本発明の構成要素は以下のようにして実現されている。すなわち、図1の供給元装置40は、図2のゲーム制御システムAと、テレビ放送システムBの関連部分に相当する。図1の受信装置50は、図2のホームユニット9に相当する。図1の選局手段51は、図2のテレビ受信回路10およびその動作環境に相当する。図1の処理手段52は、図2のプロセッサ14およびその動作環境に相当する。図1の送信手段53は、図2の回線インタフェース19およびその動作環境に相当する。

【0032】以下、図2に示す本発明の実施の形態をさらに詳細に説明する。本発明の好適な実施の形態において、メモリ（ROM）15は、プロセッサ14をJavaスクリプトハンドラーとして機能させるためのプログラムやデータを格納する。視聴率に関する情報を得たい時、システムオペレータはセントラルコントローラ1に「アナウンスメッセージ」を発行するように指令する。このメッセージは合成装置6から全ホームユニット9に向けて送信される。アナウンスメッセージは、各ホームユニット9のプロセッサ14の応答先であるURLリンクを含んでいる。URLリンクを持ったアナウンスメッセージを使用すること自体は既知であり、プロセッサ14が一つ以上のWEBページにアクセスし、そこから内容をダウンロードして表示するというような動作は、従来から可能であった。ただし、従来のアナウンスメッセージは、現在見ているテレビ番組（テレビ受信回路が現在選局しているテレビ番組）に係わる追加情報を得るために視聴者が使用するものである。従って、アナウンスメッセージはそれに関連するチャネルの定義情報とURLを含んでいる。

【0033】本発明におけるアナウンスメッセージには、すぐに結果をもたらすものと、しばらく経ってから動作が起きるものとがある。後者のアナウンスメッセージにはある動作の開始時刻が指定されていて、その時刻が来ると所定の動作が起きる。あるいは、持続時間か終了時間、または開始時刻と持続時間の両方が指定されていて、その指定された範囲の時間のどこかで動作が起きるものもある。この後者の機能は次のような意味合いを持っている。すなわち、指定時間範囲内においてユーザーがアナウンスメッセージに関連するチャネルに変えたとする。このイベントは、アナウンスメッセージで供給された適当なURLリンクに作用する。

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【００３４】本発明のこの実施の形態においては、アナウンスメッセージに含まれるＵＲＬは、インバンドの「視聴率情報獲得用隠しページ」にリンクしている。このページはプロセッサ１４用のコードを含んでおり、このコードがダウンロードされると、プロセッサ１４は視聴率に係わる情報（例えば、現在の選択チャネル、現在時刻、加入者名など）を取得してデータ収集装置２０に返す。

【００３５】リアルタイムに発行されるアナウンスメッセージの場合、アナウンスメッセージが受信されると、（あるいは受信したアナウンスメッセージに指定された開始時刻になると）、なおかつテレビ受信回路１０が正しいチャネルに合っていると、プロセッサ１４は当該アナウンスメッセージに応えて隠しページをアクセスする。通常のページであれば表示装置１２上に表示されるところであるが、本発明の場合は隠しページの内容がダウンロードされて、これによってプロセッサ１４は視聴率情報に係わるメッセージを生成し、インタフェース１９を経由してデータ収集装置２０に送信する。

【００３６】さらに前述のように、他の方法を使用して視聴率を得ることも考えられる。例えば、インターネットのそれとは異なる形式のメッセージを使って、メモリ（ＲＯＭ）１５内のあるプログラムに起動をかけ、そのプログラムの機能によってテレビ受信回路１０がどのチャネルに合っているかを判定する。同プログラムは、前もって放送経由で配信されたものでも、ローカルにローディングされたものでもよい。あるいは、ホームユニット９自体が始めからこのプログラムを格納した状態で提供されるようにしてもよい。

【００３７】上述の方法においては、少なくとも、テレビ受信回路１０が選択中のチャネルと、表示装置１２がオンしているかオフしているかという状態が監視される。視聴者はテレビを見ていないときには、大抵は表示装置１２のスイッチを切るので、この監視は有効である。プロセッサ１４は表示装置１２のスイッチのオン／オフ状態を容易に判別できる。表示装置１２のスイッチが切れていてもホームユニット９の電源が入っていれば、例えば、ハンドセット２５ａ～２５ｃを最後に操作した後の経過時間など、ユーザーの行動状況をプロセッサ１４がモニターするように構成できる。この経過時間が所定の閾値を超えた場合には、プロセッサ１４は、視聴者は選択されていたチャネルをもう見ていないものと判定する。

【００３８】別の方法として、ホームユニット９から表示装置１２をオン／オフできるようにしてもよい。この場合、プロセッサ１４はオン／オフ制御信号の状態をモニターするようにすればよい。

【００３９】また、複数のユーザーがそれぞれのハンドセットを使用している場合、少し高度な方法になるが、各ハンドセット２５ａ～２５ｃの信号を別々にモニターすることによって、プロセッサ１４は個々のユーザーの行動を示すデータをデータ収集装置２０に返すことが可能になる。

【００４０】

【発明の効果】以上説明したように本発明では、受信装置の状態を判定してチャネル選択に係わる情報を送信するようにしたので、全視聴者を対象に視聴率調査を行なうことが可能になり、正確な視聴率を得ることができる。

【図面の簡単な説明】

【図１】本発明の原理図である。

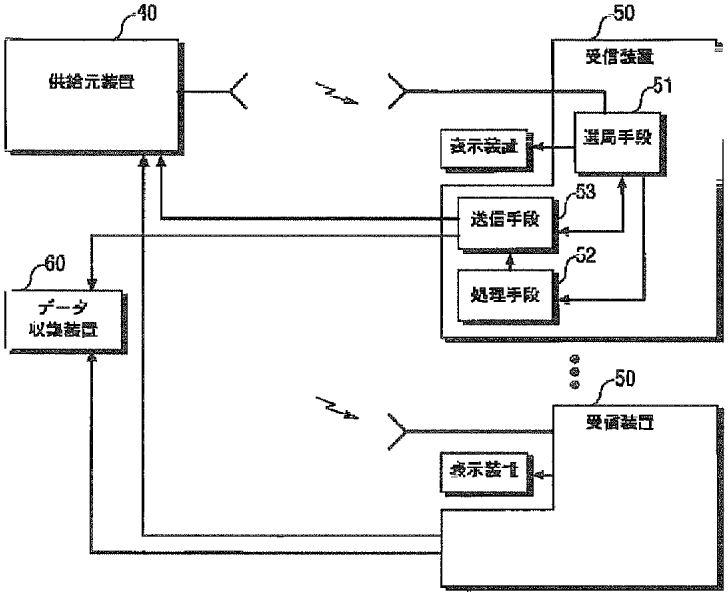
【図２】本発明の対話型テレビ放送システムのブロック図である。

【符号の説明】

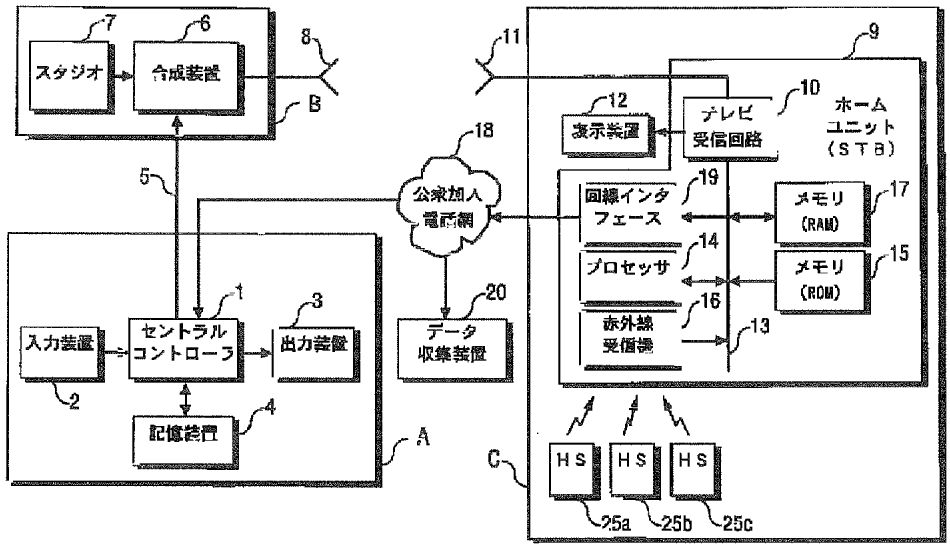
４０　供給元装置
５０　受信装置
５１　選局手段
５２　処理手段
５３　送信手段
６０　データ収集装置

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【図1】



【図2】



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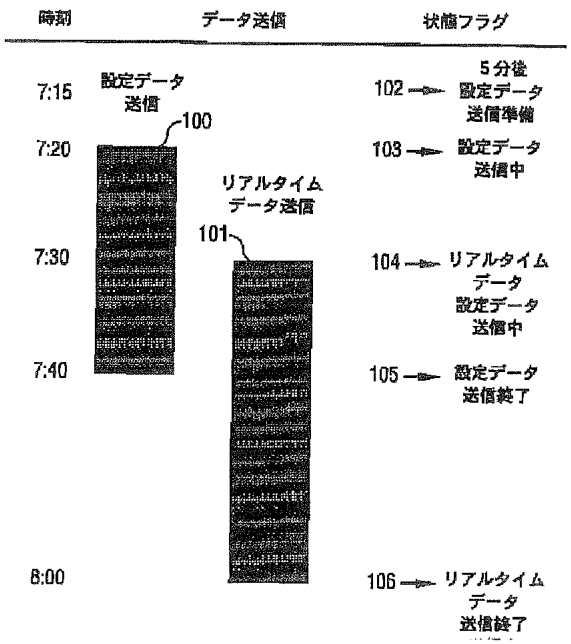
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(54)【発明の名称】　対話型アプリケーションの送信方法及び送信装置

(57)【要約】
【課題】　対話形アプリケーションの設定データを複数ユーザーに効率よく送信する。
【解決手段】　テレビ放送とリンクしたゲームなどの対話形アプリケーションを提供するシステムにおいて、ある予定されたアプリケーションの実行に必要な設定データ１００を、予定開始時刻の前に送信用カルーセル機構に供給し、全ユーザーに向けて送信する。予定開始時刻がくると、そのアプリケーションに関連するリアルタイムデータ１０１を全ユーザーに送信する。さらに以上と並行して、設定データの準備状況および送信の状態を示す状態フラグ１０２～１０６を送信する。状態フラグ１０２～１０６に応じて、設定データ１００の提供に関する状態情報がユーザーに提示され、ユーザー側の装置はそれに基づいて必要な設定データのみを受信する。



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1

【特許請求の範囲】

【請求項１】　予定された対話型アプリケーションを、複数のユーザーに対し、各々のユーザーインタフェースを経由して送信する方法において、

（ａ）対話型アプリケーションの設定データを予定開始時刻の前に送信用カルーセル機構に供給し、前記設定データを前記ユーザーインタフェースに繰り返し送信するステップと、

（ｂ）前記予定開始時刻において、前記対話型アプリケーションに関連するリアルタイムデータを前記ユーザーインタフェースに送信するステップと、

（ｃ）前記ステップ（ａ）において実行される前記設定データ送信の状態を示す前記状態フラグを前記ユーザーインタフェースに送信するステップと、

を有することを特徴とする方法。

【請求項２】　前記ステップ（ａ）は前記設定データを所定の設定開始時刻と設定終了時刻の間に送信し、前記状態フラグは前記設定開始時刻または前記設定終了時刻を示すことを特徴とする請求項１記載の方法。

【請求項３】前記ステップ（ｂ）は前記リアルタイムデータを予定開始時刻と予定終了時刻との間に送信し、前記状態フラグは前記予定開始時刻または前記予定終了時刻を示すことを特徴とする請求項１記載の方法。

【請求項４】　前記リアルタイムデータの前記予定開始時刻を示す電子番組ガイドデータを前記ユーザーインタフェースに送信するステップをさらに有することを特徴とする請求項１記載の方法。

【請求項５】　前記状態フラグの状態を視覚的に表示するために、前記電子番組ガイドデータを前記状態フラグの状態に応じて変更することを特徴とする請求項４記載の方法。

【請求項６】　前記対話型アプリケーションの名称を前記ユーザーに対して表示する際に、前記状態フラグの状態を表示することを特徴とする請求項５記載の方法。

【請求項７】　予定された対話形アプリケーションを、複数のユーザーに対し、各々のユーザーインタフェースを経由して送信する装置において、

（ａ）対話型アプリケーションの設定データを予定開始時刻の前に送信用カルーセル機構に供給し、前記設定データを前記ユーザーインタフェースに繰り返し送信する設定データ送信手段と、

（ｂ）前記予定開始時刻において、前記対話型アプリケーションに関連するリアルタイムデータを前記ユーザーインタフェースに送信するリアルタイムデータ送信手段と、

（ｃ）前記設定データ送信手段の状態を示す状態フラグを前記ユーザーインタフェースに送信する状態フラグ送信手段と、

を有することを特徴とする装置。

【請求項８】　前記リアルタイムデータの前記予定開始時刻を示す電子番組ガイドデータを前記ユーザーインタフェースに送信する電子番組ガイドデータ送信手段をさらに有することを特徴とする請求項７記載の装置。

2

【発明の詳細な説明】

【０００１】

【発明の属する技術分野】本発明は対話形アプリケーションの送信方法及び送信装置に関し、特に予定された対話形アプリケーションを、複数のユーザーに対し、各々のユーザーインタフェースを経由して送信する方法および装置に関する。

【０００２】

【従来の技術】マルチメディア通信技術の発達に伴い、テレビ放送網や通信回線を使って遠隔地のユーザーとリアルタイムに対話しながらプログラムを実行する対話型アプリケーションの開発が行われている。具体的にはビデオゲーム、ホームショッピング、クイズ、テレビ放送にリンクしたゲームなどがある。

【０００３】従来の対話型放送システムにおいては、予定された対話形アプリケーションをユーザーに提供する際に、その予定開始時刻になるとリアルタイムデータ（アプリケーションの内容に関連するデータ）を各ユーザーインタフェースに向かって一斉送信するということが行われていた。ユーザーは番組の放送予定を記載した雑誌から予定開始時刻を知ることができる。また、別の方法として、ユーザーは各種アプリケーションの予定開始時刻を電子番組ガイド機能（Ｅｌｅｃｔｒｏｎｉｃ　Ｐｒｏｇｒａｍ　Ｇｕｉｄｅ：ＥＰＧ）を通して知ることができる。この電子番組ガイド機能については、例えば国際公開ＷＯ－Ａ－９６／３４４８６に開示されている。

【０００４】電子番組ガイド機能は、テレビ番組に関する情報を視聴者に一斉送信するシステムである。テレビ番組の放送予定は、通常いろいろな長さのセルの配列として画面に表示される。また、もう少し複雑なアプリケーションになると、会員登録された特定の視聴者にのみサービスを提供するための手段を備えたものもある。

【０００５】多くの場合、ユーザー側に設けられたユーザーインタフェースは予定開始時刻になる前に、準備のためのデータをダウンロードする必要がある。すなわち対話型アプリケーションを利用あるいは参加するには、ユーザーインタフェースは何等かの実行可能形式のコンピュータプログラムを走らせる必要があるのである。対話型アプリケーションの実行中においては、ユーザーインタフェースはビデオクリップ、画像、サウンドの再生を行なう必要があるので、設定データをアプリケーション実行と並行してリアルタイムにダウンロードすることは困難である。

【０００６】対話型アプリケーションの利用・参加に必要な実行形式のプログラムファイル、ビットマップ、サウンド、ビデオクリップ、その他のマルチメディアデー

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タ等、対話型アプリケーションに関連するデータをまとめて設定データと呼ぶことにする。これら種々の設定データは、予定開始時刻の前に、送信用カルーセル機構にセットされ、この機構の働きによってユーザーインタフェースに向かって繰り返し送信される。設定データの受信が終了してはじめて各ユーザーインタフェースは予定された対話形アプリケーションを実行する準備が整う。そして予定開始時刻になると、逐次送られてくるリアルタイムデータを受信し、それをユーザーに提示しながら対話的にアプリケーションを実行して行く。

【０００７】こうした対話型アプリケーションが実際にどの程度提供されているかというと、現時点ではそう多くはない。例えば３～４種類といったところであろう。従ってユーザーが実際にそれを必要とするかどうかに関係なく、すべてのアプリケーションの設定データをユーザーインタフェースにダウンロードしたとしても、現状ではそう大きな負荷にはならない。

【０００８】

【発明が解決しようとする課題】しかし今後ディジタル放送網やディジタル通信網がさらに普及し、例えば１５０種類以上のアプリケーションが同時に提供されるような環境になると、すべてのアプリケーションの設定データをユーザーインタフェースにダウンロードすることは現実的ではなくなる。従って、より効率よく設定データをダウンロードする方法および装置の開発が望まれていた。

【０００９】本発明はこのような点に鑑みてなされたものであり、予定された対話型アプリケーションの設定データをより効率よくユーザーインタフェースにダウンロードする方法および装置を提供することを目的とする。

【００１０】

【課題を解決するための手段】本発明の第１の特徴において、上記課題を解決するために、予定された対話形アプリケーションを、複数のユーザーに対し、各々のユーザーインタフェースを経由して送信する方法が提供される。本発明の送信方法は以下のステップを有する。

【００１１】（ａ）対話型アプリケーションの設定データを予定開始時刻の前に送信用カルーセル機構に供給し、前記設定データを前記ユーザーインタフェースに繰り返し送信するステップ。

【００１２】（ｂ）前記予定開始時刻において、前記対話型アプリケーションに関連するリアルタイムデータを前記ユーザーインタフェースに送信するステップ。

（ｃ）前記ステップ（ａ）において実行される前記設定データ送信の状態を示す前記状態フラグを前記ユーザーインタフェースに送信するステップ。

【００１３】また本発明の第２の特徴においては、上記課題を解決するために、予定された対話形アプリケーションを、複数のユーザーに対し、各々のユーザーインタフェースを経由して送信する装置が提供される。この送信装置は次のような手段をそなえている。

【００１４】（ａ）対話型アプリケーションの設定データを予定開始時刻の前に送信用カルーセル機構に供給し、前記設定データを前記ユーザーインタフェースに繰り返し送信する設定データ送信手段。

【００１５】（ｂ）前記予定開始時刻において、前記対話型アプリケーションに関連するリアルタイムデータを前記ユーザーインタフェースに送信するリアルタイムデータ送信手段。

【００１６】（ｃ）前記設定データ送信手段の状態を示す状態フラグを前記ユーザーインタフェースに送信する状態フラグ送信手段。状態フラグの受信中、あるいはその受信後、ユーザーインタフェースは対応するユーザーに状態の通知を行なう。これは、このユーザーインタフェースが送信用カルーセル機構からデータ受信中であるか、そうでないかにかかわらず行われる。この状態フラグの役割は、予定される各アプリケーションについて設定データが現在提供可能かどうかを通知することである。設定データそのものに比べると状態フラグのサイズは比較的小さいので、各ユーザーインタフェースが全てのアプリケーションに関する状態フラグをダウンロードしたとしても何等負担にはならない。

【００１７】ここで、あるアプリケーションを利用したいと考えているユーザーがいたとする。このユーザーは上記のような状態フラグを受信することによって、希望のアプリケーションが提供されるかどうか、あるいは設定データをダウンロードできる状態なのかどうかを随時知ることができる。

【００１８】状態フラグの用途はこれだけに限らず、放送に関する各種の状態情報を送ることが可能である。例えば、放送の開始時刻や終了時刻を状態フラグの一部として送ることができる。この場合、開始時刻及び終了時刻になった時に、ある状態フラグを一斉送信することによって直接的に開始・終了時刻を知らせるといった構成も考えられる。状態フラグを受け取ったユーザーインタフェースは、その受信タイミングによって、あるアプリケーションの開始あるいは終了を知る。

【００１９】また別の方法として、開始・停止時刻を情報として間接的に送るように状態フラグを構成してもよい。状態フラグをメッセージ形式とし、例えば「リアルタイムデータは７時３０分から送信開始」、「設定データは５分以内に送信開始」などの情報を送るようにすることができる。

【００２０】リアルタイムデータの予定送信開始時刻は、テレビ番組ガイド雑誌を使って視聴者に提供することも可能であるが、本発明の方法では特に電子番組ガイドデータ（ＥＰＧデータ）をユーザーインタフェースに一斉送信することで、リアルタイムデータの予定送信開始時刻を通知する。

【００２１】設定データとリアルタイムデータ、状態フ

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ラグは、実際には対話型アプリケーションの配信を行なうセントラル・コンピュータシステム（ＣＣＳ）から提供される。通常、各ユーザーはセントラル・コンピュータシステムから距離的に離れているだけでなくユーザー同士も離れているので、適切な通信媒体でこれらを結ぶ必要がある。

【００２２】

【発明の実施の形態】以下、本発明の実施の形態を図面を参照して説明する。図１は、本発明の送信方法および送信装置を応用したディジタル放送網を示す図である。このディジタル放送網は、セントラル・コンピュータシステム（ＣＣＳ）２とアプリケーションデータ記憶装置３を含む対話型ゲーム制御システム１をそなえている。アプリケーションデータ記憶装置３は設定データとリアルタイムデータを格納する。これらのデータはセントラル・コンピュータシステム２からアクセスされ、また変更される。

【００２３】設定データは、実行形式のプログラムファイル、画像データ、サウンドデータ、ビデオクリップ、その他のマルチメディアデータ資源を含んでいる。リアルタイムデータは、予定開始時刻になった後に一斉送信されるデータであり、例えばクイズ形式のアプリケーションの場合で言うと、クイズの質問および回答のデータがこのリアルタイムデータに相当する。

【００２４】適当な時刻になると、設定データとリアルタイムデータがデータ供給路５を通じて放送用ヘッドエンド・マルチプレクサ４に供給される。また、セントラル・コンピュータシステム２は電子番組ガイドデータ（ＥＰＧデータ）を生成し、データ供給路５を通じて放送用ヘッドエンド・マルチプレクサ４に供給する。電子番組ガイドデータの各項目は、プログラム識別番号（ＰＩＤ：ＰｒｏｇｒａｍＩｄｅｎｔｉｆｉｅｒ）と、システム情報（ＳＩ：Ｓｙｓｔｅｍ　Ｉｎｆｏｒｍａｔｉｏｎ）テーブルを含む。システム情報テーブルは、その項目のプログラム識別番号に対応する電子番組ガイドの情報、例えば番組名、予定開始時刻、スプラッシュ画面（ｓｐｌａｓｈ　ｓｃｒｅｅｎ）データなどを格納する。

【００２５】チャネル１（ＣＨ１）のテレビ放送局８とチャネル４（ＣＨ４）のテレビ放送局９はそれぞれディジタル音声・映像信号を生成し、データ供給路１０、１１を通じて放送用ヘッドエンド・マルチプレクサ４にこれらの信号を供給する。データ供給路５、１０、１１は専用のケーブル回線、あるいは無線回線である。また図１では２つの放送局しか図示していないが、実際のシステムではより多くの放送局が接続される。

【００２６】テレビ放送局８、９はさらに、それぞれが提供するテレビ番組に関する電子番組ガイドデータを生成して放送用ヘッドエンド・マルチプレクサ４に供給する。電子番組ガイドデータの各項目は、プログラム識別番号と、システム情報テーブルを含む。システム情報テーブルは、その項目のプログラム識別番号に対応する電子番組ガイドの情報、例えば番組名、予定開始時刻、放送局名などを格納する。

【００２７】放送用ヘッドエンド・マルチプレクサ４は、データ供給路５、１０、１１から受け取ったディジタルデータを時分割方式で多重化し、ＭＰＥＧ２ビットストリーム３０としてシリアルに送信機１４に送る。このＭＰＥＧ２ビットストリーム３０は、伝送媒体１５を通してユーザー側に送信される。伝送媒体１５は、具体的には従来の無線放送、衛星、ケーブル（ＣＡＴＶ）網、インターネットなど、多数のユーザーに一斉に送信可能な媒体である。

【００２８】このような伝送媒体１５を通じて複数のユーザーインタフェース（ＵＩ１～ＵＩ３）１７、１８、１９にデータが配信される。逆に、これらのユーザーインタフェース１７、１８、１９からセントラル・コンピュータシステム２に向かうデータもあるので、図１では公衆加入電話網２０を使ってこれを送っている。図示はしていないが、ケーブル（ＣＡＴＶ）網、インターネット、衛星回線など、他の通信手段を使ってもよい。

【００２９】次に図２を参照し、図１のユーザーインタフェースの詳細を説明する。ここで代表として取り上げたユーザーインタフェース１７は、テレビ受像機２１、セットトップ・ボックス２２、入力装置３３から構成される。テレビ受像機２１は、表示器３５とチューナー２３を備え、チューナー２３にはアンテナ２４が接続されている。チューナー２３は、伝送媒体１５（図２の場合は無線）を通じて送られてくるデータを受信すべく設定調整されている。受信データはデマルチプレクサ２６に渡され、ここで各パケットに付けられた識別子に従って、ＭＰＥＧ２ビットストリームが多重分離される。そして、設定データとリアルタイムデータはＣＰＵ２５に与えられ、映像・音声データは表示インタフェース２８に供給される。

【００３０】ＣＰＵ２５は、ランダムアクセス・メモリ（ＲＡＭ）２７およびリードオンリー・メモリ（ＲＯＭ）３２にアクセスし、表示インタフェース２８に渡す画像信号を生成する。そして生成された画像信号は、デマルチプレクサ２６からの映像・音声信号と合成される。キーボードやマウスなどの入力装置３３は、ユーザーからの指示をＣＰＵ２５に与えるために使用される。ＣＰＵ２５はユーザーからの返信データを、モデム３４と公衆加入電話網２０を通じてセントラル・コンピュータシステム２に送る。

【００３１】次に図３を参照して、対話型アプリケーションサービスの具体例について説明する。図３は、チューナー２３が電子番組ガイドのデータストリームを受信するようにセットされている場合に、表示器３５に表示される一連の画像を示す図である。

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【００３２】図３の上段の３枚の画面は、アプリケーション（この例ではゲーム）実行前における電子番組ガイド画面である。各画面の最下部には３つの選択ボタン「予定」「任意」「ＴＶ」４０があり、ユーザーはこの中から一つを選ぶことにより、それぞれ予定番組リスト４１、任意参加番組リスト４２、テレビ放送番組リスト４３のいずれかを表示することができる。

【００３３】予定番組リスト４１には、７時３０分開始予定の「ゲームＡ」と、８時００分開始予定の「ゲームＢ」と、９時３０分開始予定の「ゲームＣ」がエントリされている。これらは図１の対話型ゲーム制御システム１が、時間を限定して提供する番組である。任意参加番組リスト４２には、いつでも参加できる数多くの対話型ゲーム（「ゲームＣ」、「ゲームＤ」等）がエントリされている。テレビ放送番組リスト４３には、チャネル４で７時３０分開始予定の「クイズＡ」、チャネル１で７時３０分開始予定の「サッカー」などがエントリされている。これらの番組リスト４１～４３は、ＣＰＵ２５が受信した電子番組ガイドデータに基づいて制作し定期的に更新するものである。電子番組ガイド画面は、現在時刻を示す時計４４が表示され、ここでは７時１２分を指している。

【００３４】図４は、７時１５分から８時００分にかけての４５分間に送信された設定データ、リアルタイムデータ、状態フラグを示す図である。図４は上から下に向かって時間の経過を示す。それに伴って設定データ１００、リアルタイムデータ１０１、状態フラグ１０２～１０６が適宜送信される。以下、図３の画面と合わせてその詳細を説明する。

【００３５】まず、７時１５分においてセントラル・コンピュータシステム２は、予定された対話形アプリケーション「ゲームＡ」の設定データの準備が５分後には完了することを示す状態フラグ１０２を電子番組ガイドデータのシステム情報テーブルに挿入する。セットトップ・ボックス２２内のＣＰＵ２５は、この状態フラグを受信すると「ゲームＡ」アイコン４５（図３）を例えば黄色に変化させる。

【００３６】「ゲームＡ」の予定開始時刻の１０分前、すなわち７時２０分になると、セントラル・コンピュータシステム２は、予定された対話形アプリケーション「ゲームＡ」に関連する設定データを、アプリケーションデータ記憶装置３からダウンロードし、それを放送用ヘッドエンド・マルチプレクサ４に与える。放送用ヘッドエンド・マルチプレクサ４は、このデータを送信用カルーセル機構（図示せず）にロードし、図４に示すように設定データ１００を送信データストリーム３０（図１）として送り出す。ここで送信用カルーセル機構とは複数のデータを送信するサーバーを意味しており、その概念的を回転するテーブル（カルーセル）にたとえたものである。すなわち、回転テーブルに並べられた設定データの各構成要素が、テーブルの回転とともに順番に繰り返しユーザーインタフェースに送られる。

【００３７】設定データ送信と同時に、セントラル・コンピュータシステム２は、別の状態フラグ１０３を電子番組ガイドデータのシステム情報テーブルに設定し、「ゲームＡ」の設定データが送信データストリーム３０の一部として送信中であることを示す。この状態フラグ１０３を受信すると、ＣＰＵ２５は対応するアイコン４５を例えば緑色に変化させる。図３の中段の画面において、参照番号４５’はこのように変化したアイコンを示している。ユーザーは緑色で強調表示されたアイコン４５’を確認して、入力装置３３のＯＫボタンを押しゲームに入る。図３の参照番号４６はこのような流れを示している。ＣＰＵ２５はスプラッシュ画面情報を使用してスプラッシュ画面４７を生成し、送信データストリーム３０にこれをのせる。

【００３８】スプラッシュ画面とは、ゲームの開始時に表示される画面で、ここでユーザーは幾つかの選択・設定を行なう。「ゲームＡ」のスプラッシュ画面は、ゲーム参加コース登録ルーチン５２から始まる。ここでユーザーは画面上のアイコンを操作することにより「有料コース」４８、「無料コース」４９か、「キャンセル」（ＣＡＮ）５０のいずれか一つを選択する。「無料コース」アイコン４９が選択されると、ゲーム参加コース登録ルーチン５２は著作権に関するメッセージ（図示せず）を一定時間だけ画面に表示する。「無料コース」の場合、ユーザーはゲームを無料で楽しめるが、得点しても賞金を得る権利はない。

【００３９】「有料コース」アイコン４８を選択した場合、ユーザーは次に参加費用の支払い方法を選ぶように指示される。ここでユーザーは、前もって設定された「ゲーム用口座」５３か、「マネーカード支払」５４か、あるいは「キャンセル」（ＣＡＮ）５５かを選択することができる。この５３か５４の何れかを選択するとスプラッシュ画面は次の支払ルーチン５１にジャンプする。ここでユーザーは自分の口座番号あるいは例えばＭｏｎｄｅｘのようなマネーカードの口座番号を入力する。入力されるとＣＰＵ２５は信用チェックルーチンを実行した後、著作権メッセージを表示する。

【００４０】スプラッシュ画面４７が表示されている間、即ちユーザーが強調表示されたアプリケーション４５’を選択操作した後において、ＣＰＵ２５は「ゲームＡ」の番組識別番号を含む設定データをダウンロードしてＲＡＭ２７にセーブする。設定データ全体、あるいは設定データのうちゲームの開始に当面必要な部分のダウンロードが終わると、予定された対話形アプリケーションの開始が可能となる。

【００４１】予定開始時刻の７時３０分になると、セントラル・コンピュータシステム２はリアルタイムで質問データを生成して、図４に示すように、これらをリアル

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タイムデータ１０１としてユーザーインタフェースに送る。そしてＣＰＵ２５は自動的にゲームモードに入り、受信した質問データに基づいて、ユーザーに一連の質問を発信する。ユーザーは各質問に対して、画面上のアイコンを操作することで回答する。

【００４２】「ゲームＡ」の例では、質問と回答でテレビ画面全体が使用される。ちなみに「クイズＡ」の場合は、チャネル4のテレビ放送局９から送信されるリアルタイムのテレビ映像として、スタジオ内の参加者に向けて司会者が質問を発している様子が映し出され、これに質問と回答がオーバーレイする形式の画面が提供される。

【００４３】同時に、セントラル・コンピュータシステム２は状態フラグ１０４を電子番組ガイドデータのシステム情報テーブルに挿入し、リアルタイムデータが設定データと共に供給されていることを示す。もしユーザーがゲームにまだ参加していない場合にこの状態フラグ１０４を受信すると、ＣＰＵ２５は「ゲームＡ」アイコン４５を点滅させて、ゲーム参加をまだ受け付けていることを知らせる。ユーザーは、もし参加したければ点滅しているアイコン４５を選択して強調表示させた後、ＯＫボタンを押せばよい。

【００４４】７時４０分に設定データ１００の送信が終了する。そこでセントラル・コンピュータシステム２は状態フラグ１０５を電子番組ガイドデータのシステム情報テーブルに挿入する。この状態フラグ１０５を受信すると、「ゲームＡ」アイコン４５は赤色に変わり、点滅を止める。すなわち、７時４０分以降はユーザーの参加受け付けを行なわないということを示している。

【００４５】リアルタイムデータ１０１の送信は８時００分に終了する。ここでＣＰＵ２５はモデム３４を使って、ユーザーのスコアをセントラル・コンピュータシステム２に送信する。セントラル・コンピュータシステム２は、状態フラグ１０６を電子番組ガイドデータのシステム情報テーブルに挿入する。この状態フラグ１０６を受信すると、「ゲームＡ」アイコン４５は画面から削除される。

【００４６】セントラル・コンピュータシステム２は、各ユーザーの賞金（ポイント）に関する口座を管理している。複数のユーザーインタフェースからスコアを受信すると、セントラル・コンピュータシステム２は、スコア同士の比較を行なって上位のユーザーの口座にポイントを加算する。

【００４７】上記の例では、一つのアプリケーションの設定データのダウンロードについて説明してきたが、実際には多くのアプリケーションが同時に進行するので、電子番組ガイドデータは複数アプリケーションに関する状態フラグを全て含んでいる。したがってユーザーは複数のアプリケーションが現在どのような状態にあるのかを同時に知ることができる。しかし設定データ自体は、たとえ一斉放送されたとしても、ユーザーが指定しない限りセットトップ・ボックスはこれをダウンロードしない。

【００４８】本発明の実施の形態は、以上説明したような形態に限らず、必要に応じてさまざまなバリエーションが可能であることは言うまでもない。例えばセントラル・コンピュータシステムから通知された状態情報をどのような形でユーザーに提供するかについては、次のようにいろいろな方法が考えられる。

【００４９】・テレビ画面上に特定のカラーを使って強調表示
・番組リストにフラグあるいはアイコンを組み合わせて表示
・アイコンがポップアップするよう表示
・画面上にテロップを表示
・音声メッセージを使用して通知

設定データ、状態フラグ、リアルタイムデータをユーザーインタフェースに送信する際に使用される媒体についても種々のものが考えられる。具体的には次のようなリソースが利用可能である。

【００５０】・通常のテレビ放送信号垂直ブランキング区間を利用して送信
・ＦＭ－ＳＣＡ無線チャネル
・ケーブルモデム経由でのＣＡＴＶ網
・インターネットなどのデータ通信網

さらに通常の地上波のテレビ放送に限らず、衛星を使ったテレビ放送を使うことも可能である。

【００５１】好ましくは、状態フラグと設定データは、通常の放送周波数帯を時分割使用して送信する。同様に、状態フラグと電子番組ガイドデータも同じ周波数帯の時分割利用で送ることが好ましい。こうすることによって、ユーザーインタフェースを電子番組ガイドデータの周波数に合わせておけば、そのまま状態フラグも容易に受信できることになる。

【００５２】状態フラグの送信は一回限りでもよいし、また繰り返し送信するようにしてもよい。本発明の方法及び装置の応用の対象となる対話形アプリケーションについてもいくつかの形態が考えられる。例えば多くの遠隔地の参加者が競い合うビデオゲームやクイズ番組のような形態や、また、クイズショーやスポーツ中継などの生のテレビ放送番組にリンクさせたゲームも考えられる。クイズショーでは遠隔地の参加者が質問に答えたり、スポーツの生中継において視聴者が特定の出来事の発生を予想したりする。本発明は、このようなアプリケーションを提供するシステムに適用される。

【００５３】

【発明の効果】以上説明したように本発明では、ユーザーは状態フラグによって各アプリケーションの状態を知り、それを確認した上で必要な設定データを取り込むように構成した。従来のように全てのアプリケーションの

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設定データをユーザーインタフェースにダウンロードする必要がないので、数多くのアプリケーションが同時に提供されるような環境においても、効率よく必要な設定データの配信を行なうことができる。

【図面の簡単な説明】

【図１】本発明の方法および装置を応用したディジタル放送網を示すブロック図である。

【図２】ユーザーインタフェースのブロック図である。

【図３】電子番組ガイド画面とゲーム開始時の画面を示す図である。

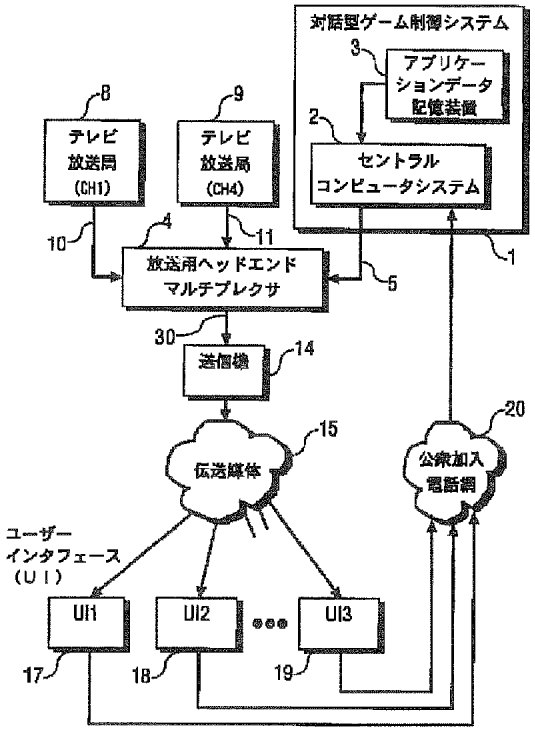
【図４】設定データ、リアルタイムデータ、状態フラグの送信のタイミングを説明する図である。

【符号の説明】

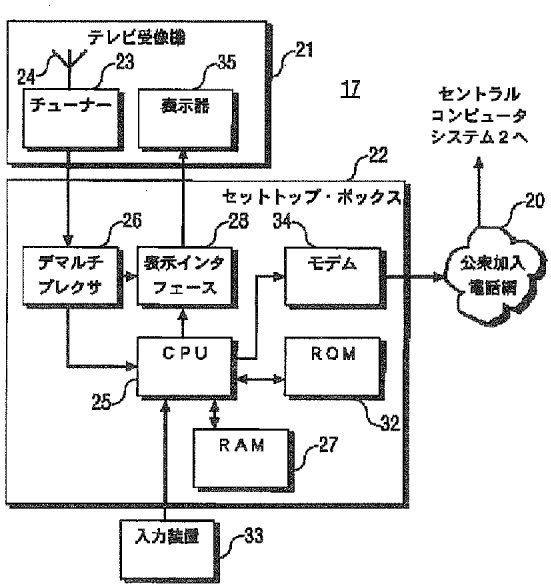
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＊１　対話型ゲーム制御システム
２　セントラル・コンピュータシステム
３　アプリケーションデータ記憶装置
４　放送用ヘッドエンド・マルチプレクサ
５、１０、１１　データ供給路
８、９　テレビ放送局
１４　送信機
１５　伝送媒体
１７、１８、１９　ユーザーインタフェース
２０　公衆加入電話網
１００　設定データ
１０１　リアルタイムデータ
＊　１０２～１０６　状態フラグ

【図１】

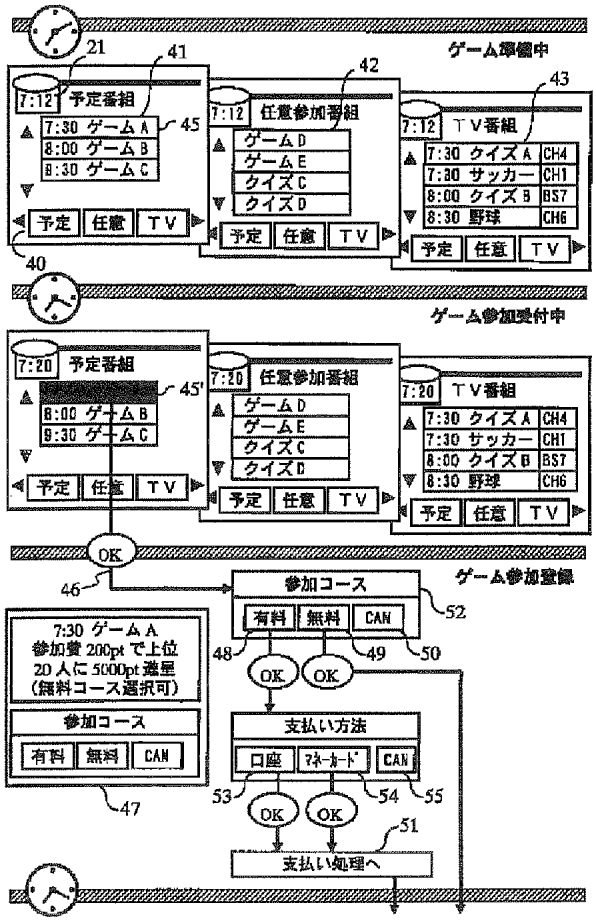


【図２】

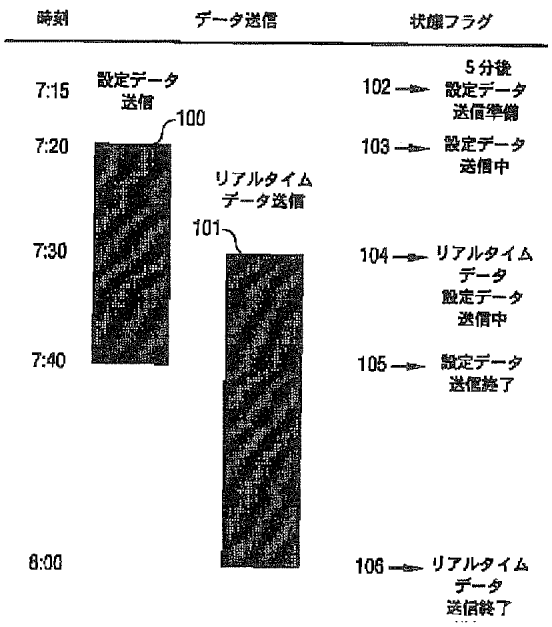


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【図３】



【図４】



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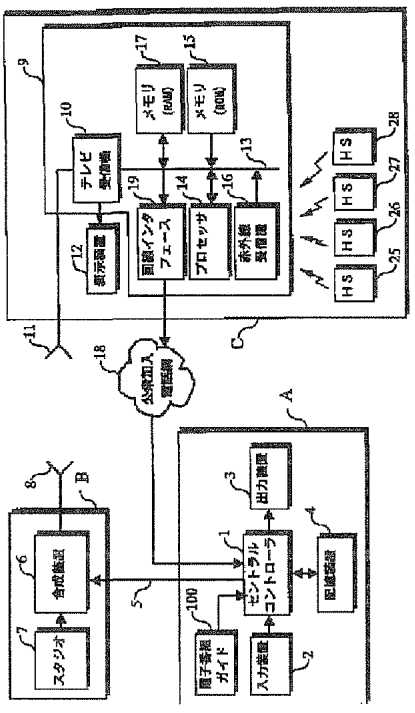
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最終頁に続く

(54)【発明の名称】　対話型アプリケーションにおける情報供給方法及び情報供給装置

(57)【要約】
【課題】　予定開始時刻までにアプリケーションデータをユーザーインタフェースに確実にダウンロードする。
【解決手段】　ゲーム制御システムＡに設けられたセントラルコントローラ１は、テレビ放送番組とリンクしたゲームなどの対話型アプリケーションに関連するアプリケーションデータを記憶装置４から取り出し、複数のユーザーがそれぞれ保有するユーザーインタフェースであるホームユニット９に送信する。その後、アプリケーション開始時刻にリアルタイム動作開始信号をホームユニット９に送信することによって、前記対話型アプリケーションを各ユーザー装置Ｃにおいて実質的に同時に開始させる。



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【特許請求の範囲】

【請求項１】　中央に設置された供給元装置から複数のリモートユーザーインタフェースに対して対話型アプリケーションに関する情報を供給する情報供給方法において、

前記対話型アプリケーションに関連するアプリケーションデータを前記ユーザーインタフェースに送信するステップと、

前記送信するステップの後、リアルタイム動作開始信号を前記ユーザーインタフェースに送信し、前記対話型アプリケーションを各ユーザーインタフェースにおいて実質的に同時に開始させるステップと、

を有することを特徴とする情報供給方法。

【請求項２】　前記リアルタイム動作開始信号は、前記対話型アプリケーションが開始する時刻を与える予告信号であることを特徴とする請求項１記載の情報供給方法。

【請求項３】　前記送信するステップは、前記対話型アプリケーションが開始する時刻よりも前の所定時刻から、前記アプリケーションデータを繰り返し送信するステップを含むことを特徴とする請求項１記載の情報供給方法。

【請求項４】　前記所定時刻において、すべての前記リモートユーザーインタフェースに対してアプリケーション利用可能信号を送信するステップをさらに有することを特徴とする請求項３記載の情報供給方法。

【請求項５】　前記アプリケーション利用可能信号は電子番組ガイドの一部として放送されることを特徴とする請求項４記載の情報供給方法。

【請求項６】　各ユーザーインタフェースは、前記アプリケーションが開始された時から計測されるアプリケーション時間値をインクリメントすることを特徴とする請求項１記載の情報供給方法。

【請求項７】　前記対話型アプリケーションは、前記対話型アプリケーション実行中に放送されるテレビ番組に関するものであることを特徴とする請求項１記載の情報供給方法。

【請求項８】　前記テレビ番組の前記予定開始時刻を示す電子番組ガイドデータを前記ユーザーインタフェースに送信するステップをさらに有することを特徴とする請求項７記載の情報供給方法。

【請求項９】　前記アプリケーションデータは、前記アプリケーションに関連する一連の規定を含むことを特徴とする請求項１記載の情報供給方法。

【請求項１０】　前記アプリケーションデータは実行形式のコンピュータプログラムコードを含むことを特徴とする請求項１記載の情報供給方法。

【請求項１１】　前記対話型アプリケーションは対話型ゲームを含むことを特徴とする請求項１記載の情報供給方法。

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【請求項１２】　対話型アプリケーションを実施する方法において、

中央に設置された供給元装置から複数のリモートユーザーインタフェースに対して対話型アプリケーションに関する情報を供給するにあたって、前記対話型アプリケーションに関連するアプリケーションデータを前記複数のユーザーインタフェースに送信し、その後、リアルタイム動作開始信号を前記複数のユーザーインタフェースに送信するステップと、

前記複数のユーザーインタフェースのうち選択されたユーザーインタフェースにおいて、前記リアルタイム動作開始信号の受信をもって前記対話型アプリケーションを起動させ、これによって前記選択されたユーザーインタフェースが前記供給元装置からリアルタイム情報を受信するとともに前記供給元装置にリターン情報を送信するステップと、

を有することを特徴とする対話型アプリケーションを実施する方法。

【請求項１３】　中央に設置された供給元装置から複数のリモートユーザーインタフェースに対して対話型アプリケーションに関する情報を供給する情報供給装置において、

前記対話型アプリケーションに関連するアプリケーションデータを前記ユーザーインタフェースに送信するアプリケーションデータ送信手段と、

前記アプリケーションデータ送信手段が前記アプリケーションデータを送信した後、リアルタイム動作開始信号を前記ユーザーインタフェースに送信し、前記対話型アプリケーションを各ユーザーインタフェースにおいて実質的に同時に開始させるリアルタイム動作開始信号送信手段と、

を有することを特徴とする情報供給装置。

【請求項１４】　対話型アプリケーションに関する情報を、中央の情報供給装置から受信するユーザーインタフェース装置において、

前記対話型アプリケーションに関連するアプリケーションデータを前記ユーザーインタフェースに送信するアプリケーションデータ送信手段と、

前記アプリケーションデータ送信手段が前記アプリケーションデータを送信した後、リアルタイム動作開始信号を前記ユーザーインタフェースに送信し、前記対話型アプリケーションを各ユーザーインタフェースにおいて実質的に同時に開始させるリアルタイム動作開始信号送信手段と、

対話型アプリケーションを実行するプロセッサであって、リアルタイム動作開始信号の受信に呼応して、前記アプリケーションの内容のうち少なくとも対話処理を行なうプロセッサと、

を有することを特徴とするユーザーインタフェース装置。

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【発明の詳細な説明】

【０００１】

【発明の属する技術分野】本発明は、対話型アプリケーションにおける情報供給方法及び情報供給装置に関し、特に中央に設置された供給元装置から複数のリモートユーザーインタフェースに対して対話型アプリケーションに関する情報を供給する情報供給方法及び情報供給装置に関する。

【０００２】

【従来の技術】従来、対話型ゲームなどの対話型アプリケーションは、それに関連するテレビ放送番組と同時に、複数のユーザーインタフェースに対して提供される。従来の対話型放送システムにおいては、予定された対話形アプリケーションをユーザーに提供する際に、その予定開始時刻になるとアプリケーションデータを各ユーザーインタフェースに向かって一斉送信するということが行われていた。

【０００３】例えば、欧州特許出願ＥＰ－Ａ－０７１４６８４は、ＣＡＴＶ網を使用し、複数のユーザーが参加するリアルタイムゲーム用の通信システムを開示している。このシステムでは、遠隔地にいる多数のユーザーに対してゲームを同時に配信する。

【０００４】また米国特許出願ＵＳ－Ａ－５８３８３１４は、ペイパービューやビデオ・オンデマンド・システムを実現する対話型ビデオサービスシステムを開示している。

【０００５】さらに国際特許出願ＷＯ－Ａ－９７／０８８９２は、分岐構造をもった物語形式の対話型エンターテインメントを提供するシステムについて述べている。アプリケーションに関係する情報はセットトップ・ボックスにダウンロードされると、ユーザーはアプリケーションを起動できる。

【０００６】一方、対話型アプリケーションの一つとして、特に、複数のリモートユーザーインタフェースが同じ一つの対話型アプリケーションに接続し、ユーザー同士が競争するという形態がある。本発明は、このようなアプリケーションを可能にする技術を提供するものである。

【０００７】

【発明が解決しようとする課題】前述の欧州特許出願ＥＰ－Ａ－０７１４６８４や米国特許出願ＵＳ－Ａ－５８３８３１４などの従来技術は、多くのユーザーが一つの対話型アプリケーションを同時に使用するものではないので、本発明が対象とする対話型アプリケーションに直接関係しない。また、国際特許出願ＷＯ－Ａ－９７／０８８９２では異なるユーザー間のリンクは提供されないので、この従来技術も本発明の対象とは異なる。

【０００８】一方、従来の対話型システムには、各ユーザーインタフェースがアプリケーションデータをダウンロードするのに非常に時間がかかるという問題点があった。このため、ユーザーインタフェースがアプリケーションデータのダウンロードを始めるのが予定開始時刻の少し前だった場合、予定開始時刻までにアプリケーションデータをダウンロードできないおそれがあった。

【０００９】本発明はこのような点に鑑みてなされたものであり、予定開始時刻までにアプリケーションデータをユーザーインタフェースに確実にダウンロードできるような情報供給方法及び情報供給装置を提供することを目的とする。

【００１０】

【課題を解決するための手段】上記課題を解決するために、本発明の第１の特徴によれば、中央に設置された供給元装置から複数のリモートユーザーインタフェースに対して対話型アプリケーションに関する情報を供給する情報供給方法が提供される。本発明の情報供給方法は、前記対話型アプリケーションに関連するアプリケーションデータを前記ユーザーインタフェースに送信するステップと、前記送信するステップの後、リアルタイム動作開始信号を前記ユーザーインタフェースに送信し、前記対話型アプリケーションを各ユーザーインタフェースにおいて実質的に同時に開始させるステップとを有する。

【００１１】上記の情報供給方法では、ある対話型アプリケーションに関連するアプリケーションデータをユーザーインタフェースに送信し、その後にリアルタイム動作開始信号をユーザーインタフェースに送信する。このリアルタイム動作開始信号により、各ユーザーインタフェースにおいて同対話型アプリケーションを実質的に同時に起動する。

【００１２】また、本発明の第２の特徴によれば、中央に設置された供給元装置から複数のリモートユーザーインタフェースに対して対話型アプリケーションに関する情報を供給する情報供給装置が提供される。この情報供給装置は、前記対話型アプリケーションに関連するアプリケーションデータを前記ユーザーインタフェースに送信するアプリケーションデータ送信手段と、前記アプリケーションデータ送信手段が前記アプリケーションデータを送信した後、リアルタイム動作開始信号を前記ユーザーインタフェースに送信し、前記対話型アプリケーションを各ユーザーインタフェースにおいて実質的に同時に開始させるリアルタイム動作開始信号送信手段とを有する。

【００１３】上記の情報供給装置では、ある対話型アプリケーションに関連するアプリケーションデータを、アプリケーションデータ送信手段からユーザーインタフェースに送信し、その後にリアルタイム動作開始信号送信手段がリアルタイム動作開始信号をユーザーインタフェースに送信する。このリアルタイム動作開始信号により、各ユーザーインタフェースにおいて同対話型アプリケーションを実質的に同時に起動する。

【００１４】以上の構成により、本発明は、各ユーザー

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インタフェース側のアプリケーションをリアルタイム動作開始信号で起動するようにすることによって、アプリケーションデータがアプリケーション開始前に確実に送られるようにする。

【００１５】

【発明の実施の形態】以下、本発明の実施の形態を図面を適宜参照して説明する。まず、本発明の概念について説明する。本発明の第１の特徴によれば、中央に設置された供給元装置から複数のリモートユーザーインタフェースに対して対話型アプリケーションに関する情報を供給する情報供給方法が提供される。この情報供給方法は、前記対話型アプリケーションに関連するアプリケーションデータを前記ユーザーインタフェースに送信するステップと、前記送信するステップの後、リアルタイム動作開始信号を前記ユーザーインタフェースに送信し、前記対話型アプリケーションを各ユーザーインタフェースにおいて実質的に同時に開始させるステップとを有する。

【００１６】上記の情報供給方法では、ある対話型アプリケーションに関連するルールや実行可能プログラムなどのアプリケーションデータをユーザーインタフェースに送信し、その後にリアルタイム動作開始信号をユーザーインタフェースに送信する。このリアルタイム動作開始信号により、各ユーザーインタフェースにおいて同対話型アプリケーションを実質的に同時に起動する。

【００１７】また、本発明の第２の特徴によれば、中央に設置された供給元装置から複数のリモートユーザーインタフェースに対して対話型アプリケーションに関する情報を供給する情報供給装置が提供される。この情報供給装置は、前記対話型アプリケーションに関連するアプリケーションデータを前記ユーザーインタフェースに送信するアプリケーションデータ送信手段と、前記アプリケーションデータ送信手段が前記アプリケーションデータを送信した後、リアルタイム動作開始信号を前記ユーザーインタフェースに送信し、前記対話型アプリケーションを各ユーザーインタフェースにおいて実質的に同時に開始させるリアルタイム動作開始信号送信手段とを有する。

【００１８】上記の情報供給装置では、ある対話型アプリケーションに関連するルールや実行可能プログラムなどのアプリケーションデータを、アプリケーションデータ送信手段からユーザーインタフェースに送信し、その後にリアルタイム動作開始信号送信手段がリアルタイム動作開始信号をユーザーインタフェースに送信する。このリアルタイム動作開始信号により、各ユーザーインタフェースにおいて同対話型アプリケーションを実質的に同時に起動する。

【００１９】以上の構成により、本発明の情報供給方法及び情報供給装置は、各ユーザーインタフェース側のアプリケーションをリアルタイム動作開始信号で起動するようにすることによって、アプリケーションデータがアプリケーション開始前に確実に送られるようにする。

【００２０】本発明の適用対象となるアプリケーションには様々なタイプのものがある。単純なオンデマンド供給型のアプリケーションもあれば、特定の予定時刻に起動され、多数のユーザーが参加するゲームのような対話型アプリケーションもある。後者の場合、ユーザーが対話型アプリケーションに参加したいと考えた時点でアプリケーションデータをダウンロードする必要がある。したがって予定された時刻通りにアプリケーションをスタートさせるためには、アプリケーションデータは所定の時間だけ先立って提供されなければならない。

【００２１】もう一つのアプリケーションのタイプとして、特定の時刻に始まるテレビ放送番組等に関連付けられた対話型アプリケーションがある。前述の例のように、アプリケーションデータは予定番組開始時刻の例えば１０分前にユーザー側に供給される。

【００２２】上記のいずれの場合も、アプリケーションの少なくとも対話型処理部分をスタートさせるには、本発明のリアルタイム動作開始信号の受信が条件となる。好ましくは、本発明の情報供給方法は、前記の所定時間において、すべてのリモートユーザーインタフェースに対してアプリケーション利用可能信号（ａｐｐｌｉｃａｔｉｏｎ　ａｖａｉｌａｂｌｅ　ｓｉｇｎａｌ）を送信するステップをさらに有する。これは電子番組ガイドの一部として送信してもよい。また別の方法として、アプリケーションデータの送信そのものをもってアプリケーション利用可能信号の送信と解釈するように構成してもよい。あるアプリケーションが利用可能状態であることを前もって知ることができるので、ユーザーは同アプリケーションが実際に開始する前にアクションを行なうことができる。

【００２３】リアルタイム動作開始信号の発行前のこの期間は、例えばユーザーインタフェースに関する統計的解析を行なうのに使用できる。例えば、あるゲームを行なう対話型アプリケーションにおいて、各参加者がそれぞれ賭け金を前もって提供し、ゲームの勝者が敗者の賭け金を獲得するといったゲーム（ｐｏｏｌ　ｂｅｔｔｉｎｇ　ｇａｍｅ）がある。このアプリケーションでは、ゲームを始める以前に所定の準備作業を行なう必要がある。すなわち各参加者の賭け金を一ヶ所に集めて、その合計額を計算し、それが勝者への配当金額であることを、ユーザーインタフェースを通じて参加者に通知する作業を行なう必要がある。本発明ではリアルタイム動作開始信号の発行前の所定の時間を使ってこの作業を行なうことができる。

【００２４】別の一例として、クイズの質問を複数のユーザーインタフェースに送り、各ユーザーから解答を得る対話型アプリケーションがある。この場合参加者を３つの異なったレベル、例えば「初級」「中級」「上級」

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に分けて、それぞれのレベルに応じた質問を同時に送る。このようなアプリケーションの場合、クイズを実際に開始する前に、参加者に希望するレベルの選択を行なわせ、その選択結果を中央に集め、各レベル毎の参加者数が少なくとも所定の最小限度に達していることを確認する。もしあるレベルの参加者数が最小限度に達していない場合、例えば「初級」レベルの参加者が少ない場合、クイズゲームは「中級」「上級」レベルだけで行なうようにする。以上のような作業を、本発明ではリアルタイム動作開始信号の発行前の所定の時間を使って行なうことができる。

【００２５】本発明のさらなる特長として、アプリケーション開始前に、複数のユーザーのクレジットの確認処理、つまり信用照会を行なうのに十分な時間を提供可能であることがあげられる。

【００２６】通常、アプリケーションデータは、一式のルール、実行形式のコンピュータプログラムコード、あるいはその両方から成る。実行形式のプログラムコードは、それをユーザーインタフェース上で走らせることによって、ユーザーがアプリケーションと対話できるようにするものである。

【００２７】通常、アプリケーションの開始に引き続いて、ビデオデータとその他のデータがユーザーインタフェースに送信される。ビデオデータは、例えば中央のテレビスタジオでの生番組の映像データである。他のデータとは、例えばクイズ番組における質問データなどであり、これはユーザーインタフェース上で走っているアプリケーションに対する入力として働く。

【００２８】アプリケーションでの最初の実質的なアクションは、リアルタイム動作開始信号送信後、ある時間が経過した後に起こる。このアクションは例えばクイズゲームの場合、最初の質問である。ユーザーインタフェースは、こうしたアクションの時刻を待ち時間の間に各ユーザーに示す。例えば、残り時間のカウントダウンを行なったり、最初のアクションの時刻と現在時間を同時に表示したりすることで各ユーザーと対話する。これらの開始時刻は音声あるいは視覚的手段でユーザーに提示される。

【００２９】対話型アプリケーションは、ある時刻に開始するように予定が組まれており、この予定開始時刻はテレビ番組ガイド雑誌を通じてユーザーに前もって通知される。好ましくは、本発明の情報供給方法では、アプリケーションの予定開始時刻を示す電子番組ガイドデータをユーザーインタフェースに送信することで、ユーザーに同情報を伝える。最初の実質的アクションが予定開始時刻の後に起きる場合は、ユーザーがぎりぎりのタイミングでアプリケーションに参加することのないように、通常、これは宣伝されない。また、予定されたアプリケーションが放送番組に関係するものである場合、通常はアプリケーションの予定開始時刻ではなく放送番組の予定開始時刻が宣伝される。

【００３０】次に図１を参照して、本発明の対話型アプリケーションの情報供給を行なうシステム全体の構成を説明する。図１の対話型放送ネットワークは、大きく分けてゲーム制御システムＡと、テレビ放送システムＢと、ユーザー装置Ｃから構成される。ユーザー装置Ｃは、図１は１式のみを図示しているが、実際には複数存在してもよい。

【００３１】ゲーム制御システムＡは、Ｗｉｎｄｏｗｓベースのパソコンなどのコンピュータを含むセントラルコントローラ１を中心に構成され、セントラルコントローラ１にはキーボードやマウス等の入力装置２や、表示装置やプリンタなどの出力装置３が接続される。サービス機能やユーザーに関するデータはデータベースとして記憶装置４に格納されており、セントラルコントローラ１からこれらをアクセスしたり修正したりすることができる。また記憶装置４は、アプリケーションデータを保持するライブファイル（Ｌｉｖｅ　Ｆｉｌｅ）を記憶している。アプリケーションデータとは、放送中のゲームまたはこれから放送されるゲームなどのアプリケーションに関するデータである。セントラルコントローラ１は、各種サービス機能に関連したテレビ表示信号や制御信号に変換可能なデータを生成し、これを地上回線５に載せてテレビ放送システムＢの合成装置６に送る。合成装置６はテレビ放送用の信号をスタジオ７から（また生中継放送の場合はスタジオ外の中継地点から）受信し、この信号と地上回線５からの受信信号とを合成し、送信機及びアンテナを含む放送設備８を通じて、遠隔地のユーザー（ゲームプレーヤー）の装置Ｃに対して、テレビ放送と同時に送る。また別の形態として、セントラルコントローラ１からの信号と、スタジオ７またはスタジオ外の中継地点からの信号とを、別々の経路で送るように構成してもよい。

【００３２】セントラルコントローラ１から合成装置６に与えられた信号は、通常のテレビ信号の垂直帰線区間を利用してユーザー装置Ｃに送信される。また、ＦＭ－ＳＣＡ無線チャネルを使用したり、またケーブルモデムやインターネットなどを使って、テレビ信号とは別の信号として送ることも考えられる。伝送信号は通常、ディジタル信号であるが、本発明はアナログ信号にも適用可能である。

【００３３】電子番組ガイド（Ｅｌｅｃｔｒｏｎｉｃ　Ｐｒｏｇｒａｍ　Ｇｕｉｄｅ：ＥＰＧ）生成部１００は、電子番組ガイドデータを生成してセントラルコントローラ１に供給する。電子番組ガイドデータは、対話型チャネルあるいは他の放送チャネルを通じて放送予定の番組のタイトルと予定開始時刻のデータを含んでいる。これらのデータはセントラルコントローラ１により、放送設備８あるいは公衆加入電話網１８を経由してユーザー装置Ｃに配信される。従来の電子番組ガイド機能につ

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いては、例えば米国特許出願ＵＳ－Ａ－５６３０１１９に開示されている。

【００３４】各ユーザー装置Ｃは、選局可能なテレビ受信機１０を備え、またセットトップ・ボックス（ＳＴＢ）として構成されたホームユニット（あるいはリモートユニットとも呼ぶ）９を備えている。これはリモートユーザーインタフェースの機能を提供する装置であり、以下のように構成されている。

【００３５】テレビ受信機１０にはアンテナ１１と表示装置１２が接続されている。ホームユニット９の内部では、テレビ受信機１０の先にアドレス／データバス１３が延びている。このバス１３にはマイクロプロセッサ１４と、マイクロプロセッサ１４のプログラムを格納するＲＯＭ等のメモリ１５と、赤外線受信機１６と、メモリ（ＲＡＭ）１７とが接続されている。

【００３６】また、同バス１３上には回線インタフェース１９が設けられ、必要に応じてマイクロプロセッサ１４から公衆加入電話網１８にアクセスできるようになっている。マイクロプロセッサ１４から送られた信号は、この公衆加入電話網１８を通してセントラルコントローラ１に送信される。この機能は、アプリケーションの実行中にユーザーがセントラルコントローラ１に応答するためのリターン情報の送信に使用される。

【００３７】なおユーザー装置Ｃからセントラルコントローラ１に向けてのリターン情報信号の送信については、ケーブル網やインターネットなども利用できるが、セントラルコントローラ１からユーザー装置Ｃへの信号伝送媒体とは別の媒体を使うのが一般的である。

【００３８】ゲームに参加する各ユーザーは、ホームユニット９と通信するために、それぞれのハンドセット（ＨＳ）２５～２８を持っている。ハンドセットはホームユニット９と物理的には離れているが、赤外線信号を使用してワイヤレスで通信することができる。ホームユニット９は赤外線信号を受け取るための赤外線受信機１６を備えており、ハンドセット２５～２８から受信した赤外線信号をデータに変換して、バス１３を経由してマイクロプロセッサ１４にこれを与える。

【００３９】ハンドセット２５～２８は、当該分野でよく知られている各種のリモートコントロール用ボタンを持っている。また各ハンドセットは受信機１０の同調操作、つまり放送チャネルの選択に使用できる。プレーヤーが選んだチャネルの情報はマイクロプロセッサ１４を通して受信機１０に与えられ、選局が行われる。

【００４０】さらに各ハンドセット２５～２８は、表示装置１２に表示されたカーソル（図示せず）の位置の制御にも使われる。ハンドセットの方向指示ボタン等の操作により信号が発生し、マイクロプロセッサ１４はそれに応じて表示装置１２の画面上のカーソルの動きを制御する。アプリケーションによっては、ユーザーがカーソルで示した画面上のアイテムを選択するためのボタンが用意される。ハンドセット２５～２８は互いに同様の構造を有する。具体的な構成例として欧州特許出願ＥＰ－Ａ－０９２１６５７をあげることができる。

【００４１】ゲーム制御システムＡは、対話型の予想ゲームなど各種のゲームを制御することができる。例えば欧州特許出願ＥＰ－Ａ－０８７３７７２には対話型の予想ゲームとして二つの例が挙げられている。一つ目の例はサッカーの試合を基にゲームを行なうもので、実際の試合の様子は放送設備８により生中継される。テレビで観戦するプレーヤーは、試合開始前にある特定のイベントの発生を予想して賭けることができる。二つ目の例は競馬の生中継を基に予想ゲームを行なうものである。

【００４２】本発明もまた、遠隔地に分散している、あるいは同じ場所にいる放送視聴者が参加するゲームに適用可能である。例えば、クイズ番組を基にしたゲームなどにおいては、ある質問に対して複数の選択肢が用意され、複数の参加者のうち誰が最初に正しい回答を返すかを競い合う。ただし、質問そのものが放送中のクイズ番組に同時に直接リンクすることは必須ではなく、ゲームは番組とは別個に編成されたものであってもよい。

【００４３】以下、本発明における対話型アプリケーション実行の一例を、図２～４を参照して説明する。図２～４は、表示装置１２を通じてユーザーに提供される画面イメージの推移を示す図である。

【００４４】図２の上段の３枚の画面は、アプリケーション（この例ではゲーム）実行前における電子番組ガイド画面である。ホームユニット９をオンにし、テレビ受信機１０を対話型サービスを行なっているチャネルに合わせると、プロセッサ１４は情報を放送設備８から送られた信号から情報を取得して表示装置１２に予定番組のリスト１２１を表示する。この画面には同時に現在時刻が表示され、図２の最上段の画面では７時１２分となっている。

【００４５】予定番組リスト１２１は、電子番組ガイド生成部１００から得たデータを基に、プロセッサ１４が編成したものである。この例では、予定番組リスト１２１には、７時３０分開始予定の「ゲームＡ」と、８時００分開始予定の「ゲームＢ」と、９時３０分開始予定の「ゲームＣ」がエントリされている。

【００４６】各画面の最下部には３つの選択ボタン「予定」、「任意」、「ＴＶ」があり、ユーザーはこの中から一つを選ぶことにより、それぞれ予定番組リスト１２１、任意参加番組リスト１２３、テレビ放送番組リスト１２５のいずれかを表示することができる。ユーザーが「任意」ボタン１２２をクリックすると、プロセッサ１４は表示装置１２に希望すればいつでも参加できる対話型ゲーム（「ゲームＣ」、「ゲームＤ」等）のリストである任意参加番組リスト１２３を表示する。同様に「ＴＶ」ボタン１２４をクリックすると第３のリストであるテレビ放送予定の番組リスト１２５が表示される。この

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例では、チャネル４で７時３０分開始予定の「クイズA」、チャネル１で同じく７時３０分開始予定の「サッカー」などがエントリされている。

【００４７】さて、アプリケーション「ゲームA」の予定開始時刻の１０分前、すなわち７時２０分になると、セントラルコントローラ１は「ゲームA」のアプリケーションデータを実行形式のコンピュータプログラムコードとして、記憶装置４内のライブファイルからユーザー側に向けてダウンロードする。またここでは、アプリケーションデータだけでなく、アプリケーションのルールに関する情報などの関連データも一緒に送信する。これらのデータは放送設備８から繰り返し送信される。

【００４８】すなわち７時２０分においてアプリケーションは利用可能になり、必要なデータのダウンロードが始まる。逆に、７時２０分までは、ユーザーが「ゲームA」のアイコン１２６をクリックしても、このアイコン１２６は強調表示されない。これはアプリケーションデータをダウンロードする準備ができていないことを表わしている。予定開始時刻の１０分前である７時２０分以降にユーザーがアイコン１２６をクリックすると、プロセッサ１４は、アイコン１２６に対応するアプリケーションの予定開始時刻の前の所定の時間内に（この例では１０分間以内に）クリックがなされたと判断し、図２の参照番号２９に示すように放送予定の「ゲームA」のアプリケーションをダウンロードする。ダウンロードされたプログラムコードはメモリ（ＲＡＭ）１７に格納される。これに加えて、プロセッサ１４は「ゲームA」のアイコン１２６を強調表示する。

【００４９】その後プロセッサ１４は、ダウンロードされたアプリケーションのうち、ゲーム開始前の準備のためのルーチンである「ゲーム参加登録」ルーチン３０を走らせる。ここでユーザーはユーザーはまず参加コースの選択３１を行なう。すなわち画面上のボタンを操作することにより「有料コース」３２、「無料コース」３３か、「キャンセル」（ＣＡＮ）３４のいずれか一つを選択する。

【００５０】「無料コース」３３が選択されると、ゲーム参加登録ルーチン３０は著作権に関するメッセージ３５（図３）を一定時間（X秒）だけ画面に表示する。「無料コース」３３の場合、ユーザーはゲームを無料で楽しめるが、得点しても賞金を得る権利はない。

【００５１】「有料コース」３２を選択した場合、ユーザーは次に参加費用の支払い方法を選ぶように指示される。ここでユーザーは、前もって設定された「ゲーム用口座」３６か、「マネーカード支払」３７か、あるいは「キャンセル」（ＣＡＮ）３８かを選択することができる。この３６か３７の何れかを選択するとプロセッサ１４は次の支払い処理ルーチン３９にジャンプする。ここでユーザーは自分のゲーム用口座番号あるいはマネーカードの口座番号を入力する。入力されたゲーム用口座番号は、回線インタフェース１９と公衆加入電話網１８を通じてセントラルコントローラ１（図１）に送られ、そこに記録される。プロセッサ１４は信用チェックルーチンを実行した後、著作権メッセージ３５（図３）を表示する。

【００５２】著作権メッセージ３５の表示時間Xが過ぎると、プログラムは「リアルタイム動作開始前」ルーチン１３６に移る（図３の例においてX＝３００秒であるとすると、この時刻は７時２５分である）。このルーチン１３６において、ユーザーは「ゲームはまもなく始まります」というメッセージ３７を受け取る。ここでユーザーが「説明」アイコン３８をクリックすると、プロセッサ１４はメモリ（ＲＡＭ）１７からルール説明ファイルを取り出す。これは前もってダウンロードされていたアプリケーションデータの一部であり、ユーザーに対してリスト３９の形式で提示される。ユーザーがこの画面で「了解」アイコン４０をクリックすると、本ルーチン１３６は画面を元のメッセージ３７に戻す。

【００５３】予定開始時刻の７時３０分になると、セントラルコントローラ１のオペレータはセントラルコントローラ１からリアルタイム動作開始信号を送出する。このタイミングはオペレータが例えばテレビ放送番組画像を見て判断してもよい。リアルタイム動作開始信号の送出により、ユーザー側のプログラムは「リアルタイム動作開始後」ルーチン４１にジャンプし、時間に応じて一連のメッセージをリアルタイムにプロセッサ１４に送る。これらのメッセージに応じて、プロセッサ１４はアプリケーション開始時刻までの残り時間をカウントするカウントダウンメッセージ４２を表示する。ここで言うアプリケーション開始時刻は、同アプリケーションと関連するテレビ放送番組の開始時刻と同じとは限らず、番組開始よりも後になる場合もある。図３の例では、リアルタイム動作開始信号が示唆するアプリケーション開始時刻は７時３３分である。

【００５４】リアルタイム動作開始信号は、全ホームユニット９に送信され、これによって本アプリケーションに参加している全てのユーザーのホームユニット９が同期してアプリケーションを開始する。

【００５５】アプリケーション開始時刻である７時３３分になると、カウントダウンが終了し、アプリケーション・プログラムは対話型処理に入る。ここで初めに実行されるのは「ゲーム開始後」ルーチン４３（図４）である。プロセッサ１４は、アプリケーション開始時刻７時３３分以降、すなわちシステムが「ゲーム中」状態になってからの経過時間を計測するための内部タイマーを起動する。

【００５６】アプリケーション開始時刻において、システムが「ゲーム説明」画面を表示していた場合は、表示装置には「ゲームは始まっています」というメッセージ４４が表示される。「ゲーム説明」以外の画面を表示し

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ていた場合は、図４の参照番号４５が示すように、プロセッサ１４は自動的にゲームモードに入る。ゲームモードでは、一連の質問４６、４７等が提示され、ユーザーは解答アイコン４８、４９等をクリックすることで答えを返送することができる。質問と解答は表示装置の画面全体を使って表示してもよいし、あるいはテレビ放送の画面に重ねて表示してもよい。後者の場合、例えばリアルタイムに送られてくる映像として、スタジオ内の参加者に向けて司会者が質問を発している様子を画面に表示し、これに質問と回答がオーバーレイする形式の画面が提供される。

【００５７】また、７時３３分の時点でユーザーがまだゲーム説明モードにいたと仮定し、そしてユーザーが「了解」アイコン４０をクリックしたとする。すると本ルーチンは表示画面５０にジャンプし、ゲームがすでに始まっていること、そしてユーザーの参加登録がもうすぐ完了することを画面でユーザーに知らせる。このようにゲームの途中から参加する場合は、例えば質問と質問の間などのように適切なエントリポイント５１を待って参加開始する。ユーザーはここで「説明」アイコン５２をクリックして「ゲーム説明」画面に戻ることもできる。

【００５８】さらに図４からわかるように、アプリケーション開始時刻７時３３分を過ぎた後でもユーザーはゲームに参加することができる。この場合、システムは「ゲーム参加登録」ルーチン５３（内容は図２の３０に相当）を実行し、著作権メッセージ５４を表示し、そして「登録までしばらくお待ち下さい」というメッセージ５０を表示する。以降は上で述べた手順により、ユーザーは途中の適切なエントリポイント５１から参加する。

【００５９】以上説明したように、本発明の実施の形態では、対話型アプリケーションに関連するアプリケーションデータをユーザーインタフェースに送信し、その後、リアルタイム動作開始信号をユーザーインタフェースに送信することによって、前記対話型アプリケーションを各ユーザーインタフェースにおいて実質的に同時に開始させるように構成した。しかし本発明は、以上説明したような形態に限らず、必要に応じてさまざまなバリエーションが可能であることは言うまでもない。

【００６０】上述の実施の形態では、各ユーザーインタフェースがそれぞれ必要な時にダウンロード可能なように、アプリケーションデータは放送媒体を通して繰り返し送信される。しかし別の方法として、どれか一つのユーザーインタフェースから要求があると、それに応じてアプリケーションデータを送信するようにしてもよい。

【００６１】また、ユーザーインタフェースは、アプリケーションデータを単一の共通伝送媒体あるいは単一のプラットフォームを経由して受信してもよいし、別の方法として、複数のプラットフォームを経由してもよい。

【００６２】

【発明の効果】本発明では、対話型アプリケーションに関連するアプリケーションデータをユーザーインタフェースに送信し、その後、リアルタイム動作開始信号をユーザーインタフェースに送信することによって、前記対話型アプリケーションを各ユーザーインタフェースにおいて実質的に同時に開始させるように構成した。リアルタイム動作開始信号は、アプリケーションの開始時刻を予告するが、その前の所定時刻からアプリケーションデータを送信するようにしたため、この予定開始時刻までにアプリケーションデータをユーザーインタフェースに確実にダウンロードできる。

【図面の簡単な説明】

【図１】対話型の放送ネットワークの概略図である。

【図２】予定された番組の期間中に表示される画面のシーケンスを説明する図であり、特にゲーム参加登録までのシーケンスを示す図である。

【図３】予定された番組の期間中に表示される画面のシーケンスを説明する図であり、特にゲーム開始以前のシーケンスを示す図である。

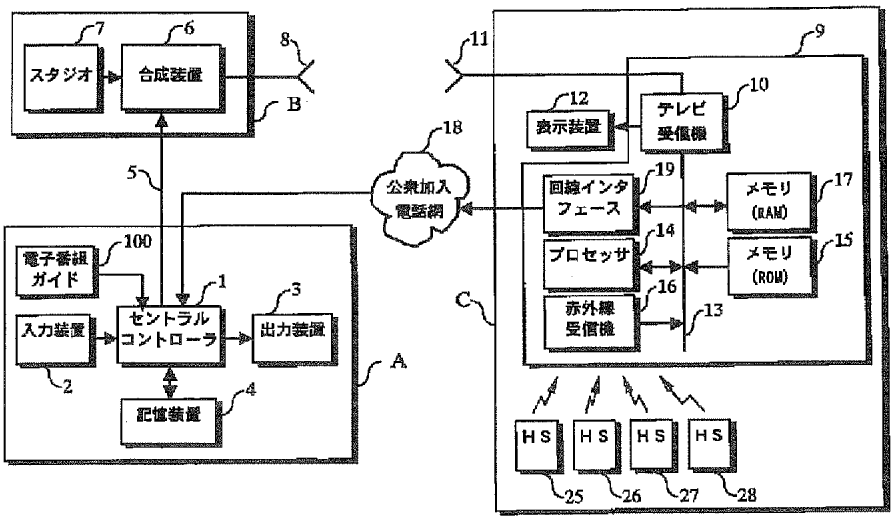
【図４】予定された番組の期間中に表示される画面のシーケンスを説明する図であり、特にゲーム開始後のシーケンスを示す図である。

【符号の説明】

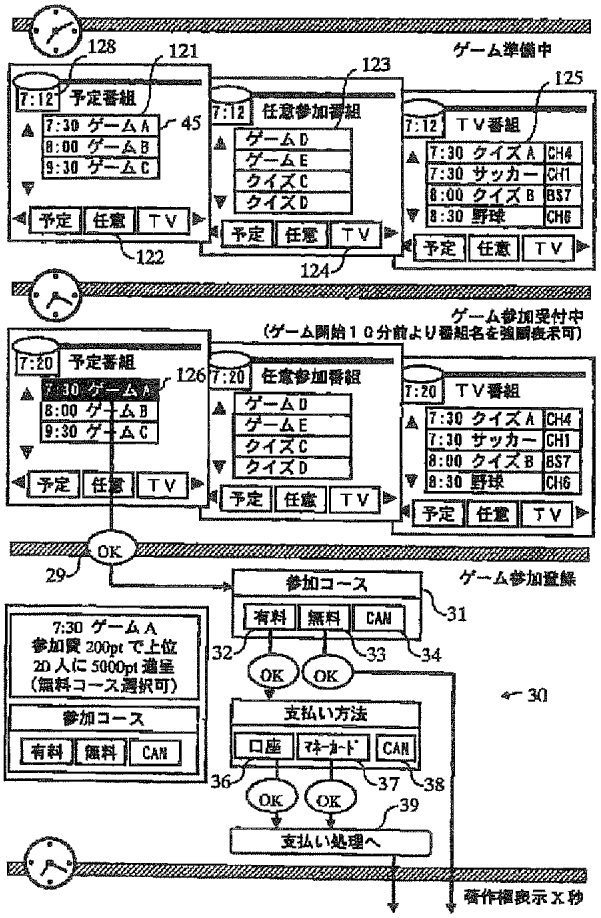
Ａ　ゲーム制御システム
Ｂ　テレビ放送システム
Ｃ　ユーザー装置
１　セントラルコントローラ
２　入力装置
３　出力装置
４　記憶装置
５　地上回線
６　合成装置
７　スタジオ
８　放送設備
９　ホームユニット
１０　テレビ受信機
１２　表示装置
１３　バス
１４　プロセッサ
１５　メモリ
１６　赤外線受信機
１７　メモリ
２５～２８　ハンドセット
１００　電子番組ガイド

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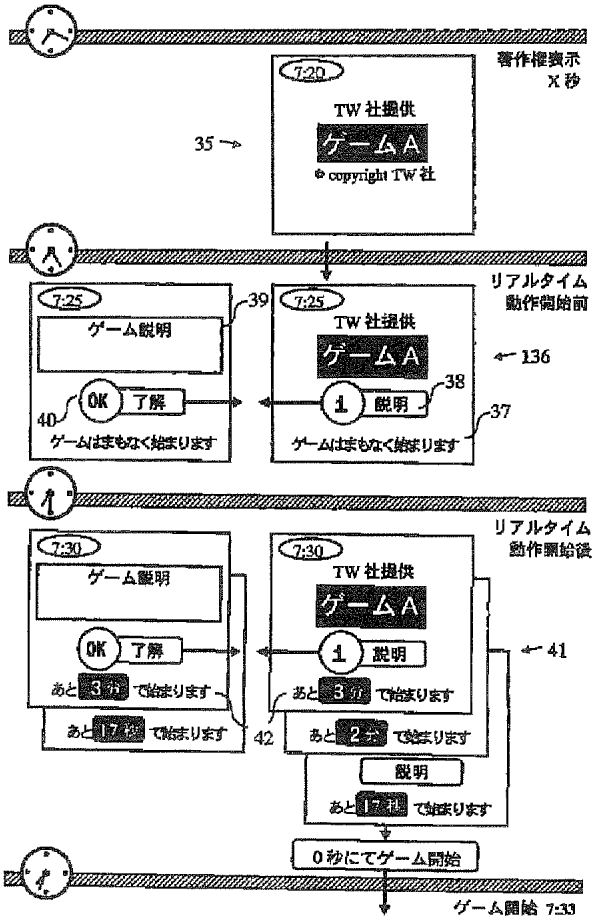
【図１】



【図２】

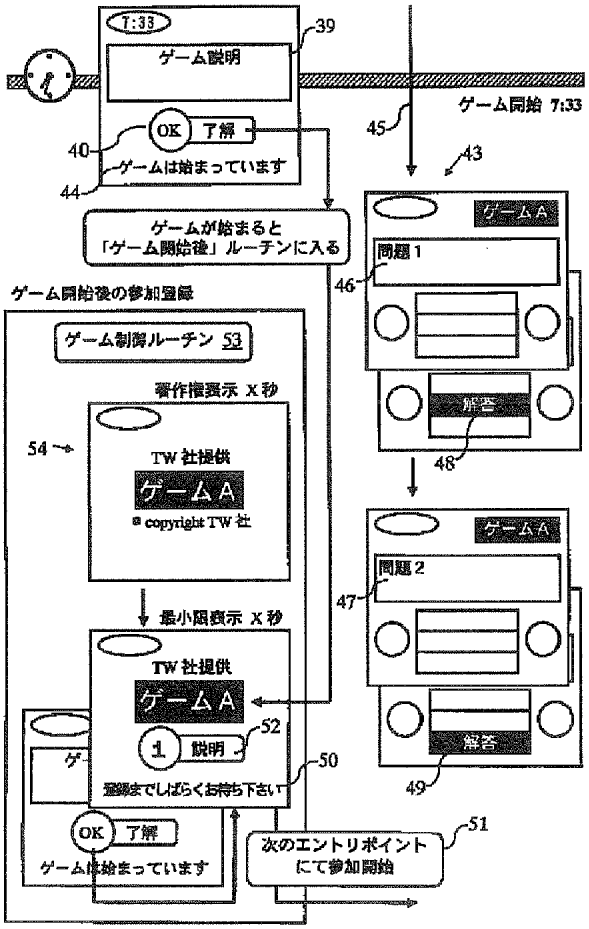


【図３】



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【図４】



フロントページの続き

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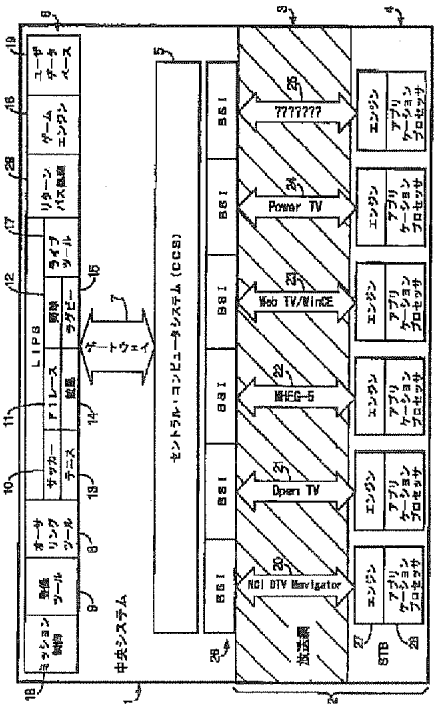
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(54)【発明の名称】　対話型アプリケーション配信方法及び対話型アプリケーション配信装置

(57)【要約】
【課題】　対話型アプリケーションを、仕様の異なる複数の対象プラットフォームに配信する。
【解決手段】　テレビ放送とリンクした対話型ゲームなどを提供する対話型サービスネットワークは、中央システム１と複数の対象プラットフォーム２から構成される。各対象プラットフォーム２は、各種の放送網３とその先につながるセットトップ・ボックス（ＳＴＢ）４から構成される。サッカーゲーム１０等の対話型アプリケーションの構成要素は、セントラルコンピュータシステム５の制御の下に、対象プラットフォーム毎に設けられた放送システムインタフェース（ＢＳＩ）２６に送られ、ここで対象プラットフォームのプロトコルに適合する複数の放送データストリームに変換される。変換後のストリームは、放送網３を通じて各対象プラットフォームのセットトップ・ボックス４に配信される。



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【特許請求の範囲】

【請求項１】　対話型アプリケーションを複数の対象プラットフォームに配信する対話型アプリケーション配信方法において、

アプリケーションの構成要素の集合を提供するステップと、

前記アプリケーションの構成要素の集合を、各対象プラットフォームに適合する複数の放送データストリームに変換するステップと、

前記複数の放送データストリームをそれぞれの対象プラットフォームに配信するステップと、

を有することを特徴とする対話型アプリケーション配信方法。

【請求項２】　リアルタイムアプリケーションデータを入力するステップと、

入力された前記リアルタイムアプリケーションデータを、各対象プラットフォームに適合する複数のリアルタイム放送データストリームに変換するステップと、

前記複数のリアルタイム放送データストリームをそれぞれの対象プラットフォームに配信するステップと、

をさらに有することを特徴とする請求項１記載の対話型アプリケーション配信方法。

【請求項３】　前記アプリケーションの構成要素をデータ記憶装置に格納するステップと、

前記放送データストリームに変換する前に、前記アプリケーションの構成要素を前記データ記憶装置から取り出すステップと、

をさらに有することを特徴とする請求項１記載の対話型アプリケーション配信方法。

【請求項４】　前記リアルタイムアプリケーションデータをデータ記憶装置に格納するステップと、

前記リアルタイム放送データストリームに変換する前に、前記リアルタイムアプリケーションデータを前記データ記憶装置から取り出すステップと、

をさらに有することを特徴とする請求項２記載の対話型アプリケーション配信方法。

【請求項５】　前記変換を行なうステップは、データ変換処理、データ置換処理、データ選択処理、データ送信タイミング制御処理、あるいは異なるデータ伝送機構に対応するための適合処理、のうち何れかの処理を含むことを特徴とする請求項１記載の対話型アプリケーション配信方法。

【請求項６】　一つ以上の前記対象プラットフォームから返信データを受信し処理するステップをさらに有することを特徴とする請求項１記載の対話型アプリケーション配信方法。

【請求項７】　前記アプリケーションはゲームを含み、前記返信データはゲーム操作入力を含むことを特徴とする請求項６記載の対話型アプリケーション配信方法。

【請求項８】　前記各対象プラットフォームは、放送網

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とアプリケーションプロセッサを有し、

前記配信を行なうステップ（ｃ）は、前記放送データストリームを、前記放送網を通じて前記アプリケーションプロセッサに対して一斉送信することを特徴とする請求項１記載の対話型アプリケーション配信方法。

【請求項９】　前記アプリケーションプロセッサに問い合わせを行ない、前記アプリケーションプロセッサのデータ処理能力を判定するステップと、

判定された前記アプリケーションプロセッサのデータ処理能力に応じて前記放送データストリームからデータをダウンロードするステップをさらに有することを特徴とする請求項８記載の対話型アプリケーション配信方法。

【請求項１０】　対話型アプリケーションを複数の対象プラットフォームに配信する対話型アプリケーション配信装置において、

アプリケーションの構成要素の集合を提供する構成要素提供手段と、

前記アプリケーションの構成要素の集合を、それぞれの対象プラットフォームに適合する複数の放送データストリームに変換する複数の放送システムインタフェースと、

前記複数の放送データストリームをそれぞれの対象プラットフォームに配信する配信手段と、

を有することを特徴とする対話型アプリケーション配信装置。

【発明の詳細な説明】

【０００１】

【発明の属する技術分野】本発明は、対話型アプリケーションを対象プラットフォームに配信する対話型アプリケーション配信方法及び対話型アプリケーション配信装置に関し、特に互いに仕様の異なる複数の対象プラットフォームに対して、対話型アプリケーションを配信する対話型アプリケーション配信方法及び対話型アプリケーション配信装置に関する。

【０００２】

【従来の技術】マルチメディア通信技術の発達に伴い、テレビ放送網や通信回線を使って遠隔地の参加者とリアルタイムに対話しながらプログラムを実行する対話型アプリケーションの開発が行われている。このような対話型アプリケーションの例としては、スポーツの生中継放送とリンクした予測ゲーム、生放送のクイズ番組とリンクしたクイズゲーム、生放送とはリンクせず好きな時に参加できるオン・デマンド方式のクイズゲーム、ホームショッピング、ホームバンキングなどがある。

【０００３】このようなアプリケーションを配信するために、例えば、米国特許出願ＵＳ－Ａ－５７９７０１０及び国際特許出願ＷＯ－Ａ－９８／３７６９５は、２点間を１対１で結び、ビデオ・オン・デマンド等のアプリケーションを配信するシステムを開示している。また一方では、対話型のサービスを提供するための新しいプラ

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ットフォーム（実行環境）がさかんに開発されている。ここで言うプラットフォームとは、アプリケーションを複数の参加者（視聴者）に提供するために使用される信号伝送媒体、信号形式、データ形式、プロトコル、ハードウェアインタフェースなど、アプリケーション配信のための環境全体を指している。

【０００４】

【発明が解決しようとする課題】しかし、これらのプラットフォームの多くはそれぞれ独自の放送プロトコルを使用した放送網を含むものであり、対話型アプリケーションを任意のネットワークを通じて簡単かつ経済的に配信できるようにすることは必ずしも容易ではない。

【０００５】従って、こうした新しいアプリケーションの開発過程においては、熟練したプログラマーが相異なる複数の放送用プロトコルの使用を同時に考慮に入れながらアプリケーション開発を進める必要があり、これはかなりの困難が伴うものであった。それにもかかわらず、異なる放送網を通じてアプリケーションを配信するという問題はこれまで解決されていなかった。

【０００６】本発明はこのような点に鑑みてなされたものであり、対話型アプリケーションを、仕様の異なる複数の対象プラットフォームに配信する対話型アプリケーション配信方法及び装置を提供することを目的とする。

【０００７】

【課題を解決するための手段】本発明では上記課題を解決するために、対話型アプリケーションを複数の対象プラットフォームに配信する対話型アプリケーション配信方法が提供される。この方法は以下に述べるステップを有する。

【０００８】（ａ）アプリケーションの構成要素の集合を提供する。

（ｂ）前記アプリケーションの構成要素の集合を、各対象プラットフォームに適合する複数の放送データストリームに変換する。

【０００９】（ｃ）前記複数の放送データストリームをそれぞれの対象プラットフォームに配信する。

また、本発明では上記課題を解決するために、対話型アプリケーションを複数の対象プラットフォームに配信する対話型アプリケーション配信装置が提供される。この装置は以下に述べる手段を有する。

【００１０】（ａ）アプリケーションの構成要素の集合を提供する構成要素提供手段。

（ｂ）前記アプリケーションの構成要素の集合を、それぞれの対象プラットフォームに適合する複数の放送データストリームに変換する複数の放送システムインタフェース。

【００１１】（ｃ）前記複数の放送データストリームをそれぞれの対象プラットフォームに配信する配信手段。

本発明によれば、アプリケーション構成要素の集合を異なる対象プラットフォーム毎に別々に準備する必要はない。すなわち本発明の配信方法及び配信装置を使用すれば、アプリケーション構成要素を提供する際に、共通に使用できる１セットを、希望するフォーマットを使って用意するだけでよく、最終的にそれがどのプラットフォームで使用されるかについてプログラマーが予め配慮する必要がない。これは、本発明が提供する放送システムインタフェースが、放送の直前あるいは放送と並行してアプリケーション構成要素の変換を行なうからである。

【００１２】本発明は、対話型アプリケーションを使用条件の異なる複数の対象プラットフォームに配信する好適な方法を提供する。具体的には、各プラットフォームが有する放送網においては、それらが使用するプロトコルや、データフォーマットや、通信速度などがそれぞれ異なっている。あるいは、対象プラットフォームによって、ユーザーインタフェースに使用できるメモリの容量など、能力に差がある場合がある。

【００１３】本発明が提供するシステムは開放型アーキテクチャであるため、対話型アプリケーションの配信先として新しい対象プラットフォームが加わっても、新しい放送システムインタフェースを追加することで対処可能となる。

【００１４】例えばスポーツ中継にリンクした予想ゲームなど、リアルタイムなアプリケーションの場合、本発明の配信方法はさらに以下のステップを追加することで対応する。

【００１５】（ｄ）リアルタイムアプリケーションデータを入力する。

（ｅ）入力された前記リアルタイムアプリケーションデータを、各対象プラットフォームに適合する複数のリアルタイム放送データストリームに変換する。

【００１６】（ｆ）前記複数のリアルタイム放送データストリームをそれぞれの対象プラットフォームに配信する。

上記のアプリケーション構成要素あるいはリアルタイムアプリケーションデータは、生成されると同時に直ちに変換され、送信される。つまり基本的に全ての処理がリアルタイムに行われる。しかし、本発明はこれだけでなく、例えばアプリケーションの構成要素を何等かのデータ記憶装置（データベース）に予め格納しておき、放送データストリームあるいはリアルタイム放送データストリームに変換する前に、必要なアプリケーションの構成要素を前記データ記憶装置から取り出すように構成してもよい。

【００１７】ステップ（ｂ）の変換処理は、実際には複数種類の処理を含む。例えばデータ変換処理、データ置換処理、データ選択処理、データ送信タイミング制御、異なるデータ伝送機構に対応するための適合処理などを行なう必要がある。

【００１８】対話型アプリケーションでは、必要に応じて、対象プラットフォームの利用者からセンター側への

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データの返信を行なうことができる。ここで言う返信データとは具体的には、ゲームにおいてプレーヤーの操作入力データ、ホームバンキングにおける利用者からの要求指令などを意味している。

【００１９】

【発明の実施の形態】以下、本発明の実施の形態を図面を参照して説明する。図１は、本発明における対話型サービスネットワークの概念を示す図である。このネットワークは、中央システム１と複数の対象プラットフォーム２から構成されており、図１ではこれらを上下に並べて示す。さらに、各対象プラットフォーム２は、それぞれ固有の放送網３とユーザーインタフェース４を備えている。中央システム１はセントラル・コンピュータシステム（ＣＣＳ）５によって制御される。このＣＣＳ５は、複数のＵｌｔｒａＳＰＡＲＣアーキテクチャのワークステーションあるいはサーバー（図示せず）を運用するために構成されたＳｕｎＳＰＡＲＣ（Sun Microsystems, Inc.社の商標）のバイナリファイルである。ＣＣＳ５は見掛け上は単一のユニットであるが、実際には性能上の理由や配布のしやすさを考えて複数のバイナリファイルに分割される場合もある。ＣＣＳ５は、ＣＣＳテキストメッセージゲートウェイ７を通じて多くのサブシステム６と交信する。サブシステム６には以下に述べるものが提供される。

【００２０】まず、オーサリングツール８として、ゲームソフトのプログラマーが新しい対話型アプリケーションの開発に使用するツール群が提供される。対話型アプリケーションの内容はそれぞれ異なるが、一般に数多くの要素の集合体として構成されている。実際にアプリケーションを構成する要素としては、実行形式のプログラムファイル、ビットマップ画像、サウンドサンプル、リアルタイムデータ命令、ビデオクリップが含まれ、その他にも各種のマルチメディア資源やデータ資源などがある。

【００２１】新しいゲームソフトが開発され、そのテストが終わると、プログラマーはＷｉｎｄｏｗｓ　ＮＴ（Microsoft Corporation社の商標）ベースの登録ツール９にログインして、完成したアプリケーションの構成要素をアプリケーション・データベース（図示せず）に登録する。

【００２２】図１に示す例では、アプリケーションとして６種類の対話型予想ゲーム１０～１５が予め登録されている。具体的にはアプリケーション１０～１５は、サッカー、Ｆ１レース、野球、テニス、競馬、ラグビーといったスポーツの生放送とリンクしたゲームであり、オン・デマンドで動作するゲームエンジン１６とともに実行される。

【００２３】また、ライブツール１７はアプリケーション１０～１５を運用するためにオペレータが使うツール群である。このライブツール１７にはＷｉｎｄｏｗｓ　ＮＴベースのアプリケーションを実行するためのパーソナルコンピュータ及びこれに関連する入力装置が含まれる。

【００２４】ミッション制御１８サブシステムはＷｉｎｄｏｗｓ　ＮＴベースのアプリケーションであり、システム制御担当の責任者がアプリケーションの送信、及びリアルタイム放送の管理を行なうのに使用される。

【００２５】以下、具体的な対話型予想ゲームとして図１のサッカーゲーム・アプリケーション１０を例にとって解説する。この対話型予想ゲームは、欧州特許出願ＥＰ－Ａ－０８７３７７２に詳細に開示されているものである。サッカーの生中継放送にリンクしており、実際の試合の開始前に、ゲーム参加者はある特定の事象（イベント）の発生を予想することができる。また生放送中にも、特定の事象の発生を予想することができる。

【００２６】まず生放送が始まる前に、システム制御を担当する責任者がミッション制御サブシステム１８を操作して、サッカーゲーム・アプリケーション１０を起動する。次にオペレータがその番組に関する所定の情報をユーザーインタフェース４に送信すべく、ライブツール１７を使って設定を行なう。

【００２７】図２は、オペレータが前にしているモニターに最初に表示される画面を示す図である。この画面において、オペレータはアプリケーション・データベース（図示せず）に蓄えられているチームのリストから「ホーム」と「アウェイ」の二つのチームを選択することができる。オペレータはマウス等のデバイスを使って、適切なホームチームとアウェイチームの２チームを選択し、「ＯＫ」ボタンをクリックする。このチーム選択情報は、ライブツール１７に関連するライブファイル（図示せず）に格納される。ライブファイルは、放送中のゲームまたはこれから放送されるゲームに関するデータを保持するためのファイルである。

【００２８】アプリケーション・データベースには、各チームのメンバーに関する情報が格納されているが、通常ここには控えの選手も入っているので、その数は実際にプレーする人数よりも多い。試合開始の少し前に、実際のチーム編成が会場でアナウンスされ、その情報はオペレータに伝えられる。そこでオペレータは、各チームの全メンバー編成を表示するよう、ライブツール１７に対して指令する。

【００２９】図３は、この段階においてシステムからオペレータに対して提供される画面を示す図である。オペレータは図３の画面を通じて、どの選手が先発選手（いわゆるスタメン）として起用されているかを入力し、そして各選手のポジション（具体的には、ゴールキーパー、フォワード、ミッドフィールダー、ディフェンダー）を入力する。入力されたこれらの情報は前述のライブファイルに格納される。

【００３０】また、オペレータは、放送中に起きると思

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われる特定のタイプの事象の設定を行なう。このサッカーゲームの例で言うと、最初のゴール、最初の反則等が予想の対象となる。この後で説明する図４の画面に設けられた複数種類のタブ５０は、こうした具体的な事象の例を示している。

【００３１】オペレータが番組内容に関する情報をすべて設定し終わると、図４のような画面が現れる。ただしゲーム開始前のこの段階では、画面上の機能はまだ有効になっていない。しかし生放送が始まる前にかなりの量のデータが、オペレータの手によってセットアップされていることが、この図４からわかる。

【００３２】サッカー試合が始まる前の適当な時刻になると、オペレータは図４の画面で「接続」ボタン５１をクリックする。これによってＣＣＳ５に対してアプリケーションが送られ、そこから放送網３を通じて全ユーザーインタフェース４に向かって一斉に配信される。

【００３３】次に、このアプリケーションの送信処理の詳細について説明する。既に述べたように、各アプリケーションは複数の構成要素から成っており、具体的には以下の要素（１）～（６）がユーザーインタフェース４に送信される。

【００３４】（１）リアルタイムデータ命令：例えば、試合開始時に著作権の表示を行なう命令や、ハーフタイムにおいてビットマップ画像を表示させる命令など。

（２）実行可能プログラムコード：対象ゲームを実施するためにユーザーインタフェース側で走らせるプログラム。

【００３５】（３）ビットマップ画像：例えば選手の顔やチームのシンボルマークなど。

（４）サウンドデータ：例えば、審判のホイッスルや観衆のざわめきなどをサンプリングしたデータ。

【００３６】（５）ビデオクリップ：例えば、各選手の得点シーンなど。

（６）チームデータ：例えば、チーム名、各選手の名前とポジションなど。

ここで図１に戻るが、中央システム１は、あらゆる対象プラットフォームに対してアプリケーションを配信すべく設計されている。図１には５種類の対象プラットフォームが例示されており、これらはいずれも異なる技術仕様に基づくネットワーク（放送網）を利用している。すなわち、放送網２０はＮＣＩ　ＤＴＶＮａｖｉｇａｔｏｒ（NCI社の商標）に基づき、放送網２１はＯｐｅｎＴＶディジタルＴＶ（OpenTV Inc.社の商標）に基づき、放送網２２はＭＨＥＧ－５（ＩＳＯ／ＩＥＣ１３５２２－５標準規格）に基づき、放送網２３はＷｅｂＴＶ／ＷｉｎＣＥ（Microsoft Corporation社の商標）に基づき、放送網２４はＰｏｗｅｒＴＶに基づいたネットワークである。本システムには、さらに別の放送網２５をいくつでも追加することができる。このようなネットワークは、いわゆるインタラクティブＴＶと呼ばれるサービスを契約家庭に提供するものである。また伝送手段として地上波、ケーブル網、衛星通信、インターネットなどが使用される。

【００３７】しかし、上述の放送網２０～２５が使用する放送プロトコルには互換性がない。この非互換性の問題に対処するために、各対象プラットフォームには、それぞれに対応した放送システムインタフェース（Broadcast System Interface、以下ＢＳＩと略す）２６が設けられる。このＢＳＩは各アプリケーションの構成要素の集合を、各対象プラットフォームに適合する複数の放送データストリームに変換する。従って、オペレータがボタン５１をクリックすると、アプリケーションの構成要素の集合、すなわち実行形式のプログラムファイル、ビットマップ画像、サウンドサンプル、リアルタイムデータ命令、ビデオクリップ等がＣＣＳ５に渡され、並行する複数のデータストリームとしてＢＳＩ２６に供給される。各ＢＳＩ２６は、こうしたアプリケーションの構成要素を、放送網３に乗せる前に適宜変換する。各ＢＳＩ２６は、各種要素データを対象プラットフォームの形式に適合させるべく、必要な変換処理を実行するように予めプログラムされている。この変換処理には主に以下のような技術（Ａ）～（Ｅ）が使用される。

（Ａ）データ変換処理

データ変換処理は最も基本的なデータ操作であり、オーサリングツール８の内部表現形式から、各放送プロトコルにおける表現形式にデータを変換する。例えば、ある対象プラットフォームがＡＳＣＩＩテキストしか受け付けない仕様であったとする。このような場合、ＢＳＩは送信中のバイナリデータをすべてＡＳＣＩＩテキスト形式に変換して送信する。

【００３８】このように、データ変換処理は１バイト単位で行われるものであり、ＢＳＩ２６が提供する変換系の処理としては最も下位レベルの処理である。

（Ｂ）データ置換処理

ＢＳＩ２６は、場合によってはアプリケーション構成要素を別のものに置き換える処理を行なうことがある。前述（Ａ）のデータ変換処理と似ているように思われるが、データ置換処理はバイトレベルではなく、その上のコンポーネントレベルでの変換であるところが異なる。

【００３９】例えば、仕様が相異なる二つの対象プラットフォームであるゲーム番組が放送中であるとする。また放送中のゲームにはリアルタイムのビデオデータが含まれており、それぞれのネットワーク３を通して各ユーザーインタフェース４に対して配信中であるとする。しかし、一方の対象プラットフォームのユーザーインタフェースにはビデオデータを格納するだけの十分なメモリがない。このような場合、対応するＢＳＩがビデオデータからフレームを飛び飛びにサンプリングして一連の静止画として供給することでこの問題を解決する。他方の対象プラットフォームでは、ユーザーインタフェースの

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能力が高く、ビデオデータを完全に受信可能に設計されているので、対応するＢＳＩ２６は入力されたビデオデータをそのまま配信する。

【００４０】また例えば、１６色のビットマップ画像（以下、単に画像と呼ぶ）を配信したが、二つの放送網３あるいはユーザーインタフェース４のうちのどれか一つは８色の画像しかサポートしていなかったとする。この場合、対応するＢＳＩ２６は配信中の画像データをリアルタイムで８色フォーマットに変換して送信する。

【００４１】このようにＢＳＩ２６は、「ビデオデータ」あるいは「ビットマップ画像」といったアプリケーション構成要素を単位として、どのような変換が必要かを判断し、必要な処理があれば実行する。

（Ｃ）データ選択処理

データ選択処理において、ＢＳＩ２６はどのアプリケーション構成要素を送るべきか、あるいはどのアプリケーション構成要素を無視するかを判断する。例えば、３つの異なるバイナリファイルを含むアプリケーションがあったとする。この３つのバイナリファイルとは、Ｗｅｂブラウザ、ＯｐｅｎＴＶ放送網、ＰｏｗｅｒＴＶ放送網、の３つのプラットフォームを対象とするものである。ＯｐｅｎＴＶ放送網に対応するＢＳＩは、そのバイナリファイルのみをＯｐｅｎＴＶ放送網に送り、他のバイナリファイルは無視する。同様に、他の対象プラットフォームをサポートする二つのＢＳＩは、それぞれ不要なバイナリファイルを無視する。

（Ｄ）データ送信タイミング制御

ここで、異なる放送網を使って同じ番組を放送することを考える。時間軸上で比較すると、各放送網から放送される番組は必ずしも同期しておらず、タイミングの差は１秒あるいは２秒程度に達する可能性があると思われる。

【００４２】現実に異なる放送網用のセットトップボックスに内蔵されているクロックは、互いに同期しているとは言いがたい。ある放送網のセットトップ・ボックスでは１２時３４分００秒を指しているとき、別の放送網のセットトップ・ボックスでは１２時３４分０３秒であるというような事態も発生する。

【００４３】また、放送網間のクロックの差も存在し、さらにこれに加えて、各放送網が番組を送信するタイミングにも差がある。つまりたとえクロックが同期していたとしても、ある放送網では別の放送網に比べて１～２秒遅れて番組がスタートするということが実際にあり得る。

【００４４】こうした放送網間の非同期性を管理するためには、各放送網に対する処理を担当するＢＳＩが適切な遅延を掛けて補正を行なう必要がある。つまりメッセージ送信のタイミングそのものを遅らせるか、あるいはより適切な方法としては、メッセージ中のタイミング情報を書き換えることでタイミングの差を吸収する。

【００４５】放送網によっては、セットトップボックスのクロックを同期化する機能のないものもある。この場合、その放送網を担当するＢＳＩがクロック更新メッセージをユーザーインタフェースに送って、ユーザーインタフェースが自身のクロックを同期化するように構成する。

（Ｅ）異種データ伝送機構への適合処理

放送網によっては他と異なる信号送信技術を使用するものもある。単一の大容量回線を使って全種類のデータをダウンロードするものもあるし、またアプリケーション構成要素に対しては大容量回線を使用し、リアルタイムデータについては小容量回線を使用するというように回線を使い分けるものもある。ＢＳＩはこれらの多様な技術についても対応しなければならない。

【００４６】上の例についてもう少し詳細に述べると、Ｗｅｂブラウザを基本にしたアーキテクチャでは、配信するアプリケーションの構成要素をサービスプロバイダのサーバーを経由して複数のユーザに提供する方式をとる傾向にある。この場合、Ｗｅｂブラウザ用ＢＳＩはゲームアプリケーションの全構成要素を一旦サーバーに転送し、サーバーは例えばカルーセル（carousel）テクニックを使って、ユーザインタフェースにこれらを配信する。概念的には、サーバーは回転するテーブル（カルーセル）にたとえられる。すなわち、回転テーブルに並べられた各アプリケーション構成要素が、テーブルの回転とともに順番に各ユーザインタフェースに送られる。こうしたデータ転送をＩＰトンネリングかそれに相当する伝送技術を使って実行するためのソフトウェアあるいは指令を提供するバイナリデータメッセージがサーバーに送られ、これに基づいてサーバーはデータを各ユーザインタフェースに送信する。

【００４７】またＭＰＥＧ２システムの場合、ＢＳＩはＭＰＥＧ２プライベートデータセクションを含んだＭＰＥＧ２送信パケットを生成する。ＭＰＥＧ２プライベートデータセクションには、所定のフォーマットによりバイナリデータメッセージとダウンロード対象の構成要素を搭載する。

【００４８】複数のユーザーインタフェース４はそれぞれエンジン２７を有し、入力データを解読してアプリケーションプロセッサ２８に提示する。アプリケーションプロセッサ２８はデータを格納するのに好適なメモリを有し、与えられた実行可能コードに従ってプログラムを実行する。エンジン２７及びアプリケーションプロセッサ２８は、例えば家庭テレビ（図示せず）に接続されたセットトップ・ボックス（ＳＴＢ）内に設けられる。また別の形態として、パーソナルコンピュータの一部としてエンジン２７及びアプリケーションプロセッサ２８を実装することも可能である。

【００４９】図１では各放送網２０～２５に対して、それぞれ一つのユーザーインタフェース（エンジン２７と

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アプリケーションプロセッサ２８の組み合わせ）しか図示されていないが、実際には多数のユーザーインタフェースに対して同時に送信が可能であることは言うまでもない。

【００５０】インターネットをはじめ、ＣＡＴＶ、衛星放送といった商業放送において使用されることを考えると、セットトップ・ボックスやパソコンとして実装されたアプリケーションプロセッサ２８の機能や能力はそれぞれ異なったものとなる。つまり一口にアプリケーションプロセッサ２８と言っても、そのグラフィック表示能力（例えば色数、ビットマップ形式など）や、ＲＡＭの容量や、オーディオ関係の機能などは同じではない。

【００５１】より強力なデコーダに金を払うユーザーは当然それに見合うだけのメリットを享受することを望んでいるわけであるから、最低レベルのプロセッサを基準にしてシステムを構築することは好ましくない。

【００５２】従って、どのプロセッサにおいても可能な限り最高品質の対話機能を提供するためには、それぞれに適した表示モデル、カラー分解能、サウンド、画像等を選択的に使用するようにアプリケーションを作り込むことが必要になる。これに加えて、プロセッサの種類の違いに対応するために、別々のコードセクションを設ける必要がある。エンジン２７は、実行時にアプリケーションプロセッサ２８に対して問い合わせを行ない、放送中のアプリケーションがどの要素を使用するかについて動的に判断することができる。

【００５３】図８は、エンジン２７の機能の詳細を説明する図である。この例では、第１の放送システムインタフェース（ＢＳＩ）７０は、与えられたアプリケーションの構成要素をＯｐｅｎＴＶディジタルＴＶ放送網７１用のフォーマットに変換するように構成されている。同様に、第２のＢＳＩ７２は、アプリケーションの構成要素をＰｏｗｅｒＴＶ放送網７３用のフォーマットに変換する。ここで、二つのユーザーインタフェース７４、７５がＯｐｅｎＴＶ放送網７１に接続されている。これらは具体的には視聴者の家庭に設置されたセットトップ・ボックスであるが、その機能は必ずしも一様ではない。例えば、一方のユーザーインタフェース７４は、１６色の画像をサポートするアプリケーションプロセッサ７６を含んでいるが、他方のユーザーインタフェース７５内のアプリケーションプロセッサ７７は４色の画像にしか対応しない。

【００５４】このように同一の放送網であってもユーザーインタフェースの画像表示能力に差がある場合、ＢＳＩ７０は４色の画像と１６色の画像の両方をネットワーク７１を通じて配信する。各ユーザーインタフェース７４、７５はそれぞれエンジン７８、７９を備えている。エンジン７８はアプリケーションプロセッサ７６に対して、１６色画像を処理できるかどうか問い合わせを行なう。この場合、処理可能であるのでエンジン７８は１６色の画像をアプリケーションプロセッサ７６にダウンロードする。エンジン７９も同様にしてアプリケーションプロセッサ７７に問い合わせをするが、４色までしかサポートしないとの回答を得るので、４色の画像のみをダウンロードし、１６色の方は破棄する。

【００５５】上述の画像データのハンドリングは比較的単純な例であるが、コードモジュールの場合はもっと複雑である。例えば、あるユーザーインタフェースではデータ返信用として、データを途中で一旦蓄積して再送信する中継メカニズムを使用していたとする。一方、同じネットワークに接続された別のユーザーインタフェースは即時アクセス可能な高速モデムを使用していたとする。このような違いに対応するために、エンジン２７はそれぞれに対応するコードモジュールをロードし、自身にリンクする処理を行なう。

【００５６】図１のエンジン２７（図８では７８、７９）はユーザーインタフェース毎に設けられてはいるが、プログラムコードそのものは同一である。つまり、どのユーザーインタフェースに組み合わせても動作するように汎用的な作りになっている。これによってシステムの拡張性が増し、別の能力を備えた新しいアプリケーションプロセッサ２８にも容易に対応することができる。

【００５７】なお、エンジン２７（７８、７９）は、ユーザーのパーソナルコンピュータまたはセットトップ・ボックスにあらかじめ実装されているか、あるいはアプリケーションの構成要素を配信する前に放送網３を通して送信される。

【００５８】また、図８のシステムでは、放送網７３は放送網７１と違って一種類のユーザーインタフェース８１しかサポートする必要がない。この場合、対応するＢＳＩ７２は１６色の画像だけを配信する。またエンジン８３は１６色の画像のみをプロセッサ８２にダウンロードする。従って、１６色の画像に関する限り、エンジン８３は実質的にトランスペアレントであり、入力されたデータをそのまま出力する。

【００５９】以上、エンジン２７の詳細を説明したが、ここで再び元のサッカーゲームアプリケーションの説明に戻る。アプリケーションがユーザーインタフェース４にダウンロードされると、図５のような画面が表示される。これによってゲームの参加者は、どのような事象について自分の予想を入力できるかを知ることができる。図４と図５を比較すると、オペレータが図４のタブ５０の中から予想対象項目を６つ選択し、その結果、図５の画面レイアウトが生成されたことがわかる。

【００６０】ゲーム参加者は図５の画面を使って自分の予想を入力する。例えば、参加者が予想項目「最初のゴールの時間帯は？」を選択したとする。すると次に図６の画面が表示され、試合時間を１５分間毎に区切った時間帯が参加者に提示される。参加者は、これらのどこで

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最初のゴールが入るかを予想する。例えば、試合開始１６分から３０分の間にゴールすると予想する参加者は、画面上の対応するボタンを選択し、これによって予想データがメモリに格納される。同様にして、参加者は図５の他の項目についても予想を行なうことができる。

【００６１】試合の進行とともに、実際にいろいろな事象が起きる。例えば、最初のゴールが決まると、オペレータは適当なボタンを操作してこのゴールに関する情報をリアルタイムにユーザーインタフェース４に送る。

【００６２】ゲーム中またはゲーム後、あるいはその両方において、各ユーザーインタフェース４は、ＣＣＳ５から通知された実際の事象が、参加者の予想と合っているかどうかを比較判定する。参加者の予想が正しければ、ユーザーインタフェース４はゲーム参加者にその旨を表示し、またＣＣＳ５にも公衆加入電話網などの適切な返信経路（リターンパス）を通じて同情報を送り返す。ＣＣＳ５側ではこれを受けてリターンパス処理サブシステム２９を起動する。

【００６３】このリターンパス処理サブシステム処理２９の一例を図７に示す。セットトップ・ボックス（ＳＴＢ）３０は、データ圧縮機能を備えたケーブルモデム３１に接続されている。ケーブルモデム３１は返信データをＣＡＴＶ網を通じてＣＡＴＶ事業者のサーバー３２に送信する際に、これをデータ圧縮する。リターンパス処理サブシステム２９には解凍機能３３が含まれており、受信データを解凍してＣＣＳ５に供給する。

【００６４】別のセットトップ・ボックス３４は、モデム３５に接続されており、返信データは、ここから従来の公衆回線網経由でリターンパス処理サブシステム２９内のモデム３６に送信される。返信データはリターンパス処理サブシステム２９で変換された後、スコアと投票に関する機能を備えたＣＣＳ５で処理される。例えばサッカーゲームの参加者は、ユーザーデータベース１９（図１）にそれぞれのスコアを持っている。参加者の予想が正しかった場合はこのスコアはＣＣＳ５によって更新される。

【００６５】あるいは、ＣＣＳ５は返信経路データを使ってユーザーインタフェースからの投票を登録するようにしてもよい。ＣＣＳの機能のうちリターンパスの処理を行なう機能は、プラグイン処理アプリケーション３７を加えることで強化することができる。例えば、プログラマーは、最終結果あるいはリーグ順位をユーザーインタフェース側に返送するような新しいゲームを開発することができる。またプログラマーは適当なプラグイン処理アプリケーション３７をインストールできる。ただし、アプリケーションによっては返信経路でのＣＣＳ５との通信を必要としないものもある。

【００６６】以上、サッカーゲームを具体例として、本発明の一形態を説明したが、本発明の応用はこのような対話型ゲームだけではない。本発明が適用できるアプリケーションの例としては、スポーツの生中継放送とリンクした予測ゲームの他に、生放送のクイズ番組とリンクしたクイズゲーム、生放送とはリンクせず好きな時に参加できるオン・デマンド方式のクイズゲーム、ホームショッピング、ホームバンキングなどがある。

【００６７】また配信の対象となるアプリケーション構成要素は、スポーツゲームのようにリアルタイム性の高いものもあるが、ホームショッピングや、ホームバンキングなど、どちらかと言うと静的なデータを多く扱うリアルタイム性の低いものもある。本発明はアプリケーションのこうした違いから制約を受けるものではないことは明らかである。

【００６８】

【発明の効果】以上説明したように本発明では、対話型アプリケーションの構成要素の集合を、各対象プラットフォームに適合する複数の放送データストリームに変換し、仕様の異なるそれぞれのネットワークを通じて対象プラットフォームに配信するように構成した。これにより、アプリケーションの開発過程において、異なる放送用プロトコルの使用について考慮する必要がなくなり、プログラム開発が容易になる。

【００６９】言い換えると、本発明はアプリケーション構成要素のプラットフォームへの依存性を大幅に減少させるので、たとえアプリケーションの配信先として新しい対象プラットフォームが加わっても、新しい放送システムインタフェースを追加することで容易に対処できる。すなわち、本発明によってシステムの柔軟性が向上する。

【図面の簡単な説明】

【図１】本発明における対話型サービスネットワークの概念を示す図である。

【図２】生中継サッカーゲームにおいて、準備段階でオペレータに対して提示される表示画面の例を示す図である。

【図３】生中継サッカーゲームの準備段階における別の表示画面の例を示す図である。

【図４】生中継サッカーゲームの準備段階におけるさらに別の表示画面の例を示す図である。

【図５】上記サッカーゲーム参加者に対して提示される表示画面を示す図である。

【図６】上記サッカーゲーム参加者に対して提示される別の表示画面を示す図である。

【図７】データの返信経路の例を示す図である。

【図８】処理エンジンの機能を説明する図である。

【符号の説明】

１　中央システム
２　対象プラットフォーム
３　放送網
４　ユーザーインタフェース
５　セントラル・コンピュータシステム

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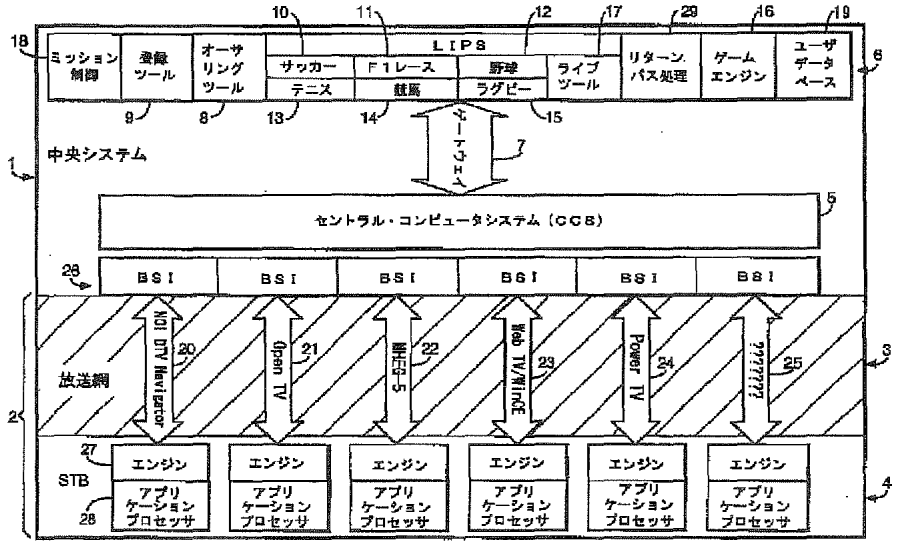
15

６　サブシステム
７　ＣＣＳテキストメッセージゲートウェイ
８　オーサリングツール
９　登録ツール
１０～１５　対話型予測ゲーム
１６　ゲームエンジン
１７　ライブツール

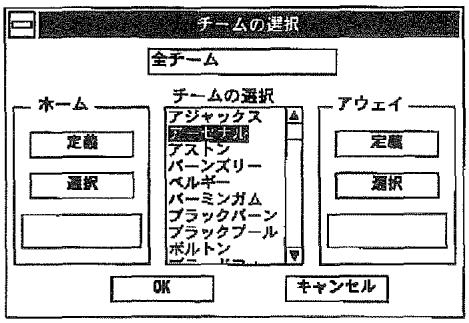
16

＊１８　ミッション制御
１９　ユーザーデータベース
２０～２５　各種の放送網
２６　放送システムインタフェース
２７　エンジン
２８　アプリケーションプロセッサ
＊　２９　リターンパス処理サブシステム

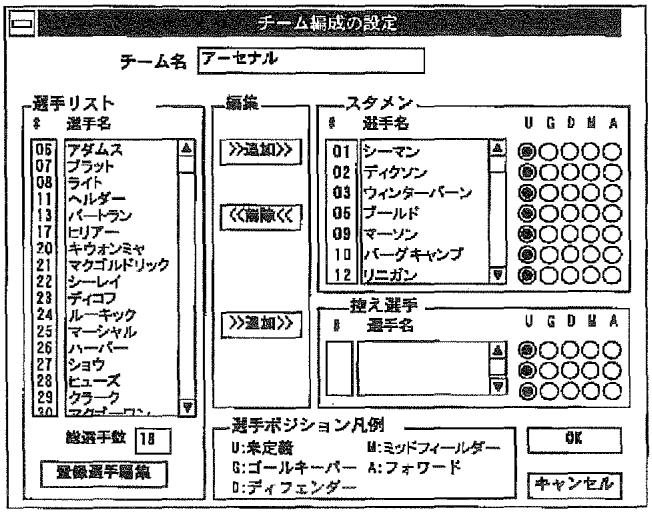
【図１】



【図２】

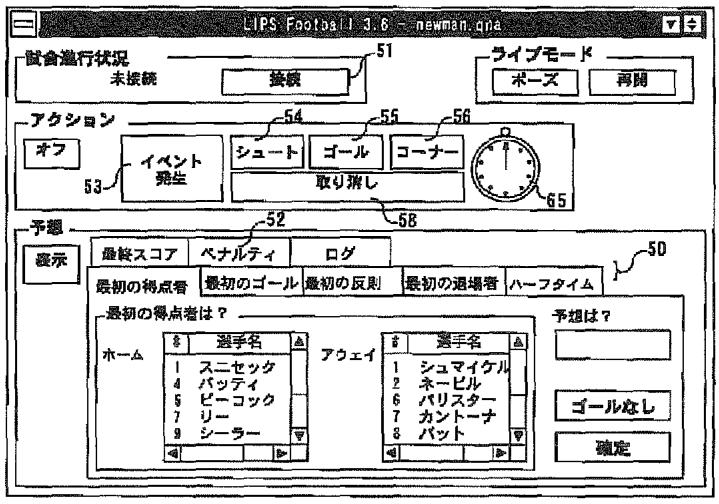


【図３】



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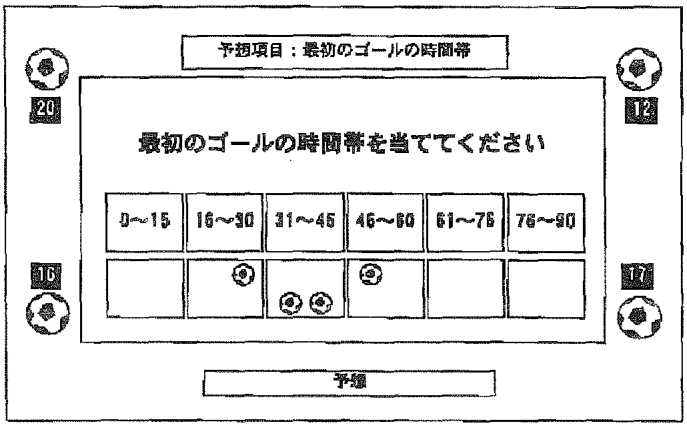
【図４】



【図５】

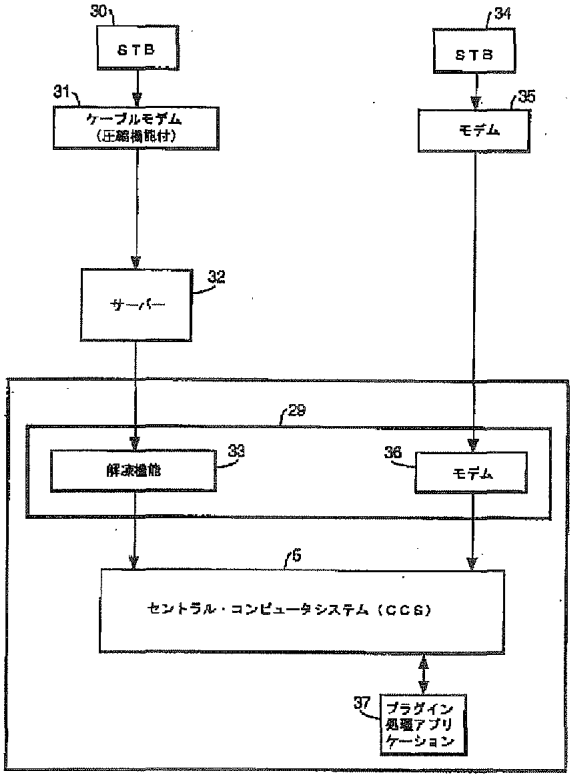


【図６】

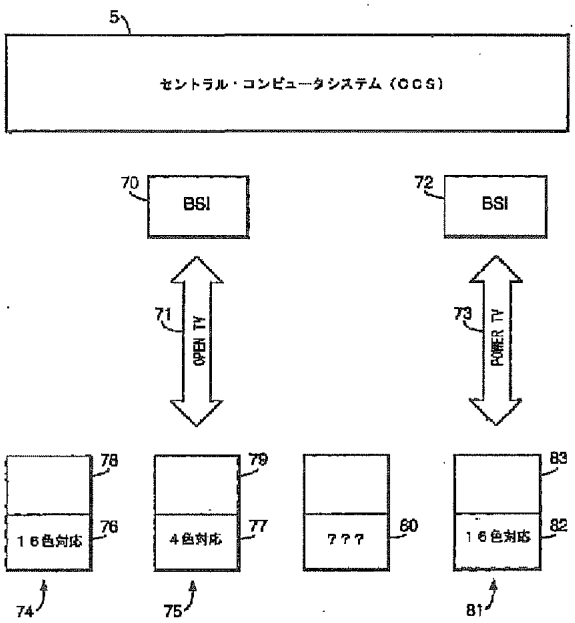


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【図７】



【図８】



フロントページの続き

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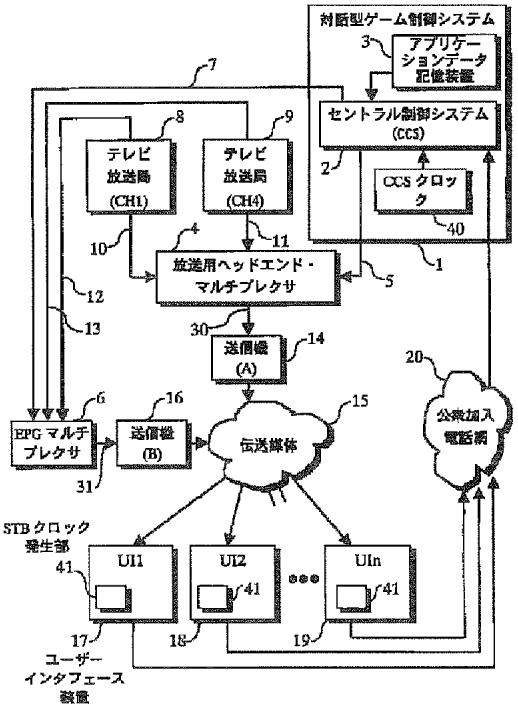
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最終頁に続く

(54)【発明の名称】　対話型放送システム及び不正ユーザー検出方法

(57)【要約】
【課題】　ユーザーインタフェース装置のローカルクロックが不正に調整されていることを検出する。
【解決手段】　対話型放送システムは、対話型アプリケーションの供給を制御するセントラル制御システム２と、複数のユーザーインタフェース装置１７～１９とを有する。各ユーザーインタフェース装置１７～１９は、ローカルクロック信号を生成する手段であるＳＴＢクロック発生部４１をそれぞれ備えており、各々のローカルクロック信号が示す時刻を基準にして、対話型アプリケーションを各ユーザーに提供する。セントラル制御システム２は、対話型アプリケーションのデータをユーザーインタフェース装置１７～１９に配信する。また、セントラル制御システム２は、各ユーザーインタフェース装置から所定のデータが戻って来る時刻を比較し、それに基づいてローカルクロック信号のずれを検出することによって、不正ユーザーを特定する。



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【特許請求の範囲】

【請求項１】　対話型放送システムにおいて、
ローカルクロック信号を発生するローカルクロック信号発生手段をそれぞれ有し、各ローカルクロック信号を基準にして対話型アプリケーションを各ユーザーに提供する複数のユーザーインタフェース装置と、
データを前記複数のユーザーインタフェース装置に対して一斉送信し、また前記複数のユーザーインタフェース装置からデータを受信するセントラル制御システムであって、前記複数のユーザーインタフェース装置から所定のデータが戻って来る時刻を比較することによって不正ユーザーを特定するセントラル制御システムと、
を有することを特徴とする対話型放送システム。

【請求項２】　前記各ユーザーインタフェース装置は、前記ローカルクロック信号の調整状態を検出するクロック監視手段を有することを特徴とする請求項１記載の対話型放送システム。

【請求項３】　前記セントラル制御システムは、前記複数のユーザーインタフェース装置に返信要求を送り、前記返信要求に呼応して前記複数のユーザーインタフェース装置が生成した返信データの受信時刻を監視し、前記受信時刻が所定の閾値以上に進んでいる、あるいは遅れている場合に、当該返信データを送ったユーザーインタフェース装置を特定することを特徴とする請求項１記載の対話型放送システム。

【請求項４】　前記返信要求により、前記複数のユーザーインタフェース装置は、前記対話型アプリケーションの最後に各ユーザーインタフェース装置が判定したローカルスコアを返送することを特徴とする請求項３記載の対話型放送システム。

【請求項５】　前記セントラル制御システムは、アプリケーション開始信号を前記複数のユーザーインタフェース装置に送信し、
各ユーザーインタフェース装置は、アプリケーション実行用ローカル時刻を前記アプリケーション開始信号を基準にして算出する時刻算出手段を有し、
各ユーザーインタフェース装置はそれぞれのアプリケーション実行用ローカル時刻を基準にして前記対話型アプリケーションを各ユーザーに提供することを特徴とする請求項１記載の対話型放送システム。

【請求項６】　セントラルクロック信号をユーザーインタフェース装置に対して周期的に送信するセントラルクロック送信手段をさらに有し、
前記各ユーザーインタフェース装置は、前記ローカルクロック信号から前記セントラルクロック信号を得るために、前記セントラルクロック信号と前記各ローカルクロック信号とを基準にしてオフセット信号を算出するオフセット算出手段をそれぞれ有することを特徴とする請求項１記載の対話型放送システム。

【請求項７】　対話型放送システムにおける不正ユーザーの検出方法において、（１）セントラル制御システムからデータを複数のユーザーインタフェース装置に送信するステップと、（２）各ユーザーインタフェース装置においてローカルクロック信号を生成するステップと、（３）各ユーザーインタフェース装置からそれぞれのローカルクロック信号を基準にして対話型アプリケーションを各ユーザーに提供するステップと、（４）前記セントラル制御システムにて前記複数のユーザーインタフェース装置からデータを受信するステップと、（５）前記複数の複数のユーザーインタフェース装置から戻ってくる所定のデータの受信時刻を比較することにより、不正ユーザーを特定するステップと、
を有することを特徴とする不正ユーザーの検出方法。

【請求項８】　前記ステップ（４）は、返信要求を前記複数のユーザーインタフェース装置に送信するステップを含み、
前記ステップ（５）は、前記返信要求に応答して前記複数のユーザーインタフェース装置が生成した返信データの受信時刻を監視し、前記受信時刻が所定の閾値以上に進んでいる、あるいは遅れている場合に、当該返信データを送ったユーザーインタフェース装置を特定するステップを含むことを特徴とする請求項７記載の不正ユーザーの検出方法。

【請求項９】　前記返信要求により、前記複数のユーザーインタフェース装置は、前記対話型アプリケーションの最後に各ユーザーインタフェース装置が判定したローカルスコアを返送することを特徴とする請求項８記載の不正ユーザーの検出方法。

【請求項１０】　（６）アプリケーション開始信号を前記複数のユーザーインタフェース装置に送信するステップと、（７）前記アプリケーション開始信号を基準にしてアプリケーション実行用ローカル時刻を算出するステップとをさらに有し、
各ユーザーインタフェース装置は、それぞれのアプリケーション実行用ローカル時刻を基準にして対話型アプリケーションを各ユーザーに提供することを特徴とする請求項７記載の不正ユーザーの検出方法。

【請求項１１】　（８）セントラルクロック信号を前記複数のユーザーインタフェース装置に周期的に送信するステップと、（９）前記ローカルクロック信号から前記セントラルクロック信号を得るために、前記セントラルクロック信号と前記各ローカルクロック信号とを参照してオフセット信号を算出するステップとをさらに有することを特徴とする請求項７記載の不正ユーザーの検出方法。

【発明の詳細な説明】

【０００１】

【発明の属する技術分野】本発明は、対話型放送システムと不正ユーザー検出方法に関し、特に対話型アプリケーションを複数のユーザーに対して各々のユーザーイン

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タフェース装置を介して送信する対話型放送システムにおいて、ユーザーインタフェース装置を不正に使用するユーザーを検出するシステムおよび方法に関する。

【０００２】

【従来の技術】従来の対話型放送システムにおいては、例えばコンピュータで構成されるセントラル制御システム（ＣＣＳ）から複数のユーザーインタフェース装置(例えば、セットトップ・ボックスを備えたテレビ受信機など)に向けて、対話型アプリケーションを運用するためのデータが送信される。アプリケーションの中には何らかの時間的情報を使用するものがあるが、こうしたアプリケーションを提供するためには、各ユーザーインタフェース装置は、自分が使用する時刻信号を発生するローカルクロック発生器を備えている必要がある。これにより、ユーザーインタフェース装置は、ローカルクロック発生器から出力されるローカルクロック信号を参照しながら対話型アプリケーションをユーザーに所定のタイミングで提供することができる。

【０００３】また、一つの対話型アプリケーションが全ユーザーインタフェース装置において同時に実行されるように、ローカルクロック発生器はセントラル制御システム側のクロックであるセントラルクロックに同期される。この同期機能を実現するには、ローカルクロックは調整可能な構成となっている必要がある。しかし、それはクロック調整機能が不正に使われる可能性があるということをも意味している。例えば、一人のユーザーが２台のユーザーインタフェース装置を使ってクイズゲーム番組を受信することが可能である。ここで１台のローカルクロックは正しく調整されており、もう１台のローカルクロックは意図的にずらしてあるものとしよう。クイズゲーム番組がローカルクロックに従って進行するようになっている場合、このユーザーは一方のユーザーインタフェース装置で答えを見た上で、別のユーザーインタフェース装置を使って正しい答えを期限前に入力することができるであろう。ユーザーインタフェース装置のクロック調整機能は、このように不正に使われる可能性がある。

【０００４】上述のような不正を検出する方法が、米国特許出願ＵＳ－Ａ－５８５０４４７及び国際特許出願ＷＯ－Ａ－９５／１５６５３にて提案されている。これらの提案では、それぞれのユーザーインタフェース装置が不正を検出してセントラル制御システムに通知する構成となっていた。

【０００５】

【発明が解決しようとする課題】しかし、前述の米国特許出願ＵＳ－Ａ－５８５０４４７や国際特許出願ＷＯ－Ａ－９５／１５６５３の方法ではユーザーインタフェース装置の側で不正を検出する構成となっているので、場合によってはその機構自身がユーザーによって改造されたりして、その有効性が損なわれる可能性があるという問題点があった。

【０００６】本発明はこのような点に鑑みてなされたものであり、ユーザーインタフェース装置のローカルクロックが不正に調整されていることを確実に検出する対話型放送システム及び不正ユーザー検出方法を提供することを目的とする。

【０００７】

【課題を解決するための手段】上記課題を解決するために、本発明の一つの態様において、図１に示す対話型放送システムが提供される。すなわち、本発明の対話型放送システムは、それぞれローカルクロック信号を発生するローカルクロック信号発生手段であるＳＴＢクロック発生部４１を有し、各ローカルクロック信号を基準にして、対話型アプリケーションを各ユーザーに提供する複数のユーザーインタフェース装置１７～１９と、データを前記複数のユーザーインタフェース装置１７～１９に対して一斉送信し、また前記複数のユーザーインタフェース装置１７～１９からデータを受信するセントラル制御システム２であって、前記複数のユーザーインタフェース装置１７～１９から所定のデータが戻って来る時刻を比較することによって不正ユーザーを特定するように構成されたセントラル制御システム２を有する。

【０００８】ここで、セントラル制御システム２から対話型アプリケーションのデータを複数のユーザーインタフェース装置１７～１９に配信する。各ユーザーインタフェース装置１７～１９では、ＳＴＢクロック発生部４１がローカルクロック信号を生成し、このローカルクロック信号が示す時刻に基づいて、配信された対話型アプリケーションを各ユーザーに提供する。セントラル制御システム２は、ユーザーインタフェース装置１７～１９から必要に応じてデータを受信するが、戻ってくる所定のデータの受信時刻を監視・比較する。もし、異常なずれを示すユーザーインタフェース装置があれば、そのローカルクロック信号には何等かの操作が加わっている可能性があると判断し、これを不正ユーザーとして検出する。

【０００９】また、本発明の別の態様によれば、図３に示す不正ユーザーの検出方法が提供される。すなわち、本発明の不正ユーザー検出方法は、（１）セントラル制御システム２からデータを複数のユーザーインタフェース装置１７～１９に送信するステップと、（２）各ユーザーインタフェース装置１７～１９においてローカルクロック信号を生成するステップと、（３）各ユーザーインタフェース装置１７～１９からそれぞれのローカルクロック信号を基準にして対話型アプリケーションを各ユーザーに提供するステップと、（４）前記セントラル制御システム２にて前記ユーザーインタフェース装置１７～１９からデータを受信するステップと、（５）前記複数のユーザーインタフェース装置１７～１９から戻ってくる所定のデータの受信時刻を比較することにより、不

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正ユーザーを特定するステップと、を有する。

【００１０】従来の不正ユーザー検出技術と異なり、本発明では、セントラル制御システムが複数のユーザーインタフェース装置からの返信データの受信時刻を比較して不正使用を検出する。すなわち、本発明のシステムおよび方法は単一のユーザーインタフェース装置からのデータに依存するものではない。

【００１１】不正ユーザーを特定するより具体的な方法の一つとして、本発明は次のような構成を提案する。すなわち、前記ステップ（４）は、返信要求を前記複数のユーザーインタフェース装置に送信するステップを含み、前記ステップ（５）は、前記返信要求に応答して前記複数のユーザーインタフェース装置が生成した返信データの受信時刻を監視し、前記受信時刻が所定の閾値以上に進んでいる、あるいは遅れている場合に当該返信データを送ったユーザーインタフェース装置を特定するステップを含む。例えば、前記返信要求により、前記複数のユーザーインタフェース装置はそれぞれのローカルスコアを返送する。ローカルスコアとは対話型アプリケーションの最後に各ユーザーインタフェース装置が集計処理したユーザーの得点である。このローカルスコアの受信時刻を監視・比較することによって不正を検出する。

【００１２】また本発明の別の方法によれば、ユーザーインタフェース装置は、セントラル制御システムから要求が特になくても、対話型ゲームの最後の時点あるいはゲーム途中の所定の時点にて、例えばゲームのスコア等の所定のデータを返すように自動的に制御される。セントラル制御システムは、このようなデータがいつ送られてくるかについて予め知っており、必要な比較作業を行なって不正を検出する。

【００１３】複数のユーザーインタフェース装置は、それぞれが生成するローカルクロック信号を様々な用途に用いる。第１の例においては、セントラル制御システムからユーザーインタフェース装置に向けてアプリケーション開始信号が送信される。ユーザーインタフェース装置は、受信したアプリケーション開始信号を基準にしてアプリケーション実行用ローカル時刻を計算する。各ユーザーインタフェース装置は、それぞれのアプリケーション実行用ローカル時刻を基準にして対話型アプリケーションを提供する。

【００１４】また、第２の例においては、中央システムにおける時刻を示すセントラルクロック信号が周期的にユーザーインタフェース装置に配信される。ユーザーインタフェース装置は、そのセントラルクロック信号と各々のローカルクロック信号を参照してオフセット信号を計算する。このオフセット信号とローカルクロック信号から、ユーザーインタフェース装置はいつでも中央システムにおける時刻を把握することができる。この部分の実施の方法に関しては、欧州特許出願ＥＰ－Ａ－０９９８１４５に記載されているような繰り返し送信の技術の一部を使用できるであろう。

【００１５】本発明の方法及び装置の応用の対象となる対話形アプリケーションについては様々の形態が考えられる。例えば遠隔地の参加者が大勢で競い合うビデオゲームやクイズ番組のような形態や、テレビの生放送番組と連動して提供される形態がある。例えば生放送のクイズショーにおいて遠隔地の参加者が質問に答えたり、スポーツの生中継において視聴者が特定の出来事の発生を予想したりする。

【００１６】

【発明の実施の形態】以下、本発明の実施の形態を添付図面を参照して説明する。図１は、ディジタル方式の放送網の概略図であり、本発明の対話型放送システムの一例を示す。図１のディジタル方式の放送網は、セントラル制御システム（ＣＣＳ）２と、アプリケーションデータ記憶装置３と、ＣＣＳクロック発生部４０を含む対話型ゲーム制御システム１を有する。ここで、セントラル制御システム２は、ゲームの進行を制御すべくプログラムされたコンピュータである。アプリケーションデータ記憶装置３は設定データとリアルタイムデータを格納する。これらのデータはセントラル制御システム２からアクセスされ、また変更される。設定データは、実行形式のプログラムファイル、画像データ、サウンドデータ、ビデオクリップ、その他のマルチメディアデータ資源を含んでいる。リアルタイムデータは、予定開始時刻になった後に送信されるデータであり、例えばクイズ形式のアプリケーションの場合で言うと、クイズの質問および解答のデータがこのリアルタイムデータに相当する。適当な時刻になると、設定データとリアルタイムデータがデータ供給路５を通じて放送用ヘッドエンド・マルチプレクサ４に供給される。

【００１７】また、セントラル制御システム２は電子番組ガイドデータ（Ｅｌｅｃｔｒｏｎｉｃ　Ｐｒｏｇｒａｍ　Ｇｕｉｄｅ　ｄａｔａ：以降、ＥＰＧデータと呼ぶ）を生成する。このＥＰＧデータは、ＥＰＧデータ供給路７を通じてＥＰＧマルチプレクサ６に供給される。電子番組ガイドデータの各項目は、プログラム識別番号（ＰＩＤ：Ｐｒｏｇｒａｍ　Ｉｄｅｎｔｉｆｉｅｒ）と、システム情報（ＳＩ：Ｓｙｓｔｅｍ　Ｉｎｆｏｒｍａｔｉｏｎ）テーブルを含む。システム情報テーブルは、その項目のプログラム識別番号に対応する電子番組ガイドの情報、例えば番組名や予定開始時刻、また番組開始時に用いるスプラッシュ画面データなどを格納する。

【００１８】チャネル１（ＣＨ１）のテレビ放送局８とチャネル４（ＣＨ４）のテレビ放送局９はそれぞれディジタル形式の音声・映像信号を生成し、データ供給路１０、１１を通じて放送用ヘッドエンド・マルチプレクサ４にこれらの信号を供給する。データ供給路５、１０、１１は専用のケーブル回線、あるいは無線回線である。

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【００１９】テレビ放送局８、９はさらに、それぞれが提供するテレビ番組に関するＥＰＧデータを生成し、データ供給路１２、１３を通してＥＰＧマルチプレクサ６に供給する。電子番組ガイドデータの各項目は、プログラム名や放送局名、その他の番組に関する情報を含んでいる。

【００２０】放送用ヘッドエンド・マルチプレクサ４は、データ供給路５、１０、１１から受け取ったディジタルデータを多重化し、ＭＰＥＧ２ビットストリーム３０としてシリアルに送信機（Ａ）１４に送る。

【００２１】同様にＥＰＧマルチプレクサ６は、データ供給路７、１２、１３から受け取ったディジタルデータを多重化し、別のＭＰＥＧ２ビットストリーム３１としてシリアルに送信機（Ｂ）１６に送る。

【００２２】二つの送信機１４、１６は、それぞれのデータを伝送媒体１５上に送り出す。この伝送媒体１５は、具体的にはディジタル方式やアナログ方式のテレビ放送システム（地上波放送あるいは衛星放送）、ケーブル（ＣＡＴＶ）網、インターネットなど、多数のユーザーに一斉に送信可能な媒体であればどのような媒体でもよい。

【００２３】このような伝送媒体１５を通じて多数のユーザーインタフェース装置（ＵＩ１～ＵＩｎ）１７、１８、１９にデータが配信される。逆に、これらのユーザーインタフェース装置１７、１８、１９からセントラル制御システム２に返信されるデータもある。図１の例では公衆加入電話網２０を使ってこうしたデータを送っている。図１には具体的には示していないが、例えばケーブルモデムのような媒体、あるいは放送用の伝送媒体１５を返信データの経路として使用してもよい。

【００２４】次に図２を参照し、図１のユーザーインタフェース装置１７の詳細を説明する。なお、他のユーザーインタフェース装置も同様の構成である。ここで代表として取り上げたユーザーインタフェース装置１７は、従来のテレビ受像機２１と、セットトップ・ボックス２２と、入力装置３３とから構成される。テレビ受像機２１は、ＣＲＴ表示器３５とチューナー２３を備え、チューナー２３にはアンテナ２４が接続されている。チューナー２３は、伝送媒体１５（図２の場合は無線）を通じて送られてくるデータを受信すべく、中央処理装置（ＣＰＵ）２５からの指令により設定調整されている。受信データはデマルチプレクサ２６に渡され、ここでＭＰＥＧ２ビットストリームが多重分離される。そして、設定データとリアルタイムデータはＣＰＵ２５に与えられ、映像・音声信号は表示インタフェース２８に供給される。

【００２５】ＣＰＵ２５はＲＡＭ２７とＲＯＭ３２をアクセスしながらデータを処理して表示信号を生成し、表示インタフェース２８に渡す。この表示信号は、テレビ放送の映像・音声信号と合成されてＣＲＴ表示器３５に供給される。入力装置３３はユーザーからの入力指示をＣＰＵ２５に与える。ＳＴＢクロック発生部４１は、ユーザーインタフェース装置１７のローカルクロック信号であるＳＴＢクロック信号を生成しＣＰＵ２５に供給する。返信データは、ＣＰＵ２５からモデム３４と公衆加入電話網２０を経由してセントラル制御システム２に送られる。

【００２６】次に、上述のシステムの動作を対話型クイズゲームのアプリケーションを例にして説明する。クイズゲーム予定開始時刻の１０分前になると、セントラル制御システム２は対話型クイズゲームのアプリケーションに関係する設定データをアプリケーションデータ記憶装置３からダウンロードする。ダウンロードされた設定データは放送用ヘッドエンド・マルチプレクサ４に供給され、放送用ヘッドエンド・マルチプレクサ４はそれを放送用カルーセル機構にセットする。設定データはこのカルーセル機構の働きにより、データストリーム３０としてユーザーインタフェース装置に向かって繰り返し送信される。この部分の詳細は、欧州特許出願ＥＰ－Ａ－０９９８１４５に記載されている。

【００２７】ユーザーインタフェース装置は、データストリーム３０を受信するようにチューナー２３のチャネル選択操作を適宜行なって、対話型クイズゲームの設定データをダウンロードする。すなわちＣＰＵ２５は、所定のプログラム識別番号（ＰＩＤ）を有する設定データをダウンロードしてＲＡＭ２７に格納する。ここで必要な全ての設定データ、つまりゲームを開始するのに必要十分なコンポーネントがダウンロードされると、予定された対話形アプリケーションの実行の準備が整い、後は開始時間を待つだけとなる。

【００２８】予定された開始時刻が来ると、セントラル制御システム２はリアルタイムに質問データを生成し、ユーザーインタフェース装置に向けて送信する。同時にＣＰＵ２５は自動的にゲームモードに入り、受信した質問データを基に、一連の質問をユーザーに提示する。ユーザーは入力装置３３を操作して、正しいと思う答えに対応するアイコンを選択することによって、各質問に対して解答する。解答には時間制限があり、質問が表示されてから所定の時間が経過するとＣＰＵ２５はユーザーの解答をロックアウトするので、ユーザーは答えの入力ができなくなる。同時に解答がＣＲＴ表示器３５に表示され、ＣＰＵ２５はユーザーが入力した答えが正しいかどうかを判定する。もし正解であれば所定の得点（スコア）が与えられ、ユーザーインタフェース装置にローカルに記憶される。

【００２９】クイズの質問と解答は、ＣＲＴ表示器の全画面を使って表示される。また、別の表示形式として、例えばＣＨ４のテレビ放送局９から放送されている生番組において、スタジオ内の参加者に向けて司会者が質問を発している様子が映し出され、これに質問と回答がオ

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ーバーレイする形で表示されるようにしてもよい。

【００３０】クイズゲームの最後に、ＣＰＵ２５はユーザーの成績であるスコアデータを、モデム３４と公衆加入電話網２０を経由してセントラル制御システム２に送る。セントラル制御システム２は、各ユーザーの賞金に関する口座を管理している。セントラル制御システム２は多数のユーザーインタフェース装置からスコアを受信し、その比較を行ない、高得点をあげたユーザーの賞金口座にポイントを加算する。このような賞金やポイントの付与と管理については、欧州特許出願ＥＰ－Ａ－０８５８２２５に詳細に記載されている。

【００３１】上の説明からわかるように、対話型アプリケーションの実行は時間の経過に沿って制御される。次に、図１、図２に示す本発明のシステムがどのようにして時間を管理するかについて説明する。

【００３２】対話型ゲーム制御システム１内のＣＣＳクロック発生部４０は、セントラルクロック信号（ＣＣＳクロック）を常時発生する。これは、セントラル制御システム（ＣＣＳ）２側の時刻を示すものである。一方、ユーザーインタフェース装置内のＳＴＢクロック発生部４１は、ローカルクロック信号（ＳＴＢクロック）を常時発生する。これは、それぞれのユーザーインタフェース装置１７～１９（すなわちＳＴＢ：セットトップ・ボックス）側の時刻を示すものである。

【００３３】このように、セントラル制御システム（ＣＣＳ）２とユーザーインタフェース装置１７～１９とは、基本的には別々の時間軸に沿って動作している。そして一般に、あるユーザーインタフェース装置、例えば１７、のＳＴＢクロックは、ＣＣＳクロックとずれており、また別のユーザーインタフェース装置１８、１９のＳＴＢクロック信号からもずれている。このようなＣＣＳクロックと各ＳＴＢクロックの間の位相差をここでは「オフセット」と言う。ユーザーインタフェース装置１７～１９は、それぞれのオフセットを持つ。

【００３４】クロック間の位相差を吸収するため、セントラル制御システム２は、ＣＣＳクロックの値を周期的にユーザーインタフェース装置１７～１９に送信する。これにより、ユーザーインタフェース装置１７～１９の各ＣＰＵ２５は自分自身のローカルクロック信号であるＳＴＢクロックのオフセットを計算してオフセット記憶部４２に記憶する。オフセット記憶部４２は各自のオフセットを記憶保持する手段であり、例えばＲＡＭで構成される。オフセットを式で表わすと次のようになる。

【００３５】

オフセット＝ＣＣＳクロック－ＳＴＢクロック

この関係から、ＣＰＵ２５はいつでもＣＣＳ側の時刻を計算することができる。すなわち、次の式によりＣＣＳ側の時刻を計算する。

【００３６】

ＣＣＳクロック＝ＳＴＢクロック＋オフセット

クイズゲームの開始前や開始時、あるいは開始後において、セントラル制御システム２は、ゲーム開始時刻を指定するクロック信号であるＣＣＳゲーム開始時刻信号をユーザーインタフェース装置に対して送信する。各セットトップ・ボックス内のＣＰＵ２５は、先に求めたオフセットを用いてＳＴＢクロックにおけるゲーム開始時刻（ＳＴＢゲーム開始時刻）を次のようにして計算することができる。

【００３７】ＳＴＢゲーム開始時刻＝ＣＣＳゲーム開始時刻－オフセット

クイズゲームの間、セントラル制御システム２は、質問と解答のデータを記憶装置３から読み出してデータストリーム３０として送る。これらはユーザーインタフェース装置に逐次表示される。これらのデータの各項目は、質問・解答の内容を表わすデータと、相対ゲーム時刻の指定とを含んでいる。相対ゲーム時刻とは、ゲーム開始時点から起算した時刻を意味する。言い換えると、ゲームがどこまで経過したかを示す時間情報である。各質問が画面に表示される時間や、その解答が表示される時間は、この相対ゲーム時刻を使って指定される。ここで例えば、あるクイズゲームにおいて、質問と解答のデータがその相対ゲーム時刻の指定とともに、次に示すようなシーケンスで送信されたとする。

【００３８】

データ	相対ゲーム時刻指定
質問Ａ	６０秒～７０秒
解答Ａ	７０秒～７５秒
質問Ｂ	７５秒～８５秒
解答Ｂ	８５秒～９０秒

質問Ａのデータはゲーム開始時点から数えて６０秒になるよりも前にデータストリームの一部として送信され、そしてこれを受信した各ユーザーインタフェース装置はそれぞれのゲーム開始時点から数えて６０～７０秒の間だけ質問Ａを画面に表示する。ユーザーは、この１０秒間だけ答えの入力を許される。７０秒になると、各ユーザーインタフェース装置は入力をロックアウトし、質問Ａに対する正しい答え（解答Ａ）を５秒間だけ画面に表示する。

【００３９】ＣＰＵ２５は、上述のように相対ゲーム時刻で指定されたメッセージを以下のように処理する。すなわち、解答Ａのデータとその相対ゲーム時刻が与えられると、ＣＰＵ２５は、指定された相対ゲーム時刻に対応するＳＴＢクロックの時刻（ＳＴＢゲーム時刻）を次のように計算する。

【００４０】ＳＴＢゲーム時刻＝ＳＴＢゲーム開始時刻＋相対ゲーム時刻

このＳＴＢゲーム時刻は、「課題を解決するための手段」の項で述べたアプリケーション実行用ローカル時刻に相当するものである。

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【００４１】ＣＰＵ２５は、指定された相対ゲーム時刻である「７０秒」から「７５秒」にそれぞれ対応するＳＴＢゲーム時刻を計算し、ＳＴＢクロックが実際に前者の時刻に達すると解答Ａを表示し、後者の時刻になると解答Ａの表示を消す。

【００４２】ここで、不正ユーザーが上述のシステムを使用して、以下のような操作を行なったとしよう。すなわち、この不正ユーザーはまず調整モジュール４６（図２では点線で示す）を挿入し、ＳＴＢクロック発生部４１で生成されるＳＴＢクロックを意図的に調整する。つまり、ＳＴＢクロックを一定時間進めるか、または一定時間遅らせる。あるいは、ＳＴＢクロックの計時速度を早めたり、遅くしたりする。この不正ユーザーは、ＳＴＢゲーム開始時刻が計算された後に調整モジュール４６を起動する。その結果、それに引き続く質問や解答データの表示は、他のセットトップ・ボックスに比べて遅れるか、あるいは早まることになる。

【００４３】不正ユーザーは、ＳＴＢクロックをこのように意図的に調整したユーザーインタフェース装置と、そうでないユーザーインタフェース装置の計２台を用意する。ゲームが始まると、このユーザーは片方のユーザーインタフェース装置に表示された正しい解答を見て、それを別のユーザーインタフェース装置に入力する。つまりこのユーザーは、後者のユーザーインタフェース装置の相対ゲーム時刻が、ＣＰＵ２５によるロックアウトが有効になる時刻に達する前に、前者のユーザーインタフェース装置の表示を見て得た正しい答えを入力することができる。

【００４４】しかし本発明によれば、このような不正なクロック調整は、以下に述べる複数の方法のうち一つ以上によって検出される。

（１）返信要求による不正検出

ゲーム開始後のある時点（ゲーム中かゲーム後）において、セントラル制御システム２は、ユーザーインタフェース装置１７～１９に返信要求を送信する。これは、ある特定の相対ゲーム時刻においてセントラル制御システム２に確認応答を送り返すように全ユーザーインタフェース装置に要請するものである。もし、あるユーザーインタフェース装置からの確認応答が他のユーザーインタフェース装置からの確認応答に比べて所定の閾値以上に遅れたり進んでいたりした場合、それは、そのユーザーインタフェース装置のＳＴＢクロックが操作されている可能性があると判断される。従って、そのようなユーザーインタフェース装置は不正と見なされ、その装置の使用者として登録されているユーザーは不正ユーザーとして賞金付与の対象から除外される。

【００４５】（２）スコア報告のタイミング監視による不正検出

ユーザーインタフェース装置は、クイズゲームの最後に、各ユーザーのスコアをセントラル制御システム２に報告するように求められる。もし、あるユーザーインタフェース装置から返信されたスコアが、他のユーザーインタフェース装置のそれに比べて、所定の閾値以上に遅れたり進んでいたりした場合、そのユーザーインタフェース装置は不正と見なされ、その装置の使用者として登録されているユーザーは不正ユーザーとして賞金付与の対象から除外される。

【００４６】以上の二つはセントラル制御システム２側で検出する方法であるが、さらに必要に応じて、次に述べる方法（３）を実施してもよい。

（３）ＳＴＢクロックの監視による不正検出

この方法では、ＳＴＢクロックとオフセットを監視する手段であるクロック監視部５０を各セットトップ・ボックス２２に設ける。この監視機能はＣＰＵ２５の処理機能として実装してもよいし、ＣＰＵ２５とは別のモジュールとして実装してもよい。もしＳＴＢクロックとオフセットのいずれかが変更された場合、クロック監視部５０はこれを検出して、検出信号をＣＰＵ２５に送る。ＣＰＵ２５はセントラル制御システム２に検出メッセージを送る。従って、このユーザーがもしＳＴＢゲーム開始時刻の計算の直後にＳＴＢクロックを操作したり、あるいは不正がなかったかのように見せ掛けるためにゲームの最後にＳＴＢクロックを再設定したりすると、クロック監視部５０のトラップに引っ掛かることになる。

【００４７】次に、本発明の別の態様として、対話型放送システムにおける不正ユーザーの検出方法について説明する。図３は、本発明の不正ユーザー検出方法を説明するフローチャートである。本発明のプロセスは以下のステップから構成される。

【００４８】（Ｓ１）セントラル制御システム２から、対話型アプリケーションのデータを複数のユーザーインタフェース装置１７～１９に配信する。

（Ｓ２）一方、各ユーザーインタフェース装置１７～１９においては、それぞれのローカルな時刻を示すローカルクロック信号を生成する。

【００４９】（Ｓ３）各ユーザーインタフェース装置１７～１９からそれぞれのローカルクロック信号が示す時刻を基準にして対話型アプリケーションを各ユーザーに提供する。

【００５０】（Ｓ４）セントラル制御システム２は、ユーザーインタフェース装置１７～１９から返信データを受信する。例えば、セントラル制御システム２はユーザーインタフェース装置１７～１９に対して、所定の時刻に所定のデータの返信を行なうよう要求し、ユーザーインタフェース装置１７～１９はこれに呼応して、自分自身のローカルクロック信号を参照して、指定された時刻が来たら返信する。

【００５１】（Ｓ５）複数のユーザーインタフェース装置１７～１９から戻ってくる所定の返信データの受信時刻を比較することにより、不正ユーザーを特定する。す

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なわち、異常なずれを示すユーザーインタフェース装置があれば、そのローカルクロック信号には何等かの操作が加わっている可能性があると判断し、これを不正ユーザーとして検出する。

【００５２】

【発明の効果】以上説明したように本発明の対話型放送システムでは、複数のユーザーインタフェース装置はそれぞれローカルクロック信号発生手段を有し、各ローカルクロック信号を基準にして、対話型アプリケーションを各ユーザーに提供する。また対話型アプリケーションを制御するセントラル制御システムは、複数のユーザーインタフェース装置から所定のデータが戻って来る時刻を比較することによって不正ユーザーを特定する。このようなシステム構成により、たとえ一人のユーザーが２台のユーザーインタフェース装置を使い、一方のユーザーインタフェース装置のローカルクロックを意図的にずらして調整したとしても、そのような不正な使用をセントラル制御システム側で確実に検出することが可能になる。

【００５３】また、本発明の不正ユーザー検出方法は、（１）セントラル制御システムからデータを複数のユーザーインタフェース装置に送信し、（２）各ユーザーインタフェース装置においてローカルクロック信号を生成し、（３）各ユーザーインタフェース装置からそれぞれのローカルクロック信号を基準にして対話型アプリケーションを各ユーザーに提供し、（４）前記セントラル制御システムにて前記複数のユーザーインタフェース装置＊からデータを受信し、（５）前記複数のユーザーインタフェース装置から戻ってくる所定のデータの受信時刻を比較することにより、不正ユーザーを特定する。従って、ユーザーがユーザーインタフェース装置のローカルクロックを意図的にずらして調整したとしても、そのような不正な使用をセントラル制御システム側で確実に検出することが可能になる。

【図面の簡単な説明】

【図１】ディジタル方式の放送網のブロック図であり、本発明の対話型放送システムの構成を示す図である。

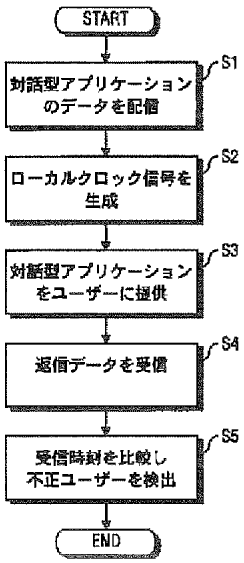
【図２】本発明のユーザーインタフェース装置のブロック図である。

【図３】本発明の不正ユーザー検出方法を説明する図である。

【符号の説明】

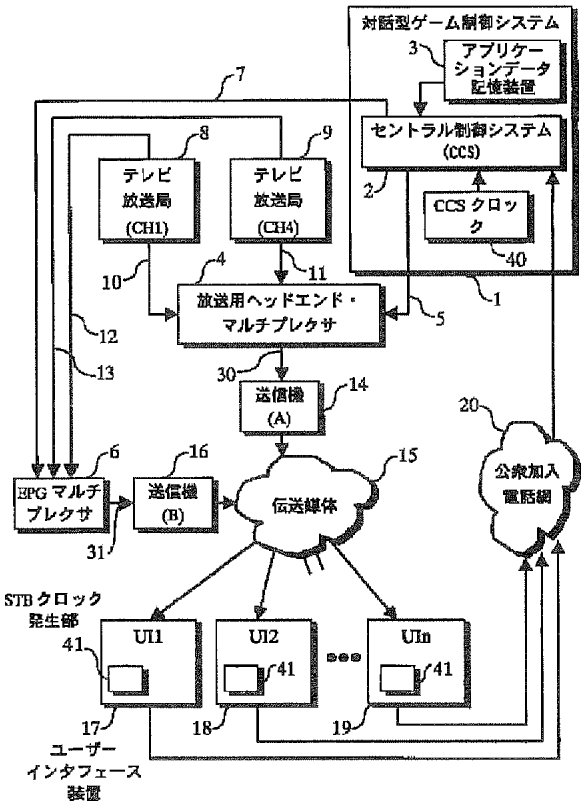
１　対話型ゲーム制御システム
２　セントラル制御システム
３　アプリケーションデータ記憶装置
４　放送用ヘッドエンド・マルチプレクサ
５、７、１０、１１、１２、１３　データ供給路
８、９　テレビ放送局
１４、１６　送信機
１５　伝送媒体
１７、１８、１９　ユーザーインタフェース装置
２０　公衆加入電話網
４０　ＣＣＳクロック発生部
４１　ＳＴＢクロック発生部

【図３】

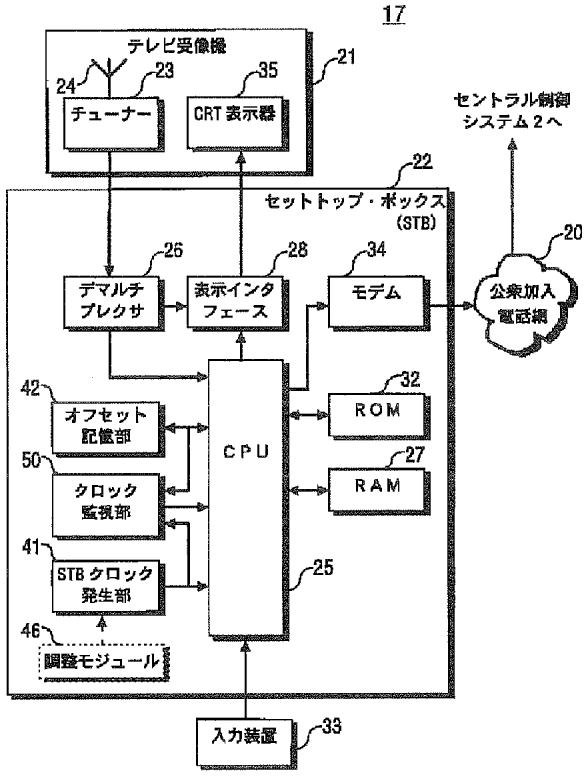


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【図１】



【図２】



フロントページの続き

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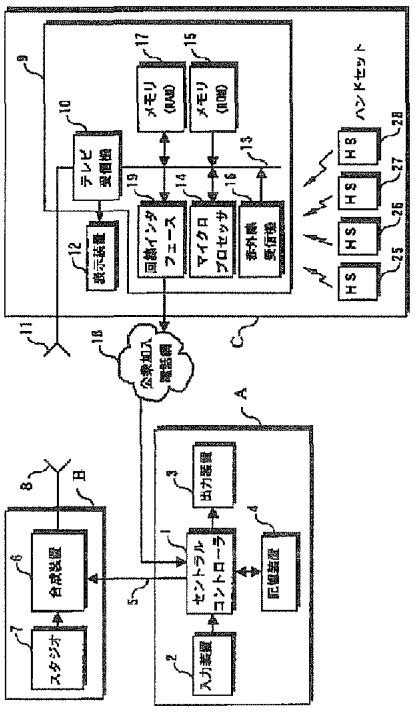
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(54)【発明の名称】　データ伝送方法及びデータ伝送装置

(57)【要約】

【課題】　あるデータ送付先に対して複数のデータ発信元から共通のデータチャネルを使用してデータを確実に伝送する。

【解決手段】　複数のデータ発信元２５～２８で発生した情報アイテムをデータ送付先９に共通のデータチャネルを通じて一連のデータパケットとして送信する。各データパケットは同一のデータ発信元から発信される前後のデータパケットから所定の繰り返し周期だけ離れており、各データ発信元の繰り返し周期は互いに異なっている。各情報アイテムは同一のデータ発信元から少なくともＮ個の連続したデータパケット（Ｎはデータ発信元の数）として繰り返し送信される。ｎ番目のデータ発信元の最適な繰り返し周期「Period n」は、データパケット長に関するパラメータ「burst period」により、Period n = 2×burst period×[(N−1)² + n]という式で与えられ、その結果、少なくとも前記Ｎ個の連続したデータパケットのうち一つが他のデータ発信元からのデータパケットとオーバーラップなしにデータ送付先９に届くことが保証される。



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【特許請求の範囲】

【請求項１】　複数のデータ発信元から共通データチャネルを通じてデータ送付先に対して複数の情報アイテムを伝送するデータ伝送方法において、

各データ発信元からの情報アイテムを前記データ送付先に一連のデータパケットとして送信するステップであって、各データパケットは同一のデータ発信元から発信される前後のデータパケットから所定の繰り返し周期だけ離れており、前記各データ発信元は他のデータ発信元の繰り返し周期とは異なった繰り返し周期をもって前記一連のデータパケットを送信する第1のステップと、

各情報アイテムを同一のデータ発信元から少なくともＮ個の連続したデータパケットとして繰り返し送信するステップであって、前記Ｎはデータ発信元の数であり、少なくとも前記Ｎ個の連続したデータパケットのうち一つが他のデータ発信元からのデータパケットとオーバーラップなしに前記データ送付先に届くように、データパケット長に関するパラメータburst periodによって与えられる式

Period n = 2×burst period×［(N-1)² + n］

にしたがって設定されたｎ番目のデータ発信元の繰り返し周期Period nにより前記Ｎ個の連続したデータパケットを繰り返し送信する第2のステップと、を有することを特徴とするデータ伝送方法。

【請求項２】　前記データ発信元からの前記データパケットはワイヤレスリンクを通じて送られることを特徴とする請求項１記載のデータ伝送方法。

【請求項３】　前記ワイヤレスリンクは赤外線リンクであることを特徴とする請求項２記載のデータ伝送方法。

【請求項４】　前記各情報アイテムは同一のデータ発信元からＮ個のデータパケットとして送信されることを特徴とする請求項１記載のデータ伝送方法。

【請求項５】　放送メディア受信システムを制御する制御方法であって、請求項１記載のデータ伝送方法を使用して制御情報を情報アイテムとして前記放送メディア受信システムに伝送することを特徴とする制御方法。

【請求項６】　前記情報アイテムは、前記放送メディア受信システムが同調するチャネルを制御するためのデータであることを特徴とする請求項５記載の制御方法。

【請求項７】　前記放送メディア受信システムは放送ゲームデータを受信するシステムであって、前記複数のデータ発信元はゲーム操作データを生成し、前記放送メディア受信システムの一部を構成するゲーム制御装置に対して送信することを特徴とする請求項５記載の制御方法。

【請求項８】　データ伝送装置において、

共通データチャネルを通じて送られるデータを受信する受信機を含むデータ送付先装置と、

複数のデータ発信元装置であって、それぞれ、

ａ）情報アイテムを前記データ送付先装置に前記共通データチャネルを通じて送信する送信機と、

ｂ）前記情報アイテムを一連のデータパケットとして前記データ送付先装置に対して送信するように前記送信機を制御するプロセッサであって、各データパケットは同一のデータ発信元装置から発信される前後のデータパケットから所定の繰り返し周期だけ離れており、各情報アイテムを同一のデータ発信元装置から少なくともＮ個の連続したデータパケットとして繰り返し送信され、前記Ｎはデータ発信元装置の数であり、各データ発信元装置の前記繰り返し周期は他のデータ発信元装置の繰り返し周期とは異なっており、データパケット長に関するパラメータburst periodによって与えられる式

Period n = 2×burst period×［(N-1)² +n］

にしたがって設定されたｎ番目のデータ発信元装置の繰り返し周期Period nにより前記一連のデータパケットを送信するように前記送信機を制御するプロセッサと、を有する複数のデータ発信元装置と、から構成されることを特徴とするデータ伝送装置。

【請求項９】　前記受信機と前記送信機はワイヤレスリンクを通じて通信を行うことを特徴とする請求項８記載のデータ伝送装置。

【請求項１０】　前記ワイヤレスリンクは赤外線リンクであることを特徴とする請求項９記載のデータ伝送装置。

【請求項１１】　各データ発信元装置は、前記各データ発信元装置に対して与えられた繰り返し周期を発生する精度１％以下の発振器を有することを特徴とする請求項８記載のデータ伝送装置。

【請求項１２】　各データ発信元装置はタイムスロットクロック信号を繰り返し生成するカウンタを有し、前記各データ発信元装置のプロセッサは前記タイムスロットクロック信号に応じて前記送信機からのデータパケット送信を行うことを特徴とする請求項８記載のデータ伝送装置。

【請求項１３】　前記データ送付先装置は同期情報を前記データ発信元装置に送信する機能を持たず、前記データ発信元装置は前記データ送付先装置から同期情報を受信する機能を持たないことを特徴とする請求項８記載のデータ伝送装置。

【請求項１４】　放送メディア受信装置において、

放送を受信する放送メディア受信システムと、

前記放送メディア受信システムを制御するために設けられた請求項８記載のデータ伝送装置と、を有することを特徴とする放送メディア受信装置。

【請求項１５】　前記放送メディア受信システムは複数の放送チャネルのうちの一つのチャネルに同調することのできる放送メディア受信機を含み、前記データ伝送装置は前記放送メディア受信機が同調する前記チャネルを制御することを特徴とする請求項１４記載の放送メディア受信装置。

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【請求項１６】　前記放送メディア受信機は複数のテレビ放送チャネルのうちの一つのチャネルに同調することを特徴とする請求項１５記載の放送メディア受信装置。

【請求項１７】　前記放送メディア受信方式はゲームデータを受信する放送メディア受信装置を含み、前記複数のデータ発信元は前記放送メディア受信システムの一部を構成するゲーム制御装置に対して送信されるゲーム操作データを生成することを特徴とする請求項１４記載の放送メディア受信装置。

【発明の詳細な説明】

【０００１】

【発明の属する技術分野】本発明はデータ伝送方法およびデータ伝送装置に関し、特に複数のデータ発信元から一つのデータ送付先に対して情報を送るデータ伝送方法およびデータ伝送装置に関する。

【０００２】

【従来の技術】従来、複数のデータ発信元から一つのデータ送付先に対して情報を送るシステムの一例として、対話型ホームエンターテインメントシステムがある。このシステムでは、複数のプレーヤーがハンドセット（handset:ここではプレーヤーがゲームの操作に使用するコントローラを指す）を使ってゲームに参加する。各プレーヤーが自分のハンドセットのボタンを操作すると、ゲーム操作データ（game-play data）が生成され、ハンドセットとは別に設けられたゲーム制御装置に向かって赤外線リンクを通じてデータが送信される。

【０００３】全てのハンドセットが共通のデータチャネルである赤外線リンクを使用するので、このリンクには何らかの多重化機能が必要になる。従来、このような目的のために時分割多重化技術を適用し、各ハンドセットはあらかじめ割り当てられた別々のタイムスロットにデータをのせて送付先に伝送していた。このような時分割多重方式では、共通データチャネルにアクセスできるのは常に１台のみであり、２台以上のハンドセットが同時にアクセスして衝突を起こさないように、ゲーム制御装置の制御のもとで全ハンドセットを互いに同期させる必要があった。しかしこの方式には、同期化制御のための計算処理時間を要し、またゲーム制御装置とハンドセット間に双方向の通信リンクが必要になり、その結果としてシステムのコストが上昇するという問題があった。

【０００４】米国特許ＵＳ－Ａ－４９２４２１６「Joystick controller apparatus」は、ジョイスティック制御装置について述べている。この装置では２台のジョイスティックコントローラが一つの赤外線通信チャネル上に信号を送出する。一台は、信号送出時間Ｔ０、繰り返し周期Ｔ１で信号を送出し、もう一台は信号送出時間Ｔ０、繰り返し周期Ｔ２で信号を送出する。２台目ののジョイスティックコントローラの繰り返し周期Ｔ２は、１台目の繰り返し周期Ｔ１に比べて、少なくともＴ０の２倍の時間だけ長く、また一台目の信号送出時間Ｔ０の少なくとも４倍以上で、かつ１６．６ｍｓ未満に設定される。

【０００５】

【発明が解決しようとする課題】しかし、上述の従来方式は比較的シンプルなビデオゲーム機には適しているが、それ以上の用途に使用することは困難であった。すなわち、従来の技術は、3つ以上の信号源があって、はるかに複雑な信号を扱う必要のあるゲームや放送メディアの制御に一般的に適用できる技術ではなかった。

【０００６】本発明はこのような点に鑑みてなされたものであり、3台以上のデータ発信元から共通のデータチャネルを通じて一つのデータ送付先にデータを送信する際に、タイミングを同期させたり双方向リンクを設けることなく、確実にデータを送付できるデータ伝送方法およびデータ伝送装置を提供することを目的とする。

【０００７】

【課題を解決するための手段】本発明では上記課題を解決するために、複数のデータ発信元から共通データチャネルを通じてデータ送付先に対して複数の情報アイテムを伝送するデータ伝送方法が提供される。本発明のデータ伝送方法は、各データ発信元からの情報アイテムをデータ送付先に一連のデータパケットとして送信するステップであって、各データパケットは同一のデータ発信元から発信される前後のデータパケットから所定の繰り返し周期だけ離れており、前記各データ発信元は他のデータ発信元の繰り返し周期とは異なった繰り返し周期をもって前記一連のデータパケットを送信する第1のステップと、各情報アイテムを同一のデータ発信元から少なくともＮ個の連続したデータパケットとして繰り返し送信するステップであって、前記Ｎはデータ発信元の数であり、少なくとも前記Ｎ個の連続したデータパケットのうち一つが他のデータ発信元からのデータパケットとオーバーラップなしに前記データ送付先に届くように、データパケット長に関するパラメータ「burst period」によって与えられる式

$$Period\ n = 2 \times burst\ period \times [(N-1)^2 + n]$$

にしたがって設定されたｎ番目のデータ発信元の繰り返し周期Period nにより前記Ｎ個の連続したデータパケットを繰り返し送信する第2のステップとを有することを特徴とする。

【０００８】また、本発明では上記課題を解決するために、共通データチャネルを通じて送られるデータを受信する受信機を含むデータ送付先装置と、複数のデータ発信元装置から構成されるデータ伝送装置が提供される。本発明のデータ伝送装置における複数のデータ発信元はそれぞれ、

ａ）情報アイテムを前記データ送付先装置に前記共通データチャネルを通じて送信する送信機と、

ｂ）前記情報アイテムを一連のデータパケットとして前記データ送付先装置に対して送信するように前記送信機

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を制御するプロセッサであって、各データパケットは同一のデータ発信元装置から発信される前後のデータパケットから所定の繰り返し周期だけ離れており、各情報アイテムを同一のデータ発信元装置から少なくともＮ個の連続したデータパケットとして繰り返し送信され、前記Ｎはデータ発信元装置の数であり、各データ発信元装置の前記繰り返し周期は他のデータ発信元装置の繰り返し周期とは異なっており、データパケット長に関するパラメータburst periodによって与えられる式

Period n = 2×burst period×［(N-1)^2 +n］

にしたがって設定されたｎ番目のデータ発信元装置の繰り返し周期Period nにより前記一連のデータパケットを送信するように前記送信機を制御するプロセッサと、を備えている。

【０００９】本発明は、データ発信元とデータ送付先の間で双方向通信も同期も行なうことなく多重化を行なう方法を提供する。本発明のシステムは安定性に富み、各データ発信元の繰り返し周期がドリフトしても、伝送の信頼性に重大な影響を与えることがない。結果として、従来のシステムよりも部品コストを下げることができる。

【００１０】繰り返し周期は、二つの連続したデータパケットの先頭の時間差として定義される。符号化方式の違いにより、どのデータパケットも同じ長さになるような固定長方式もあれば、伝送する情報の量に応じてデータパケットの長さを変えるような可変長方式もある。しかしどちらの方式であっても、各データ発信元では所定の最大データパケット長が定義されている。すなわちデータ発信元がデータを発信する場合に使用できるタイムスロットの長さには一定の制限がある。

【００１１】最大データパケット長は、データ発信元ごとに異なっていてもよい。例えば、繰り返し周期が最も短いデータ発信元は、繰り返し周期が最も長いデータ発信元よりも、最大データパケット長を短めにしてもよい（この場合、各データパケットはより少ないデータを伝送することになる）。しかし、どのデータ発信元も同じ最大データパケット長とすることが望ましい。

【００１２】また、各情報アイテムについてＮ個を超えるデータパケットを送る構成も考えられる。しかし最適なデータレートを得るためには、同じデータ発信元から送信される各情報アイテムのデータパケットの繰り返しはＮ回とすることが望ましい。

【００１３】また更に、Ｎ個の連続データパケットの送信中に、データ発信元がその繰り返し周期を変える構成も有り得る。しかし、ドリフトは別として、少なくともＮ個の連続データパケットの送信中は（そして可能なら常時）繰り返し周期を変えないほうが望ましい。

【００１４】繰り返し周期はデータ発信元ごとに異なるように設定されるが、その間隔は均一でなくてもよい。例えば、４つのデータ発信元の繰り返し周期を20ms、22ms、26ms、28msと、不均一な間隔に設定することが可能である。しかしこの繰り返し周期の設定間隔は一様になるようにすることが望ましい。

【００１５】本発明では、あるデータパケットでオーバラップが起きたとしても、次のデータパケットでは同じハンドセット間で再びオーバラップしないように、二つのデータ発信元間の繰り返し周期の差は十分大きく設定する。また、本発明では、あるデータパケットでオーバラップが起きたとしても、次のＮ回の繰り返し周期では同じハンドセット間で再びオーバラップしないように、二つのデータ発信元間の繰り返し周期の差は十分大きく設定する。

【００１６】本発明の方法は、複数のデータ供給源から共通データチャネルを使ってデータを伝送する通信システムならどれにでも適用できる。本発明は、情報アイテムを様々なタイプにデータ送付先に送るために使用できるが、特に、放送メディア受信システムの制御への応用が好適である。すなわち本発明が提案するデータ伝送方法を使って、放送メディア受信システムへその制御情報を送信することができる。

【００１７】さらに本発明は、放送メディア受信システムと、それを制御するために設けられる本発明のデータ伝送装置とを有する放送メディア受信装置を提供する。この放送メディア受信システムはアナログまたはディジタル方式の放送メディア受信システムであり、データ発信元から送られる情報アイテムによって制御されるセットトップボックス（ＳＴＢ）、内蔵テレビ、あるいはビデオテープレコーダなどを含む。

【００１８】この場合、データ発信元の装置は、リモートコントロール機能を有する。例えば、各データ発信元の装置はリモートコントロール用の機能として、数字の入力、チャネル番号選択、テレビの操作、ビデオカセットレコーダの操作、セットトップボックスの操作などのための複数の入力ボタンを備える。また上下方向、左右方向といった方向指定を行なうための二つかそれ以上のボタンを備えることもある。こうした方向指定機能は、入力ボタンに限らず、マウス、トラックボール、歪みゲージを応用したＸＹポインタなどのデバイスで実現してもよい。

【００１９】放送メディア受信システムは通常、複数の放送チャネルのうちの一つに同調する放送受信機を含む。そして前述のデータ伝送装置が、この放送メディア受信機の例えばチャネル選択に関する制御に適用される。ただし、データ発信元とは別の機能を使ってチャネル選択を行えるように構成してもよい。

【００２０】またさらに別の構成として、本放送メディア受信システムはゲームデータの受信を行なう放送メディア受信機を含むものとしてもよい。この場合、データ発信元はゲーム操作データを生成し、放送メディア受信システムの一部を構成するゲーム制御装置に送信する。

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放送信号はゲームデータのみを送る専用の信号としてもよいが、好適な構成としては、ゲームデータはそれに関連するテレビ番組等と並行して送信する。このようなシステムの例としては、欧州特許出願ＥＰ－Ａ－０８７３７７２の「Interactive, predictive game control system」がある。

【００２１】本発明のデータ伝送方法をゲームに応用する場合は、以下に述べる幾つかのステップを加える。すなわち情報アイテムの発生とデータパケットの送信の間の遅延時間に応じたタイムスタンプ値を計算するステップと、タイムスタンプ値を符号化して前記データパケットに組み込むステップと、データ送付先にて受信したデータパケットを復号化して前記タイムスタンプ値を取り出すステップと、データパケットに関する遅延時間を、取り出したタイムスタンプ値に従って計算するステップとを加える。このようなデータ入力方法の一例は、本発明の出願人が欧州特許出願Ｎｏ．９７３０９６６４．７に基づいて申請中の日本国特許出願に記載されている。

【００２２】情報アイテムの最も単純な例は１ビットのバイナリデータ（すなわち「１」または「０」）であるが、一般的に情報アイテムは、システムが必要とする条件によって定まるビット数のバイナリデータである。また、各データパケットは、どのデータ発信元がそのデータパケットを生成したかを判別するための識別子を格納するフィールドと、情報アイテム本体を収容するデータフィールドを含む。データフィールド中のデータの一部として、タイムスタンプを含む場合がある。このタイムスタンプが絶対タイムスタンプの場合、Ｎ個の連続したデータパケットの中ではタイムスタンプ値は変化しない。しかし本発明の場合、タイムスタンプは相対タイムスタンプ、すなわち情報アイテムの生成とデータパケットの送信の間の遅延時間にしたがって計算されるタイムスタンプとすることが望ましい。この相対タイムスタンプを使用する場合、Ｎ個の連続データパケット中のデータフィールドには毎回同じ情報アイテムが格納されるが、それに付随する相対タイムスタンプはそれぞれ異なった値となるので、データフィールド全体としては毎回異なったデータを搭載することになる。

【００２３】

【発明の実施の形態】以下、本発明の一形態を図面を参照して説明する。図１の対話型放送ネットワーク（interactive broadcast network）は、ゲーム制御システムＡと、テレビ放送システムＢと、ユーザ装置Ｃから構成される。ゲーム制御システムＡは、Ｗｉｎｄｏｗｓベースのパソコンなどのコンピュータを含むセントラルコントローラ１を中心に構成され、セントラルコントローラ１にはキーボードやマウス等の入力装置２や、表示装置やプリンタなどの出力装置３が接続される。サービス機能やユーザに関するデータはデータベースとして記憶装置４に格納されており、セントラルコントローラ１からこれらをアクセスしたり修正したりすることができる。また記憶装置４は、放送中のゲームまたはこれから放送されるゲームに関するデータを保持するライブファイル（Live File）を記憶している。セントラルコントローラ１は、各種サービス機能に関連したテレビ表示信号や制御信号に変換可能なデータを生成し、これを地上回線５に載せてテレビ放送システムＢの合成装置６に送る。合成装置６はテレビ放送用の信号をスタジオ７から（また生中継放送の場合はスタジオ外の中継地点から）受信し、この信号と地上回線５からの受信信号とを合成し、送信機８を通じて、遠隔地のユーザ（ゲームプレーヤー）の装置Ｃに対して、テレビ放送と同時に送る。また別の形態として、セントラルコントローラ１からの信号と、スタジオ７またはスタジオ外の中継地点からの信号とを、別々の経路で送るように構成してもよい。

【００２４】セントラルコントローラ１から合成装置６に与えられた信号は、通常のテレビ信号の垂直帰線区間（VBI: vertical blanking interval）を利用してユーザ装置Ｃに送信される。また、ＦＭ－ＳＣＡ無線チャネルを使用したり、またケーブルモデムやインターネットなどを使って、テレビ信号とは別の信号として送ることも考えられる。伝送信号は通常、ディジタル信号であるが、本発明はアナログ信号にも適用可能である。

【００２５】各ユーザ装置Ｃは、選局可能なテレビ受信機１０を備え、またセットトップボックス（ＳＴＢ）として構成されたホームユニット（あるいはリモートユニットとも呼ぶ）９を備えている。テレビ受信機１０にはアンテナ１１と表示装置１２が接続されている。ホームユニット９の内部では、テレビ受信機１０の先にアドレス／データバス１３が延びている。このバス１３にはマイクロプロセッサ１４と、マイクロプロセッサ１４のプログラムを格納するＲＯＭ等のメモリ１５と、赤外線受信機１６と、制御用のメモリ（ＲＡＭ）１７とが接続されている。また、同バス１３上には回線インタフェース１９が設けられ、必要に応じてマイクロプロセッサ１４から公衆加入電話網（PSTN: public switched telephone network）１８にアクセスできるようになっている。マイクロプロセッサ１４から送られた信号は、この公衆加入電話網１８を通してセントラルコントローラ１に送信される。

【００２６】このユーザ装置Ｃからセントラルコントローラ１に向けての信号（return signal）の送信については、ケーブル網やインターネットなども利用できるが、セントラルコントローラ１からユーザ装置Ｃへの信号伝送媒体とは別の媒体を使うのが一般的である。

【００２７】ゲーム制御システムＡは、対話型の予想ゲームなど各種のゲームに関するデータを生成することができる。その中にはスタジオ７から提供されるテレビ放送に関連するものもある。例えば欧州特許出願ＥＰ－Ａ－０８７３７７２には対話型の予想ゲームとして二つの

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例が挙げられている。一つ目の例はサッカーの試合を基にゲームを行うもので、実際の試合の様子は送信機８により生中継される。テレビで観戦するプレーヤーは、試合開始前にある特定のイベントの発生を予想して賭けることができる。二つ目の例は競馬の生中継を基に予想ゲームを行うものである。

【００２８】本発明もまた、遠隔地の放送視聴者が参加するゲームに適用可能なものである。例えば、クイズ番組を基にしたゲームなどにおいては、ある質問に対して複数の回答が用意され、複数の参加者のうち誰が最初に正しい回答を返すかを競う。ただし、質問そのものが放送中のクイズ番組に同時に直接リンクすることは必須ではなく、ゲームは番組とは別個に編成されたものであってもよい。

【００２９】ゲームに参加する各プレーヤーは、ホームユニット９と通信するために、それぞれのハンドセット２５～２８を持っている。ハンドセットはホームユニット９と物理的には離れているが、赤外線信号を使用してワイヤレスで通信することができる。すなわち赤外線リンクがハンドセット２５～２８の共通のデータチャネルとして働く。ホームユニット９は赤外線信号を受け取るための赤外線受信機１６を備えており、ハンドセット２５～２８から受信した赤外線信号をデータに変換して、バス１３を経由してマイクロプロセッサ１４にこれを与える。

【００３０】前述のように、ハンドセット２５～２８は、当該分野でよく知られている各種のコントロール用ボタンを持っている。また各ハンドセットは受信機１０の同調操作、つまり放送チャネルの選択に使用できる。プレーヤーが選んだチャネルの情報はマイクロプロセッサ１４を通して受信機１０に与えられ、選局が行われる。

【００３１】さらに各ハンドセット２５～２８は、表示装置１２に表示されたカーソル（図示せず）の位置の制御にも使われる。ハンドセットの方向指示ボタン等の操作により信号が発生し、マイクロプロセッサ１４はそれに応じて表示装置１２の画面上のカーソルの動きを制御する。アプリケーションによっては、プレーヤーがカーソルで示した画面上のアイテムを選択するためのボタンが用意される。

【００３２】図２は、ハンドセット２５の詳細な構成を説明する図である。他のハンドセット２６～２８もこれと同様の構造を有する。ハンドセット２５にはマイクロプロセッサ３５が設けられ、これによって赤外線送信機３６を以下のように制御する。すなわち、ハンドセット２５は、表示装置１２に表示されたカーソルを動かすためのカーソル操作機構３７と、マイクロプロセッサ３５に操作データを与えるための複数のユーザ操作ボタン３８とを持っている。クロック発振器３９は例えば水晶発振器やセラミック発振器であり、周波数１１５２００Hz、精度約１％のクロック信号を発生する。このクロック信号はマイクロプロセッサ３５と、送信タイムスロットカウンタ４１と、タイムスタンプカウンタ４２とに供給される。

【００３３】図３は、ハンドセット２５からのデータパケット送信の例を示す図である。送信タイムスロットカウンタ４１は、あらかじめ設定されたクロックサイクル数を繰り返しカウントし、各サイクルに１回だけタイムスロットパルス４３を出力する。その結果として、タイムスロットパルス４３は所定の繰り返し周期４４毎に連続して発生する。ハンドセット２５の場合、繰り返し周期４４は２０ｍｓに設定されている。ボタン３８が押されると、情報アイテム４５が生成され、マイクロプロセッサ３５によってＲＡＭ４３に格納される。次のタイムスロットパルス４６が来ると、マイクロプロセッサ３５はＲＡＭ４３から前記の情報を読み出して４つの連続するデータパケット７０～７３に乗せて、赤外線送信機３６経由で送信する。続いて、参照番号４８で示すタイミングでカーソル操作機構３７が別の情報アイテムを生成し、マイクロプロセッサ３５はこの情報もＲＡＭ４３に格納する。次のタイムスロットパルス４９来ると、マイクロプロセッサ３５はＲＡＭ４３から前記の情報を読み出して４つの連続するデータパケット７４～７７に乗せて、赤外線送信機３６経由で送信する。

【００３４】ボタン３８の操作やカーソル操作機構３７からの出力によって情報アイテムが発生する毎に、タイムスタンプカウンタ４２はカウントを開始する。繰り返し周期ごとに、タイムスタンプカウンタ４２は2回インクリメントする。すなわちハンドセット２５の場合、繰り返し周期は２０ｍｓであるから、タイムスタンプカウンタ４２は１０ｍｓ毎にカウントアップする。そして各データパケットには送信時点でのタイムスタンプカウンタ４２の値がコピーされる。

【００３５】図３の例では、ボタンのデータ４５はタイムスロットパルス４６の１８ｍｓ前に生成されているから、４つのデータパケット７０～７３にはタイムスタンプ値１、３、５、７がそれぞれ与えられる。これに対して、カーソル制御データ４８は、タイムスロットパルス４９の５ｍｓだけ前に生成されている。従って４つのデータパケット７４～７７にはタイムスタンプ値として０、２、４、６がそれぞれ与えられる。

【００３６】各データパケットは８０ビットの情報を、１１５２００Ｈｚのビットレートで送信する。よって、データパケット長は０．６９ｍｓとなる。各データパケットは、ハンドセット２５～２８のうちの何れがそのデータパケットを生成したかを判別するための識別子のためのフィールドと、データフィールドと、チェック用フィールドから成る。データフィールドはＲＡＭ２３中の情報を、タイムスタンプカウンタ４２からのタイムスタンプ値と共に載せるべく、所定の形式でコード化されて

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いる。

【００３７】図４は、４台のハンドセットが発生する異なるタイムスロットパルス列の例を示す図である。４台のハンドセット２５～２８それぞれの送信タイムスロットカウンタ４１は、互いに異なる繰り返し周期でタイムスロットパルスを発生するように設定されている。第１のハンドセット５は、２３０４クロックサイクルをカウントして、２０ｍｓ毎にタイムスロットパルス６０を発生する送信タイムスロットカウンタ４１を有する。これに対して、第２のハンドセット６の送信タイムスロットカウンタは、２３３４クロックサイクルをカウントして、２２ｍｓ毎にタイムスロットパルス６１を発生する。また、同様に第３と第４のハンドセット７と８は、それぞれ２４ｍｓと２６ｍｓを繰り返し周期とし、タイムスロットパルス６２と６３をそれぞれ出力する。

【００３８】タイムスロットパルス６０～６３は同期していないので、その発生タイミングは相対的にドリフトする。ハンドセット間の同期を計るのではなく、繰り返し周期をわざと少しずらして設定することにより、タイムスロットパルス６０～６３の相対的位相関係は常に変動する。これは、タイミングによっては、２台のハンドセットからのデータパケットがオーバラップする（同時に送信される）ことがあり得ることを意味している。例えば、図４中のタイムスロットパルス６４はハンドセット２５のものであるが、ハンドセット２７のタイムスロットパルス６５とオーバラップしている。このような状態が起こると、タイムスロットパルス６４、６５を送信開始タイミングとして送出されるデータパケットは必ず衝突する。このような衝突によるデータの喪失を防ぐために、各情報アイテムは各ハンドセットから４回ずつ送信されるのである。

【００３９】ホームユニット９のマイクロプロセッサ１４は、受信した各データパケットをデコードし、データパケットによって伝送された情報に応じて表示信号を表示装置１２に供給する。マイクロプロセッサ１４はあらかじめ各ハンドセットの繰り返し周期を把握している。データパケットを受信すると、マイクロプロセッサ１４はタイムスタンプ値をチェックし遅延時間を計算する。例えば図３では、第１のデータパケット７０のタイムスタンプ値は１である。従って、マイクロプロセッサ１４は、データパケット７０が送信される１０～２０ｍｓ前に、ボタンデータ４５が生成されたことを知る。また、マイクロプロセッサ１４はデータパケットの受信および処理に伴う遅延についても把握している。もし第１のデータパケット７０が他のデータパケットとオーバーラップしたため正常に受信できなかった場合、あるいは何らかの妨害によって第１のデータパケット７０が失われた場合、マイクロプロセッサ３３は次に送られてくるデータパケット７１を受信しデコードすればよい。その結果、マイクロプロセッサ１４は、失われたパケット７０と同じ情報をデータパケット７１から得ることができる。つまり、データパケット７１のタイムスタンプ値は３であり、ボタンデータ４５がデータパケット７１送信の３０～４０ｍｓ前に生成されたことを意味している。データパケットの受信時刻ではなく、実際にボタン３８が押された時刻を計算することにより、イベントの時間関係が重要な意味を持つようなゲームにおいて、マイクロプロセッサ１４は正確な判断を行うことができる。またマイクロプロセッサ１４は、４台のハンドセット間でどのような順番でボタンが押されたかについても計算することができる。

【００４０】各ハンドセットのデータパケット長と繰り返し周期を次に述べるように注意深く選択することにより、各ハンドセットのデータレートを最大化するとともに、各情報アイテムの少なくとも一つのコピーを確実に受信することができる。

【００４１】上記の例においては、ハンドセット間の繰り返し周期の差が等しくなるように設定されている。つまり、各ハンドセットの繰り返し周期は次の式で与えられる。

【００４２】Period n = Period 1 + (n-1) Delta

ただし「Period n」はｎ番目のハンドセットの繰り返し周期であり、「Delta」は繰り返し周期の差分である。従って、４台のハンドセットの繰り返し周期の間には次のような関係があることがわかる。

【００４３】

Period 2 = Period 1 + Delta

Period 3 = Period 2 + Delta

Period 4 = Period 3 + Delta

「Delta」については、あるデータパケットのオーバラップが起きたとしても、次回のデータパケットでは同じハンドセット間で再びオーバラップしないように十分に大きな値を設定する。なお赤外線受信機１６については、そのリカバリタイム特性を考慮する必要がある。さらに発振器３９にはドリフトがあるのでビットレートが変動する。このような要因により次の制約条件が生ずる。

【００４４】Delta≧2×(burst length)

ここでバースト長「burst length」は次のように計算される。

(burst length)=(data packet length)+(recovery time)+(bit rate accuracy)

ただし、「data packet length」はデータパケット長、「recovery time」は赤外線受信機１４のリカバリタイム、「bit rate accuracy」はビットレート精度である。

【００４５】上の例では、ビットレート（１１５２００Ｈｚ）とデータパケット当たりのビット数（８０）から、データパケット長は８０／１１５２００＝０．６９４ｍｓと求められる。通常、リカバリタイムは０．３ｍ

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ｓ程度、ビットレートの精度は１％程度であるから、バースト長は１ｍｓ程度と計算できる。その結果、「Delta」の最小値は２ｍｓと求められる。

【００４６】また、２台のハンドセットからのデータパケットが一度衝突したとしても、次のデータパケットでは衝突しないように、任意の二つの送信装置間の繰り返し周期の差は十分大きくなければならない。この制約条件は次のように表現される。

【００４７】(N-1)×(Period N)+ 2×(burst length)≦N×(Period 1)

ただし、Ｎは送信装置の台数（今の例では４）である。一方、データレートを最大化し、遅延を最小化するためには、各繰り返し周期をできるだけ短くする必要がある。上に述べたような制約条件を組み合わせると、バースト長と繰り返し周期の最適解は次の条件から得られる。

【００４８】

Period n = 2×(burst length)×[(N-1)^2 + n]

従って、図１の４台のハンドセットにおける最適な繰り返し周期は次のようになる。

【００４９】

Period 1 = 20×burst length = 20 ms

Period 2 = 22×burst length = 22ms

Period 3 = 24×burst length = 24ms

Period 4 = 26×burst length = 26ms

繰り返し周期はデータパケット長に比例するから、データパケット長は全体のデータ容量に影響ない範囲で、システムの遅延時間に関する条件を満たすように選択すればよい。

【００５０】最長の繰り返し周期を有するハンドセットは、最短の繰り返し周期を有するハンドセットに比べてデータの伝送レートは当然低くなる。しかしゲームの場合、データパケットを連続して送出しなければならなくなる程の高頻度でプレーヤーがボタン１８を押すことはまずないと言える。したがってデータレートの違いは実際上問題にはならない。データレートの差違が問題になるようなアプリケーションにおいては、データパケットの送出頻度を減らしてビット数を増やすようにシステムを設計すればよい。例えば、４台のハンドセット２５～２８が、それぞれ８０ビット、８８ビット、９４ビット、１０２ビットのデータパケットを送るように設定する。

【００５１】本発明の別の実施の形態として、図２のハンドセット側のマイクロプロセッサ３５と、クロック発振器３９と、送信タイムスロットカウンタ４１と、タイムスタンプカウンタ４２を、これらと同じ機能を提供する専用の集積回路（図示せず）で置き換える構成をとってもよい。

【００５２】

【発明の効果】以上説明したように本発明のデータ伝送方法およびデータ伝送装置では、複数のデータ発信元で発生した情報アイテムをデータ送付先に共通のデータチャネルを通じて一連のデータパケットとして送信する。各データパケットは所定の繰り返し周期だけ時間的に離れており、また各データ発信元の繰り返し周期は互いに異なっている。さらに各情報アイテムは同一のデータ発信元から少なくともＮ個の連続したデータパケット（Ｎはデータ発信元の数）として繰り返し送信される。繰り返し周期を適切に設定することによって、Ｎ個の連続したデータパケットのうち一つは他のデータ発信元からのデータパケットとオーバーラップなしにデータ送付先に届く。

【００５３】従って、３台以上のデータ発信元がデータチャネルを共有する場合においても、互いにタイミングを同期させたりデータ送付先との双方向リンクを設けることなく、確実にデータを送信することが可能になる。

【図面の簡単な説明】

【図１】対話型放送ネットワークのブロック図である。

【図２】ハンドセットの詳細構成を示す図である。

【図３】ハンドセットからのデータパケット送信を説明する図である。

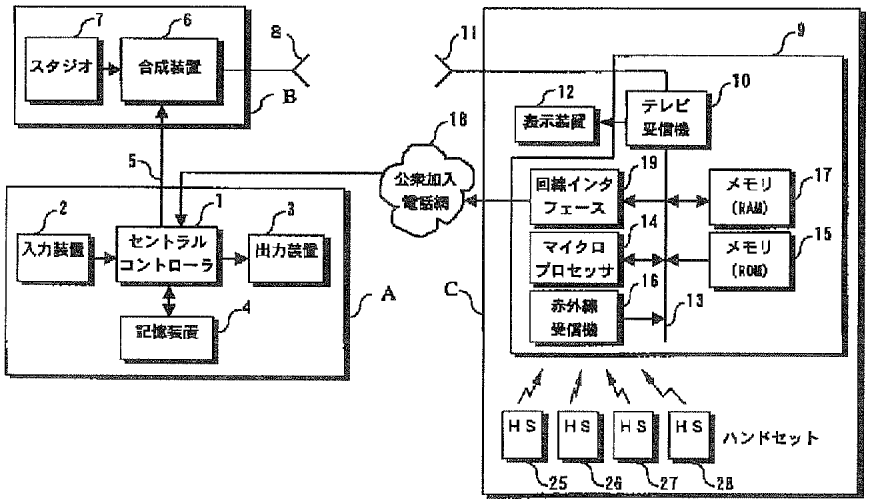
【図４】４台のハンドセットが発生するタイムスロットパルスの関係を示す図である。

【符号の説明】

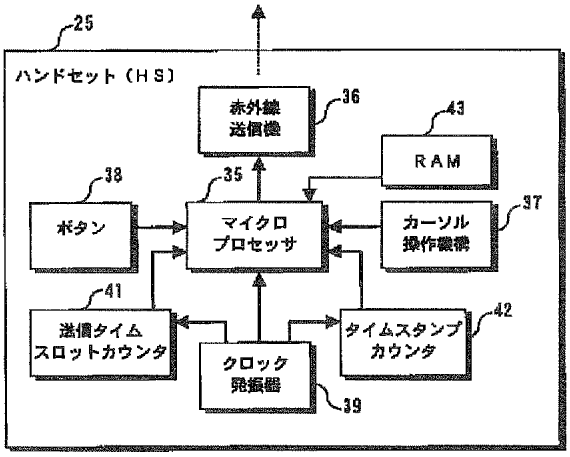
１　セントラルコントローラ
２　入力装置
３　出力装置
４　記憶装置
５　地上回線
６　合成装置
７　スタジオ
８　送信機
９　ホームユニット
１０　テレビ受信機
１２　表示装置
１３　バス
１４　プロセッサ
１５　メモリ
１６　赤外線受信機
１７　メモリ
２５～２８　ハンドセット

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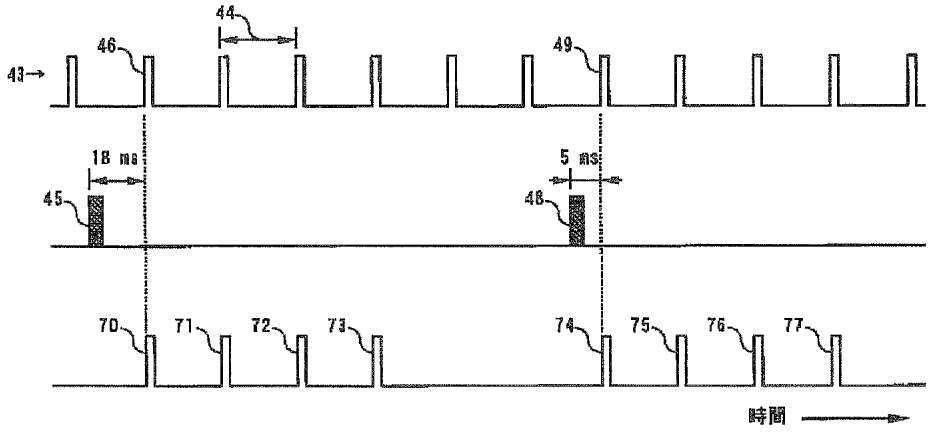
【図１】



【図２】

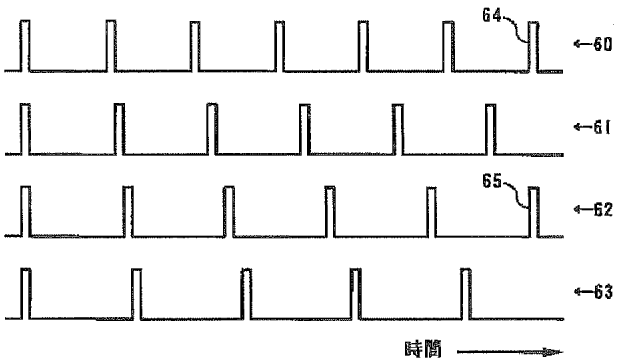


【図３】



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【図４】



フロントページの続き

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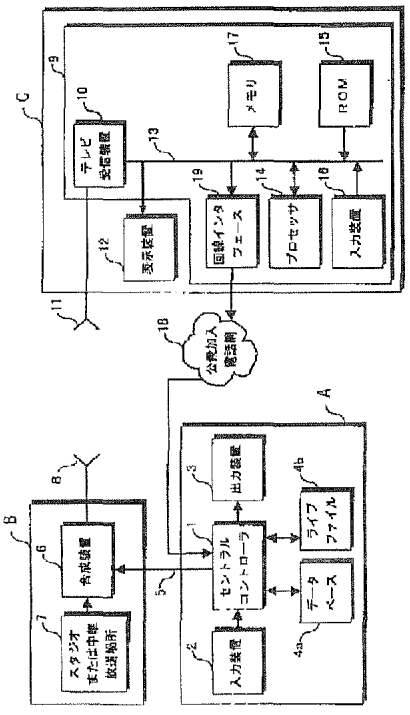
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(54)【発明の名称】　対話型予想ゲーム制御システム

(57)【要約】

【課題】　一名以上の参加者が、テレビ生放送と関連したゲームを行えるようにする。

【解決手段】　このシステムは、テレビ放送と共にゲーム参加者に送信するゲーム実行データを生成し、ゲーム参加者からの情報を受信するセントラルコントローラ１を有する。セントラルコントローラ１には入力装置２とデータベース４ａが接続される。データベース４ａは、生放送の内容に関するデータであって生放送の前に既に知られているデータを格納する。セントラルコントローラ１は入力装置２からの信号に応答し、以下のように動作する。すなわち、まず、セントラルコントローラ１は、前記生放送に先立って、前記生放送の前および／または前記生放送の間に前記参加者に送信するためのデータを前記データベース４ａから選択する。次にオペレータが前記入力装置２を通じてセントラルコントローラ１に対して入力する指示に応じて、生放送の間または後に、生放送に関連した一つ以上の事象の発生する時刻であってゲーム参加者による予想の対象となる時刻を記録する。



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【特許請求の範囲】

【請求項１】一名以上の参加者が、テレビ生放送と関連したゲームを行なうための対話型予想ゲーム制御システムであって、前記システムはテレビ放送と共に前記ゲーム参加者に送信するゲーム実行データを生成し、前記ゲーム参加者からの情報を受信するセントラルコントローラを有し、前記セントラルコントローラには入力装置とデータベースが接続され、前記データベースは、前記生放送の内容に関するデータであって前記生放送の前に既にわかっているデータを格納し、前記セントラルコントローラは前記入力装置からの信号に応答し、

前記生放送に先立って、前記生放送の前および／または前記生放送の間に前記参加者に送信するためのデータを前記データベースから選択し、

オペレータが前記入力装置を通じて前記セントラルコントローラに対して入力する指示に応じて、前記生放送の間または後に、前記生放送に関連した一つ以上の事象の発生する時刻であって前記ゲーム参加者による予想の対象となる時刻を記録する、

ことを特徴とする対話型予想ゲーム制御システム。

【請求項２】前記セントラルコントローラは、オペレータが前記入力装置を操作することで発生する信号の発生時刻を観測し、そして観測された前記発生時刻を前記オペレータとシステムの応答時間を考慮に入れて補正することにより実際の事象の発生時刻を算出することを特徴とする請求項１記載の対話型予想ゲーム制御システム。

【請求項３】前記データベースを更新する操作を行なった時刻を前記セントラルコントローラに記録するように構成したことを特徴とする請求項１または請求項２記載の対話型予想ゲーム制御システム。

【請求項４】請求項１ないし請求項３記載の対話型予想ゲーム制御システムを有する対話型放送網において、

前記セントラルコントローラからテレビ放送に関連して送信された信号を受信する複数のリモートユニットをさらに有し、

前記各リモートユニットは、前記セントラルコントローラから受信した信号に対応した処理を行なうマイクロプロセッサであって、ゲーム参加者が使用する入力装置が結合されたマイクロプロセッサを含むことを特徴とする対話型放送網。

【請求項５】一名以上の参加者が、テレビ生放送と関連したゲームを行なうための対話型予想ゲームの制御方法において、

前記生放送に先立って、前記生放送の内容に関するデータであって前記生放送の前に既に知られているデータが格納されたデータベースからあるデータを選択し、選択された前記データを、前記生放送の前および／または前記生放送の間に、前記参加者に対してテレビ放送と共に送信するステップと、

前記生放送の間または後に、前記生放送に関連した一つ以上の事象の発生時刻であって前記ゲーム参加者による予想の対象となる時刻を記録するステップとを有することと特徴とする対話型予想ゲームの制御方法。

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【発明の詳細な説明】

【０００１】

【発明の属する技術分野】本発明は、テレビの生放送に連動する対話型予想ゲームのための制御システムに関する。

【０００２】

【従来の技術】テレビの生放送（ライブ放送）に連動して視聴者に提供される対話型の予想ゲームにおいては、プレーヤ（ゲーム参加者）は放送中に起きる可能性のある事象（イベント）を予想し、それが当たれば賞品や賞金を受け取ることができる。このような対話型予想ゲームの対象としては、競馬やサッカーがある。例えば競馬ゲームにおいては、参加者はどの馬が優勝あるいは入賞するかを予想し、それらの馬に賭ける。またサッカーゲームでは、両チームの最終的な得点を予想したり、例えば最初のゴールはいつか、あるいは最初のイエローカードはいつか、といった特定の事象の予想時刻を当てる。この他に、ラグビー、自動車レース、テニス、クリケット等もゲームの対象となり得る。

【０００３】このような目的の対話型システムの一例として、米国特許ＵＳ－Ａ－４５９２５４６に開示されたシステムがある。この開示には参加者側で使用される端末（リモートユニット）の構成や制御法についての記載がある。しかしセンター側の構成についてはほとんど記載されていない。

【０００４】上記のようなゲームをより面白いものにするためには、ゲームに関する情報を事前に、あるいはゲーム中に適宜提供し、参加者がより高度な予想ができるように構成することが望ましい。競馬ゲームの例で言うと、出走馬や騎手やコースに関する情報や、賭け倍率（odds）に関する情報をゲーム参加者に提供する。またサッカーの場合は、各チームの詳細、過去の成績、リーグ戦における現在の順位などの情報を提供する。

【０００５】

【発明が解決しようとする課題】しかし、このような情報のかなりの部分、特に賭け倍率等の情報はゲーム前の段階において変化していくものであり、従って参加者に提供する際は、これらの情報をリアルタイムに更新する必要がある。

【０００６】

【課題を解決するための手段】第１の発明では、一名以上の参加者が、テレビ生放送と関連したゲームを行なうための対話型予想ゲーム制御システムが提供される。このシステムは、テレビ放送と共にゲーム参加者に送信するゲーム実行データを生成し、前記ゲーム参加者からの情報を受信するセントラルコントローラを有する。前記セントラルコントローラには入力装置とデータベースが

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接続される。前記データベースは、前記生放送の内容に関するデータであって前記生放送の前に既に知られているデータを格納するものである。前記セントラルコントローラは前記入力装置からの信号に応答して次のように動作する。

【０００７】前記生放送に先立って、前記生放送の前および／または前記生放送の間に前記参加者に送信するためのデータを前記データベースから選択し、オペレータが前記入力装置を通して前記セントラルコントローラに対して入力する指示に応じて、前記生放送の間または後に、前記生放送に関連した一つ以上の事象の発生時刻であって前記ゲーム参加者による予想の対象となる時刻を記録する。

【０００８】第２の発明では、一名以上の参加者が受信するテレビ生放送と関連した対話型予想ゲームを制御するための方法が提供される。この方法は以下のステップを有する。

【０００９】前記生放送に先立って、前記生放送の内容に関するデータであって前記生放送の前に既に知られているデータが格納されたデータベースからデータを選択し、選択された前記データを、前記生放送の前および／または前記生放送の間に、前記参加者に対してテレビ放送と共に送信し、前記生放送の間または後に、前記生放送に関連した一つ以上の事象の発生時刻であって前記ゲーム参加者による予想の対象となる時刻を記録する。

【００１０】本発明の制御システムおよび制御方法では、セントラルコントローラを操作するオペレータが、テレビ生放送の開始に先立って、可能な限りの準備を行えるように工夫されている。例えばデータベースには将来事象の予想に関連する情報を格納し、オペレータはテレビ生放送に関するデータをこのデータベースから選択し、それを適切な表示形式に整えて、生放送の前および／または放送中に、テレビ放送信号と共にゲーム参加者に送信できるようにする。こうした準備をしておくことにより、オペレータは、生放送中に入力装置を頻繁に操作しなくてもよくなるので、ゲーム参加者が予想した事象が起きるかどうか、またいつ起きるか、といった観察作業に集中することができる。

【００１１】生放送中に起きた事象の発生時刻は、例えば生放送が終わった後でオペレータが入力してもよいが、発生した時点で直ちに入力する方がより好ましい。事象発生時刻は、オペレータがその事象が起きたことを認識し、実際に制御システムに対して指示操作を行なった時点で記録される。あるいは、オペレータとシステムの応答時間の補正を行った上でその時刻が記憶される。

【００１２】すなわち、好適な制御システムとしては、セントラルコントローラが、オペレータの操作に応じて入力装置から生成される信号の出力時刻を監視し、それによって各事象の実際の発生時刻を計算し、さらにオペレータおよびシステムの応答時間を考慮してその時刻を修正するように構成することが望ましい。

【００１３】オペレータは応答時間測定のためのテストを受ける。このテストではオペレータ自身の応答時間とシステム内部での処理遅延時間（system latency）がセントラルコントローラによって判定され、この応答時間と内部処理遅延時間は、後で実際の生放送中の事象発生時刻を算出する際に使用するためにメモリに一旦記憶される。

【００１４】制御システムとゲーム参加者の間で時刻情報をやりとりするには、時刻情報を符号化して伝送可能な信号にする必要がある。このためにはタイムスタンプ（time stamping）として知られている方法を用いるのが簡単である。すなわち時刻情報を表わすデータを、制御システムとゲーム参加者の間のメッセージに添付する。タイムスタンプ付きの信号をゲーム参加者に送ることで、受信者側で様々な機能を実現することができる。例えば、ゲーム参加者による予想の受付けを締め切るためのロックアウト命令（lock-out command）に使用できる。また、当然ではあるが、自分の予想が当たったかどうかをゲーム参加者側で判断するのにも役立つ。

【００１５】また各ゲーム参加者にはマイクロプロセッサを搭載した制御ユニットが与えられ、本制御システムからの信号や、ゲーム参加者が発した信号に対応して、参加者側のゲーム制御を行なう。参加者による予想情報をセントラルコントローラにアップロードして、セントラルコントローラ側で勝ち負けを判定をするようにしてもよいが、逆に、セントラルコントローラから受け取った情報に従って、参加者側の制御ユニットが勝ち負けを判定したのち、その参加者が勝った場合にのみセントラルコントローラに知らせるようにすることもできる。後者のように構成することで、各参加者がセントラルコントローラとの通信に費やす時間が削減でき、その結果としてセントラルコントローラが同時に通信しなければならないリモートユニットの数が減るので、セントラルコントローラ側の負担も軽くなる。

【００１６】ゲーム参加者からセントラルコントローラへの通信は、既存の通信ネットワークを経由して行なう。回線は常時接続してもよいが、一時的な通信であれば例えば公衆加入電話網などを利用すればよい。

【００１７】場合によっては、セントラルコントローラがデータベースの更新日時を記録するようにしてもよい。例えば、データベースに記憶された賭け倍率のデータを更新する場合に、データベースからの信号に応答して、その更新時刻をセントラルコントローラが記録する。

【００１８】

【発明の実施の形態】本発明の制御システムおよび制御方法の実施例を、添付図面を参照しながら説明する。

【００１９】図１の対話型放送網（interactive broadcast network）は、ゲーム制御システムＡと、テレビ放

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送システムＢと、ユーザ装置Ｃから構成される。ゲーム制御システムＡは、Ｗｉｎｄｏｗｓベースのパソコンなどのコンピュータを含むセントラルコントローラ１を中心に構成され、このセントラルコントローラ１にはキーボードやマウス等の入力装置２や、表示装置やプリンタなどの出力装置３が接続される。データベース４ａはサービス機能に関するデータやユーザに関するデータを格納する。セントラルコントローラ１はこのデータベース４ａをアクセスしたり、変更したりすることができる。一方、放送中のゲームまたはこれから放送されるゲームに関するデータを保持するための記憶装置としてライブファイル４ｂが設けられる。セントラルコントローラ１は、各種サービス機能に関連したテレビ表示信号や制御信号に変換可能なデータを生成し、これを地上回線５に載せてテレビ放送システムＢの合成装置６に送る。合成装置６はテレビ放送用の信号をスタジオ７から（また生中継放送の場合はスタジオ外の中継地点から）受信し、この信号と地上回線５からの受信信号とを合成する。合成装置６は合成された信号をテレビ信号または相当するデータ信号に変換し、送信機８を通じて、遠隔地のユーザ（ゲーム参加者）Ｃに対して、テレビ放送と共に同時に送る。また別の形態として、セントラルコントローラ１からの信号と、スタジオ７またはスタジオ外の中継地点からの信号とを、別々の経路で送るように構成してもよい。

【００２０】セントラルコントローラ１から合成装置６に与えられた信号は、通常のテレビ信号の垂直帰線区間（VBI: vertical blanking interval ）を利用してリモートユニットに送信される。また前述のように、ＦＭ－ＳＣＡ無線チャネルを使用したり、またケーブルモデムなどを使って、テレビ信号とは別の信号として送ることも考えられる。

【００２１】各ユーザＣ側（ただし図１は一つのユーザのみ図示）にはテレビ受信装置１０を備えたホームユニット（またはリモートユニットと呼ぶ）９を備えている。テレビ受信装置１０にはアンテナ１１と表示装置１２が接続されている。ホームユニット９内では、受信装置１０の先にアドレス／データバス１３が延びており、このバス１３にはマイクロプロセッサ（以下プロセッサ）１４と、プロセッサ１４のプログラムを格納するＲＯＭなどのメモリ１５と、キーボードやマウスなど一つ以上の入力装置１６と、制御用のメモリ（ＲＡＭ）１７とが接続されている。また、同バス１３上には回線インタフェース１９が設けられ、必要に応じてプロセッサ１４から公衆加入電話網（PSTN: public switched telephone network）１８にアクセスできるようになっている。プロセッサ１４からの信号は、この公衆加入電話網１８を通してセントラルコントローラ１に送信される。

【００２２】このユーザ側装置Ｃからセントラルコントローラ１に向けての信号（return signal ）の送信については、別の形態としてケーブルテレビ網やインターネットなども利用できるが、セントラルコントローラ１からユーザ側装置Ｃへの信号伝送媒体とは別の媒体を使うのが一般的である。

【００２３】ゲーム制御システムＡは、対話型予想ゲームをはじめ各種のゲームの制御に使用可能であるが、以下の説明では特に具体的な２種類の対話型予想ゲームを例にとって解説する。

【００２４】第１の例はサッカーに関連するものであり、送信装置８から生中継放送される試合が実際に開始する前に、ゲーム参加者はある事象（イベント）の発生を予想することができる。また生放送中にも、事象の発生を予想することができる。

【００２５】まず生放送が始まる前に、オペレータは、その番組に関する所定の情報をゲーム参加者に送信すべく、入力装置２を使って設定を行なう。サッカーゲームの例で言えば、オペレータが見ている画面には最初に図２のような表示が出る。ここでオペレータは、データベース４ａに蓄えられているチームのリストから「ホーム」と「アウェイ」の二つのチームを選択することができる。オペレータはマウス等の入力装置２を使って、適切なホームとアウェイの２チームを選択し、「ＯＫ」ボタンをクリックする。このチーム選択情報はライブファイル４ｂに格納される。データベース４ａには、各チームのメンバーに関する情報が格納されているが、通常ここには控えの選手も入っているので、その数は実際にプレーする人数よりも多い。試合開始の少し前に、実際のチーム編成が会場でアナウンスされ、その情報はオペレータに伝えられる。オペレータは、セントラルコントローラ１に対して各チームの全メンバー編成を表示するように指令する（図３）。この画面からどの選手が先発選手（いわゆるスタメン）として起用されているかを入力し、そして同時に各選手のポジション（具体的には、ゴールキーパー、フォワード、ミッドフィールダー、ディフェンダー）を入力する。入力されたこれらの情報はライブファイル４ｂに格納される。

【００２６】また、ゲーム開始前にオペレータは自分自身の反応時間とシステム内部の処理遅延時間を測定する。このテスト作業は、セントラルコントローラ１が出力装置３を通じてオペレータに提供する特別な表示画面（図示せず）を使用して行なわれ、オペレータはテスト表示に対してできるだけすばやく反応しなければならない。セントラルコントローラ１はテスト表示を与えてから、オペレータの反応を感知するまでの時間を判定する。そしてこれを応答遅延時間として、その後の試合中の事象発生時の時刻算出において時間を補正するために使用される。この処理はゲームの途中において所定の間隔で自動的に行なうようにしてもよいし、オペレータからの要求に応じて行なうようにしてもよい。これによってオペレータの応答時間の時間的変化を考慮した最新の

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遅延時間が設定できる。

【００２７】また、オペレータは、生放送の間に起きると思われる特定のタイプの事象の設定を行なう。このサッカーゲームの例で言うと、最初のゴール、最初の反則等が予想の対象となる。図４のボタン５０は、こうした具体的な事象の例を示している。

【００２８】オペレータが番組内容に関する情報をすべて設定し終わると、図４のような画面が現れる。ただしゲーム開始前のこの段階では、機能はまだ有効になっていない。しかし生放送が始まる前にかなりの量のデータが、オペレータの手によってセットアップされていることがわかる。

【００２９】サッカー試合が始まるまえの適当な時刻になると、オペレータは図４の画面で「接続」ボタン５１をクリックする。これによって合成装置６に対して設定データが送られ、全てのゲーム参加者Ｃにデータが送信されて各メモリ１７に格納される。

【００３０】この対話型ゲームに参加したいユーザは、入力装置１６を使って、プロセッサ１４にゲームを始めるように指示する。するとこれに呼応してプロセッサ１４はセントラルコントローラ１から供給されメモリ１７に格納されている情報に基づいて図６のような画面を表示する。この画面は、ゲーム参加者がどのタイプの予想をすることができるかを示すものである。図４と図６を比べると分かるように、オペレータが選択した６つの予測対象事象（図４の参照符号５０）が図６の画面に表示されている。

【００３１】ゲーム参加者はこれらのうち一つ以上の項目の予想を行なうことができる。例えばある参加者が入力装置１６を操作して、最初のゴールの時間帯の予想を選択したとすると、図７のような画面が表示される。この画面には前後半あわせて９０分間のサッカー試合を各１５分ずつに分けた６つの時間帯が表示されている。ゲーム参加者は入力装置１６を使って、６つのうち１つの時間帯、例えば１６～３０分の時間帯を選ぶ。この予想データはメモリ１７に記憶される。同様にしてゲーム参加者は図６の他の予想項目についても自分自身の予想を入力することができる。

【００３２】オペレータは、試合が始まるとすぐに図５の「前半開始」ボタン５９をクリックする。するとセントラルコントローラ１の画面に図８の確認ダイアログが出てくるので、これに対して「ＹＥＳ」を返す。確認が済むと図９の画面が表示され、オペレータはここでゲーム開始とともに予想入力を締め切る。これにより、セントラルコントローラ１はロックアウト信号をリモートユニットに送信し、その結果プロセッサ１４は参加者がこれ以上の予想項目を入力できないようにする。ロックアウト信号には、オペレータが「ＹＥＳ」ボタン６０を押した瞬間の時刻を示すタイムスタンプが付いている。このタイムスタンプには、事前に測定されたオペレータの応答時間とシステム内部の処理遅延時間を考慮した補正値が反映されている。各プロセッサ１４は受信したロックアウト信号に対応して更なる予想を禁止し、また前記の補正後の時刻にさかのぼり、すでに入力された予想であっても補正後の時刻の後のものであれば拒絶する。

【００３３】セントラルコントローラ側のクロックとリモートユニット側のクロックを正確に同期させるために、双方向ネットワークのすべての部分が共通のシステムクロックに従って動作するようにする。具体的には、セントラルコントローラ１から、同報メッセージの一部として同期信号を繰り返し発行することによって同期が維持される。各プロセッサ１４は同期信号の到着時刻をモニターし、これと自分自身のクロックとを比較する。もし不一致があれば、自分のクロックを少しづつずらして同期信号に合わせる。

【００３４】試合の進行とともに、実際にいろいろな事象が起きる。例えば、最初のゴールが決まると、オペレータは「最初の得点者」ボタン６１（図１０）をクリックして選手名を選択し、さらに「最初のゴール」ボタン６２をクリックして得点のあった時刻を記録する。この情報は、「確定」ボタン６３のクリックによりオペレータの確認を取った上で、ゲーム参加者に送信される。

【００３５】ゲーム参加者に送信される最初のゴールの時刻は、オペレータが「最初のゴール」ボタン６２を押した時刻に対して、予め記憶されている処理遅延時間だけ遡った時刻が計算されたものである。この補正済みの時刻がタイムスタンプ情報として各ゲーム参加者に通知される。

【００３６】同様に、オペレータはハーフタイムになると「ハーフタイム」ボタン６４をクリックする。そしてオペレータは前半終了時点での両チームの得点状況を入力しゲーム参加者に送信する。これにより参加者側でそれぞれの予想値との比較ができる。

【００３７】ゲーム中またはゲーム後、あるいはその両方において、各参加者のプロセッサ１４は、セントラルコントローラ１からタイムスタンプ付きで通知される実際の事象が、参加者の予想と合っているかどうかを比較判定する。参加者の予想が正しければ、プロセッサ１４はゲーム参加者にその旨を表示し、またセントラルコントローラ１にも公衆加入電話網１８を介して同情報を送る。これは、賭けに勝った参加者に対して賞金を送ったり、あるいは有償ゲームの利用権（トークン）を賞として送ったりする場合に特に意味がある。逆に、金銭的その他の賞が付かないアプリケーションでは、セントラルコントローラ１に参加者から情報を送る必要性はない。

【００３８】サッカーでは正規の試合時間が終わっても決着が付かず、ペナルティキック戦にもつれ込む場合がある。このようなケースでは、各ペナルティキックが成功するか、キッカー側が失敗するか、それともゴールキーパーがセーブするかといった予測を行なう機会がゲー

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ム参加者に与えられる。このためにオペレータは図１０の「ペナルティ」ボタン６５を押して画面を呼び出し、予想ゲームの制御を行なう。

【００３９】さらに、セントラルコントローラ１はサッカー試合の生放送中にも「アクション・ボール（Action Ball ）」と称するゲームを参加者に提供する。試合中に、シュート、ゴールキックまたはコーナーキックを認識すると、オペレータは直ちに「イベント発生」ボタン５３を押してアクションを登録する。するとカウンタが、１０秒からカウントダウンを始め、オペレータはこの１０秒の間に３つのボタン５４、５５、５６のうちの一つを押すことによってシュート、ゴールキックまたはコーナーキックのどの事象が発生したかを入力する。もし誤って「イベント発生」ボタン５３を押してしまったときは、「取り消し」ボタン５８を押すことでキャンセルすることができる。ボタン５４～５６がクリックされると、セントラルコントローラ１は各ゲーム参加者Ｃに対してテレビ放送と並行してメッセージを送る。参加者側のリモートユニットでは、プロセッサ１４がこのメッセージを受けて、このときの事象を正しく予想した参加者に得点（ポイント）を付与する。

【００４０】さらに具体的に説明すると、各ゲーム参加者には自分の入力装置１６を使用して、前半・後半それぞれ１５回分の事象（シュート、ゴールキック、コーナーキック）の予測を入力するチャンスが与えられている。ゲーム参加者が自分の入力装置にある何れかの青色ボタンを押すとメモリ１７にタイムスタンプが記録される。オペレータがこれらの事象発生を検出した時刻は、前述のような適当な補正を行なった後で、タイムスタンプの形で各ゲーム参加者に同報送信される。各参加者側のプロセッサ１４は、この送られてきたタイムスタンプを見て、「イベント発生」ボタン５３が押された時刻から十秒以内にゲーム参加者が自分の端末の青色ボタンを押したならば、これを「当たり」として得点を与える。

【００４１】対話型ゲームの二つめの例として、「プレイライブ・競馬レース」（PlayLiveRacing ）の構成を以下に述べる。このゲームではセントラルコントローラ１は、予定されたレースの詳細情報（具体的には出走馬と騎手などの情報）を受け取ってデータベース４ａに格納し、オペレータはどのレースをゲームの対象にするかを決定する。データベース４ａはすべてのレースに関する詳細を保持しているが、オペレータは図１１の画面を見ながら入力装置２を使用して、例えばそのうちの３レースを選択する。選択したレース情報はライブファイル４ｂに格納される。

【００４２】ここでオペレータは各レースを順に選択していくが、最初のレースについては図１２のような画面がオペレータに対して提示される。この画面には、ライブファイル４ｂ中にすでに設定されている情報、例えば馬場の状態（going ）などが表示されるが、その日の状況によって必要であれば、オペレータが情報を「コース詳細」タブに追加することができる。

【００４３】各レースについてオペレータは図１３の画面を出し、自身が別途得た情報に基づいて全出走馬と欠場馬を設定する。これを実現する別の構成として、データベース４ａが更新されたら、更新箇所について自動的に設定を行なうようにしてもよい。データベース４ａには各出走馬についての情報が保持されており、オペレータはこれを表示させて図１４のように変更を加えることもできる。

【００４４】ライブファイル４ｂに所定の情報を設定し終わると、オペレータはこれを参加者側のリモートユニットに放送網を通じて配布する。リモートユニットでは、プロセッサ１４が受信した情報を制御データ用のメモリ１７に格納する。

【００４５】各馬の賭け倍率は、変更があるたびにオペレータがこれを手で打ち込む。あるいはライブファイル４ｂに自動的に入るように構成してもよい。どちらにしても、この賭け倍率情報は、変更のあった時刻のタイムスタンプと共にリモートユニットに送付され、ユーザに提示される。

【００４６】競馬レース前の準備の最後のステップとして、オペレータは前述の「プレイライブ・サッカー」ゲームと同様にして、自分自身の反応時間とシステム内部の処理遅延時間のデータを校正する。この校正されたデータは、事象の発生時刻を入力した場合に、動作遅れに相当するフレーム数だけタイムスタンプを戻して正確な値を記録するために使用される。

【００４７】オペレータによる準備作業が終了すると、その情報が各ゲーム参加者に送信され、それぞれのメモリ１７に格納される。各ゲーム参加者はレースや出走馬や賭け倍率などの詳細情報を表示することができる。たとえば図１５に示すように、参加者はある特定のレースの出走馬と騎手のリストを見ることができる。

【００４８】各レースの直前にゲーム参加者は、そのレースの結果を予想する機会が与えられる。ここでは種々な賭け方、すなわち「単勝」、「連勝複式」、「複勝式」が可能である。ゲーム参加者は、賭け方について設定する画面（図１７）を出して、自分がどの馬に、どのように賭けたいかを設定する。馬と方式の選択が終わり、掛け金額の確認が済むと、システム側から賭けの受付けが完了したことを示す確認メッセージが表示される。そして詳細情報はプロセッサ１４によりメモリ１７にセーブされる。

【００４９】レースが始まると、オペレータは直ちに入力装置２からレース開始を入力する。すると適宜補正されたタイムスタンプが参加者に送信され、各プロセッサ１４はそれ以降の予想入力を禁止する。また既に入力された予想データについても、前記タイムスタンプよりも後のものはキャンセルする。

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【００５０】レースが終わると、オペレータはその結果を次の二つの段階に分けて送付する。すなわち最初に未確定情報として順位を送付し、その後、正式な順位の発表を待って、最終確定結果を参加者に送付する。各リモートユニットはこの最終確定結果情報に基づいて、各ゲーム参加者の予想が当たったかどうかを判断し、また賞金はいくらになるかを計算して図１６の画面のような表示を行なう。この図１６は４人の該当者がいることを示している。

【００５１】

【発明の効果】上記に説明したように本願発明では、放送前あるいは放送中に参加者に送るようにしたので、参加者はテレビ生放送と関連したゲームを行うことができる。

【００５２】また、生放送に関連した時刻を記録するようにしたので、参加者のゲームの結果後の予想の受付を締め切ることができる。

【図面の簡単な説明】

【図１】図１は、本発明の制御システムと、それを含む対話型放送網を示すブロック図である。

【図２】図２は、生中継サッカーゲーム「プレイライブ・サッカー（PlayLive Football ）」において、準備段階でオペレータに対して提示される表示画面の例を示す図である。

【図３】図３は、生中継サッカーゲーム「プレイライブ・サッカー（PlayLive Football ）」において、準備段階でオペレータに対して提示される表示画面の例を示す図である。

【図４】図４は、生中継サッカーゲーム「プレイライブ・サッカー（PlayLive Football ）」において、準備段階でオペレータに対して提示される表示画面の例を示す図である。

【図５】５は、生中継サッカーゲーム「プレイライブ・サッカー（PlayLive Football）」において、準備段階でオペレータに対して提示される表示画面の例を示す図である。

【図６】図６は、上記「プレイライブ・サッカー」ゲーム参加者に対して提示される表示画面を示す図である。

【図７】図７は、上記「プレイライブ・サッカー」ゲーム参加者に対して提示される表示画面を示す図である。

【図８】図８は、上記「プレイライブ・サッカー」のゲーム中において、オペレータに対して提示される表示画面を示す図である。

【図９】図９は、上記「プレイライブ・サッカー」のゲーム中において、オペレータに対して提示される表示画面を示す図である。

【図１０】図１０は、上記「プレイライブ・サッカー」のゲーム中において、オペレータに対して提示される表示画面を示す図である。

【図１１】図１１は、生中継の競馬ゲーム「プレイライブ・競馬レース（PlayLive Racing ）」において、準備段階でオペレータに対して提示される表示画面を示す図である。

【図１２】図１２は、生中継の競馬ゲーム「プレイライブ・競馬レース（PlayLive Racing ）」において、準備段階でオペレータに対して提示される表示画面を示す図である。

【図１３】図１３は、生中継の競馬ゲーム「プレイライブ・競馬レース（PlayLive Racing ）」において、準備段階でオペレータに対して提示される表示画面を示す図である。

【図１４】図１４は、生中継の競馬ゲーム「プレイライブ・競馬レース（PlayLive Racing ）」において、準備段階でオペレータに対して提示される表示画面を示す図である。

【図１５】図１５は、上記「プレイライブ・競馬レース」のゲーム中において、参加者に対して提示される表示画面を示す図である。

【図１６】図１６は、上記「プレイライブ・競馬レース」のゲーム中において、参加者に対して提示される表示画面を示す図である。

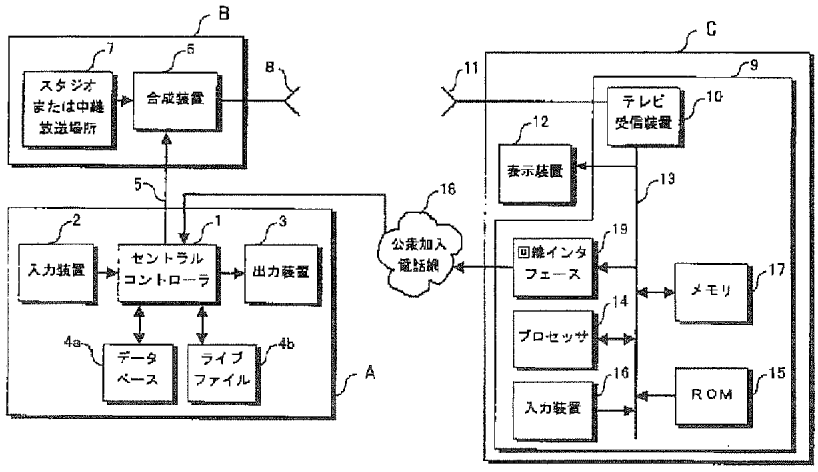
【図１７】図１７は、上記「プレイライブ・競馬レース」のゲーム中において、参加者に対して提示される表示画面を示す図である。

【符号の説明】

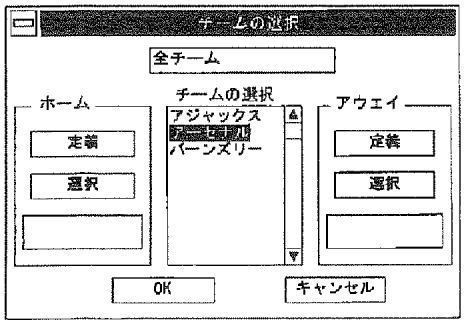
Ａ　ゲーム制御システム
Ｂ　テレビ放送システム
Ｃ　ユーザ装置
１　セントラルコントローラ
７　スタジオ
１０　テレビ受信装置
１２　表示装置
１４　プロセッサ
１８　公衆加入電話網

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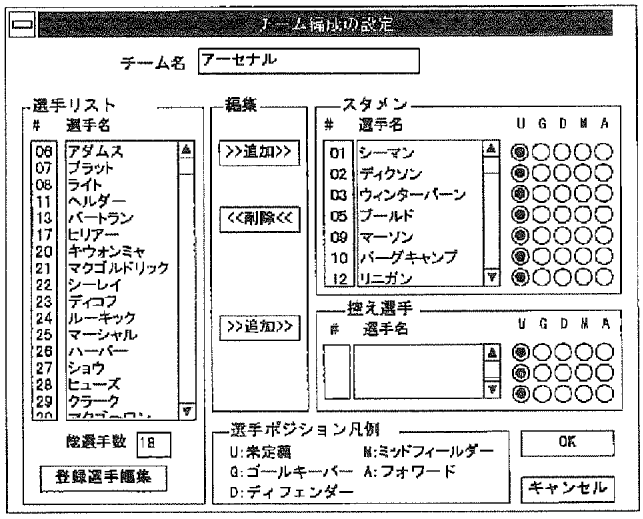
【図１】



【図２】

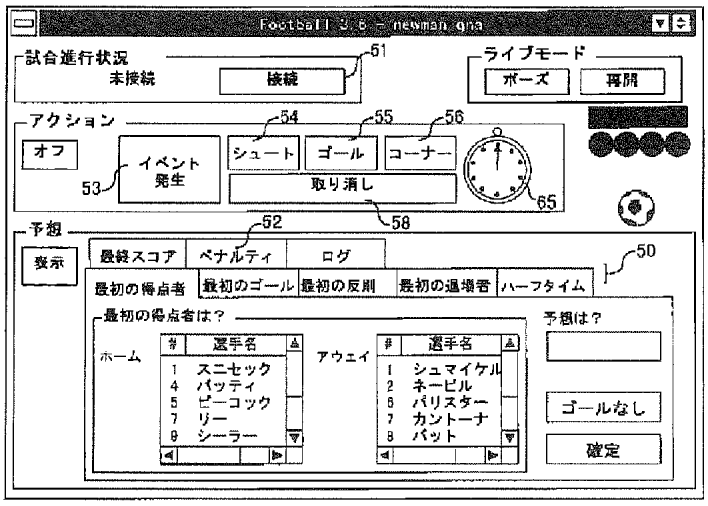


【図３】

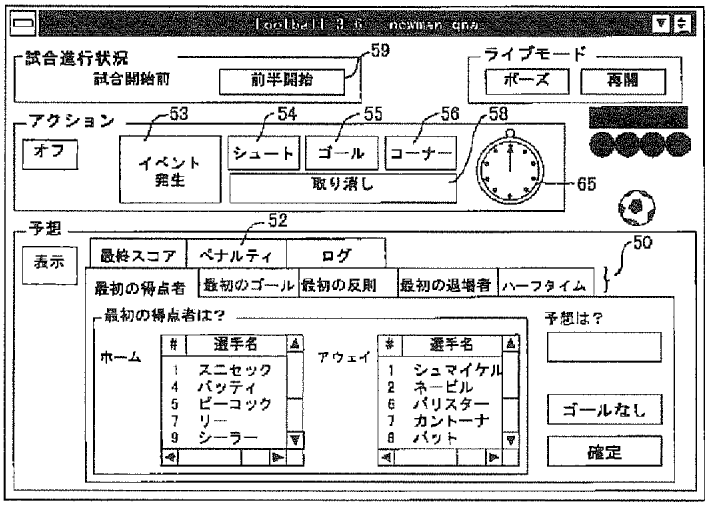


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【図４】

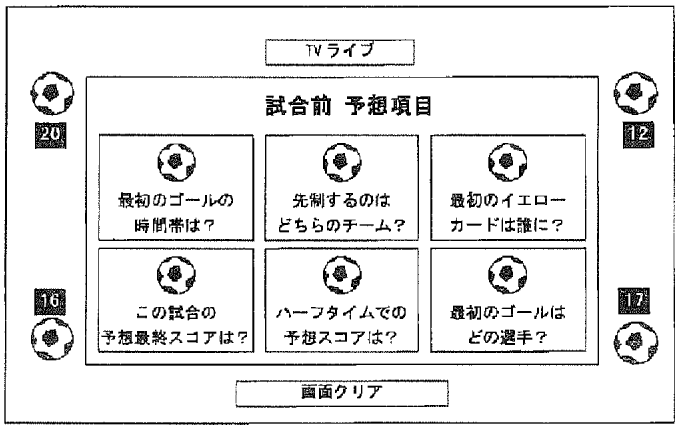


【図５】

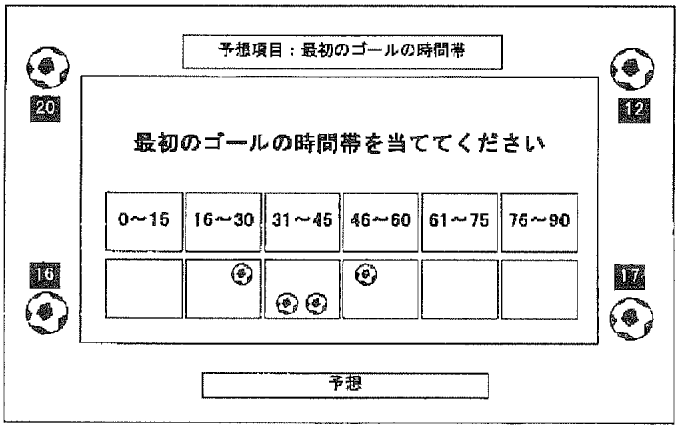


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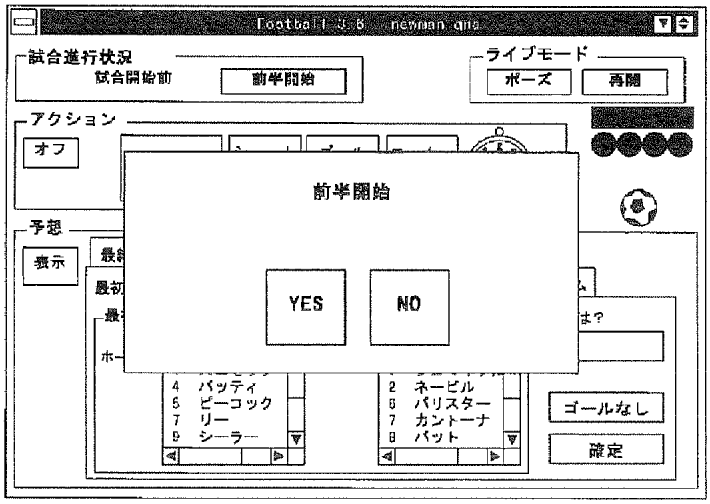
【図６】



【図７】

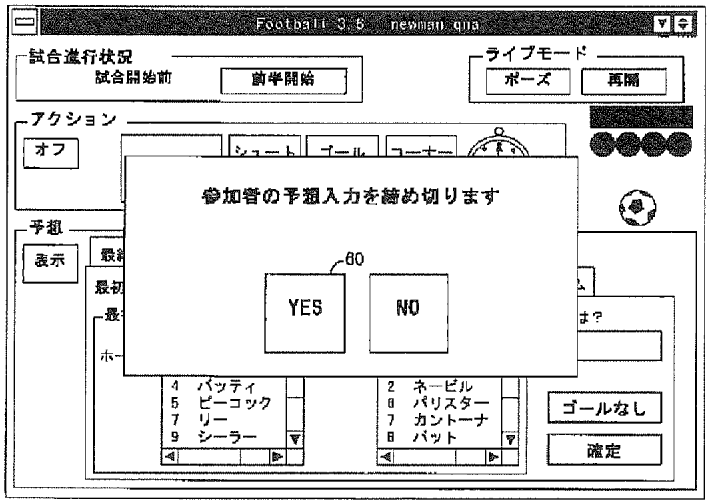


【図８】

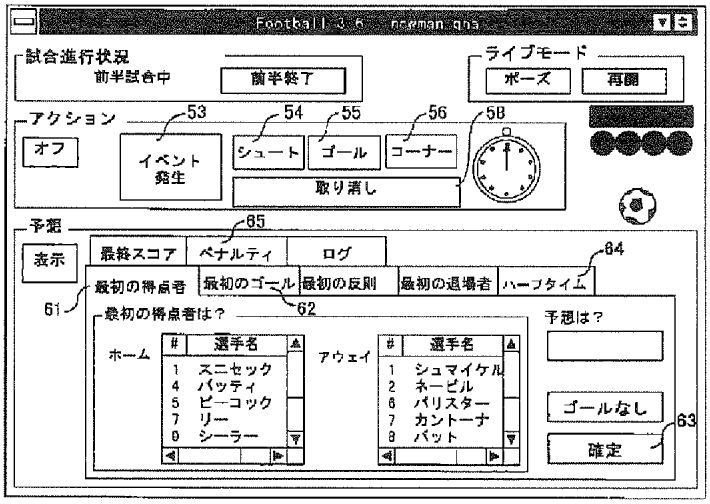


FanDuel Ex. 1002-0778

【図９】

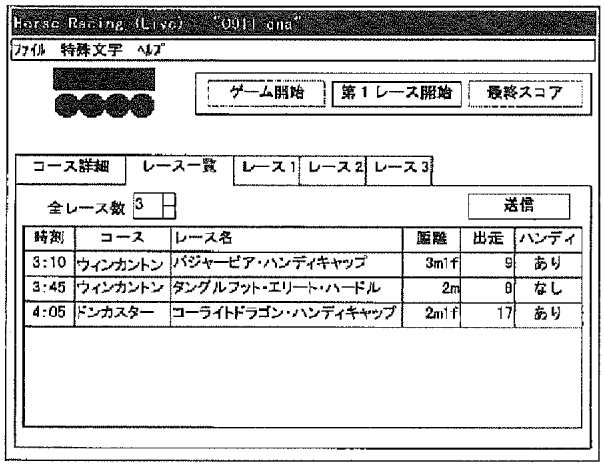


【図１０】

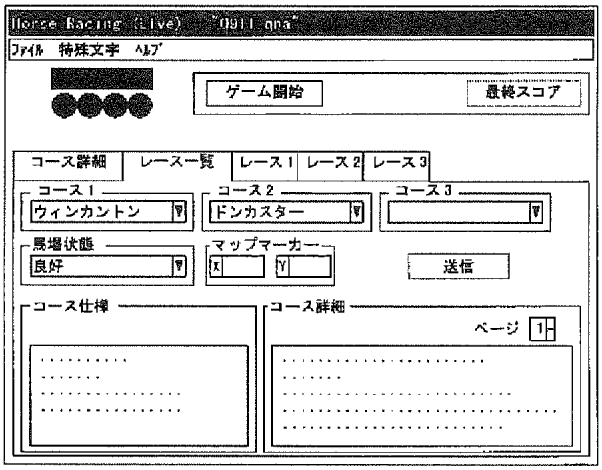


FanDuel Ex. 1002-0779

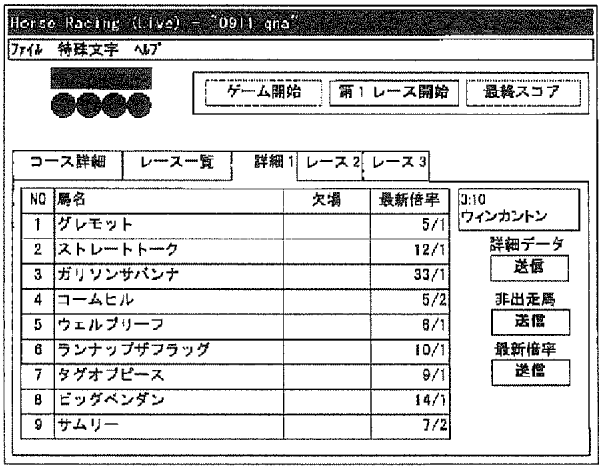
【図１１】



【図１２】

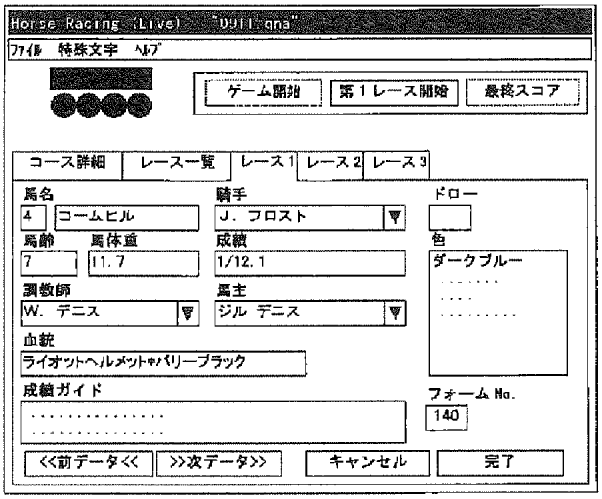


【図１３】

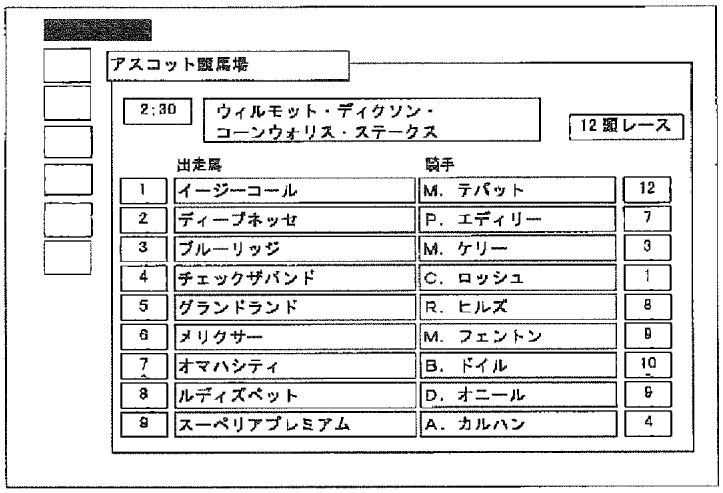


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【図１４】

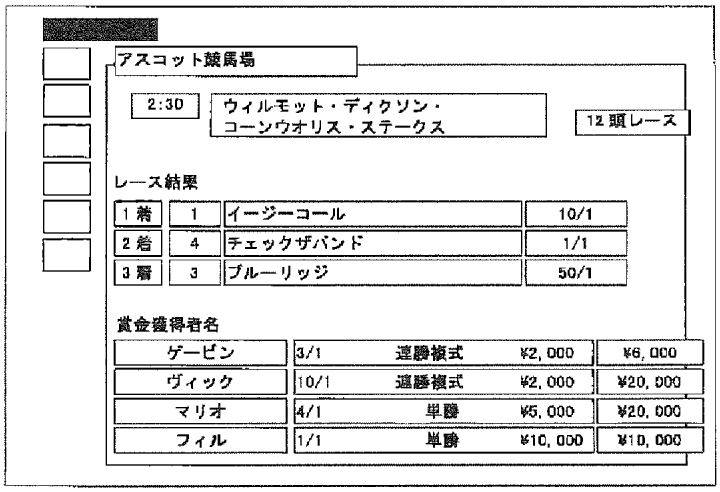


【図１５】

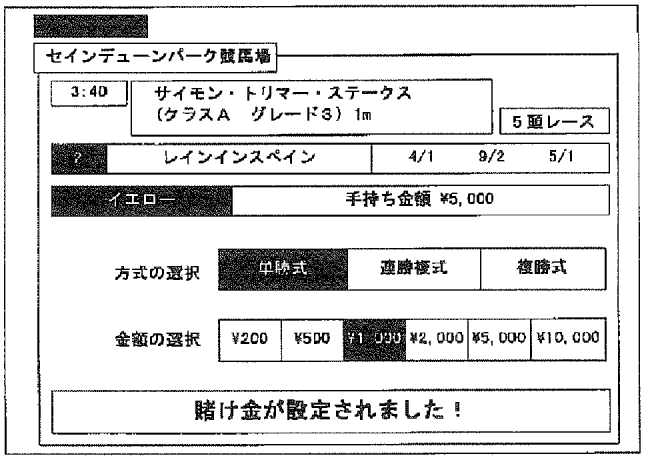


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【図１６】



【図１７】



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Interactive broadcast system

The present invention relates to the apparatus and method for interacting with a broadcast program using a wireless device. The invention relates particularly but not exclusively to interactive TV systems.

Interactive TV is conventionally carried out by a user being connected to the broadcaster by means of a set top box, which provides the user with interactivity using a remote control unit.

These conventional interactive broadcast (TV / radio) systems have restrictions and limitations; for example, additional equipment is needed, (e.g. a set top box) to receive the interactive program software and means to superimpose the user interaction interface (graphics and text) on top of or alongside a broadcast programme are also required.

Because of these requirements, only a small proportion of the population have the facility to receive TV or other broadcasts in interactive fashion.

An object of the present invention is to alleviate at least some of the above disadvantages.

In one aspect the invention provides an interactive programme broadcast system comprising:-

a broadcast transmitter;

computer apparatus coupled to the transmitter and operable for making available information related to and synchronised with the content of a programme broadcast by the transmitter; and

at least one user station including a broadcast receiver for receiving a programme broadcast by said transmitter, and a separate two-way digital wireless-communication network device operable independently of operation of said broadcast receiver for receiving digital signals indicative of the programme related information from the computer apparatus and for sending to the computer apparatus digital signals representing user responses entered via said device.

Preferably the wireless network device is hand-held.

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Preferably the wireless network device is a mobile telephone, e.g. a WAP 'phone. In other embodiments the wireless network device could for example be a pager, PDA. Palm-top computer or other device having the facility to communicate over a communications network such as the Internet or public telephone system.

Because the wireless network device is distinct from (and bypasses) the programme receiver apparatus, the broadcast can be received by a conventional receiver apparatus, e.g. a conventional television.

In another aspect the invention provides an interactive programme broadcasting method comprising broadcasting a programme via a transmitter to receivers at respective user stations and, using computer apparatus coupled to the transmitter, making available information related to and synchronised with the content of said programme for said information to be received at said user stations via respective two-way digital wireless-communication network devices, the devices being operable independently of operation of said receiver and said computer also being operated for receiving user responses entered via said devices.

Preferably the server is coupled to the Internet. Preferably the server is included in an arrangement for receiving WAP signals from programme recipients.

In another aspect the invention provides transmitter apparatus for use in an interactive programme broadcast system having at least one user station that includes a broadcast receiver for receiving a broadcast programme and a separate two-way digital wireless-communication network device operable independently of operation of said broadcast receiver, the apparatus comprising:-

a broadcast transmitter for transmitting said programme; and
computer apparatus coupled to the transmitter and operable for making available to said device information related to and synchronised with the content of said programme, and for receiving digital signals representing user responses entered via said device

Preferably the wireless network devices are WAP 'phones.

Most people do have a wireless device (e.g. mobile phone). Most of these users will be in the near future, upgrading their mobile phones; to be WAP (wireless application protocol) enabled. Market research shows that there will be at least 100 million WAP phones in operation by the end of 2000.

The WAP mobile phone is a wireless device that has the ability to view, access and interact with WAP enabled applications and services available on the Internet.

Just like Web pages on the Internet, WAP applications are written in a hypertext language and are available in the same manner and on the same computer servers (with some additional software) as Internet websites, and just like the Internet anyone

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with a WAP enabled device would be able to access a WAP website by typing in the web page address (e.g.www.playalong.com\wap).

The present invention relates particularly but not exclusively to the methods and apparatus for interacting with a TV or radio broadcast. In one embodiment the invention provides a wireless interactive broadcast system that enables a user (i.e. recipient) to interact with a broadcast programme, available on a television, radio or other broadcast medium by using a WAP enabled wireless device that has the means to send, receive and display data related to a broadcast programme. The WAP enabled wireless device is preferably operable by the user to interact simultaneously with said broadcast related data and preferably the system includes means to compare said interaction with predefined interaction, e.g. answers to questions included in the broadcast programme.

For the purposes of this specification the word "interact" includes, but is not limited to mean participate, play along, (game show/quiz), request (services/ goods), select, choose.

The wireless device may for example be connected to or be integral to may be a mobile phone, pager, PDA palm-top or any hand held device that has the means to display, send and receive data, (e.g. graphics and text) by means of a wireless communications. The broadcast programme may for example be a game, game show, quiz, sports event, film, documentary, children's programme, advertisement or any broadcast programme a user could interact with.

In the case of a broadcast game show anyone with a suitable wireless device maybe able to play along with the broadcast on his or her wireless device. The system may be arranged so that many players can compete against one another during a broadcast. In this case each player may be scored according to his accuracy and or speed of answering questions. Each players score may then be transmitted back to the broadcaster or game operator in order to find a winner.

Players may be able to pre-book entry into a competition, wherein a short while before the broadcast begins the broadcaster send a SMS, page or other notification advising the player that a broadcast show is about to begin.

The wireless device may have the means to restrict access to the interactive services by means of a PIN (personal identification number) or other access control system or combination thereof.

A preferred embodiment of the present invention will now be described by way of example only with reference to the accompanying illustration, which is a block diagram of the components and operable parts necessary to this particular embodiment of the present invention.

In one embodiment of the present invention a user of a WAP enabled mobile phone may be able to play along with a broadcast television quiz show. In order for this to be

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achieved, the questions and answers along with their time-codes (time lapsed from beginning) in the broadcast quiz show, would need to be available prior to the broadcast, for creating a WAP enabled interactive application of the broadcast quiz show, which would be simultaneously, available on a WAP enabled Internet website, as the broadcast.

A unit of the example depicted comprises a broadcast receiver 1. In this example a television receiver 1. Which provides the user with the means to view a broadcast programme, a wireless device 2. In this example a WAP enabled mobile phone, to view and interact with a WAP enabled application, a WAP enabled Internet server 3, to host the said broadcast's WAP application, a wireless transceiver 4. to allow the WAP enabled wireless device 2. to connect, send and receive data from the WAP enabled sever 3. available on the Internet, the broadcaster 6. who broadcasts the quiz show this may be by means of a satellite, cable, ADSL or terrestrial transmission.

In this embodiment of the invention the user input and interacts by selecting the appropriate buttons by means of a keypad on the WAP enabled wireless device 2.

When a user of a WAP enabled wireless device 2. wants to interact or play along, with the WAP enabled broadcast, in this example a quiz show; he inputs the Internet address of the quiz show's WAP enabled website, on his WAP enabled wireless device 2. The WAP enabled wireless device 2. then connects to the wireless device transceiver 4., which then connects the user to the quiz show's WAP enabled Internet website on the WAP enabled internet server 3.

Previous to the broadcast of the quiz show, the questions and answers along with their respective time-codes (time lapsed from the beginning), would be needed prior to the broadcast, so that a time coded WAP enabled internet application of the broadcast quiz show could be created. Which would then be simultaneously running on the WAP enabled Internet server 3. as the broadcast of the quiz show. So that as the questions are announced on the broadcast quiz show, they simultaneously appear on the display of the WAP enabled wireless device 2. These questions may be available to the user as a multiple-choice interface, and as the answers are announced on the broadcast receiver 1. the user's selections are scored according to their accuracy.

When the broadcaster 5. starts to broadcast of the quiz show; the broadcaster 5. Send a signal to the WAP enabled Internet server 3. to simultaneously run the broadcast related interactive WAP enabled application, on the WAP enabled Internet server 3. The broadcast and the Interactive WAP enabled application run simultaneously and synchronised.

As the questions become available to the user on television receiver 1. They are simultaneously displayed on the user's WAP enabled wireless device 2. Via the WAP enabled Internet server 3. He may then answer the questions, which may be presented to him in a multiple-choice format.

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In another embodiment of the present invention the complete WAP enabled application may be downloaded to the WAP enabled wireless device 2. prior to the broadcast. In this case the broadcaster would send a signal to the WAP Internet website instructing it to send a signal to the WAP enabled wireless device to begin the application, thereby synchronising it with the broadcast.

In another embodiment of the present invention the WAP enabled application may be download in sections, in this case, each time a section of the application is downloaded it is synchronised with the broadcast. This may happen at predefined time intervals in order to keep the WAP server synchronised with the broadcast.

Yet in another embodiment of the present invention the broadcast may be a radio broadcast.

This invention is not limited to WAP as new means of wireless communications are being developed which will become available, therefore consideration should be given to NTT, DoCoMois, iMmode or the like, which are excellent WAP alternatives. Other new wireless communications that may be used include, but not limited to, Packet based wireless communications which will be introduced soon e.g. packet switched GPRS (GSM packet radio systems) and later Universal mobile telecommunications systems (UMTS).

These advances in wireless communications will mean faster data retrieval and transmission, with constant and immediate two-way data communications ("On-always") which will not need to make a dial-up link every time data is sent or received.

Therefore in another embodiment of the present invention a user of a wireless device, with any one of the next generation of wireless communications, may have the means to interact with a broadcast, anytime without having to make a connection every time information or an interaction is required. In this case the broadcasters may by-pass the use of the Internet (WAP) and communicate directly with the wireless device.

In another example of the present invention advertisements may be displayed on a users wireless device, these may be synchronised with broadcast advertisement or may be available independently (like banner advertising on the Internet). This feature could create a revenue stream for the operator (especially with the next generation of "On-always" wireless communications).

The interactive advertisements, available on the wireless device may be arranged so that a user may be able to purchase goods and / or services from a broadcast advertisement. The means to download vouchers may also be incorporated, i.e. if you watch / interact with an advertisement, a 25% off voucher is downloaded to your wireless device. This may then be printed off or redeemed by an electronic means (e.g. Bluetooth).

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Claims

1. An interactive programme broadcast system comprising:-

a broadcast transmitter;

computer apparatus coupled to the transmitter and operable for making available information related to and synchronised with the content of a programme broadcast by the transmitter; and

at least one user station including a broadcast receiver for receiving a programme broadcast by said transmitter, and a separate two-way digital wireless-communication network device operable independently of operation of said broadcast receiver for receiving digital signals indicative of the programme related information from the computer apparatus and for sending to the computer apparatus digital signals representing user responses entered via said device.

2. A system according to claim 1, wherein said device is a mobile telephone.

3. A system according to claim 2, wherein the device is a WAP enabled mobile telephone.

4. A system according to claim 2, wherein the device is a mobile telephone operable to use packet-based transmission.

5. A system according to any preceding claim, wherein said computer apparatus comprises an Internet server and said device is operable for communicating with the server via the Internet.

6. An interactive programme broadcasting method comprising broadcasting a programme via a transmitter to receivers at respective user stations and, using computer apparatus coupled to the transmitter, making available information related to and synchronised with the content of said programme for said information to be received at said user stations via respective two-way digital wireless-communication network devices, the devices being operable independently of operation of said receiver and said computer also being operated for receiving user responses entered via said devices.

7. A method according to claim 6, wherein said computer apparatus is an Internet server and said information is made available via a WAP accessible Internet page.

8. A method according to claim 6, wherein said information is made accessible via packet-based radio communications devices.

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9. A method according to claim 6, 7 or 8, wherein said user responses are compared with predefined values.

10. A method according to claim 9, wherein the programme includes setting one or more questions for the users, said method including comparing user responses with predetermined answers to said questions

11. A method according to any one of claims 6 to 10, wherein advertisements are broadcast in the programme and said devices are arranged to carry corresponding interactive advertisements which enable the recipient to purchase the advertised goods or services.

12. Transmitter apparatus for use in an interactive programme broadcast system having at least one user station that includes a broadcast receiver for receiving a broadcast programme and a separate two-way digital wireless-communication network device operable independently of operation of said broadcast receiver, the apparatus comprising:-

a broadcast transmitter for transmitting said programme; and
computer apparatus coupled to the transmitter and operable for making available to said device information related to and synchronised with the content of said programme, and for receiving digital signals representing user responses entered via said device

13. Apparatus according to claim 12, wherein said device is a mobile telephone.

14. Apparatus according to claim 13, wherein the device is a WAP enabled mobile telephone.

15. Apparatus according to claim 13, wherein the device is a mobile telephone operable to use packet-based transmission.

16. Apparatus according to any one of claims 12 to 15, wherein said computer apparatus comprises an Internet server and said device is operable for communicating with the server via the Internet.

17. Apparatus according to claim 16, wherein the server is arranged to host a time-coded Internet site, which corresponds to the broadcast programme.

18. Apparatus according to claim 14 which is arranged to download a WAP-enabled application to the WAP telephones.

19. Apparatus according to claim 18, which is arranged to download a WAP-enabled application in sections synchronised with the broadcast.

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20. Apparatus according to any one of claims 12 to 19, further comprising means for comparing interactive responses from the recipients with a predefined interaction.

21. Apparatus according to claim 20, wherein the broadcast programme includes questions and the comparing means is arranged to receive answers from the recipients of the programme.

22. An interactive broadcast system, method and apparatus substantially as herein before described with reference to the accompanying drawing.

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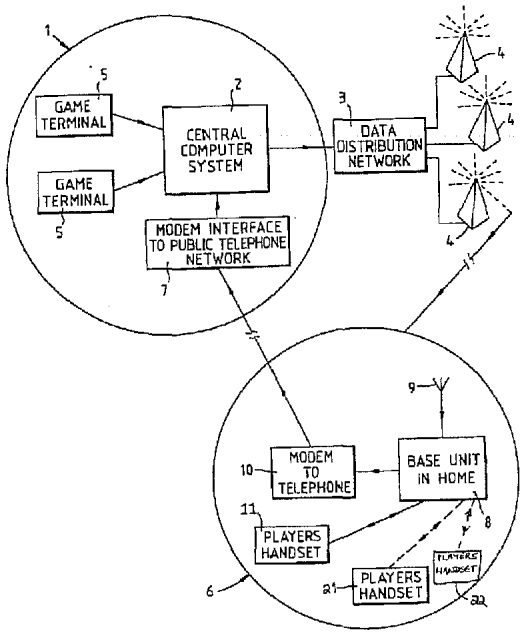
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(54) Interactive system

(57) An interactive system, comprises a local controller (8) operable to control data flow to and from at least two local handsets (11,22) for generating data. The local controller (8) includes a store (28) for storing data and a processor. A central controller (1) is connectable to the local controller, and a display (12) is provided for displaying data locally from the central controller and the local controller. The local controller (8) stores data generated by each local handset and selectively transfers stored data to the central controller (1). A handset for use in the system comprises a transmitter and a receiver (9) for transfer of data between the handset (11,22) and the local controller and input means to input data for controlling the output of the display via the local controller is input to the local controller by means of a cursor control (33) laterally movable over a plane (36) and a sensor (38,41) for sensing a position of the cursor control within the plane (36) and causing a cursor on the display (12) to take up a similar position. A method of operating the system comprises broadcasting first data from the central controller to which the local controller responds by causing the display to display the broadcast first data. Second data from each local handset relating to the first data is stored in the local controller and then selectively transferred to the central controller if predetermined conditions are satisfied.

Fig.1.



EP 0 649 102 A3

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European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 94 30 7570

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	WO-A-89 06405 (COUNTRYWIDE COMPETITIONS LIMITED)	1,2,4,6, 7,9,10, 14,18-21	G06F17/00 A63F9/22 //G06F161:00
Y	* page 1, line 17 - line 36 * * page 6, line 8 - line 14 * * page 7, line 1 - line 24 * * page 8, line 24 - page 9, line 14 *	8	
Y	GB-A-2 197 971 (ROBINSON) * abstract; claim 10 *	8	
A	EP-A-0 310 368 (INTERVISION (PROPRIETARY) LIMITED) * the whole document *	1,18	
D,A	EP-A-0 405 776 (INTERACTIVE NETWORK INC.) * the whole document *	1,18	
D,A	WO-A-91 08810 (INTERACTIVE NETWORK INC.) * the whole document *	1,18	
X	US-A-4 719 455 (LOUIS) * the whole document *	15-17	TECHNICAL FIELDS SEARCHED (Int.Cl.6) A63F G06F
X	US-A-4 864 272 (CECCHI) * abstract; figure 1 *	15-17	G05G H01H
X	US-A-4 587 510 (KIM) * abstract; figure 2 *	15-17	
A	IBM TECHNICAL DISCLOSURE BULLETIN, vol. 28, no. 9, February 1986, NEW YORK, pages 4093-4097, XP002001079 "Cursor Controller/Graphics Pad" * the whole document *	15-17	

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
BERLIN	19 April 1996	Nicholls, J

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

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European Patent Office

EP 94307570

CLAIMS INCURRING FEES

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

☐ All claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for all claims.

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

namely claims:

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

☒ LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirement of unity of invention and relates to several inventions or groups of inventions,
namely:

1. Claims 1-14,18-23:
   Interactive system.

2. Claims 15-17:
   Handset.

☒ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respects of which search fees have been paid,

namely claims:

☐ None of the further search fees has been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims,

namely claims:

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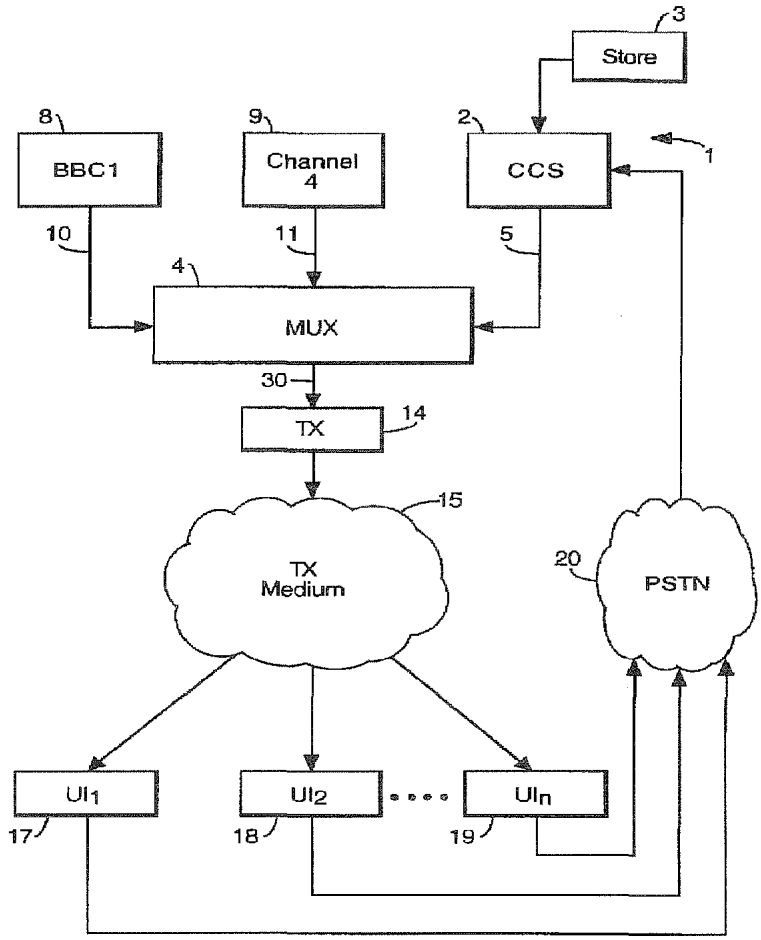
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(54) **APPLICATIONS DE RADIODIFFUSION INTERACTIVES**
(54) **BROADCASTING INTERACTIVE APPLICATIONS**



(57) A method of broadcasting a scheduled interactive application to a plurality of users via respective user interfaces, the method comprises: a) placing set-up data on a broadcast carousel prior to a scheduled start time whereby the set-up data is repeatedly broadcast to the user interfaces; and b) broadcasting real time data relating to the application to the user interfaces at the scheduled start time. The method further comprises: c) broadcasting a status flag to the user interfaces, the status flag being indicative of the status of the set-up data broadcast carried out in step a).

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ABSTRACT OF THE DISCLOSURE

A method of broadcasting a scheduled interactive application to a plurality of users via respective user interfaces, the method comprises:

a) placing set-up data on a broadcast carousel prior to a scheduled start time whereby the set-up data is repeatedly broadcast to the user interfaces; and

b) broadcasting real time data relating to the application to the user interfaces at the scheduled start time. The method further comprises:

c) broadcasting a status flag to the user interfaces, the status flag being indicative of the status of the set-up data broadcast carried out in step a).

BROADCASTING INTERACTIVE APPLICATIONS

FIELD OF THE INVENTION

The present invention relates to a method and apparatus for broadcasting a scheduled interactive application to a plurality of users via respective user interfaces.

DESCRIPTION OF THE PRIOR ART

In conventional interactive broadcast systems, scheduled interactive applications may be provided in which real time data is broadcast to user interfaces from a scheduled start time onwards. The users may be informed of the scheduled start time by an electronic programme guide (EPG) (see, for example, WO-A-96/34486). Alternatively the scheduled start time may be advertised in a TV guide magazine. Examples of interactive applications include video games, home shopping, quiz games and games linked to TV broadcasts.

An EPG is a system for broadcasting information about television to viewers. Typically, a television schedule can be displayed as an array of irregular cells that vary dimensionally in length and in more sophisticated applications, it can include means to allow authorised viewers to obtain access to television services.

It is often necessary for the user interfaces to download set up data prior to the scheduled start time. For instance it may be necessary for the user interfaces to run an executable computer program in order to take part in the application. The application may also require the user interfaces to display video clips or bitmaps, or play back sound samples during the application and it may not be possible to download this data in real time during the application. Therefore setup data (e.g. executable program files, bitmaps, sound samples, video clips, and other multimedia and data resources) is placed on a broadcast carousel prior to the scheduled start time whereby the

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setup data is repeatedly broadcast to the user interfaces. The user interface is then ready to take part in the scheduled interactive application by downloading the real time data as it is broadcast from the scheduled start time onwards. Up to now, the number of interactive applications typically available at any one time has been small, for example three or four. It has therefore been possible for set-up data for all these applications to be downloaded to the user interfaces whether or not a user actually wishes to implement one of the applications. However, with the arrival of digital transmission, many more applications can be available, for example up to 150 or more. It is not practical to download set-up data for all these applications to each user interface.

SUMMARY OF THE INVENTION

In accordance with a first aspect of the present invention there is provided a method of broadcasting a scheduled interactive application to a plurality of users via respective user interfaces, the method comprising:

a) placing set-up data on a broadcast carousel prior to a scheduled start time whereby the set-up data is repeatedly broadcast to the user interfaces; and

b) broadcasting real time data related to the application to the user interfaces at the scheduled start time, wherein the method further comprises:

c) broadcasting a status flag to the user interfaces, the status flag being indicative of the status of the set-up data broadcast carried out in step a).

In accordance with a second aspect of the present invention, there is provided apparatus for broadcasting a scheduled interactive application to a plurality of users via respective user interfaces, the apparatus comprising:

a) means for placing set-up data on a broadcast carousel prior to a scheduled start time whereby the set-up data is repeatedly broadcast to the user interfaces; and

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b) means for broadcasting real time data related to the application to the user interfaces at the scheduled start time, wherein the apparatus further comprises:

c) means for broadcasting a status flag to the user interfaces, the status flag being indicative of the status of the set-up data broadcast means.

On or after receipt of the status flag, the user interfaces can provide their respective user with a status notification, even if the user interface is not presently receiving data from the broadcast carousel. The status flag allows the availability of the set-up data to be notified to each user interface for each available application but since it has a relatively small size compared with the set-up data itself, each user interface can download each status flag. Then, when a user wishes to implement one of the applications, he can note from the receipt of the status flag that that application is available and implement full download of the set-up data.

The status flag can also provide a wide variety of other status information relating to the broadcasts. For instance the status flag may be indicative of the start or stop times of the broadcasts. The status flag may indicate the start/stop times directly by being broadcast at the start/stop times. Thus when the user interfaces receive the status flag they know that one of the broadcasts has started or finished. Alternatively the status flag may indicate the start and stop times indirectly by carrying information relating to the start/stop times - for instance the status flag may carry the message "real time data broadcast will start at 7:30" or "setup data broadcast will start in five minutes" etc.

The scheduled start time of the real time broadcast may be advertised in a TV guide magazine. However preferably the method further comprises broadcasting electronic programme guide (EPG) data to the user interfaces, the EPG data being indicative of the scheduled start time of the real time data broadcast.

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The user can be provided with a status notification in a number of ways - including a highlight (e.g. a colour highlight), flag or icon against an EPG programme listing; a pop-up icon; an on-screen strap; or an audio message.

The set-up data, status flag and real time data may be broadcast to the user interfaces over a variety of transmission media, including the vertical blanking interval (VBI) of a normal TV signal or on a separate radio FM-SCA channel or other data format such as a cable modem. Other forms of transmission including satellite and the internet may also be used.

The set-up data and real time data typically originates at a central computer system (CCS). The user interfaces will typically be remote not only from the CCS but also from each other.

The status flag and set-up data are preferably time-multiplexed on a common broadcast frequency.

Similarly the status flag and EPG data are preferably broadcast time division multiplexed at the same frequencies. This has the advantage that a user interface tuned to receive the EPG data does not need to switch frequencies to receive the status flag.

The status flag may be sent only once, or may be repeatedly broadcast (and time-multiplexed with the EPG data in the case where a common frequency is used).

The scheduled interactive application may take a variety of different forms - for instance it may comprise a video game which is played simultaneously by a number of remote users, or a quiz game played simultaneously by a number of remote users. Alternatively the application may be broadcast in conjunction with a live TV event. For instance the application may enable the user to take part in a live TV quiz, or predict the occurrence of certain events in a live sporting event.

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BRIEF DESCRIPTION OF THE DRAWINGS

An example of the present invention will now be described with reference to the accompanying drawings, in which:

Figure 1 is a block diagram of a digital broadcast network;

Figure 2 is a block diagram of a user interface;

Figure 3 shows a number of EPG screens and a splash screen; and,

Figure 4 illustrates the timing of the broadcasts.

DETAILED DESCRIPTION OF THE EMBODIMENT

The digital broadcast network shown in Figure 1 comprises an interactive game control system 1 including a central computer system (CCS) 2 and an application data store 3. The application data store 3 contains set-up data and real time data which can be accessed and amended by the central computer system 2. The set-up data may comprise executable program files, bitmaps, sound samples, video clips, and other multimedia and data resources. The real time data comprises data which is broadcast after the scheduled start time (e.g. question/answer data for a quiz game application). The set-up data and real time data is fed at an appropriate time to a broadcast headend multiplexer 4 via a data feed 5. The CCS also generates electronic programme guide (EPG) data which is fed to the multiplexer 4 via the data feed 5. Each item of EPG data includes a programme identifier (PID) and a system information (SI) table containing EPG information relating to that PID (e.g. name, scheduled start time, splash screen data etc.).

Broadcast TV stations 8 (BBC1) and 9 (Channel 4) (together with others not shown) each generate digital audio and video signals which are fed to the broadcast headend multiplexer 4 via respective data feeds 10,11. The data feeds 5,10,11 may be via dedicated cables or via broadcast on the air.

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The broadcast TV stations 8,9 also generate EPG data which is fed to the multiplexer 4. Each item of EPG data includes a programme identifier (PID) and a system information (SI) table containing EPG information relating to that PID (e.g. name, scheduled start time and broadcast TV station name).

The broadcast headend multiplexer 4 time division multiplexes the digital data from the data feeds 5,10,11 and outputs the data serially to a transmitter 14 as an MPEG-II transport stream 30 which then transmits the data over a transmission medium 15. The transmission medium may be any conventional medium such as wireless, satellite, cable, or Internet.

A number of user interfaces (UIs) 17,18,19 etc. receive data from the transmission medium 15. The UIs can also send data to the CCS 2 via the public-switched-telephone-network (PSTN) 20 (or other means not shown such as cable, Internet or satellite).

One of the user interfaces 17 is shown in detail in Figure 2. The UI comprises a conventional television set 21, a set-top box 22 and an input device 33. The television set 21 comprises a cathode ray tube (CRT) 35 and a tuner 23 coupled to an aerial 24. The tuner 23 is tuned to receive data from the transmission medium 15. The received data is passed to a demultiplexer 26 which demultiplexes the MPEG-II transport stream in accordance with the conventional MPEG-II format by using identifiers in the transmitted packets. Set-up data and real time data is fed to the CPU 25 .and video/audio data is fed to a display interface 28.

The CPU 25 accesses a random access memory (RAM) 27 and a read only memory (ROM) 32 to compile a display signal which is passed to the display interface 28 and merged with the audio/video signal from the demultiplexer 26. The input device 33, such as a keyboard and/or mouse, provides input to the CPU 25 from a user. Return path data is

returned to the CCS 2 by the CPU 25 via a modem 34 and the PSTN 20.

An example of an interactive service will now be described with reference to Figure 3 which is a flow diagram including a sequence of images which are presented to the user on the CRT 35 when the tuner 23 is tuned to receive data from the EPG transport stream 31.

By highlighting one of three selections 40, the user is either presented with a list 41 of scheduled programmes, a list 42 of play anytime programmes or a list 43 of broadcast TV programmes. The scheduled programmes include a programme entitled "Two Way Triv"® scheduled at a start time of 7:30, "War of the Words"® scheduled at a start time of 8:00, and "Quick Fire" scheduled at a start time of 9:30. The list 42 of play anytime programmes gives a number of interactive games ("Stinkbomb"®, "War of the Words"® etc.) which can be played at any desired time. The list 43 of broadcast TV programmes include a programme entitled "Star Quiz" scheduled at a start time of 7:30 on Channel 4, and a programme entitled "Play Live Football"™ scheduled at a start time of 7:30 on BBC 1. The lists 41-43 are compiled and periodically updated by the CPU 25 with reference to the received EPG data. The EPG screens also include a clock 44 indicating the current time (in this case 7:12).

Figure 4 illustrates the setup data, real time data and status flag information broadcast during a forty-five minute period between 7:15 and 8:00. At 7:15 the CCS 2 inserts a status flag 102 into the EPG SI table which indicates that the setup data for the "Two Way Triv"® scheduled interactive application will be available in five minutes. On receipt of this status flag, the CPU 25 in the STB 22 causes the "Two Way TV"® icon 45 to turn amber.

Ten minutes before the scheduled start time of the "Two Way Triv" program (i.e. at 7:20), the CCS 2 downloads setup data relating to the "Two Way Triv"® scheduled interactive application from the application data store 3,

and feeds it to the broadcast headend multiplexer 4. The multiplexer 4 then places the data on the broadcast carousel whereby it repeatedly transmits the setup data on the transport stream 30 as indicated at 100 in Figure 4. At the same time, the CCS 2 inserts a status flag 103 in the EPG SI table in order to indicate that the "Two Way Triv"® setup data is now available on the transport stream 30. On receipt of the status flag, the CPU 25 turns the icon green as indicated at 45'. With the green icon 45' highlighted, the user can enter the game at 46 by pressing an OK button on the input device 33. The CPU 25 then generates a "splash screen" 47 using the splash screen information in the transport stream 30.

The splash screen for the "Two Way Triv"® programme starts with a "pay per play" routine 52 in which the user is first presented with a choice of prize play 48, free play 49 or cancel 50. If the free play icon 49 is selected the routine jumps to a copyright message (not shown) which is held on screen for a predetermined period. If the prize play icon 48 is selected, the user is presented with the choice of paying using his play account 53, money card 54, or cancelling 55. If the user selects either of the payment icons, the splash screen sequence jumps to a payment routine 51 in which the user is prompted to enter his play account pin number, or money card (e.g. Mondex) pin number. The CPU 25 then implements a credit check routine and jumps to the copyright message.

During the time that the splash screen 47 is displayed (i.e. after the user has selected the highlighted application 45') set-up data with the "Two Way Triv"® PID is downloaded by CPU 25 and saved in the RAM 27. Once all of the set-up data has been downloaded (or sufficient components of it to allow execution to commence) timed execution of the scheduled interactive application can commence.

At the scheduled start time of 7.30, the CCS 2 generates real time question data which is broadcast to the

user interfaces as indicated at 101 in Figure 4. At 7.30 the CPU 25 automatically enters a game mode in which the user is presented with a series of questions based on the received question data. The user provides answers by selecting answer icons.

In the case of the "Two Way Triv"® game the questions and answers fill the entire CRT screen. In the case of "Star Quiz" the questions and answers are overlaid on a real-time television broadcast of a presenter reading out the questions to competitors in a television studio, originating from the Channel 4 broadcast TV station 9.

At the same time the CCS 2 inserts a status flag 104 in the EPG SI table in order to indicate that the real time data is now available along with the set-up data. If the user has not yet entered the game, then on receipt of this status flag the "Two Way Triv"® icon 45 is caused to start flashing by the CPU 25. This indicates that the user can still enter the game by highlighting the flashing icon 45 and pressing the OK button.

At 7:40 the setup data broadcast 100 ends, and the CCS 2 inserts a status flag 105 in the EPG SI table. On receipt of this status flag the "Two Way TRIV"® icon 45 turns red and stops flashing. The user can no longer enter the game after 7:40.

At the end of the real time data broadcast 101 at 8:00, the CPU 25 transmits the user's score to the CCS 2 via the modem 34. The CCS 2 also inserts a status flag 106 in the EPG SI table. On receipt of this status flag the "Two Way Triv"® icon 45 is deleted from the screen.

Each user has an account with a number of cash credits which are stored and managed by the CCS 2. On receipt of scores from a number of user interfaces the CCS 2 compares the scores and issues prizes to the users with the highest scores by adding cash credits to their accounts.

It will be appreciated that in this example, the downloading of set-up data for a single application has been described. In practice, many applications may be

available at the same time and a status flag relating to each will be transmitted in the EPG data. However, the set-up data itself, although transmitted, will not be downloaded by a set top box until the user instructs it to do so after seeing that the status flag for that application indicates the application is available.

We Claim:-

1. A method of broadcasting a scheduled interactive application to a plurality of users via respective user interfaces, the method comprising:

a) placing set-up data on a broadcast carousel prior to a scheduled start time whereby the set-up data is repeatedly broadcast to the user interfaces; and

b) broadcasting real time data relating to the application to the user interfaces at the scheduled start time, wherein the method further comprises:

c) broadcasting a status flag to the user interfaces, the status flag being indicative of the status of the set-up data broadcast carried out in step a).

2. A method according to claim 1, wherein step a) comprises broadcasting the set-up data between a set-up start time and a set-up stop time, and wherein the status flag is indicative of the set-up start time or the set-up stop time.

3. A method according to claim 1, wherein step b) comprises broadcasting the real time data between a scheduled start time and a scheduled stop time, and wherein the status flag is indicative of the scheduled start time or the scheduled stop time.

4. A method according to claim 1, further comprising broadcasting electronic programme guide (EPG) data to the user interfaces, the EPG data being indicative of the scheduled start time for the real time data broadcast.

5. A method according to claim 4, wherein the EPG data is modified in accordance with the status flag so as to provide a visual indication of the state of the status flag.

6. A method according to claim 5, wherein the manner in which the name of the application is displayed to the user is indicative of the state of the status flag.

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7. Apparatus for broadcasting a scheduled interactive application to a plurality of users via respective user interfaces, the apparatus comprising:

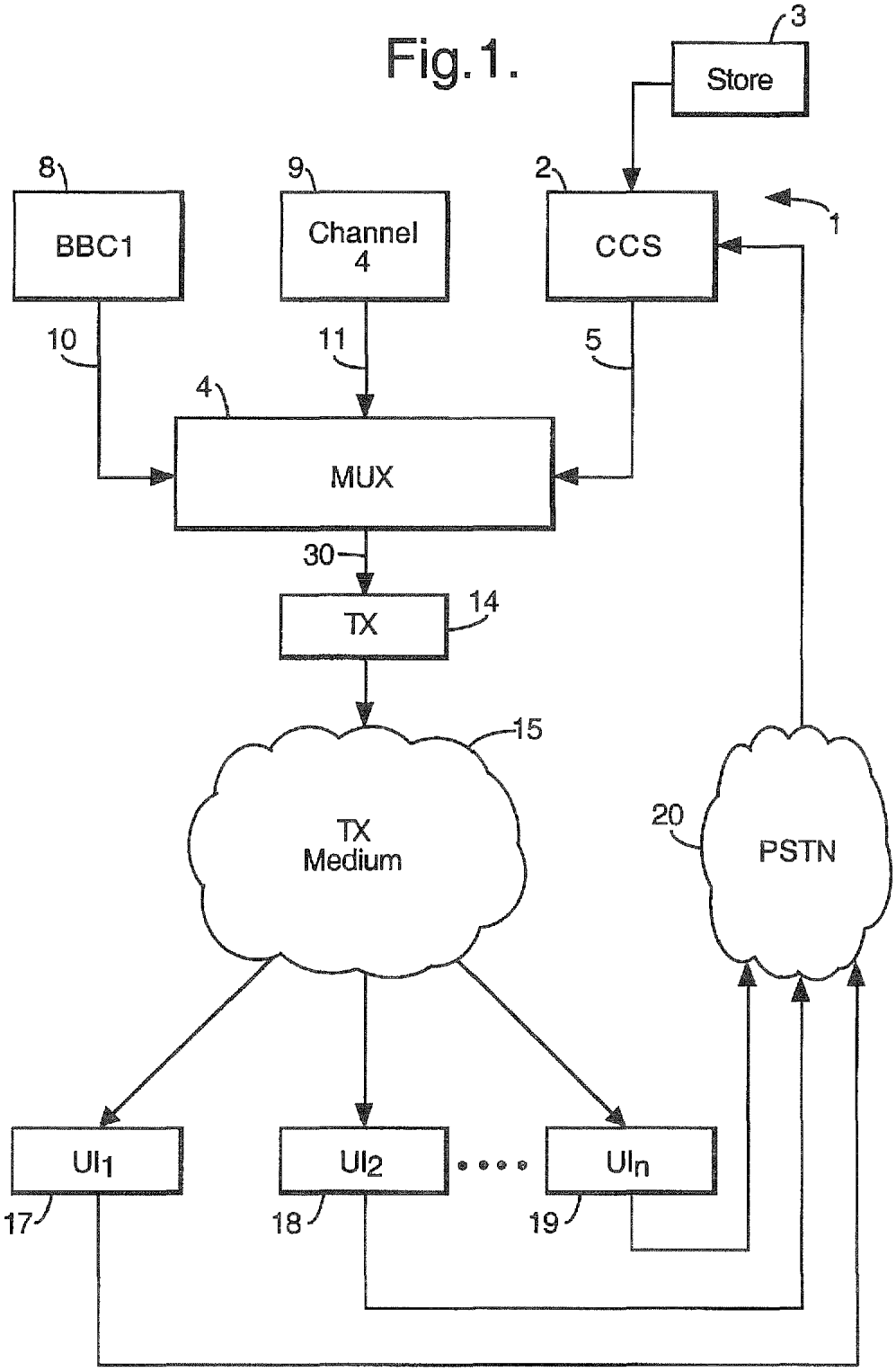
a) means for placing set-up data on a broadcast carousel prior to a scheduled start time whereby the set-up data is repeatedly broadcast to the user interfaces; and

b) means for broadcasting real time data relating to the application to the user interfaces at the scheduled start time, wherein the apparatus further comprises:

c) means for broadcasting a status flag to the user interfaces, the status flag being indicative of the status of the set-up data broadcast means.

8. Apparatus according to claim 7, further comprising means for broadcasting electronic programme guide (EPG) data to the user interfaces, the EPG data specifying the scheduled start time of the real time data broadcast.

Fig.1.



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Fig.2.

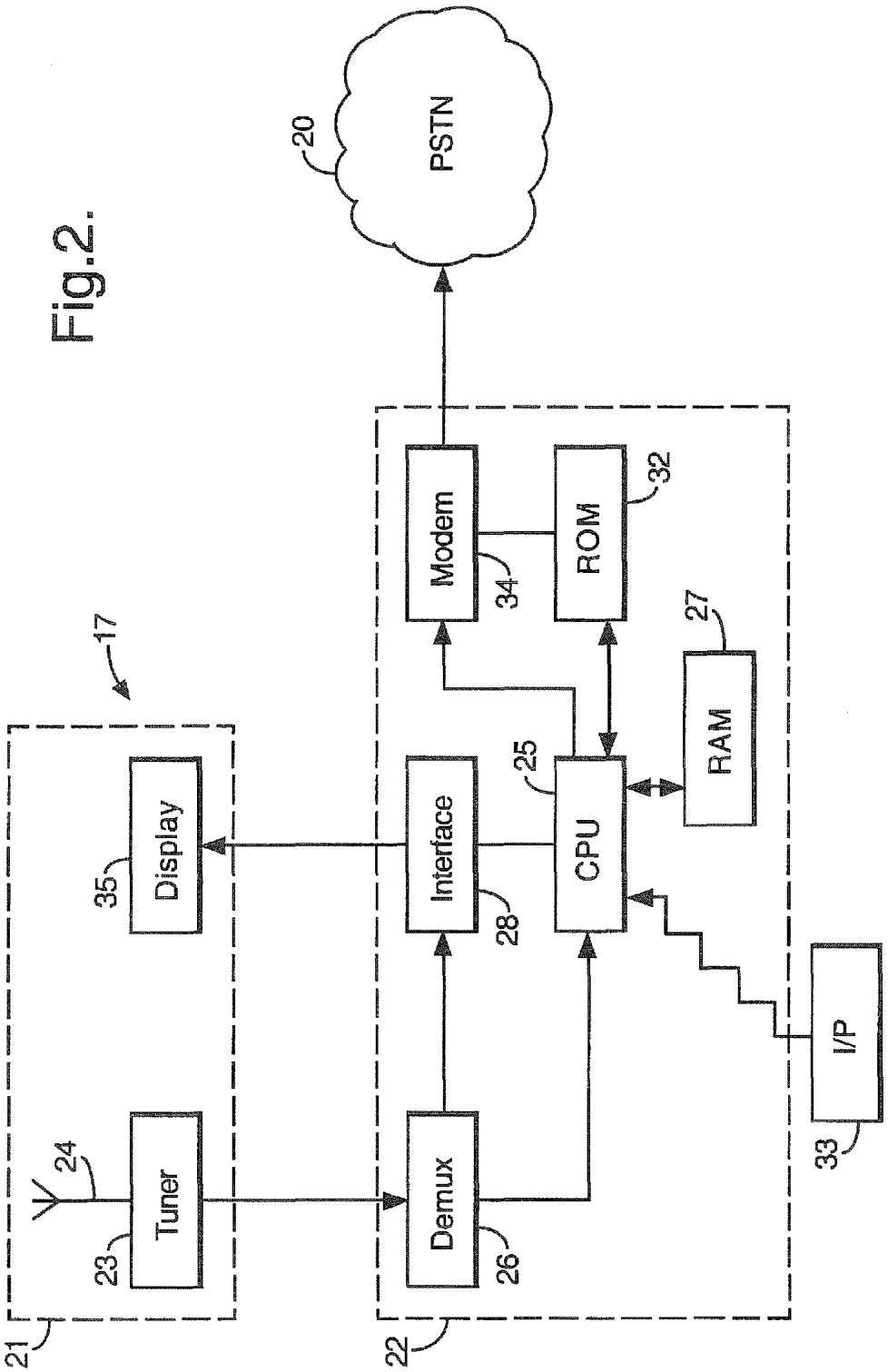

PSTN
20
Modem
34
ROM
32
27
RAM
17
25
Display
35
Interface
CPU
28
I/P
33
24
Tuner
23
Demux
26
21
22

Fig.3.

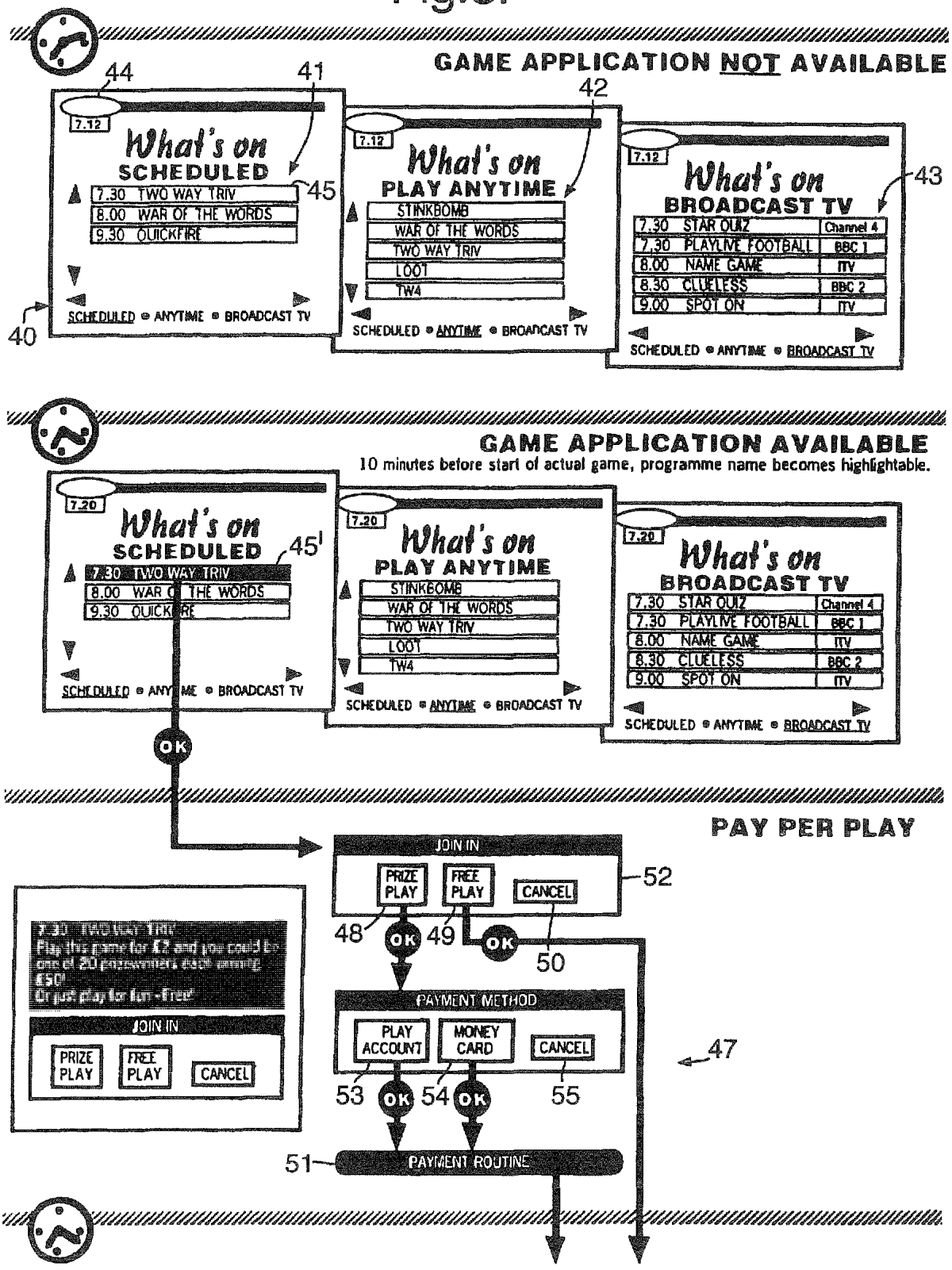
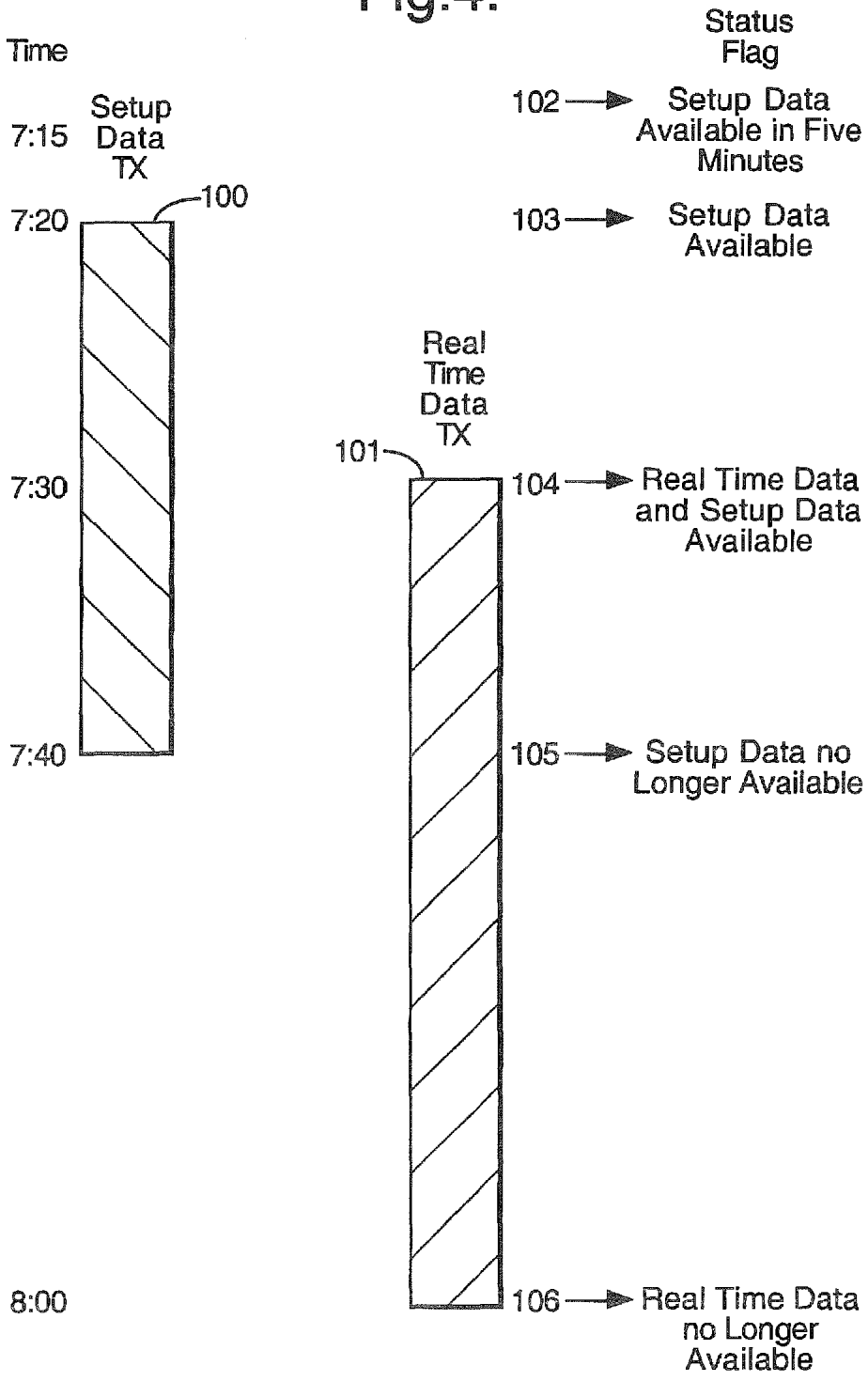

GAME APPLICATION NOT AVAILABLE
44
41
42
43
45
40
7.12
What's on
SCHEDULED
7.30 TWO WAY TRIV
8.00 WAR OF THE WORDS
9.30 QUICKFIRE
SCHEDULED • ANYTIME • BROADCAST TV
What's on
PLAY ANYTIME
STINKBOMB
WAR OF THE WORDS
TWO WAY TRIV
LOOT
TW4
What's on
BROADCAST TV
7.30 STAR QUIZ Channel 4
7.30 PLAYLIVE FOOTBALL BBC 1
8.00 NAME GAME ITV
8.30 CLUELESS BBC 2
9.00 SPOT ON ITV
GAME APPLICATION AVAILABLE
10 minutes before start of actual game, programme name becomes highlightable.
7.20
45'
OK
PAY PER PLAY
JOIN IN
PRIZE PLAY
FREE PLAY
CANCEL
52
48
49
50
PAYMENT METHOD
PLAY ACCOUNT
MONEY CARD
53
54
55
47
51
PAYMENT ROUTINE

Fig.4.


Time
Status Flag
Setup Data TX
7:15
7:20
100
7:30
7:40
102
Setup Data Available in Five Minutes
103
Setup Data Available
Real Time Data TX
101
104
Real Time Data and Setup Data Available
105
Setup Data no Longer Available
8:00
106
Real Time Data no Longer Available

OPIC
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CIPO
CANADIAN INTELLECTUAL PROPERTY OFFICE

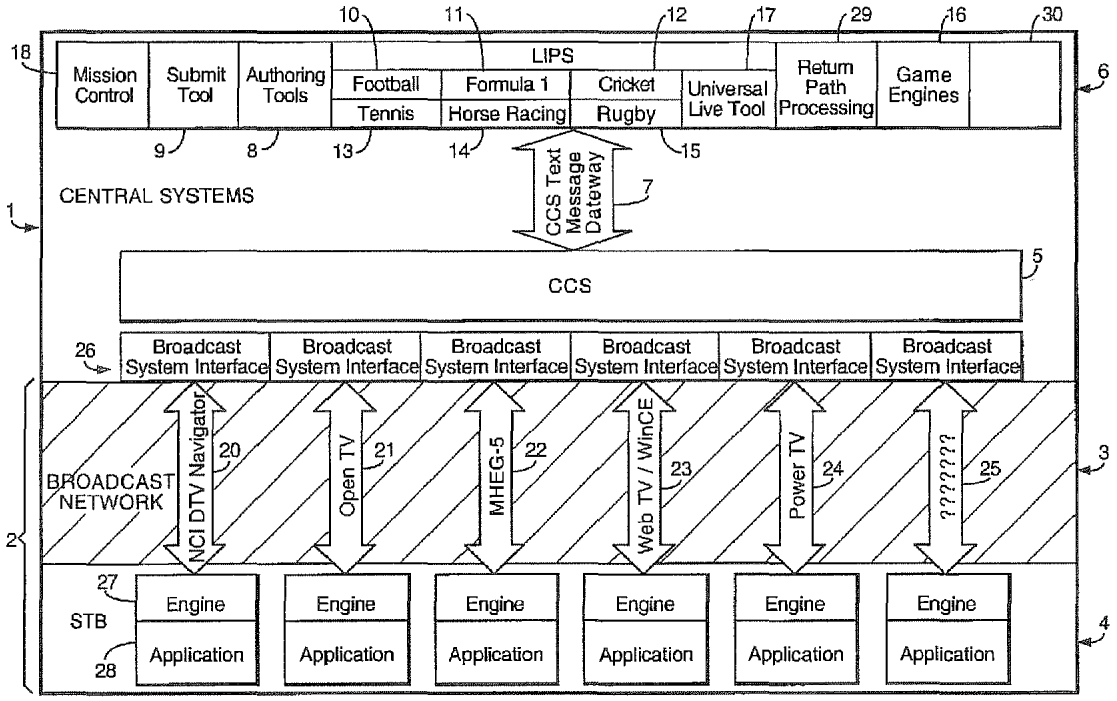
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(54) **FOURNITURE D'APPLICATIONS INTERACTIVES**
(54) **DELIVERING INTERACTIVE APPLICATIONS**



(57) A method of delivering an interactive application to a plurality of target platforms (2). The method comprises providing a set of application components; converting the set of application components into a plurality of streams of broadcast data, each stream of broadcast data conforming with a respective target platform (2); and delivering each stream of broadcast data to its respective target platform (2).

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DELIVERING INTERACTIVE APPLICATIONS

FIELD OF THE INVENTION

The present invention relates to a method and apparatus for delivering an interactive application to a plurality of target platforms.

DESCRIPTION OF THE PRIOR ART

Interactive application providers employ skilled programmers to develop new interactive applications. Examples of such interactive applications are predictive games for use in conjunction with a live sporting broadcast, quiz games for use in conjunction with a live quiz broadcast, on-demand quiz games (ie. not used in conjunction with a live quiz broadcast), home shopping applications and home banking applications.

US-A-5797010 and WO-A-98/37695 both disclose point-to-point systems for delivering applications such as a video-on-demand.

With the rapid development of new target platforms for interactive services (each employing a broadcast network with a different respective broadcast protocol) it is desirable to deliver the interactive applications over any chosen network in a simple and cost effective way. However conventionally this has been difficult because it has been necessary for the skilled programmers to take into account the different broadcast protocols during development of the new application.

Neither of the prior art documents mentioned above address the problem of delivering applications over different broadcast networks.

SUMMARY OF THE INVENTION

In accordance with a first aspect of the present invention there is provided a method of delivering an interactive application to a plurality of target platforms, the method comprising

providing a set of application components;

converting the set of application components into a plurality of streams of broadcast data, each stream of

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broadcast data conforming with a respective target platform; and

delivering each stream of broadcast data to its respective target platform.

In accordance with a second aspect of the present invention there is provided apparatus for delivering an interactive application to a plurality of target platforms, the apparatus comprising

means for providing a set of application components;

a plurality of broadcast systems interfaces each converting the set of application components into a respective stream of broadcast data, each stream of broadcast data conforming with a respective target platform; and

means for delivering each stream of broadcast data to its respective target platform.

Instead of having to provide multiple sets of application components (each set complying with a different respective target platform) the invention allows the programmers to merely provide a single set of application components in any desired format, without needing to know anything about the ultimate target platforms. The broadcast system interfaces (BSIs) then convert the application components shortly before, or during the broadcast.

The invention provides a convenient method of delivering an interactive application to a number of target platforms each having different requirements. For instance the target platforms may comprise broadcast networks having different data protocols, formats or speeds. Alternatively the target platforms may comprise user interfaces with different memory capabilities etc.

The "open" architecture of the system enables new BSIs to be added when the interactive application is to be delivered to a new target platform.

In the case where the application comprises a real-time application (eg a predictive game for use in

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conjunction with a live sporting broadcast) the method typically further comprises manually inputting real-time application data;

converting the real-time application data into a plurality of streams of real-time broadcast data, each stream of real-time broadcast data conforming with a respective target platform; and

delivering each stream of real-time broadcast data to its respective target platform.

The application components and/or real-time application data may be generated, converted and broadcast on-the-fly. However preferably the method further comprises storing the application components and/or real-time application data in a data store; and retrieving the application components and/or real-time application data from the data store before converting it into a stream of broadcast data.

A number of conversion steps may be necessary, including translating, substituting, selecting, time managing, or adapting for different data transmission mechanisms.

Provision may also be made for return path processing of return data (eg game-play input or home banking requests) from the target platforms.

BRIEF DESCRIPTION OF THE DRAWINGS

An embodiment of the present invention will now be described with reference to the accompanying drawings, in which:

Figure 1 is a schematic functional diagram of an interactive service network;

Figures 2-4 illustrate examples of screen displays presented to an operator during preparation for a live football game;

Figures 5 and 6 illustrate screen displays presented to a remote player of the live football game;

Figure 7 is a schematic diagram illustrating two return data paths; and

Figure 8 is a schematic diagram illustrating the function of a processing engine.

DETAILED DESCRIPTION OF AN EMBODIMENT

Referring to Figure 1, the network comprises a central system 1 and a number of target platforms 2. Each target platform comprises a respective broadcast network 3 and user interface 4. The central system 1 is controlled by a central computer system (CCS) 5 which comprises a Sun SPARC binary file designed to operate UltraSPARC architecture workstations or servers (not shown). Although the CCS is shown as a single unit it may be split into more than one binary file for performance and distributive requirements.

The CCS 5 communicates with a number of sub-systems 6 via a CCS text message gateway 7.

Authoring tools 8 include suitable tools (eg PCs) which are used by game programmers to develop new interactive applications. The interactive applications may all be very different but in general will include a number of application components such as executable program files, bitmaps, sound samples, real-time data instructions, video clips, and other multimedia and data resources. When the new applications have been developed and tested, the game programmer logs on to a Windows NT™ based submit tool 9 which saves the application components in an application database (not shown).

A number of previously saved applications are shown in Figure 1, namely six interactive, predictive games 10-15 for use in conjunction with a live sporting broadcast and a set of on-demand game engines 16.

A set of Universal Live Tools 17 (which include PCs running Windows NT™ based applications, and suitable input devices) are used by skilled operators to support the live applications 10-15.

A Mission Control system 18 (a Windows NT™ based application) is used by a system control officer to initiate application transmissions and manage real-time broadcasts.

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An example of one of the interactive, predictive games (football 10) will be described below. The game is described in more detail in EP-A-0873772. In the interactive football game, remote players are able to attempt to predict certain events prior to commencement of a live football match and can also attempt to predict certain events during the live broadcast.

Initially, prior to commencement of the live broadcast, the football application 10 is initiated by the system control officer using Mission Control 18, and an operator uses the Live Tools 17 to set up certain predetermined information relating to the live broadcast for transmission to the user interfaces 4.

The operator is first presented with a screen as shown in Figure 2 in which he can select a home team and an away team from a list of such teams which have been previously stored in the application database. The operator can select the appropriate home and away teams and then click the OK button. This information is then stored in a Live File store (not shown) associated with the Live Tools 17. The application database stores information relating to each team squad which will typically include more players than those actually selected to play the match. Shortly before commencement of the match, the actual team will be announced and this information will be conveyed to the operator. The operator then causes the Live tools 17 to display all members of the squad of each team (Figure 3) allowing the operator to indicate which members of the squad have been picked to play and at the same time, he can define the type of player, for example goalkeeper, attacker, midfield or defender. Once that information has been indicated, it is then stored in the Live File store.

The operator also sets up the particular types of event which can be predicted during the live broadcast. In this example, these events include the time of the first goal, the time of the first booking etc. Examples of such

events are indicated by the line of buttons at 50 in Figure 4.

Once all the information for the live broadcast has been set up by the operator, a screen such as that shown in Figure 4 is displayed which at this time is inactive since the interactive game has not commenced. It will be noted, however, that the operator has been able to set up a significant amount of information in advance of the live broadcast itself.

At the appropriate time, but before commencement of the football game, the operator will click the button 51 and the application will then be transmitted to the CCS 5 and broadcast to all the user interfaces 4 over the broadcast network 3 as discussed below. The following application components are broadcast:

1. Real-time data instructions such as "display copyright message at start of football game"; or "display [bit map] at half-time".

2. Executable computer code to be run by the user interfaces to implement the game.

3. Bit maps - eg. player faces, team logos etc.

4. Sounds - eg sampled referee's whistle or crowd noises.

5. Video clips, eg of individual players scoring a goal.

6. Team data - eg team names, player names and player positions.

The central system 1 is designed to be able to deliver applications on any target platform. Five target platforms are illustrated in Figure 1, each employing a different broadcast network, ie. NCI DTV Navigator 20, OpenTV digital TV 21, MHEG-5 22, WebTV/WinCE 23 and PowerTV 24. The system can also be expanded to handle any number of additional broadcast networks 25. Each broadcast network 20-25 has a respective different broadcast protocol. In order to deal with this problem, each target platform has an associated Broadcast System Interface (BSI) 26 which

converts the set of application components associated with each application into a plurality of streams of broadcast data, each stream of broadcast data conforming with the broadcast protocol of its respective target platform. Thus when the operator clicks on button 51, the set of application components (ie. executable program files, bitmaps, sound samples, real-time data instructions, video clips etc.) are passed to the CCS 5 and then fed as parallel data streams to the BSIs 26 which convert the application components as appropriate prior to delivery over a respective broadcast network 3. The BSIs 26 are previously encoded to make any necessary conversions in order to conform the data to their associated target platform. The conversion may (amongst others) include the following techniques:

Translation

This is the most basic data manipulation. Here the data is converted from an internal representation required by the authoring tools 8 into a representation appropriate to a respective broadcast protocol.

For example, a target platform may only receive ASCII text. In this case the BSI converts all data being transmitted from a binary representation to ASCII.

Translation takes place on a byte-to-byte basis and is the lowest level of transformation employed by the BSIs 26.

Substitution

In some cases the BSIs will replace application components with an alternative. This is similar to translation, except that substitution is normally done at a component level.

An example of this might take place where a game is being broadcast to two networks where the capabilities of the user interfaces 4 are different. The game being played contains a real-time video component that is delivered to the user interface 4 for display. On one network, the user interface is not capable of storing the video component due to lack of memory and the BSI substitutes the video

component with a set of still frames extracted from the video component. On another network the user interface is capable of storing the video component and the BSI delivers the video component unchanged.

In another example a 16-colour bit map is to be delivered and one of the broadcast networks 3 or user interfaces 4 may only be able to support an 8-colour bit map. In this case the BSI converts the bit map into 8-colour format on the fly prior to delivery.

Selection

In the case of selection, the BSI selects which application components to send or not to send. An example would be an application that contains three different binary files, one for a browser target platform, one for a target platform with an OpenTV broadcast network, and another for a target platform with a PowerTV broadcast network. The BSI associated with the OpenTV network would transmit the binary file for the OpenTV network, and ignore the others. The BSIs supporting the other target platforms behave in a similar way.

Timing

Different broadcast networks delivering the same programme are not necessarily temporally synchronised. Differences in timing may be up to one or two seconds, indeed set top boxes on different networks would generally have slight variances in their clocks, ie a box on one network may think that the time is 12:34.00 whilst a box on another network may believe it is 12:34.03. In addition to different networks having different clocks it is also a fact that different networks may not be broadcasting content at exactly the same time, ie a video program may start up to 1 or 2 seconds later on another network even though the clocks are the same.

In order to manage these anomalies between networks it is necessary for the BSI handling that network to compensate by introducing the required delay, either by

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delaying the broadcast of messages, or more appropriately by altering the timing information within messages.

Some networks do not provide a synchronised clock on all set top boxes. In these cases it is necessary for the BSI handling those networks to provide a clock message which the user interface may use to update its own synchronised clock.

Data Transmission Mechanisms

Different broadcast networks will probably use different techniques for transmission. Some may present a single large bandwidth download path for all data, some may provide a high bandwidth mechanism for application components, and a smaller bandwidth mechanism for real-time data. In all of these cases the BSI will manage the different transmission techniques.

Exploring the above example in more detail, it is likely that a browser based architecture would provide a mechanism for providing application components from the service provider's server, using a carousel for example. In this scenario browser BSI would forward all game components to the server to be placed on the carousel. The binary data messages would most likely be fed to the server which would then use IP tunnelling or similar to transmit the data to the user interfaces.

In the case of the MPEG-II system the BSI would produce MPEG-II transmit packets containing MPEG-II private data sections containing the binary data messages and the component downloads in a defined format.

The user interfaces 4 each include an engine 27 which decodes incoming data and presents it to an application processor 28 which runs executable program code and also incorporates suitable memory for storing data. Items 27,28 are typically provided in a set-top-box (STB) which is connected to a conventional home TV set (not shown). Alternatively items 27,28 may be part of a personal computer. Although only a single user interface 27,28 is shown in Figure 1 with each broadcast network 20-25, it

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will be appreciated that each network 20-25 will broadcast to a large number of user interfaces.

In a commercial broadcast such as cable, satellite or the internet, the application processors 28 (in the form of set top boxes or personal computers) may have different capabilities. It is possible that the processors 28 may have different graphical abilities (such as colour depth, background mpeg and bitmap formats), different amounts of RAM and differing audio capabilities.

It is not desirable to target the lowest capability processor only, as customers who have payed more for a more powerful decoder should reap the benefits.

Therefore in order to provide the highest quality of interactivity on any given processor it is necessary to create applications which can selectively use different display models, colour depths, sounds and bitmaps. In addition different sections of code may be used for different processors. The engines 27 are able to interrogate the capabilities of the application processors 28 at runtime and dynamically decide which components of the broadcast applications to utilise.

The function of the engines 27 is illustrated in more detail in the example of Figure 8. In this case a broadcast system interface 70 is encoded to convert the application components into the format required by an Open TV digital TV broadcast network 71. A second BSI 72 converts the application components into the format required by a PowerTV broadcast network 73. Two types of user interface 74,75 are connected to the open TV network 71. User interface 74 includes an application processor 76 which can support 16-colour bitmaps. In contrast, user interface 75 includes an application processor 77 which can only support 4-colour bitmaps. The BSI 70 delivers 4-colour and 16-colour bitmaps over the network 71. Each user interface 74,75 has a respective engine 78,79. The engine 78 interrogates the application processor 76 and determines that the processor can support 16-colour

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bitmaps, and so downloads the 16-colour bitmaps on to the processor 76. In contrast, the engine 79 downloads the 4-colour bitmaps and discards the 16-colour bitmaps.

Bitmaps are a relatively simple example, code modules are more complex. For instance one type of user interface may use a store and forward return path mechanism, whilst another (on the same network) may use an instant access high bandwidth modem. Depending on which, the engine 27 would have to load and link the corresponding code module.

The engines 27,78,79 are generic items of code (i.e. the same engine is provided with each user interface). This enables the system to be easily expanded to deal with a new application processor 28 with different capabilities.

The engines 27,78,79 may either by previously provided in a user's personal computer or set-top-box, or may be broadcast over the broadcast network 3 before broadcast of the application components.

Returning to Figure 8, only a single type of user interface 81 is supported on network 73. In this case, the BS1 72 broadcasts 16-colour bitmaps only, and the engine 83 downloads the 16-colour bitmaps to the processor 82. Therefore in this case the engine 83 is effectively "transparent" as far as the 16-colour bitmaps are concerned.

When the application has been downloaded to the user interfaces 4, the interfaces display a screen similar to that shown in Figure 5. This indicates to the player the type of prediction which he can attempt. A comparison of Figures 4 and 5 will show that six of the events selected by the operator for prediction set out in the line 50 are displayed on the display of Figure 5.

The remote player can then select one or more of the predictions. For example, if he selects the "Time Slot of First Goal", the screen shown in Figure 6 will be displayed which defines six different 15 minute periods during the playing of a football game. The player can then indicate one of those periods, for example, the period 16-30

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minutes, and this prediction is then stored in memory. In a similar way, the player can predict any one or more of the other items set out in Figure 5.

As the game develops, various events may or will occur. For example, when the first goal is scored, the operator clicks on an appropriate button and the information is then transmitted to the user interfaces 4.

During and/or after a game, the user interfaces 4 compare the associated player's predictions with the actual events. If the local player was successful in his prediction then the user interface 4 will indicate this to the player and will also pass that information via a suitable return path (eg the public switched telephone network) to the CCS 5 where it is handled by suitable return path processing 29.

An example of the return path processing 29 is illustrated in Figure 7. STB 30 is connected to a cable modem 31 which compresses the return data prior to transmitting it over a cable network to a cable service provider server 32. The return path processing 29 includes a decompressor 33 which decompresses the data into a form suitable for the CCS 5. STB 34 is connected to a modem 35 which transmits the return path data to a modem 36 in the return path handling system 29 over the conventional public switched telephone network (PSTN). Once the return data has been converted by the return path processing system 29, it is processed by the CCS 5 which provides standard scoring and voting facilities. For instance the users playing the football game may each have an individual score which is stored in a user database 30 and updated by the CCS 5 when the user makes a correct prediction. Alternatively the return path data may be used by the CCS 5 to register votes from the user interfaces. The return path processing facilities provided by the CCS may be augmented by a plug-in processing application 37. For instance a programmer can develop a new game which requires overall results or league positions to be broadcast back to

the user interfaces and a suitable plug-in processing application 37 can be installed by the programmer. In some applications, however, return path communication with the CCS 5 is not necessary.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:-

1. A method of delivering an interactive application to a plurality of target platforms, the method comprising

providing a set of application components;

converting the set of application components into a plurality of streams of broadcast data, each stream of broadcast data conforming with a respective target platform; and

delivering each stream of broadcast data to its respective target platform.

2. A method according to claim 1 further comprising manually inputting real-time application data;

converting the real-time application data into a plurality of streams of real-time broadcast data, each stream of real-time broadcast data conforming with a respective target platform; and

delivering each stream of real-time broadcast data to its respective target platform.

3. A method according to claim 1, further comprising storing the application components and/or real-time application data in a data store; and retrieving the application components and/or real-time application data from the data store before converting it into a stream of broadcast data.

4. A method according to claim 1, wherein the step of converting comprises translating, substituting, selecting, time managing, or adapting for different data transmission mechanisms.

5. A method according to claim1 1, further comprising receiving and processing return data from one or more of the target platforms.

6. A method according to claim 5 wherein the application comprises a game and the return data comprises game-play input.

7. A method according to claim 1, wherein each target platform comprises a broadcast network and an application

processor, and wherein the delivering step comprises broadcasting the stream of broadcast data to the application processor via the broadcast network.

8. A method according to claim 7 further comprising interrogating the application processor to determine the data capabilities of the application processor; and downloading data from the stream of broadcast data in accordance with the determined data capabilities of the application processor.

9. Apparatus for delivering an interactive application to a plurality of target platforms, the apparatus comprising

a system for providing a set of application components;

a plurality of broadcast systems interfaces each converting the set of application components into a respective stream of broadcast data, conforming with a respective target platform; and

a system for delivering each stream of broadcast data to its respective target platform.

ABSTRACT OF THE DISCLOSURE

A method of delivering an interactive application to a plurality of target platforms (2). The method comprises

providing a set of application components;

converting the set of application components into a plurality of streams of broadcast data, each stream of broadcast data conforming with a respective target platform (2); and

delivering each stream of broadcast data to its respective target platform (2).