A sports simulator network with reward potential. In one embodiment, the system includes a first sports simulator and a second sports simulator. The simulators are configured to allow a plurality of participants to play a sports scenario upon payment. Each participant of the sports simulators achieves a score for the sports scenario. The first sports simulator is configured to communicate with the second sports simulator to determine a winner with a best score for the sports scenario between the first sports simulator and the second sports simulator. When this happens, at least a portion of the cumulative amount of the payments is aggregated to pay a reward to the winner.
Enter Contest

Detect Swing / Ball

Display Simulated Ball Flight

Determine Ranking of Shot

Notify Participant that He/She Dropped in the Rankings

Pay Aggregate Record to Participate if Leader at End of the Contest

FIG. 5
NETWORKED SPORTS SIMULATOR AND METHOD

RELATED APPLICATION

[0001] This application claims the benefit of U.S. Provisional Application Ser. No. 61/375,975 filed Aug. 23, 2010, which is hereby incorporated by reference in its entirety.

TECHNICAL FIELD

[0002] The present invention relates generally to sports simulators; in particular, the invention relates to sports simulators that can be networked together for players to participate in a contest for an aggregated reward; in some embodiments, this may aid in charities fund raising efforts.

BACKGROUND

[0003] Sports simulators are well known. There are a variety of existing simulators, including golf, baseball, soccer and other sports. One existing type of golf simulator displays a photograph or computer generated image of a golf course or driving range on a projector screen. The players hit golf balls into the screen. When this happens, the simulator calculates the expected distance and trajectory of the player's ball using sensors, such as by tracking the ball flight and/or player's club head motion. The ball's expected flight is then shown on the projector screen. This allows players to simulate play on a golf course or simulate practice in a driving range. An advantage of these golf simulators is the ability to play at any time of day or night, during inclement weather, or in places with limited space that would not be conducive to golf. Other types of golf simulators, both indoors and outdoors, allow players to simulate play on a golf course. Although many of these simulators allow multiple players to play a course together on a single simulator, there is no way to compete for a reward against other players on other simulators.

SUMMARY

[0004] According to one aspect, the present invention provides a golf simulator network with reward potential. In one embodiment, the system includes a first golf simulator and a second golf simulator. The first golf simulator and the second golf simulator are configured to allow a plurality of participants to play a golf scenario upon payment of a first sum and a second sum, respectively. Each participant of the golf simulators achieves a score for the golf scenario. The first golf simulator is configured to communicate with the second golf simulator to determine a winner with a best score for the golf scenario between the first golf simulator and the second golf simulator. When this happens, at least a portion of the cumulative amount of the first sum and the second sum are aggregated to pay a reward to the winner.

[0005] According to another aspect, the invention provides a computerized method for providing a reward based on a game of skill. The method includes the step of storing a contest expiration time representing a time when a contest will expire. A first payment and second payment are received from a first participant and a second participant, respectively, to play a game of skill. A first score and a second score are received that represent a result from the first participant and the second participant, respectively, playing the game of skill. The rank between the participants is determined based on the scores. When the contest expiration time expires, a monetary value is paid to either the first participant or the second participant based on the rank.

[0006] According to a further aspect, the invention provides a non-transitory computer readable storage medium comprising instructions that, when executed by a processor, perform a method. A plurality of sports simulators are associated with a contest that provides an aggregate award based on at least a portion of payments received from a plurality of participants to play on the plurality of sports simulators. A contest expiration time representing a time when the contest will expire is stored on a data storage device. An aggregate reward amount for the contest is determined based on payments received to play on the plurality of sports simulators. A plurality of scores are received over a communications network representing results from the plurality of participants playing on the plurality of sports simulators. A highest rank is determined that represents a participant of the plurality of participants with a highest score. When the contest expiration time expires, a monetary value is paid to a participant with the highest score.

[0007] Additional features and advantages of the invention will become apparent to those skilled in the art upon consideration of the following detailed description of the illustrated embodiment exemplifying the best mode of carrying out the invention as presently perceived. It is intended that all such additional features and advantages be included within this description and be within the scope of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] The present disclosure will be described hereinafter with reference to the attached drawings which are given as non-limiting examples only, in which:

[0009] FIG. 1 is a block diagram of an example golf simulator that could be used to operate the reward module according to an embodiment of the present invention;

[0010] FIG. 2 is a block diagram of an example network of golf simulators that could be used to operate the reward module according to an embodiment of the present invention;

[0011] FIG. 3 is a block diagram of the reward module according to an embodiment of the present invention;

[0012] FIG. 4 is a block diagram showing two example golf simulators at time T1 and time T2; and

[0013] FIG. 5 is a flow chart showing an example process that could be used according to an embodiment of the present invention.

[0014] Corresponding reference characters indicate corresponding parts throughout the several views. The components in the figures are not necessarily to scale, emphasis instead being placed upon illustrating the principals of the invention. The exemplification set out herein illustrates embodiments of the invention, and such exemplification is not to be construed as limiting the scope of the invention in any manner.

DETAILED DESCRIPTION OF THE DRAWINGS

[0015] While the concepts of the present disclosure are susceptible to various modifications and alternative forms, specific exemplary embodiments thereof have been shown by way of example in the drawings and will herein be described in detail. It should be understood, however, that there is no intent to limit the concepts of the present disclosure to the particular forms disclosed, but on the contrary, the intention is to cover all modifications, equivalents, and alternatives falling within the spirit and scope of the disclosure.
This invention generally relates to a sports simulator that may network with other sports simulators so that a plurality of participants may compete across the simulators for an aggregated reward. Generally speaking, participants would pay a fee to participate in a game or other competition on a plurality of networked sports simulators. A portion of the participant’s fee to enter the competition could be allocated toward an aggregate reward that would accumulate among the networked sports simulators. As more participants play in a game or competition, the potential reward would increase. A “realtime” leadboard and reward total could be linked with the simulator to alert the participant (and other potential participants) to parameters relating to the competition, such as the amount of the current reward, the score of the current leader, and the time remaining for the competition. The competition would pit the participants at the various sports simulators against each other to potentially win a reward. As the system is based on a game of skill rather than luck and is unique in the variety of awards and prizes (the payout or reward) that can be selected by the location or hosting organization, the prize component of the system is generally thought to be legal in any jurisdiction. Although a golf simulator is discussed herein for purposes of example, embodiments are contemplated in which the simulator may be for other sports or other skill games, including but not limited to baseball, soccer, basketball and hockey.

Fig. 1 illustrates a diagrammatic representation of an example golf simulator 100 in the example form of a computer system that may be programmed with a set of instructions to perform any one or more of the methods discussed herein. The set of instructions could be a computer program stored locally on the device that, when executed, causes the device to perform one or more of the methods discussed herein. In some embodiments, at least a portion of the set of instructions could be stored remotely such that, when executed, causes the device to perform one or more of the methods discussed herein. In embodiments where the computer program is locally stored, data may be retrieved from local storage or from a remote location via a network. Embodiments are contemplated in which the sports simulator, which in this example is a golf simulator 100 may operate in the capacity of a server or a client machine in a server-client network environment, or as a peer machine in a peer-to-peer (or distributed) network environment. Although only a single golf simulator 100 is illustrated in Fig. 1, the term “golf simulator” shall also be taken to include any collection of machines that individually or jointly execute a set (or multiple sets) of instructions to perform any one or more of the methods discussed herein.

The golf simulator 100 illustrated in Fig. 1 includes a processor 102 (e.g., a central processing unit (“CPU”)), a memory 104, a video adapter 106 that drives a video display system 108 (e.g., a projector system, a liquid crystal display (“LCD”) or a cathode ray tube (“CRT”)), an input device 110 (e.g., a keyboard, mouse, touch screen display, etc.) for the user to interact with the program, a disk drive unit 112, a network interface adapter 114, and one or more sensors 116 to detect movement of the golf ball and/or the participant’s swing. Note that various embodiments of the simulator will not always include all of these peripheral devices.

The disk drive unit 112 includes a computer-readable medium 118 on which is stored one or more sets of computer instructions and data structures embodying or utilized by a reward module 120 described herein. An indoor golf simulator that may be suitable for use with the reward module 120 includes, but is not limited to, the Elite™ Simulator by Holiday Golf USA of Midvale, Utah. Embodiments are contemplated in which the golf simulator could be used outdoors are a driving range. For example, a stall in an outdoor driving range could be outfitted with the video display system 108, such as an LCD monitor on one of the stall’s walls, that would show the simulated hole to be played. By way of another example, a tee box on a golf course may be outfitted with sensors for sensing a player’s swing and the simulated hole could be shown on a nearby display or on the player’s cellular phone, which would act as the video display system 108. In the context of an outdoor driving range or tee box on an actual golf course, the sensor(s) could include, but is not limited to, the FlightScope™ Launch Monitor by EDH of Orlando, Fla. This would allow the ball flight to be projected on the video display system 108 in the outdoor driving range or tee box based on the parameters sensed during and/or after the swing, such as the ball flight and/or swing path and/or swing speed. This sensed data could be fed as input data into a golf simulator, such as the simulator software associated with the Elite™ Simulator. The computer instructions and data structures may also reside, completely or at least partially, within the memory 104 and/or within the processor 102 during execution thereof by the golf simulator 100; accordingly, the memory 104 and the processor 102 also constitute computer-readable media. Embodiments are contemplated in which the reward module 120 may be transmitted or received over a network 122 via the network interface device 114 utilizing any one of a number of transfer protocols including but not limited to the hypertext transfer protocol (“HTTP”) and file transfer protocol (“FTP”). The network 122 may be any type of communication scheme including but not limited to fiber optic, wired, cellular, and/or other wireless communication capability in any of a plurality of protocols, such as TCP/IP, Ethernet, WAP, IEEE 802.11, or any other protocol. The Fig. 2 shows an example network of sports simulators, such as golf simulators in this example, which is networked.

While the computer-readable medium 118 is shown in the example embodiment to be a single medium, the term “computer-readable medium” should be taken to include a single medium or multiple media (e.g., a centralized or distributed database, and/or associated caches and servers) that store the one or more sets of instructions. The term “computer-readable medium” shall also be taken to include any medium that is capable of storing a set of instructions for execution by the golf simulator and that cause the machine to perform any one or more of the methods described herein, or that is capable of storing data structures utilized by or associated with such a set of instructions. The term “computer-readable medium” shall accordingly be taken to include, but not be limited to, solid-state memories, optical media, flash memory, and magnetic media.

Fig. 2 is a block diagram showing an embodiment with various modules that may be included in the reward module 120. In the embodiment shown, the reward module 120 includes a reward scenarios module 200, a reward payout rules engine 202, and a reward aggregation engine 204. For the purposes of this specification, the term “module” includes an identifiable portion of computer code, computational or executable instructions, data, or computational object to achieve a particular function, operation, processing, or procedure. A module may be implemented in software, hard-
ware/circuitry, or a combination of software and hardware. An identified module of executable code, for example, may comprise one or more physical or logical blocks of computer instructions that may, for instance, be organized as an object, procedure, or function. Nevertheless, the executables of an identified module need not be physically located together, but may comprise disparate instructions stored in different locations which, when joined logically together, comprise the module and achieve the stated purpose for the module. Indeed, a module of executable code could be a single instruction, or many instructions, and may even be distributed over several different code segments, among different programs, and across several memory devices. Similarly, modules representing data may be embodied in any suitable form and organized within any suitable type of data structure. The data may be collected as a single data set, or may be distributed over different locations including over different storage devices.

[0022] The reward scenarios module 200 provides one or more scenarios from which a participant may choose to play. For example, the player may choose from a ¾ hole competition, closest-to-the-pin competition, a longest drive competition, a longest putt competition, etc. In some embodiments, the participant may customize the scenario as desired. Consider an example in which the participant chooses a closest-to-the-pin competition. In order to play this scenario, the participant may be required to pay a set dollar amount for a pre-determined number of swings. In this example, the participant may be able to choose the length of the Par 3 hole to play, which gives this scenario an element of strategy. For example, the participant could be presented with a number of predetermined yardages from which to choose. For purposes of example only, the participant could be presented with Option A: 90 yards, Option B: 120 yards, Option C: 150 yards, or Option D: 180 yards. In this example, each swing by the participant could be regarded with a point value based upon the yardage that is chosen and how close the ball came to rest from the hole. For example, a longer hole may have a higher potential number of points, but be more difficult to hit the green.

[0023] These points could be accumulated and when the participant has completed the number of swings, his or her point total will place them on the leaderboard for a payout at the end of the competition. As discussed below, the leaderboard could be networked with other golf simulators through the network 122 (which could be in the same geographic location or remote geographic locations), thereby allowing substantially real time scoring for participants at other locations, potentially around the world. Also, because the golf simulator 100 is networked, the participants will be able to see the prize purse as it accumulates, in real time, based upon the participation around the world. Every time someone competes, the prize pool total will increase, illustrated on the leaderboard, as a portion of all participant fees for a contest or scenario is paid into the prize pool. Embodiments are contemplated in which a participant could be provided with the leaderboard on a remote device, such as a mobile phone. For example, the participant could be provided with his or her ranking on a remote device so that they will know if someone has overtaken them in the rankings and they could then opt to play additional games.

[0024] The reward payout rules engine 202 determines the payout allocation of the fee paid by participants. Consider an example in which one or more charitable organizations use the golf simulator for fund raising efforts. In that example, the participant may be able to choose which charitable organization that should benefit from his use of the golf simulator 100. In some cases, the selected charitable organization might not only receive a percentage from each participating player’s use of the equipment, but the organization and the player have the possibility of greater reward through shared participation in the aggregated prize. In all cases, cash prizes are only available where legal. In all other locations, other rewards, such as free games or merchandise gift certificates, could be available.

[0025] By way of another example, any location that utilizes indoor or outdoor golf simulators can be linked via the installation of a reward module into the system and earn revenue from use of the system by participants. Having the system onsite enables the hosting location to market the use of the system to local charities for fund-raisers, with multiple charities participating with their own fundraiser simultaneously. Locations with existing simulators have an opportunity to earn more revenue, and locations that could not justify a simulator installation now have an opportunity that makes the installation of a simulator more economically feasible. Simulor owners, with the installation of the reward module 120, could be linked to all or selected simulators worldwide, opening the door for innumerable marketing opportunities to increase their current business or to justify establishing new locations. The installation of a reward module 120 opens the door for unique locations such as shopping malls where players can, for example, play to win merchandise from the mall’s tenants while at the same time supporting (if they so desire and the mall program permits) their selected local organization.

[0026] By way of a further example, the reward module 120 could also be used in conjunction with outdoor golf simulators. Never before has there been an opportunity for a golfer at a driving range or other outdoor location to actually play a round of golf or compete in various competitions utilizing a sensor system and computer monitor that accurately portrays the actual ball flight simultaneously while permitting play for prizes and benefitting a charitable organization of choice. This program allows multiple players at the same location, networked driving ranges worldwide, and golf course contests networked between golf courses, to compete for an aggregate prize in the same competition. This network of driving ranges or golf courses allows for prize pools to escalate to enormous proportions, potentially rivaling that of professional tour event’s prize pools. This creates an incentive for outdoor driving ranges and golf courses to have an outdoor golf simulator unit beyond the current incentive of offering a player the opportunity to measure his or her drive or analyze his or her swing on an online launch monitor.

[0027] The reward aggregation engine 204 is configured to maintain a “leaderboard” showing various ongoing parameters for the scenario, such as the total points for the current leader, the total aggregated prize amount, and the time remaining for the competition. In some embodiments, these values may be stored in the total reward parameters 206. To keep current on the status of other networked golf simulators, the reward discovery module 208 could be used to communicate the status with other golf simulators over the network 122. By way of example, the rewards discovery module 208 could periodically send requests to other golf simulators on the network to determine the “leaderboard.” Embodiments
are also contemplated in which these values could be pushed to the rewards discovery module 208.

[0028] FIG. 3 shows an example with two golf simulators connected together through the network 122 at both time T1, which corresponds with 47 hours left in the competition, and time T2, which corresponds with 1 hour left in the competition. As seen in this example, a common real-time “leaderboard” is provided in which the current leader obtained 345, 673 points. At time T1, the aggregated prize is worth $5,958. Additionally, it can be seen that at time T1, Golf Simulator 1 has collected a total of $5,345 (of which $335 went to a charity) and Golf Simulator 2 has collected $5,167 (of which $516 went to a charity). The specific allocation of the prizes between the aggregated award and charity could be handled by the reward payout rules engine 202. In some embodiments where charities are not involved, there would not be a charity allocation. At time T2, it can be seen that additional participants have increased the aggregated prize to $25,543, which will be awarded to the leader when the competition ends. In this example, at time T2, Golf Simulator 1 has collected total fees of $14,340 (of which $1,434 went to charity) while Golf Simulator 2 has collected $22,151 (of which $2,215 went to charity). This provides a profit for the operators of the golf simulators, while providing both a substantial prize amount and a donation to a charity.

[0029] Consider an example of an event held at a golf course shown in the flow chart of FIG. 5. In this example, a “closest to the pin” competition could be held based on a hole at an actual golf course, with some participants playing on site at the golf course and remote participants playing the hole at a remote location. A device may be provided, such as a kiosk or computer nearby a tee box or in a golf cart, for participants to enter the contest and to collect money from participants, such as with a credit card reader or cash intake system. Participants may provide contact information, such as a phone number or email address, in the event they win the reward (Block 500). In this example, a first participant has entered the contest using a kiosk next a tee box of the “closest to the pin” hole on the golf course and another participant has entered the contest at a remote location, such as at an indoor driving range. The first participant may swing and hit their ball from the tee box, which would be detected by sensors 116. (Block 502). The first participant could view the simulated flight of the ball on a display from the tee box, in the participant’s golf cart, or on the screen of the participant’s cellular phone, etc. (Block 504). Likewise, in some embodiments, the remote participant may be able to view a “live feed” of the first participant’s shot at the remote location. The distance of the first participant’s simulated shot from the hole would be recorded, either locally or sent to a remote computer. The second participant could hit the ball from a remote location, which would be detected by sensors 116 and a simulated flight of the ball may be displayed nearby. Also, in some embodiments, a “live feed” of the second participant’s shot may be transmitted to be displayed at a kiosk or other display near the first participant. The second participant’s distance from the hole could be sent to a central computer to determine where the shot ranked on the leader board. (Block 506). The ranking information could be provided to the participants on a nearby display or on the screen of his/her cellular phone. If the participants are ranked on the leader board and subsequently gets knocked off or goes lower in the rankings, the system could send the participant an electronic message, such as an email message or text message, notifying the participant of other player(s) passing him/her in the rankings. (Block 508). This would enable the participant to try to improve their score to attempt a higher ranking. If, at the end of the contest, the participant is the leader, he/she would be paid the aggregate reward of all simulators involved in the contest. (Block 510).

[0030] Although the present disclosure has been described with reference to particular means, materials, and embodiments, from the foregoing description, one skilled in the art can easily ascertain the essential characteristics of the invention and various changes and modifications may be made to adapt the various uses and characteristics without departing from the spirit and scope of the invention.

What is claimed is:

1. A sports simulator network with reward potential, the system comprising:
   a first sports simulator configured to allow a plurality of participants to play a sports scenario upon payment of a first sum, wherein each participant of the first sports simulator achieves a score for the sports scenario;
   a second sports simulator configured to allow a plurality of participants to play the sports scenario upon payment of a second sum, wherein each participant of the second sports simulator achieves a score for the sports scenario; wherein the first and second sports simulators are configured to communicate with the second sports simulator to determine a winner with a best score for the sports scenario between the first and second sports simulators, and wherein at least a portion of the cumulative amount of the first sum and the second sum are aggregated to pay a reward to the winner.

2. A computerized method for providing a reward based on a game of skill, the method comprising the steps of:
   storing a contest expiration time representing a time when a contest will expire;
   receiving an amount of a first payment from a first participant;
   receiving a first score representing a result from the first participant playing a game of skill;
   receiving an amount of a second payment from a second participant;
   receiving a second score representing a result from the second participant playing a game of skill;
   determining a rank of the first participant and the second participant based on the first score and the second score;
   in response to the contest expiration time expiring, paying a monetary value to either the first participant or the second participant based on the rank.

3. A non-transitory computer readable storage medium comprising instructions that, when executed by a processor, perform a method comprising the steps of:
   associating a plurality of sports simulators with a contest that provides an aggregate award based on at least a portion of payments received from a plurality of participants to play the plurality of sports simulators;
   storing a data storage device, a contest expiration time representing a time when the contest will expire;
   determining an aggregate reward amount for the contest based on payments received to play the plurality of sports simulators;
   receiving over a communications network, a plurality of scores representing results from the plurality of participants playing on the plurality of sports simulators;
   determining a highest rank representing a participant of the plurality of participants with a highest score and in response to the contest expiration time expiring, paying a monetary value to a participant with the highest score.