Certain embodiments of the present invention provide an electronic dart game machine comprising a dart board and a central processing unit (CPU). The dart board has distinct scoring areas. The central processing unit (CPU) interprets dart contact with the distinct scoring areas as game set-up information during a game set-up mode.
Initiate game set up mode by inserting money into the electronic dart game.

Tap a distinct scoring area to choose number of players.

Tap a distinct scoring area to choose game type.

Tap a distinct scoring area to set game parameters.

Insert additional money if necessary.

Press start button to initiate game play mode.

FIG. 3
<table>
<thead>
<tr>
<th>Game</th>
<th>5/0 Bull</th>
<th>No. of Players</th>
<th>Coins / Player</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAP to Select</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Double Bull</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single Bull</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insert Coins for desired number of Players</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TAP Game Number on Target

1. 301 Open In / Open Out
2. 301 Open In / Expert Out
3. 301 Double In / Double Out
4. 301 Open In / Open Out
5. 501 Open In / Expert Out
6. 501 Double In / Double Out
7. 701 Team Open In / Open Out
8. High Score
9. Stupid Game
10. Another Stupid Game
11. Cricket 200
12. Cutthroat Cricket
13. Wild Card Cricket
14. Low Ball Cricket
15. Killer Cutthroat
16. Bermuda Triangle
17. Ace
18. Golf
19. One O'Clock
20. Farting Contest

Press ⊗ to Start Game

FIG. 4
ELECTRONIC DART GAME MACHINE USER INTERFACE

RELATED APPLICATIONS
[0001] This application relates to and claims priority benefits from U.S. Provisional Patent Application No. 60/277,555 entitled “Dart Game User Interface Game Selection Simplification,” filed Mar. 21, 2001 (Attorney Docket No. 13000/US01), which is incorporated by reference herein in its entirety.

BACKGROUND OF THE INVENTION
[0002] Embodiments of the present invention relate to an electronic dart game machine, and more particularly to an electronic dart game machine having an economical, simplified user interface.

[0003] For many years, dart players have enjoyed the automatic handling of dart game scoring because of electronically equipped dart games. Typically, an electronic dart game machine includes an internal Central Processing Unit (CPU) that controls the user interface for game selection and feedback during game play. The CPU within an electronic dart game machine typically keeps track of player scores and game parameters. That is, after the CPU receives information from the dart board playing surface (e.g., the point where the dart hit, such as a bullseye, or “triple 20”) the CPU may send information to a display unit so that the player may see his/her score.

[0004] In order for the CPU to determine the point where a dart hit, and consequently a player’s score, the playing surface, i.e., the dart board, is typically connected to a contact sensor that is divided into various segments. For example, a distinct segment is typically assigned to (and positioned behind) the bullseye. Additionally, each distinct scoring area of the dart board playing surface (e.g., single 20, double 20, triple 20, single 18, double 18, triple 18, etc.) is associated with a distinct segment of the contact sensor. For example, if a player tosses a dart that contacts a triple 15 area on the dart board playing surface, the contact from the throw is detected by the segment of the contact sensor associated with the triple 15 area. This information is communicated to the CPU, typically by way of wires. The CPU includes programs that link this information to a particular score, depending on the game being played. For example, if “cricket” is played, the CPU would score three marks of “15” for the player who threw the dart that hit the “triple 15.” Thus, upon determination of a particular score, the CPU sends information to a display unit so that the player(s) can see the score(s).

[0005] Many dart game machines employ the use of a video monitor, such as a television, computer screen and the like, to provide user interface feedback. That is, video monitors may display player scores, the type of game being played, various parameters of the game, and the like. U.S. Pat. No. 4,824,121, issued to Beall et al. (the Beall patent), describes how a typical electronic dart board game machine with a video monitor functions. In addition, the Beall patent discloses how an electronic dart board, in conjunction with various switches on the electronic dart game machine, may be used to provide a customized image on the visual display. Unfortunately, due to the higher cost of the video hardware required in electronic dart game machines that utilize video monitors, many potential sales are lost to cheaper dart games without video monitors. Typically, the electronic dart game machines without video monitors are not as user-friendly for players attempting to navigate through all of the various game options available.

[0006] One solution to the problem of setting up game play on electronic dart game machines without video monitors is to include a plurality of game selection buttons on the display of an electronic dart game machine. However, a large number of buttons may complicate game set-up and confuse players trying to set up a particular game. Additionally, because the buttons are displayed on the electronic dart game machine, there is a risk that an errant dart throw from a less than capable dart player may hit one of the game set-up buttons, thereby causing damage to the button. Also, the addition of buttons or switches to an electronic dart game machine that does not have a video monitor adds additional cost to the game.

[0007] Thus, a need exists for a more user-friendly electronic dart game machine that does not have a video monitor. Additionally, a need exists for a more economical electronic dart game machine.

BRIEF SUMMARY OF THE INVENTION
[0008] Certain embodiments of the present invention provide an electronic dart game machine comprising a dart board and a central processing unit (CPU). The dart board has distinct scoring areas. The central processing unit (CPU) interprets dart contact with the distinct scoring areas as game set-up information during a game set-up mode.

[0009] Certain embodiments of the present invention also provide a method for setting up a dart game played on an electronic dart game machine including a dart board and a central processing unit (CPU). The method comprises the step of a player tapping the distinct scoring areas of the dart board with a dart, detecting the tapping step; and interpreting the detecting step as game setup information during a game set-up mode.

[0010] Another embodiment of the present invention provides an electronic dart game machine having a simplified user interface comprising a dart board, a CPU, player score displays, a target menu graphic and a start button. The dart board has distinct scoring areas. The central CPU interprets dart contact as game set-up information during a game set-up mode. The game set-up information includes player number, game type and game parameters. The CPU communicates with the player score displays to display the game set-up information on the player score displays. The target menu graphic correlates the distinct scoring areas with game set-up information. Additionally, the start button transitions the electronic dart game machine from the game set-up mode to a game play mode when the start button is pressed or otherwise engaged.

BRIEF DESCRIPTION OF SEVERAL VIEWS OF THE DRAWINGS
[0011] FIG. 1 is a schematic drawing of an electronic dart game machine according to an embodiment of the present invention.

[0012] FIG. 2 illustrates an electronic dart game machine according to an embodiment of the present invention.
FIG. 3 is a flow chart of a game set-up mode of an electronic dart game machine according to an embodiment of the present invention.

FIG. 4 illustrates a target menu graphic according to an embodiment of the present invention.

The foregoing summary, as well as the following detailed description of certain embodiments of the present invention, will be better understood when read in conjunction with the appended drawings. For the purpose of illustrating the invention, there is shown in the drawings, certain embodiments. It should be understood, however, that the present invention is not limited to the arrangements and instrumentality shown in the attached drawings.

Detailed Description of the Invention

FIG. 1 is a schematic drawing of an electronic dart game machine 10 according to an embodiment of the present invention. The electronic dart game machine 10 includes a housing 11 that includes a central processing unit (CPU) 19, a dart board 12 having a bullseye 24, double ring 13 and triple ring 15. The electronic dart game machine 10 also includes player score displays 14, 16, 18 and 20, which may be digital displays, game status displays 17, a game start button (e.g., an “enter” button) 22 and a target menu graphic 26. The dart board 12 is connected to a contact sensor (not shown), which is divided into segments (not shown) associated with various distinct scoring areas, such as “double 20,” denoted by reference numeral 21, of the dart board 12. The contact sensor is in turn connected to the CPU 19 (which is typically internally housed within the electronic dart game machine 10) through wires (not shown). Additionally, each player score display 14, 16, 18 and 20 and the game start button 22 is electrically connected to the CPU 19 through wires (not shown).

Through tapping specific, distinct scoring areas, such as distinct scoring area 21 (“double 20”) on the dart board 12, a player may enter various game set-up information, including player number, game type and game parameters. In operation, a player wishing to play a game inserts money into the electronic dart game machine 10 through a coin slot (not shown) and/or a bill insert (not shown). As money is inserted into the electronic dart game machine 10, the CPU 19 registers the money that is inserted. The CPU 19 may then display the amount of money, i.e., the number of game credits, that is inserted on one of the player score displays 14, 16, 18 or 20, such as player one score display 14. Alternatively, the electronic dart game machine 10 may not include a money insert device.

The player is able to select the number of players, type of game, and various game parameters by using at least one of a dart, pen, pencil, or even a finger to tap distinct scoring areas on the dart board 12. For example, through the use of the target menu graphic 26, which may be, e.g., a decal, engraving, silk screened-image, or the like, on the electronic dart game machine 10 or a poster on a wall, the player may choose the number of players. That is, the target menu graphic 26 correlates player number with a distinct scoring area. For example, the player may tap a distinct scoring area, e.g., “double 20,” denoted by reference numeral 21, to change the number of players. As the player taps the distinct scoring, i.e., the target area associated with player number on the dart board 12, the CPU 19 receives a signal, through the contact sensor associated with the dart board 12, that the distinct target area associated with player number has been tapped. The CPU 19, through programs installed on the CPU 19, changes the number of players. Then the CPU 19 sends a signal to one of the player score displays 14, 16, 18 or 20 to display the number of players. With each successive tap of the distinct scoring area associated with player number, the player number changes. Consequently, the number of players displayed on the player score display 14, 16, 18 or 20 is changed. Alternatively, separate distinct scoring areas may be assigned to a particular number of players. For example, “single 1” may be associated with 1 player, while, “single 2” may be associated with 2 players. The player number may also have a default setting, such as 1 player.

The player may also determine whether the amount of money inserted into the electronic dart game machine 10 is sufficient for the number of players. For example, the target menu graphic 26 may list the amount of money needed for a one player game, two player game, etc. for the various games that may be played. Thus, if player one score display 14 displays the amount of money inserted (i.e., the number of game credits), and player two score display 18 displays the number of players, the player may reference the target menu graphic 26 to determine whether the amount of money inserted into the electronic dart game machine 10 is sufficient for the number of players. Alternatively, the CPU 19 may flash the display of the amount of money inserted, such as on player one score display 14, to alert the player that more money needs to be inserted. Also, alternatively, the CPU 19 may direct a speaker on the electronic dart game machine 10 to buzz, or otherwise make a noise, to alert the player that an insufficient amount of money has been inserted into the electronic dart game machine 10.

The player may also select the type of game to be played. For example, if the player desires to play “cutthroat” or “cricket,” the player may reference the target menu graphic 26 for the distinct scoring area on the dart board 12 that is associated with game type. That is, the target menu graphic 26 correlates game type with a distinct scoring area. For example, “cutthroat” may be associated with “single 7” and “cricket” may be associated with “triple 11.” A player wishing to play “cricket” would then tap “triple 11” to play “cricket.” If no game type is selected, a game such as “cricket” may be a default setting. Thus, a player score display, such as player three score display 16, displays the type of game to be played. For example, the player three score display 16 may automatically display “CRICKET,” or an abbreviation thereof, during the game set-up. As a distinct scoring area for a different game is tapped, the CPU 19 may then change the player three score display 16 (or whichever player score display area 14, 16, 18 or 20 is used to display game type) to reflect the change.

Alternatively, one distinct scoring area on the dart board 12 may be associated with game type. For example, the bullseye 24 may be associated with game type. In order to toggle between game types, the player taps the bullseye 24. For example, one tap of the bullseye 24 may switch from a first game type to a second game type, such as “cricket.” A third tap of the bullseye 24 may switch from “cricket” to “baseball.” A fourth tap of the bullseye 24 may switch from “baseball” to “cutthroat.” Each additional tap of the bullseye...
may switch to another game type, which is displayed on, for example, player three score display 16. As the player taps the bullseye 24 when the last game type is displayed, the game type switches back to the first game type. The first game type may be a default game that is automatically selected if the player does not tap the bullseye 24.

[0022] The player may also select various game parameters from the target menu graphic 26, which correlates game parameters with distinct scoring areas. For example, the player may choose single bullseye scoring or double bullseye scoring. That is, the distinct scoring areas of the bullseye 24 may be treated as the same score if hit by a dart, or the distinct scoring areas of the bullseye 24 may be treated as different scores if hit by a dart. Also, a default parameter setting, such as single bullseye may be programmed into the CPU. Additional parameters, such as round limits, “wild card” areas, cricket scoring matrix (e.g., a typical cricket scoring matrix is “20-19-18-17-16-15-Bulls.” A player may opt to change this matrix to “14-13-12-11-10-9-8,” or any other string of numbers), etc. may also be selected either by themselves or in conjunction with other parameters. For example, a distinct scoring area, such as “single six” may be tapped if a player wanted to play a game having a single bullseye with single six as the “wild card.” Alternatively, one distinct scoring area may be used to toggle through various parameters, which may then be displayed on a player score display, such as player four score display 20.

[0023] After the player is finished with the game set-up mode, the player touches the start button 22 in order to start game play mode. The CPU 19 may then switch to scoring mode and display players scores on the player score displays 14, 16, 18 and 20. Throughout the course of the game, such as during player round changes (e.g., after player one tosses three darts), the CPU 19 may intermittently display various game set-up information on the player score displays 14, 16, 18 and 20. To change between players, the start button 22 is touched. Alternatively, an additional player change button may be included within the electronic dart game machine 10. Also, alternatively, additional player scoring displays may be included on and within the electronic dart game machine 10. Also, alternatively, more or less than four score displays may be included on the electronic dart game machine 10.

[0024] FIG. 2 illustrates an electronic dart game machine 30 according to an embodiment of the present invention. The electronic dart game machine 30 is similar to the electronic dart game machine 10 except that the electronic dart game machine 30 shows status displays 36 and dart status display 38. Distinct scoring area “double 5” is shown by reference numeral 40, while distinct scoring area “triple 7” is shown by reference numeral 42. That is, the portion of the double ring that is within the “5” distinct scoring area 40 is “double 5,” while the portion of the triple ring that is within the “7” distinct scoring area 42 is “triple 7.” The status displays 36 may be used to indicate remaining targets to be hit during a particular game. The dart status display 38 is used to indicate the number of throws a particular player has in a round. As shown in FIG. 2, the target menu graphic 26 is remote from the electronic dart game machine 30. That is, the target menu graphic 26 may be a poster or display sign positioned on a table.

[0025] FIG. 3 is a flow chart 50 of a game set-up mode of an electronic dart game machine according to an embodiment of the present invention. At 52, a player initiates game set-up mode by inserting money into the electronic dart game machine. The amount of money inserted is displayed on a first player score display.

[0026] The player taps a distinct scoring area on the dart board of the electronic dart game machine in order to select the number of players at 54. Multiple distinct scoring areas associated with player number may exist, or there may be one distinct scoring area that toggles through, i.e., changes, the number of players with repeated taps of the player number distinct scoring area with a dart. The number of players is displayed on a second player score display.

[0027] At 56, the player taps a distinct scoring area to choose a game type. Multiple distinct scoring areas associated with game type may exist, or there may be one distinct scoring area that toggles through the type of game to be played with repeated taps of the game type distinct scoring area with a dart. The game type is displayed on a third player score display.

[0028] At 58, the player may also tap a distinct scoring area to set game parameters. Multiple distinct scoring areas associated with game parameters may exist, or there may be one distinct scoring area that toggles through the various types of game parameters with repeated taps of the parameter distinct scoring area with a dart. The game parameters are displayed on a fourth player score display.

[0029] At 60, the player inserts additional money if necessary. For example, the player may refer to the target menu graphic to determine if a sufficient amount of money is inserted into the electronic dart game machine for the particular game desired. Alternatively, the electronic dart game machine may alert the player that additional money is needed by flashing the display of the amount of money inserted, or making a buzzing or otherwise audible noise.

[0030] The player may initiate one or more of steps 54, 56 and 58 in any order. If player number, game type or game parameters are not chosen by the player, default settings may be used. At 62, after the player has set up the game to his/her preference, the player presses the start button to initiate game play mode. Once game play mode is initiated, the distinct scoring areas of the dart board are used to detect and score thrown darts.

[0031] FIG. 4 illustrates a target menu graphic 126 according to an embodiment of the present invention. Overall, the target menu graphics 26 and 126 correlate game set-up information with distinct scoring areas located on the dart board 12. However, as shown on target menu graphic 126, in order to select “double bull,” one taps the double bullseye parameter. Similarly, if one taps single bullseye to select the “single bull” parameter. Additionally, as shown in target menu graphic 126, 20 different dart games may be correlated with the 20 different radial positions of the dart board. FIG. 4, however, is merely an example. Many different variations of a target menu graphic may be used depending on the corresponding programming of the CPU.

[0032] While the invention has been described with reference to certain embodiments, it will be understood by those skilled in the art that various changes may be made and equivalents may be substituted without departing from the scope of the invention. In addition, many modifications may be made to adapt a particular situation or material to the
teachings of the invention without departing from its scope. Therefore, it is intended that the invention not be limited to the particular embodiment disclosed, but that the invention will include all embodiments falling within the scope of the appended claims.

1. An improved electronic dart game machine capable of permitting one or more players to play a variety of different dart games, the improved electronic dart game machine comprising:

   a dart board having a plurality of distinct scoring areas; and

   a central processing unit (CPU) interpreting contact with
   at least one of said plurality of distinct scoring areas as
   game set-up information during a game set-up mode.

2. The electronic dart game machine of claim 1 wherein
   said game set-up information includes player number, game
   type and game parameters.

3. The electronic dart game machine of claim 1 further
   including player score displays, said CPU communicating
   with said player score displays to display said game set-up
   information.

4. The electronic dart game machine of claim 1 wherein
   said electronic dart game machine is devoid of a video
   monitor.

5. The electronic dart game machine of claim 1 further
   including a target menu graphic correlating said plurality
   of distinct scoring areas with game set-up information.

6. The electronic dart game machine of claim 5 wherein
   said target menu graphic is displayed on said electronic dart
   game machine.

7. The electronic dart game machine of claim 5 wherein
   said target menu graphic is remote from said electronic dart
   game machine.

8. The electronic dart game machine of claim 1 further
   including a start button, which when pressed, transitions said
   electronic dart game machine from said game set-up mode
to a game play mode.

9. An improved method for setting up a dart game played
   on an electronic dart game machine that permits one or more
   players to play a variety of dart games and that includes a
   dart board and a central processing unit (CPU), said dart
   board having a plurality of distinct scoring areas, said
   method comprising:

   tapping at least one of the plurality of distinct scoring
   areas of the dart board;

   detecting said tapping step; and

   interpreting said detecting step as game set-up information
during a game set-up mode.

10. The method of claim 9 wherein said game set-up
    information includes player number, game type and game
    parameters.

11. The method of claim 9 further including communicating
    with player score displays to display said game set-up
    information.

12. The method of claim 9 further including correlating
    the plurality of distinct scoring areas with game set-up
    information through a target menu graphic.

13. The method of claim 9 further including locating a
    target menu graphic on the electronic dart game machine.

14. The method of claim 9 further including locating a
    target menu graphic remote from the electronic dart game
    machine.

15. The method of claim 9 further including transitioning
    from the game set-up mode to the game play mode by pressing
    a start button located on the electronic dart game machine.

16. An electronic dart game machine that is capable of
    permitting one or more players to play a variety of dart
    games through a simplified user interface, said electronic
dart game machine comprising:

   a dart board having a plurality of distinct scoring areas;
   a central processing unit (CPU) detecting contact with
   at least one of said plurality of distinct scoring areas, said
   CPU interpreting said contact as game set-up information
during a game set-up mode, said game set-up information including
   player number, game type and game parameters;
   player score displays, said CPU communicating with said
   player score displays to display said game set-up informa-
   tion;

   a target menu graphic correlating at least one of said
   plurality of distinct scoring areas with game set-up informa-
   tion; and

   a start button, which when pressed, transitions said elec-
   tronic dart game machine from said game set-up mode
to a game play mode.

17. The electronic dart game machine of claim 16 wherein
    said electronic dart game machine is devoid of a video
    monitor.

18. The electronic dart game machine of claim 16 wherein
    said target menu graphic is displayed on said electronic dart
    game machine.

19. The electronic dart game machine of claim 16 wherein
    said target menu graphic is remote from said electronic dart
    game machine.

20. The electronic dart game machine of claim 16 wherein
    said contact is dart contact.

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