CHARACTER MATCHING GAME

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ABSTRACT

The present invention relates to a game of skill requiring a user to match a predetermined set of characters. In one aspect of the invention, individual characters are displayed for a fixed period of time. An interface enables a user to select the correctly matching character within the fixed timeframe. In another aspect of the invention, each successive character in a series is displayed for a shorter period of time, further decreasing the likelihood the user will match the correct character. Indeed, one embodiment of the invention is implemented to aid children or illiterate individuals to read or spell. In another embodiment of the invention, the amusement game requires a user to match successive numbers within an increasingly smaller time frame.
Figure 3

302 Initialization - Determine a correct arrangement of a group of characters

304 Sequentially display the group of characters, each displayed for a first time period

308 Has time period elapsed?

306 Selection command received?

312 Does the selected character match the predetermined character?

310 Game Over

316 Adjust the time period each character is displayed

318 Game Over

320 Selection command received?

322 Does the selected character match the predetermined character?

324 Is this the final character to be matched?

326 Sequentially display the group of characters, each displayed for a third time period

328 Determining the user won the game
Figure 4a
Figure 5
CHARACTER MATCHING GAME

TECHNICAL FIELD

[0001] This invention relates to amusement devices, and more particularly, to an apparatus and methods relating to a character matching game.

BACKGROUND OF THE INVENTION

[0002] The entertainment industry continues to flourish as the public ceaselessly demands an increasing array of talent and innovation to help relax from the tumultuous reality, or simply to satisfy their specific wants. Particularly in today’s technological era, arcade games and other electronic devices have become very popular. Casino-type games and other entertainment forms that combine chance with skill have achieved a significant niche among a subset of society, both in the technological and traditional realm. Unfortunately, most redemption casino-type games rely almost entirely on chance to the extent that those who would otherwise have enjoyed the game concept are reluctant to subject themselves to these devices as they utilize no significant input from the player. Moreover, the public unsurprisingly desires new forms of entertainment devices to spark its interest and excitement.

[0003] Thus, there is a need for an amusement device that enables players to operate a amusement-type game utilizing different skills and offering a new type of entertainment from prior art in this field. In addition, this device would successfully incorporate an element of skill without significantly sacrificing the element of amusement that many desire.

SUMMARY OF THE INVENTION

[0004] The present invention relates to a game requiring a user to match a predetermined set of characters. As used herein, the term “character” includes numbers, letters, values, icons, or graphical symbols. Indeed, in computer-related embodiments, a character can include any graphical representation. In one aspect of the invention, individual characters are displayed for a fixed period of time. An interface enables a user to match the character within the fixed timeframe it is displayed. In another aspect of the invention, each successive group of characters is displayed for a shorter period of time, further decreasing the likelihood the user will match the correct character. It is contemplated, however, that each successive series displays the characters for time periods independently than the other series. In accordance with embodiments of the invention, a system and method for a skill-based amusement game requiring the user to match letters of a word is disclosed. Indeed, one embodiment of the invention is implemented to aid children or illiterate individuals to read or spell. In another embodiment of the invention, the amusement game requires a user to match successive numbers within an increasingly smaller timeframe. Some or all of the foregoing embodiments can be implemented as computer-executable instructions stored on a computer-readable medium.

[0005] Additional features and advantages of the invention will be apparent upon reviewing the following detailed description.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006] FIG. 1 depicts an exemplary arcade-style system in which embodiments of the invention may be implemented.

[0007] FIG. 2 depicts an exemplary computer system in which embodiments of the invention may be implemented.

[0008] FIG. 3 depicts one exemplary method in which embodiments of the invention may be implemented.

[0009] FIG. 4 illustrates a series of screen displays of a matching game in accordance with the present invention.

[0010] FIG. 5 illustrates a series of screen displays to inform a user the correct characters to be matched.

DETAILED DESCRIPTION OF THE INVENTION

Introduction

[0011] An exemplary arcade-style configuration of a character-matching game is illustrated in FIG. 1. The arcade video game 100 includes a control unit 105, a user controller 110, and a display 115. Unlike a traditional home game display (see, e.g., 242), the arcade game display 115 is not provided by the user, but rather may be housed in the same arcade game cabinet as the control unit 105 and the user controller 110. Within this cabinet, the user controller 110 and the display 115 are connected to the control unit 105. A central processing unit 120 in the control unit 105 executes a program in accordance with the present invention stored on a hard disk 125, or other storage media, to create a visual representation on the display 115, such as for example, when selecting a displayed character. The central processing unit 120 may also execute user-defined instructions stored in a random access memory 130. During game play, the user controller 110 is operated by a user to cause the control unit 105 to vary the visual representation on the display 115. Optionally, the configuration may include additional input/output sources (see, e.g., 135), such as, for example, LAN, WLAN, or interfaces as known in the art, for example, as illustrated in FIG. 2. While the exemplary embodiment illustrates an arcade-style configuration, the invention, however, may be configured for personal gaming systems, such as Sony PlayStation® or Microsoft® Xbox®, handheld systems such as a Palm® or Treo®, among others, for example, cellular-based applications. In still yet further embodiments, the invention is configured for web-based applications that may be incorporated within or independent of cellular-based applications.

Exemplary Operating Environment

[0012] FIG. 2 illustrates an exemplary computer system in which embodiments of the invention may be implemented. A computer 200 is connected to a local area network (LAN) 202 and a wide area network (WAN) 204. Computer 200 includes a central processor 210 that controls the overall operation of the computer and a system bus 212 that connects central processor 210 to the components described below. System bus 212 may be implemented with any one of a variety of conventional bus architectures.

[0013] Computer 200 can include a variety of interface units and drives for reading and writing data or files. In particular, computer 200 includes a local memory interface 214 and a removable memory interface 216 respectively coupling a hard disk drive 218 and a removable memory drive 220 to system bus 212. Examples of removable memory drives include magnetic disk drives and optical disk drives. Hard disks generally include one or more read/write
heads that convert bits to magnetic pulses when writing to a computer-readable medium and magnetic pulses to bits when reading data from the computer-readable medium. A single hard disk drive 218 and a single removable memory drive 220 are shown for illustration purposes only and with the understanding that computer 200 may include several of such drives. Furthermore, computer 200 may include drives for interfacing with other types of computer-readable media such as magneto-optical drives.

Unlike hard disks, system memories, such as system memory 226, generally read and write data electronically and do not include read/write heads. System memory 226 may be implemented with a conventional system memory having a read only memory section that stores a basic input/output system (BIOS) and a random access memory (RAM) that stores other data and files.

A user can interact with computer 200 via a variety of input devices. FIG. 2 shows a serial port interface 228 coupling a keyboard 230 and a pointing device 232 to system bus 212. Pointing device 232 may be implemented with a hard-wired or wireless mouse, track ball, pen device, or similar device.

Computer 200 may include additional interfaces for connecting peripheral devices to system bus 212. FIG. 2 shows a universal serial bus (USB) interface 234 coupling a video or digital camera 236 to system bus 212. An IEEE 1394 interface 238 may be used to couple additional devices to computer 200. Furthermore, interface 238 may be configured to operate with particular manufacture interfaces such as FireWire developed by Apple Computer and i.Link developed by Sony. Peripheral devices may include touch sensitive screens, game pads, scanners, printers, and other input and output devices and may be coupled to system bus 212 through parallel ports, game ports, PCI boards or any other interface used to couple peripheral devices to a computer.

Computer 200 also includes a video adapter 140 coupling a display device 242 to system bus 212. Display device 242 may include a cathode ray tube (CRT), liquid crystal display (LCD), field emission display (FED), plasma display or any other device that produces an image that is viewable to the user. Sound can be recorded and reproduced with a microphone 244 and a speaker 246. A sound card 248 may be used to couple microphone 244 and speaker 246 to system bus 212.

One skilled in the art will appreciate that the device connections shown in FIG. 2 are for illustration purposes only and that several of the peripheral devices could be coupled to system bus 212 via alternative interfaces. For example, video camera 236 could be connected to IEEE 1394 interface 238 and pointing device 232 could be connected to USB interface 234.

Computer 200 includes a network interface 250 that couples system bus 212 to LAN 202. LAN 202 may have one or more of the well-known LAN topologies and may use a variety of different protocols, such as Ethernet. Computer 200 may communicate with other computers and devices connected to LAN 202, such as computer 252 and printer 254. Computers and other devices may be connected to LAN 202 via twisted pair wires, coaxial cable, fiber optics or other media. Alternatively, radio waves may be used to connect one or more computers or devices to LAN 202.

A wide area network 204, such as the Internet, can also be accessed by computer 200.

FIG. 2 shows a modem unit 256 connected to serial port interface 228 and to WAN 204. Modern unit 256 may be located within or external to computer 200 and may be any type of conventional modem, such as a cable modem or a satellite modem. LAN 202 may also be used to connect to WAN 204. FIG. 2 shows a router 258 that may connect LAN 202 to WAN 204 in a conventional manner. A server 260 is shown connected to WAN 204. Of course, numerous additional servers, computers, handheld devices, personal digital assistants, telephones and other devices may also be connected to WAN 204.

The operation of computer 200 and server 260 can be controlled by computer-executable instructions stored on a computer-readable medium. For example, computer 200 may include computer-executable instructions for transmitting information to server 260, receiving information from server 260 and displaying the received information on display device 242. Furthermore, server 260 may include computer-executable instructions for transmitting hypertext markup language (HTML) or extensible markup language (XML) code to computer 200.

EXAMPLES

FIG. 3 depicts one exemplary method in which embodiments of the invention may be implemented. The method may be read on a computer-readable medium, and may be used to operate a game, such as on systems shown in FIGS. 1 and 2. A computer system comprising a memory having the program is initialized. As part of the initialization (step 302), an arrangement or group of characters, such as a word, phrase, number set, or other series of graphical representations to display to the user is determined. As described in more detail below, the user is notified by sight, sound, or the combination thereof, of the characters to be matched.

Upon initialization, step 304 initiates the sequential display of the group of characters, each character being displayed for a first time period. (FIG. 4a illustrates exemplary displays of step 304 on a display device). The time period that each character is displayed within each group may be determined at step 302. Alternatively, time period differences among the groups may be determined or adjusted at a later moment, such as for example, being based on the user’s success rate in matching the correct characters.

In one embodiment, step 304 may further display characters not part of the group, and thus not initially displayed to the user, to increase the difficulty of the game. Step 306 determines if an input in the form of a selection command has been received by a user. Possible input mechanisms could include, for example, a touch screen, keyboard, mouse, joystick, or any apparatus configured to provide input to the program. If an input is not received at step 306, step 304 may be repeated with each character being displayed for a first time period. The exemplary embodiment, however, requires the user to match the predetermined characters within a fixed time period. Optional step 308 may determine if the fixed time period has elapsed before receiving a selection command by the user. In the exemplary embodiment, elapsing of the time period will end the game (step 310). In further embodiments, the game may
be considered finished if the user did not correctly match the character before all the characters in the series were displayed for a fixed number of repetitions. In other embodiments, step 310 may adjust the difficulty of the game, rather than initiating the ending of the game.

If a selection command is received at step 306, it is then determined whether the selected character (the displayed character when the selection command was received) matches the predetermined character (step 312). If the selected character does not match the predetermined character, step 304 may be repeated. In yet other embodiments, the time period each character is displayed is adjusted (step 314). This would be particularly useful in educational applications, where the time periods could be lengthened to increase the likelihood the user will correctly match the displayed character with the predetermined character. In such embodiments, if the selected character is determined not to be correct at step 312, the program may be configured to re-initiate step 304 with a different time period, thereby allowing the user to re-attempt to match the same character. Optionally, the game could be programmed to allow a maximum number of mismatched characters to be selected before ending the game.

In the exemplary embodiment, if it is determined at step 312 that the selected character matches the predetermined character, step 316 will sequentially display the group of characters, each being displayed for a second time period. Step 320 determines if a selection command has been received by a user. If a selection command is received at step 320, it is then determined whether the selected character matches the predetermined character (step 322). If the selected character does not match the predetermined character, step 316 may be repeated. In yet other embodiments, a step similar to step 314 may be invoked to adjust the time period in which the user may correctly match the predetermined character with the displayed character. The exemplary embodiment illustrates one embodiment in which the user gets to reattempt to match the last attempted character; however, in other embodiments the program may return to the initialization step 302. In still yet further embodiments, the repetition of step 316 lowers the redemption or prize the user is able to receive.

If the character is correct, however, step 324 will determine if there are characters to be matched. If there are more characters to be matched, step 326 will initiate, sequentially displaying the group of characters, with each being displayed for a third period of time. As in steps 304 and 316, the user will provide a selection command in an attempt to match the displayed character with the predetermined character. When the final character to be matched is correctly matched, step 328 will determine the user won the game. In one embodiment, the user will receive a redemption or prize determined upon the length of time to complete the game. In other embodiments, the user may advance to a more difficult matching arrangement.

In yet further embodiments, the absence of a selection command after a fixed time period or number of repetitions may initiate the selection of the correct character. This may be advantageous, for example, in embodiments directed towards a children’s spelling game. In one embodiment, the game is configured to allot a predetermined amount of time for the child to make a selection. If a character is not selected or if the incorrect character is selected, the game is automatically configured to select the correct character, rather than represent a misspelling of the word to the child. In further embodiments, the game may allow the child to reattempt to match the correct character. In yet further embodiments, the game is configured to proceed to the next character in the sequence, allowing the child to continue spelling the word.

FIGS. 4a and 4b illustrate a series of screen displays of a matching game in accordance with the present invention. In the exemplary embodiment displayed in FIG. 4a, the characters V-I-D-E-O are each scrolled or otherwise individually displayed to the user for a fixed time period in a repeating manner on a screen or display device. As illustrated in screen display 402, the first character in the group is displayed. After a predetermined period of time has elapsed, the next character in that group will be displayed (screen display 404). Each successive character in the group will be displayed in sequential fashion (displays 406, 408, 410) until either the user selects a character as a possible match or the end of the group is reached. In the exemplary embodiment, once the last character of the group is displayed (display 410), the game is repeated, starting with the first character (display 402). Upon a user selecting the correct character for the first group (“V” in this exemplary instance) through a user input, the next group of characters comprising “V-I-D-E-O” will begin to scroll. As illustrated in FIG. 4b, correctly matching the character in a group will activate the sequential group to scroll or otherwise display the characters. In the example illustrated in FIG. 4b, the first three characters (“V”...“I”...“D”) have been correctly matched, and the characters of the fourth group are scrolling according to a predetermined schedule. Alternatively, multiple groups could be scrolling upon activation of the game, but the user input would not affect a particular series until the preceding series were properly selected. In other embodiments, the groups may comprise numbers in a descending order wherein the user must match numbers in a count down process. The groups may be organized vertically, horizontally, or in a pattern. In further embodiments, individual groups may be displayed in a smaller font to increase the excitement or difficulty of the game. Still in yet further embodiments, the letters may comprise different colors to further change the level of difficulty.

Aspects of the present invention comprise a system which provides a visual experience for learning the abstract concept of letters and letter patterns. For example, a child may not be able to spell V-I-D-E-O on his or her own without assistance, but may be able to pick the correct order of the presented letters to form the word VIDEO. Indeed, in one embodiment, the invention relates to an apparatus that monitors the child’s performance. This information may be then used to determine the next series of characters presented to the child. For example, if the child demonstrates a proficiency in words having three characters, the child is then presented with a series having four characters. Conversely, if the child’s performance begins to decline, series having less or easier characters may be presented. In yet further embodiments, an audio output of the pronunciation of the series of characters is initiated upon the successful completion of the series to further reinforce reading skills. Aspects of the present invention may also comprise a system which provides a visual experience for learning the abstract concept of number and number patterns. Similar to the
embodiments having letters as characters, at least one embodiment of the present invention utilizes numbers as characters to teach children how to count, recognize numbers, and/or correctly pronounce a number.

[0032] FIG. 5 illustrates one embodiment that may be utilized when teaching children how to spell or count. FIG. 5 is a series of screen displays to inform a user the correct characters to be matched. In the exemplary embodiment, screen display 500 initially displays the entire word, phrase, number set, or graphical illustration to be matched. This can be done through any lighting means, including CRT, LCD, LED or any other device that produces an image that is viewable by the user. After a predetermined length of time, only the first character of the group may be illuminated (display 502). As illustrated in screen displays 504-510, each character to be matched is then sequentially displayed upon the tolling of a fixed amount of time, until all the correct characters of the group have been illuminated. In other embodiments, all the characters are simultaneously presented to the user. To further aid the education of the user, the complete set of characters may then be lit and accompanied by sound (display 512). The sound may be a voice pronouncing the spelling of the word, or each character individually. Alternatively, to further increase the difficulty, the pronunciation of a character may be produced in place of displaying the character itself. In the exemplary embodiment, a signal is given to the user that the game has begun, such as the screen display 514, illuminating “GO!”

[0033] What has been described above is merely illustrative of the application of the principles of the invention. Indeed, the present invention is not limited to amusement or teaching games, but may be applied to a broad application of recognition and matching of characters. Those skilled in the art can implement other systems, configurations, arrangements, methods, and graphical user interfaces without departing from the spirit and scope of the invention.

We claim:

1. An electronic implemented character recognition game method comprising:

   (a) sequentially displaying on a display device a group of characters, wherein each character is displayed for a first time period;

   (b) receiving a selection command from a user; and

   (c) when a character displayed on the display device matches a predetermined character when the selection command is received, sequentially displaying on the display device the group of characters, wherein each character is displayed for a second time period that is different than the first time period.

2. The method of claim 1, wherein the first time period is longer in duration than the second time period.

3. The method of claim 1, further including:

   (d) when a character displayed on the display device does not match a predetermined character when the selection command is received, repeating step (a).

4. The method of claim 1, further including:

   (d) when a character displayed on the display device does not match a predetermined character when the selection command is received, adjusting the time period each character is displayed during the first time period.

5. The method of claim 1, wherein the characters displayed during the second time period further include characters that are not part of the group of characters originally displayed.

6. The method of claim 1, wherein the sequential display of characters will repeat until a selection command is received from a user.

7. The method of claim 6, wherein, absent a selection command, the sequential display of characters will repeat for a predetermined number of repetitions before considering the character improperly matched.

8. The method of claim 1, further including:

   (d) sequentially displaying on the display device the group of characters, wherein each character is displayed for a third time period;

   (e) receiving a selection command from the user that represents the user’s selection of the last character of the group; and

   (f) when a character displayed on the display device matches the last character of the group when the selection command in (e) is received, determining that the user won the game.

9. The method of claim 8, wherein the attributes of the displayed characters are adjusted to increase the difficulty of the game.

10. The method of claim 9, wherein the attributes are selected from the group consisting of size, color, shape, arrangement, and font.

11. The method of claim 8, further including:

   (g) determining a time period for receiving a user command representing the user’s selection of the last letter of the group.

12. The method of claim 11, wherein the amount of time elapsed before receiving a user’s selection of the last letter of the group will determine the difficulty of the next group of characters to be sequentially displayed.

13. A computer-readable medium having computer-executable instructions for performing steps comprising:

   (a) selecting a predefined group of characters;

   (b) causing a display device to sequentially display the group of characters, wherein each character is displayed for a first time period;

   (c) enabling a selection command to be received by the user, wherein upon receiving a selection command, the character presently displayed to the user will be selected;

   (d) when a character displayed on the display device matches a predetermined character when the selection command is received, sequentially displaying on the display device the group of characters, wherein each character is displayed for a second time period that is different than the first time period;

   (e) absent a selection command, continuing to display in a sequential manner the group of characters until a user input is received;

14. The instructions of claim 13, wherein the characters displayed during the first time period further include characters that are not part of the group.

15. The instructions of claim 13, further comprising the steps of:
(f) when a character displayed on the display device matches the last character of the group when the selection command in (e) is received, determining that the user won the game.

16. The method of claim 13, wherein the attributes of the displayed characters are adjusted to increase the difficulty of the game.

17. The method of claim 13, wherein the attributes are selected from the group consisting of size, color, shape, arrangement and font.

18. A gaming apparatus comprising:

a housing, the housing comprising a control unit, a user control and a display device; wherein the control unit comprises a computer-readable medium having computer-executable instructions of claim 8; wherein the display device is in communication with the control unit and configured to sequentially display the group of characters that form a word, and wherein the user interface is configured to allow a user to select the character displayed on the display device through the user control, wherein when a character displayed on the display device matches a predetermined character when the user input is received upon matching the character, the next sequential series of characters are displayed for a predetermined period of time.

19. The apparatus of claim 18, wherein upon the event a character displayed on the display device matches the last character of the group when the selection command for the last letter is received, determining that the user won the game.

20. The apparatus of claim 19, wherein the group of characters forms a word.

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