DYNAMIC REMOTE CONTROL OF A FIELD DEVICE AND A METHOD AND SYSTEM FOR PROVIDING THEREOF

A system and method for remotely controlling field devices are provided. The system may include an input device configured to receive a user input indicative of a user selection of a field device setting and a first trigger condition. The system may also include a processor in communication with the input device, the processor configured to produce a first field command signal based on the user selection received by the input device, and responsive to an occurrence of the first trigger condition, to cause the first field device command signal to be transmitted to the first field device. The system may include a display in communication with the processor, the display configured to display a graphical user interface showing a schedule for first field device setting changes which is based at least in part on the user selection received by the input device.
FELD O F THE INVENTION

[3] The present invention relates to the control of field devices. In particular, the invention relates to a system for remotely controlling a first field device, a computer-readable medium, and a program element.

BACKGROUND

Measuring a temperature, measuring devices for measuring a speed, measuring devices for other process variables, industrial devices for generating, for example, electric energy or terminals, such as wagering game terminals. Such field devices may be used in large quantities and distributed over a wide area. When parametrizing or otherwise controlling such field devices, each field device may have to be individually addressed by a user.

[5] In some circumstances, it may be necessary to switch a field device from a first mode of operation to a second mode of operation, if the second mode of operation is less advantageous than the second mode of operation. This may be done by a manual switching at the field device.
Such manual switching is time-consuming and often not possible, because the Hold device stays frozen from the rear controller.

It is desirable to provide a slot machine with a plurality of reels, each reel including a plurality of symbols. The reels spin when a lever on the side of the machine is pulled. The machine accepts a wager from a player and spins the reels. The machine typically pays out a prize based on a pattern of symbols depicted on the reels visible on the front of the machine when the reels stop.

A video slot machine replaces the reels with a video display, such as a CRT or LCD display. The display simulates the reels of a mechanical reel machine by displaying a plurality of elements. Each element may depict a symbol and the elements may be animated to simulate spinning reels after a lever on the side of the machine is pulled. For example, a video slot machine may be a video lottery terminal (VLT).

A bonus is a special feature of some slot machines, and may be activated after a bonus trigger condition occurs. For example, the bonus trigger condition may be when certain symbols appear in a predefined bonus combination. The bonus trigger condition may also be an appearance of a special bonus trigger symbol.
When the bonus trigger condition occurs at the slot machine, a bonus may be awarded. For example, the player may be presented with several items on a screen from which to choose. As the player chooses items, a quantity of credits is revealed and awarded. Another bonus may use a mechanical device, such as a spinning wheel, that works in conjunction with the bonus to display the amount won. Other bonuses include free spins or other extended play features.

A video gaming machine is an automated kiosk or terminal with an input and an output configured to provide a video game to a player. The video gaming machine may be in communication with a server over a network. The video gaming machine may be configured to provide games of chance to the player and allows the player to bet on the outcome of a video game. Games of chance may include video slots, video poker, video keno, video lottery, or other conventional games of chance.

Video keno is similar to a conventional keno game, but configured to be provided over a video gaming machine to a single player. Conventional keno is a lottery-like or bingo-like gambling game played at casinos and bingo halls. A player chooses anywhere from 1 to 20 player numbers and marks them on a keno ticket of 80 numbers (1 to 80). The casino then draws 20 winning numbers at random. The player is awarded a prize based on his wager and how many player numbers match the winning numbers. Video keno allows the player to choose a set of player numbers from a virtual keno ticket of 80 numbers displayed at the video keno machine. The video keno machine then picks 20 winning numbers at random, and the player wins a prize based on how many player numbers match the winning numbers.
Video poker is similar to a conventional poker game, but configured to be provided over a video gaming machine to a single player. Video poker involves displaying a plurality of simulated poker cards to a player. The player may have the option to discard a quantity of the simulated poker cards, and replacement cards may be dealt to the player. A value of the resulting hand may determine a prize to be awarded to the player.

According to an exemplary embodiment of the present invention, a system with unique control of a first field device is provided, the system comprising an input device configured to receive a user input indicative of a first user selection of a first trigger condition, a processor in communication with the input device, the processor configured to produce a first field device command signal-based on the first user selection, receiving the input device and responsive to an occurrence of the first trigger condition, to trigger a first device and a second device; and upon the occurrence of a schedule for field device setting changes, display a based on the second device.

In other words, a system is provided which may be adapted for individually and automatically communicating with each single field device or a plurality of field devices. This allows for an automated parameterization of setup of the field device.

By operating the system, a user is able to select a particular field device setting and a particular trigger condition. When the actual field device setting and the indicated trigger condition are met, the system is notified that the trigger condition has occurred and a command signal based on the user selection of the field device is sent.
However, the trigger condition may also or alternatively be met at the remote control system. Thus, no data transmission from the field device to the remote control system may be necessary.

This process may be carried out fully automatically without the necessity of user interaction.

The user may monitor the selected field device settings, i.e. a schedule for field device operations, with the help of a display in communication with the system processor.

The first trigger condition may for example be a certain daytime for example during night (i.e. when the first trigger condition has been met) the field device is switched from the faster measuring data rate for saving energy. The schedule is triggered by transmitting a trigger command signal to the field device. The field device alerts the remote control system that the measured temperature is close to a critical temperature. In that case, the field device alerts the remote control system that the measured temperature is close to a critical temperature. Then, the control system may transmit a command signal to the field device which results in an increased measuring rate.

It should be noted that the remote control system is, according to another exemplary embodiment of the present invention, capable of controlling a plurality of different remote field devices, for example, each having individual trigger conditions and corresponding command signals.
[22] According to another exemplary embodiment of the present invention, the field device is a measuring device for measuring a speed of, for example, a car. Two different modes of operation of the measuring device are possible, i.e., measuring the speed in miles per hour or measuring the speed in kilometres per hour. The trigger condition may be the crossing of a border (by the car), wherein in the first country, speed is usually measured in miles per hour and in the second country speed is usually measured in kilometres per hour. For example, the Held device may be in communication with a GPS module, thereby being able to determine the position of the car. When such a border is crossed, a corresponding signal is transmitted to the remote control system which then determines, whether the speed measuring device switch is from miles per hour to kilometres per hour or not.

[23] According to another exemplary embodiment of the present invention, the field device is a wind energy plant for generating electric energy from wind energy. A first mode of operation is a wind on condition and a second mode of operation is an off-mode. The trigger condition is reached when the wind is stronger than a predetermined wind speed. The threshold is determined by a central controller/user. If the trigger condition is met, i.e., if the wind is stronger than the maximum allowed, a signal is transmitted to the remote control system which evaluates this information and reacts by transmitting a corresponding command signal to the respective wind energy plant, if necessary. As a result of such a transmission, the wind energy plant is turned off.

[24] According to another exemplary embodiment of the present invention, the system is further adapted for remotely controlling a second field device, i.e., the system is capable of controlling different, remote field devices.
According to another exemplary embodiment of the present invention, the first field device has a first mode of operation and a second mode of operation and the first Held device command signal is adapted for switching the first Held device from the first mode of operation to the second mode of operation.

According to another exemplary embodiment of the present invention, the system further comprises a conflict resolution module for deciding whether the first field device command signal or a second field device command signal will be transmitted to the first field device.

For example, if a first trigger condition is met and at the same time, or shortly after or before, a second different trigger condition is met, the conflict resolution module may analyze the data transmitted to the remote control system from the field device and, based on the data received and/or special conflict resolution rules which further action has to be taken, if a second command signal has to be transmitted to the Held device.

According to another exemplary embodiment of the present invention, the first field device is a terminal.

According to another exemplary embodiment of the present invention, the first field device is a wagering game terminal.
A another exemplary embodiment of the present invention, the remote
game terminal is a corresponding remote control.

It should be noted that in the following description "game terminal" or "wagering
game terminal" also refers to field devices per se. Furthermore, it should be noted that
features described with respect to such a game terminal or wagering game terminal and with
respect to a corresponding remote control system or a corresponding method also refer to
other terminals, corresponding remote control systems and methods. Furthermore, it should
be noted that a mode of operation may be a special terminal setting.

Another exemplary embodiment of the present invention, a method for
remotely controlling a first field device is provided, the method comprising the steps of

-ceiving a user input indicative of a user selection of a first field device setting
and a trigger condition, producing a first field device command signal based on the user
selection, responsive to an occurrence of the first trigger condition, causing the first field
device command signal to be transmitted to the first field device, and displaying a graphical
user interface showing a schedule for field device setting changes which is based at least in
part on the first selected trigger condition received by the input device.

Another exemplary embodiment of the present invention, the first field
device further comprises the steps of receiving terminals status information from the first field
display the terminals status information on the graphical user interface.
Furthermore, according to another exemplary embodiment of the present invention, a readable medium is provided, including instructions configured to be executed on a non-identified system, so that, if executed, the device is remotely controllable a first time via method comprising the several responses to receiving, initiating a user input indicative of a user selection of a first field device setting and a first trigger condition, producing a first field device command signal based on the user selection, responsive to an occurrence of the first trigger causing the first field device's signal to be transmitted to the first field device, and displaying a graphical user interface showing a schedule of first field device setting changes which is based at least in part on the user selection. The condition received by the input device.

Furthermore, according to another exemplary embodiment of the present invention, a program element for remotely controlling a first field device is provided, enabling a corresponding method to be executed by a processor, causing the processor to carry out the above-mentioned method steps.

The program elemento according to an aspect of the invention may be embodied as a computer program, i.e., including executable software components, and may be embodied in one or more computer-readable media, such as, for example, a CD-ROM, a DVD-ROM, a USB stick, or a hard disk, or other apparatus or devices, such as a field-programmable gate array (FPGA) or a programmable logic device (PLD).
on a computer-readable medium, such as a CD-ROM. Also, the computer program may be available from a network, such as the WorldWideWeb, from which it may be downloaded into image processing units or processors, or any suitable computers.

[39] Exemplary embodiments of the present invention will become apparent from and elucidated with reference to the embodiments described hereinafter.

[40] Exemplary embodiments of the present invention will be described in the following drawings.

[41] BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 illustrates a first example screen shot of a dynamic game management application, in accordance with an example embodiment of the present invention.

Figure 2 illustrates a second example screen shot of a dynamic game management application, in accordance with an example embodiment of the present invention.

Figure 3 illustrates a third example screen shot of a dynamic game management application, in accordance with an example embodiment of the present invention.

Figure 4 illustrates a fourth example screen shot of a dynamic game management application, in accordance with an example embodiment of the present invention.
Figure 5 illustrates a fifth example screen shot of a dynamic game management application, in accordance with an example embodiment of the present invention.

Figure 6 illustrates an example procedure for providing a dynamic game management application, in accordance with an example embodiment of the present invention.

Figure 7 illustrates an example system for providing a dynamic game management system, in accordance with an example embodiment of the present invention.

DETAILED DESCRIPTION OF EXAMPLE EMBODIMENTS

One embodiment of the present invention includes a flexible graphical user interface application for controlling a plurality of video lottery terminals and scheduling game terminal setting changes. For example, a game terminal setting change may involve
changing a pay table, a theme, or a denomination used at a terminal. Game terminal setting changes may also be triggered by events, such as a prize being awarded at a terminal. The application may also provide alerts from the terminals, for example, when terminal peripherals require maintenance or repair. The application may also provide theoretical and actual hold percentages of the terminals for a specified time period, based on the actual terminal game terminal settings in the past or scheduled terminal game terminal settings in the future.

Figure 1 illustrates a first example screen shot of a dynamic game management application, in accordance with an example embodiment of the present invention. The dynamic game management application may be configured to control a plurality of terminals from a server. For example, a terminal may be configured to provide a wagering game to a player and be a VLT as depicted in Figure 8. The terminals and the server may be in communication as depicted in Figure 7. Each terminal may include a game terminal setting which determines the wagering game it offers. The application may be used by a user to change the game terminal settings of the terminals, either presently or scheduled in the future.

A game terminal setting of a terminal may be changed with a game switch. A game switch may be a new terminal setting and a trigger condition inputted by the user. The game switch may be inputted through the application and transmitted from the server to the terminal for activation. When a game switch is activated, for example, when the trigger condition occurs, the terminal may change its setting in accordance with the game switch. For example, the game switch may specify a new theme, pay table, and denomination to use.
on the terminal. If the terminal lacks the necessary software components, it may download
the components from the server.

If two or more game switches are active at once, a conflict resolution
mechanism may be used to determine which game switch to execute on the terminals. In an
equivalent embodiment, a more recently inputted game switch may be used. In another
equivalent embodiment, a default game switch may be used. In another equivalent embodiment,
each game switch may be associated with a priority value, and the highest priority valued
game switch may be used.

It will be understood that the application as depicted in Figures 1-5 is one
embodiment creating a game switch. Alternative embodiments with graphical user interfaces
or command line interfaces are also possible.

The main display 100 displays a view of options available to the user. Tab
102 may activate a switch details view, as depicted in 100. Tab 104 may activate a job
summary view, as later described in Figure 5.

The switch details view may describe a switch configured by the user. For
example, a game switch may include a terminal setting change and a trigger condition when
the change is to be activated. For example, the trigger condition may be a time window with
a start and end time.

A date input 108 and a date range 110 may allow a user to select the date and
date range for which to display game terminal setting changes of the terminals. For example,
game terminal setting changes may be displayed in a game terminal setting activation
diagram 142, described below.
A filler criteria section 112 may allow the user to input filter criteria when viewing the game terminal setting activation diagram 142. Filtering criteria may include a vendor 114 of the terminal and a model 116 of the terminal. By selecting filtering criteria, the user may elect to only view those terminals fulfilling the filtering criteria. Clear filter button 118 may clear any filtering criteria selection, while the OK button 120 may enable filtering based on the filtering criteria, if any.

Job description 122 may be a text box for receiving a text description of the current job from the user. The current job may include all the game terminal setting changes inputted by the user, as displayed in the game terminal setting activation diagram 142.

The game terminal setting activation diagram 142 may include a terminal group explorer 124. The terminal group explorer 124 may display terminal groups to the user in a hierarchical manner. For example, the terminal may be divided into zones 126 and 128. Each zone may include banks of terminals. It will be understood that terminals may be grouped in any desired combination, either from geographical proximity, terminal characteristics, operator, or any other characteristic. Terminal characteristics may include make and model of the terminal, available games on the terminal, or other characteristic.

In the window 100, it can be seen that gaming device 1 includes game switches 130, 132, and 134. Each game switch may be associated with a trigger condition, for example, a time window, depicted in the time window display 144. For example, the time window display 144 may display a 24-hour period or any other time period as selected by the date range 110. Game switch 130 may be associated with a time window 146. Time window 146 spans the entire time range of the time window display 144. For example, game switch 130 may be a default game switch for gaming device 1. Game switch 132 has an authorized time window 148 and an unauthorized time window 150. Each game switch inputted into the application may require authorization from a supervisor, for example, a pit boss at a casino,
before being authorized, in one embodiment, only authorized game switches may be 
executed on terminals. Thus, unauthorized game switches may be displayed but never 
executed until they are authorized by the supervisor. Game switch 134 may be associated 
with a time window 152.

As can be seen, it is possible for a terminal to have multiple authorized time 
windows that overlapped. As described above, there may be conflict resolution modules for 
deciding which game switch to active in this case.

Similarly, gaming devices 136, 138, and 140 may include associated game 
switches, viewable when the user expands the associated gaming device entry. Gaming 
device 136 may be associated with an authorized time window 154 and an unauthorized time 
window 156. Unauthorized time windows may become authorized time windows after being 
authorized by the supervisor. For example, depicted lime windows in the time window 
display 144 may provide information on the game switch responsive to a user input, for 
example, when a mouse cursor hovers over the time window.

The time window display 144 may include a scroll bar 158 that allows the user 
to scroll before and after the depicted time frame. The time window display 144 may include 
a legend 160, which depicts the colors associated with an authorized lime window and an 
unauthorized time window.

In an alternative embodiment, a game switch may be activated responsive to 
events. For example, a game switch may be activated after a certain number of plays have 
occurred at a terminal, a certain amount of prizes have been awarded, or when terminals in a 
group are simultaneously being played by players.

Figure 2 illustrates a second example screen shot of a dynamic game 
management application, in accordance with an example embodiment of the present 
invention. A create new one-time game switch window 200 may be displayed responsive to
the user selecting to create a new one-time game switch. The window 200 may include a window title 202 ("Game Switch Schedule") and a set of window manipulation icons 204 (minimize, maximize, and close window). A game switch may include a game terminal setting and a trigger condition, such as a time window during which the terminal setting is active. The game switch may be associated with subset of a plurality of terminals in communication with the server. The game switch may be activated on a terminal during the time window, replacing a previous game terminal setting.

The window 200 may include a game switch details section 206. The details section 206 may include a description 208, where the user may input a text description of the new game switch. The details section 206 may include a software version 210, which may be automatically filled in by the system with the software available on the terminals being programmed. The details section 206 may include a vendor 212, which may be automatically filled in by the system with the vendor of the terminals being configured.

The details section 206 may include a theme column 214 which includes a theme field 216. Multiple theme fields may be available. The theme field 216 may receive a user input of a theme for the game switch. The details section 206 may include a hold percentage column 218 which includes a hold percentage column 220. The hold percentage column 220 may receive a user input of a hold percentage for the game switch. The hold percentage column 220 may display available hold percentages based on available pay tables at the terminal. In this example embodiment, each pay table may be approved by an appropriate regulatory agency and be associated with a corresponding hold percentage. The details section 206 may include a denomination column 222 which includes a denomination field 224. The denomination field 224 may receive a user input of a denomination for the game switch.
In addition, the details section 206 may include other fields. For example, a pay table field may receive a user input of what pay table to use in the game switch. A music field may receive a user input of what music to use in the game switch.

It will be appreciated that the user may elect to not input all details in the details section 206. For example, the user may elect to change the denomination in a game switch to a higher denomination among a group of terminals during a time window, each which may have a different active pay table and theme.

A game switch type 226 may receive a user input of what type of game switch to input. For example, game switches may be a one-time game switch, described here, a recurring game switch, described in Figure 3, or a default game switch, described in Figure 4.

A one-time game switch schedule section 228 may be displayed when the user selected to create a one-time game switch in game switch type 226. The one-time game switch may include a switch begin time 230 and a switch end time 232. The begin time 230 and end time 232 may define a time window during which the game switch will be active. During this time period, the game switch defined by the theme field 216, the hold percentage field 220, and the denomination field 224 will be active on the specified terminals. Other fields may also define the game switch, as described above.

The OK button 234 receives a player input to create the one-time game switch as described in the window 200. The cancel button 236 receives a player input to cancel the creation.

Figure 3 illustrates a third example screen shot of a dynamic game management application, in accordance with an example embodiment of the present invention. A create new recurring game switch window 300 may be displayed responsive to the user selecting to create a new recurring game switch. The window 300 may include a window title 302, a set of window manipulation icons 304, a details section 306, a description
310, a software version 312, a vendor 314, a theme column 316, a theme field 318, a percentage hold column 320, a percentage hold field 322, a denomination column 324, a denomination field 326, and a game switch type 328. These features may be similar to 202 to 226 of Figure 2, respectively. The window 300 may include a devices affected field 308, which may be a quantity of devices that will be affected by the game switch, as determined by the system.

The window 300 may include a game switch schedule section 330. The game switch schedule section 330 may provide options for the user to specify when the recurring game switch will be recur. The section 330 may include a recurrence begin time 332 and a recurrence end time 334. The user may input when the recurrence will begin and end. It will be understood that the recurrence end time 334 may be left blank if the recurrence is to recur indefinitely.

The switch time section 336 may provide options for the user to specify the time window during which the game terminal setting change will be active. For example, the time window may be every weekend from 5 to 7 pm. indefinitely. A checkbox 338 indicates which day of the week the time window is valid. A day of week description 340 indicates which day is being selected. A begin time 342 may receive a begin time for the time window of the respective date. End time section 344 may indicate when the time window is to end, with a day of week selector 346 and an end time input 348.

The OK button 350 receives a player input to create the recurring game switch as described in the window 300. The cancel button 352 receives a player input to cancel the creation.

Figure 4 illustrates a fourth example screen shot of a dynamic game management application, in accordance with an example embodiment of the present invention. A create new default game switch window 400 may be displayed responsive to the
user selecting to create a new default game switch. A default game switch may be set on the terminals absent any game terminal setting change. The window 400 may include a window title 402, a set of window manipulation icons 404, a details section 406, a description 408, a software version 410, a vendor 412, a theme column 414, a theme field 416, a percentage hold column 418, a percentage hold field 420, a denomination column 422, a denomination field 424, and a game switch type 426. These features may be similar to 202 to 226 of Figure 2, respectively.

The OK button 432 receives a player input to create the default game switch as described in the window 400. The cancel button 434 receives a player input to cancel the creation.

Figure 5 illustrates a fifth example screen shot of a dynamic game management application, in accordance with an example embodiment of the present invention. A job summary view 500 may be displayed responsive to a user selecting a job summary tab 504. Responsive to the user selecting the switch details tab 502, a switch details view may be displayed, as described above.

The job description view 500 may include job descriptions 506 and 516. Each job description may be a game switch inputted into the application. Sub features within each job description may be expanded through an explorer view in the job summary view 500. A sub job 508 may include an "authorize by" date, for example, 24 hours before the game switch's associated time window starts. This time may be modified depending on system requirements and time required to propagate the game switch to all terminals. A job
description may include a summary of the games 510 affected by the game switch, a schedule 512 for the game switch with a begin and end time, and a list of affected devices 514.

Figure 6 illustrates an example procedure for providing a dynamic game management application, in accordance with an example embodiment of the present invention. The procedure may execute on a server in a system as depicted in Figure 7. In one example embodiment, the procedure may execute on a mobile wireless device in communication with the server. It will be understood in the description of this figure that all inputs to and outputs from the server may also be provided from the mobile wireless device.

The procedure may be configured to provide an application to manage a plurality of VLTs from a server, for example, scheduling game terminal setting changes, viewing peripheral status, and calculating actual and theoretical hold percentages of the terminals.

In 602, the server may receive a user input including a selection of a game terminal setting and a trigger condition. The game terminal settings may be intended to replace a current game terminal setting on a terminal when the trigger condition occurs. The terminal may be one of a plurality of terminals in communication with the server. The terminal may be a VLT and as depicted in Figure 8. The game terminal settings may include, for example, a pay table, a music volume level, a theme, and a denomination in use by the terminal.

In an alternative embodiment, the trigger condition may be an event occurrence. The event may be a change in status of a terminal.

In 604, the server may produce a terminal command signal from the user input received in 602. For example, the user input may include a theme selection, a denomination, a pay table selection, or any other characteristic of the terminal. The terminal command signal may incorporate only changes in the terminal setting. The terminal command signal may be configured to change game terminal settings on a target terminal.
The user input may be displayed in a graphical user interface depicting screen shots as described in Figures 1-5. The user input may be depicted as Gantt diagrams, with time on one axis and terminal settings on another axis.

In 606, the server may optionally display a status of the terminal. The status may include, for example, peripheral notifications such as paper-low or paper-out notifications, failure notifications, terminals paying out prizes, and firmware and hardware information of the terminal. For example, a notification may be displayed if a status may interfere with terminal operations, such as paper-low, so that the user may maintain the terminal in working order.

In 608, the server may optionally wait for supervisor authorization of the user selection of a game terminal setting and a trigger condition received from the user in 602. The supervisor may be different from the user. The terminal command signal may first be transmitted to the supervisor for review. An authorization may be required before the game switch is executed at the terminal. In this example embodiment, a user may have primary responsibility of inputting the user selection of a game terminal setting and a trigger condition, while a supervisor such as a pit boss or floor boss has supervisory responsibility of approving any changes.

In 610, the server may test whether the trigger condition has occurred. For example, the trigger condition may be a start time of a time window. If it has, the server may modify the game terminal setting of the terminal in 612 to reflect the user selection of a game terminal setting and trigger condition by transmitting the terminal command signal to the terminal. It will be appreciated that the testing of the trigger condition may also occur at the terminal.

In another embodiment, the system may include a plurality of wagering game terminal. Each wagering game terminal may belong to a subset of the plurality. The server
may send a terminal command signal to each terminal within a subset, thus changing the settings of all terminals within the subset.

In another embodiment, the system may wait for a specified condition before transmitting the terminal command signal. For example, the system may wait for the terminal to be idle for a predefined period of time before transmitting the terminal command signal. In another example, embodiment, the system may wait for a group of terminals to be idle before transmitting the terminal command signal to all terminals in the group. It will be appreciated that certain terminal settings may be changed regardless of terminal idle state, such as music volume.

In 614, the terminal may download missing software components. If the terminal requires software components to execute the setting change which are not yet installed on the terminal, the terminal may automatically download the required components from a file server, which may be the server. The download may occur when the user selection of a game terminal setting is first inputted by the user, when the user selection of a game terminal setting is first authorized by the supervisor, when the user selection of a game terminal setting is transmitted to the terminal, when the user selection of a game terminal setting is executed on the terminal, or at any time before the game components are required by the terminal to provide the wagering game to a player.

In 616, the server may optionally receive a user request to calculate a theoretical and actual hold percentage of the terminal. In 618, the server may optionally make the required calculations. The theoretical hold percentage may be a time-weighted average of all pay tables active or scheduled to be active on the terminal. The actual hold percentage may be a percentage calculated from a wager received at the terminal and prizes awarded from the terminal. The calculated values may be displayed to the user.
Figure 7 illustrates an example system for providing a dynamic game management system, in accordance with an example embodiment of the present invention. The system may include a server 700 in communication with a plurality of terminals, for example, terminal A 714, terminal B 716, terminal C 718, and terminal D 720, over a network 712. For example, the terminals may be configured to provide wagering games to players and similar to the video lottery terminal depicted in Figure 8. Each terminal may be pre-loaded with a plurality of games and include a game terminal setting, which determines a current game offered to players on the terminal. Each game may include a pay table, a theme, and a denomination. The game terminal setting of each terminal may be changed from the terminal or from the server 700.

The terminals may be organized into banks, pits, rows, or other groups. For example, the terminals may be grouped depending on business and administration needs.

The terminals may be located in a gaming establishment such as a casino, a lounge, a bar or restaurant, or any other establishment where wagering game terminals are allowed. The terminals may be distributed across multiple establishments located in a geographical locale or jurisdiction.

For example, the network 712 may be the Internet, a private network, a virtual private network, a wide area network, or any other network configured to carry communications. The network 712 may carry communications between the server 700 and the terminals. For example, the communications may be encrypted or otherwise secured.

The server 700 may be located in a central location to the terminals. The server 700 may be in communication with and control the terminals over the network 712. The server 700 may receive inputs from a user regarding desired changes to terminal setting. Each terminal setting change may be associated with a trigger condition. The terminal setting
change may be activated when the trigger condition occurs. The terminal setting change may include changes to the pay table, theme, and denomination of a terminal.

In one embodiment, each game terminal setting change is stored at the server 700 and transmitted to a corresponding terminal when the trigger condition occurs, where the terminal setting is modified. In another embodiment, each game terminal setting change is immediately transmitted to the corresponding terminal when entered and approved, if necessary, at the server 700. The terminal will then activate the terminal setting change when the trigger condition occurs.

The server may include a processor 702 configured to execute the procedure depicted in Figure 6A. The processor may be in communication with a display 706. The display 706 may be configured to provide output to a user and display screen shots as depicted in Figures 1 to 5. For example, the display 706 may be a CRT, a LCD, an LLvD screen, or any other device configured to display output to the user. The server 700 may include a network interface 708 configured to interface between the processor 702 and the network 712. The server 700 may include an input device 710 for receiving input from the user. For example, the input device 710 may be a keyboard, a pointing device, or any other device configured to receive an input from the user and transmit the input to the processor 702. The server 700 may include a wireless interface 704. For example, the wireless interface 704 may be configured to wirelessly communicate with a mobile device.

The system may include a wireless device 722. For example, the wireless device 722 may be carried by the user while moving among the terminals. For example, a pit boss may desire to observe the terminals in action while inputting commands on the wireless device 722. The wireless device 722 may function as a mobile input device for the server 700.
The wireless device 722 may include a display 728, which may be similar to the display 706 of the server 700. The wireless device 722 may include a storage medium 730. For example, the storage medium 730 may be any machine-readable medium, such as random access memory, a hard disk, flash memory, or any other medium. The storage medium 730 may be used to store data required by the wireless device 722 or the user. The wireless device 722 may include an input device 732, which may be similar to the input device 710 of the server 700. The wireless device 722 may include a wireless interface 724, which may be configured to interface with the wireless interface 704, thus providing communications between the wireless device 722 and the server 700.

It will be understood that there may be intermediaries between the wireless interface 724 of the wireless device 722 and the wireless interface 704 of the server 700. For example, there may be routers and repeaters used to improve the range of the wireless communications between the server 700 and the wireless device 722.

The server 700 may also be configured to include a supervisor. For example, the supervisor may be required to approve any changes to game terminal settings of the terminals. In this embodiment, configure changes may be inputted by the user at the server 700 or the wireless device 722, and the supervisor may approve the game terminal setting changes by providing identification information to the server 700 or remotely, such as from the wireless device 722.

Figure 8 illustrates an example video lottery terminal, in accordance with an example embodiment of the present invention. For example, the VLT may be a terminal designed to provide a game of chance to a player, such as a video slot game, a video poker game, a video keno game, or any other video wagering game. It will be understood that the VLT can be replaced by any other video game terminal, such as a video slot machine terminal. In an alternative embodiment, the VLT may be a non-video game terminal, such as
a mechanical reel slot machine. A mechanical reel slot machine may replace the display screen with a quantity of reels which spin and display symbols to the player. The VLT may be in communication with a server. In one embodiment, all processing may be executed at the server, while the VLT receives user input, displays any output, and awards any prizes. In another embodiment, the processing may be done by the VLT, while game terminal setting changes and other functionality may be located at the server.

A video gaming machine 810 may be configured to conduct a game of chance. For example, a game of chance may be a slot machine game, a lottery, a video game, or another game of chance involving a wager. For example, the video gaming machine 810 may be a video poker game terminal, a video slot machine, or a video game terminal. The video gaming machine 810 may be in communication with a server. Alternatively, the video gaming machine 810 may be a standard slot machine terminal.

The video gaming machine 810 may include a blinder 812. The blinder 812 may enclose a light source configured to blink on and off. For example, the blinder 812 may be configured to blink when a large prize is awarded from the video gaming machine 810.

The video gaming machine 810 may include a lighted display 814. For example, the lighted display 814 may include a logo, a game name or other visually attractive graphics. The lighted display 814 may alternatively be a liquid crystal display screen. For example, the lighted display 814 may be configured to display graphics and text.

The video gaming machine 810 may include a display screen 816. For example, the display screen 816 may be a liquid crystal display screen (LCD) or a cathode ray tube (CRT) screen. For example, the display screen 816 may enclose a viewable display area visible to a player. Alternatively, the display screen 816 may be a touch screen, configured to accept player inputs of touching the screen.
The video gaming machine 810 may include a player's card accepter 818, a printer 820 and a currency accepter 832. For example, the player's card accepter 818 may accept a frequent player's card. The frequent player's card may include a player's identifying information and play history. Alternatively, the frequent player's card may include an identifier that is associated with a player's identifying information and wager history. For example, the printer 820 may be configured to print a voucher or ticket for the player. The currency accepter 832 may be configured to accept cash bills in various denominations for a player's wager. The currency accepter 832 may also be configured to accept printed vouchers and tickets.

The video gaming machine 810 may include input modules 822. For example, the input modules 822 may be a set of buttons. The input modules 822 may be configured to receive input from a player during a game of chance. Other forms of input modules may be used, for example, a mouse-pointer device or a voice recognition module.

The video gaming machine 810 may include a dispenser tray 824 and a dispenser 826. The dispenser 826 may be configured to dispense a prize. For example, a prize may be currency or a prize receipt redeemable at a cashier. The dispenser tray 824 may be configured to catch the prize after it is dispensed.

The video gaming machine 810 may include openings 828, 834 and 836. Opening 828 may be configured to allow sound through. For example, interior speakers may be located behind opening 828. The openings 834 and 836 may be configured to allow ambient air to circulate into and out of an interior of the video gaming machine 810. Ambient air circulation may assist in maintaining an optimal operating temperature for the video gaming machine 810.

The video game machine 810 may include a latch 830. For example, the latch 830 may be configured to release a front door of the video gaming machine 810 for opening.
When the front door is opened, it may be possible for a technician to access an interior of the video game machine 810 for upgrades or maintenance.

It will be appreciated that the procedures described above may be in the form of machine-executable instructions stored on a machine-readable medium. The procedures may be thus read from the medium and executed by a processor on a machine to execute the procedure.
Pig. 10 shows a schematic representation of a remote control system 801. The system 801 comprises an input device configured to receive a user input indicative of a user selection of a game terminal setting and a trigger condition; a processor in communication with the input device, the processor configured to produce a terminal command signal based on the user selection received by the input device, and responsive to an occurrence of the trigger condition, to cause the terminal command signal to be transmitted to the terminal; and a display in communication with the processor, the display configured to display a graphical user interface showing a schedule for terminal setting changes which is based at least in part on the user selection received by the input device. The processor is further configured to receive a terminal status of the terminal, and the display is further configured to display the terminal status to the user. The terminal status includes peripheral notifications of the terminal. The trigger condition is a start time. The trigger condition is an event occurrence. The event is a status change of the terminal. The game terminal setting includes a pay table selection, a...
wagering game theme SelectOn, and a denomination selection for use at the terminal. The game terminal setting includes a desired music volume and a music selection of the terminal. The terminal command signal is transmitted responsive to transmitting the terminal command signal to a supervisor for review, and receiving an authorization from the supervisor. The processor is further configured to request an authorization from a supervisor prior to transmitting the terminal command signal, wherein the supervisor is not the user. The processor is further configured to download components to the game terminal, when the terminal command signal switches the terminal to a setting for which the terminal is missing components. The system may further comprise: a plurality of terminals. The plurality of terminals includes at least one subset of terminals, and each terminal of the subset switches its setting responsive to receiving the terminal command signal. The processor is further configured to, responsive to a user request, calculate a theoretical hold value and an actual hold value for the terminal over a specified time period. The input device and display are part of a mobile wireless device. The mobile wireless device is in communication with the processor via a wireless network. The schedule is depicted as a multi-dimensional graphical representation with an axis representing lime and another axis representing terminal settings. The graphical user interface includes a representation of a timeline, and the user inputs a begin time by selecting a time on the representation. The graphical user display includes a representation of game terminal settings and the user inputs the game terminal setting by selecting settings on the representation. The processor is further configured to cause a default command signal to be transferred to the terminal responsive to an ending trigger condition. The ending trigger condition is an end time.

A method for remotely controlling a wagering game terminal, comprising: responsive to receiving a user input indicative of a user selection of a game terminal setting and a trigger condition, producing a terminal command signal based on the user selection;
responsive to an occurrence of the trigger condition, causing the terminal command signal to be transmitted to the terminal; and displaying a graphical user interface showing a schedule for terminal setting changes which is based at least in part on the user selection and trigger condition received by the input device. The method may further comprise: receiving terminal status information from the terminal; and displaying the terminal status information with on the graphical user interface. The terminal status includes peripheral notifications of the terminal. The trigger condition is a start time. The trigger condition is an event occurrence. The event is a status change of the terminal. The game terminal setting includes a pay table selection, a wagering game theme selection, and a denomination selection for use at the terminal. The game terminal setting includes a desired music volume and a music selection of the terminal. The method may further comprise: transmitting the terminal command signal to a supervisor for review; receiving an authorization from the supervisor; and transmitting the terminal command signal responsive to receiving the authorization from the supervisor. The method may further comprise: prior to transmitting the terminal command signal, request an authorization from a supervisor, wherein the supervisor is not the user. The method may further comprise: downloading missing components to the terminal responsive to receiving the terminal command signal when the terminal command signal switches the terminal to a setting for which the terminal is missing components. The method may further comprise: transmitting the terminal command signal to a subset of terminals within a plurality of terminals, wherein each terminal of the subset switches its setting responsive to receiving the terminal command signal. The method may further comprise: calculating a theoretical hold value and an actual hold value for the terminal over a specified time period; and displaying the theoretical and actual hold values to the user. The user input is received and the graphical user interface is displayed at a mobile wireless device. The schedule is depicted as is depicted as a multi-dimensional graphical representation with an axis representing time and
another axis representing terminal settings. The graphical user interface includes a representation of a timeline, and the user selection of a trigger condition is received when the user selects a begin time by selecting a time on the representation. The graphical user display includes a representation of game terminal settings and the user selection of the game terminal setting is received when the user selects settings on the representation. The method may further comprise: responsive to an ending trigger condition, causing a terminal command signal to be transmitted to the terminal. The ending trigger condition is an end time.

A computer readable medium including instructions configured to be executed on a processor, so that the processor performs the steps of a method for remotely controlling a wagering game terminal, comprising: responsive to receiving a user input indicative of a user selection of a game terminal setting and a trigger condition, producing a terminal command signal based on the user selection; responsive to an occurrence of the trigger condition, causing the terminal command signal to be transmitted to the terminal; and displaying a graphical user interface showing a schedule for terminal setting changes which is based at least in part on the user selection and trigger condition received by the input device.

1128] It should be noted that the term "comprising" does not exclude other elements or steps.

1129] It should also be noted that reference signs in the claims shall not be construed as
CLAIMS

1. System for remote control of a first field device, the system comprising:

   an input device configured to receive a first user input indicative of a first user

   selection of a first field device setting and a first trigger condition;

   a processor in communication with the input device, the processor configured to

   produce a first field device command signal based on the first user selection received by the

   input device, and responsive to an occurrence of the first trigger condition, to cause the first

   field device command signal to be transmitted to the first held device: and

   a display and communication device, the processor, the display configured to display a

   graphical user interface showing a schedule for field device setting changes which is based at

   least in part on the first user selection received by the input device.

2. System of claim 1, further adapted for remotely controlling a second field device.

3. System of claim 1 or 2,

   wherein the first field device command signal is adapted for switching the first field

   device from the first mode of operation to the second mode of operation.

4. System of one of the preceding claims, further comprising:

   a conflict resolution module for deciding, whether the first field device command

   signal of a second field device command signal will be transmitted to the first field device.

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3. System of one of the preceding claims wherein the display is further configured to display a terminal status to the terminal.

4. System of one of the preceding claims wherein the display is configured to display a terminal status to the terminal.

5. System of one of the preceding claims wherein the display is configured to display a terminal status to the terminal.

6. System of one of the preceding claims wherein the display is configured to display a terminal status to the terminal.

7. System of one of the preceding claims wherein the display is configured to display a terminal status to the terminal.

8. System of one of the preceding claims wherein the display is configured to display a terminal status to the terminal.

9. System of one of the preceding claims wherein the display is configured to display a terminal status to the terminal.

10. System of one of the preceding claims wherein the display is configured to display a terminal status to the terminal.

11. System of one of the preceding claims wherein the display is configured to display a terminal status to the terminal.

12. System of one of the preceding claims wherein the display is configured to display a terminal status to the terminal.
13. System of one of the preceding claims, wherein the yamc terminal selling includes a pay

14. System of one of the preceding claims, wherein the game terminal setting includes a

desired music volume and a music selection of the terminal.

15. System of one of the preceding claims, wherein the first field device command signal is
transmitted responsive to transmitting the first field device command signal to a supervisor

16. System of one of the preceding claims, wherein the processor is further configured to
download command signals from the first field device. When the first field device command signal
switches the first field device to a setting or operation mode for which the first field device

17. System of one of the preceding claims, wherein the processor is further configured to
downloading command signals from the first field device. When the first field device command signal
switches the first field device to a setting or operation mode for which the first field device

18. System of one of the preceding claims, further comprising a plurality of field devices.

19. System of one of the preceding claims, wherein the plurality of field devices includes at
least one subset of terminals, and each terminal of the subset switches its selling responsive to
receiving the first field device command signal.
20. System of one of the preceding claims, wherein the processor is further configured to,

first field device over a specified time period.

21-1 ivstq h of one of the preceding claims, wherein the input device and display are part of a

22. System of the preceding claims, wherein the input device, display and the processor are part of a

23. System of the preceding claims, wherein a two-dimensional graphical representation with an axis representing time and another axis

24. System of one of the preceding claims, wherein the graphical user interface includes a

25. System of the preceding claims, wherein the graphical user display includes a

representation of a game terminal settings and the user inputs into game terminal settings by

selecting settings on the representation.
26. System comprising a terminal responsive to an
endpoint, comprising steps of:
cause a default command signal to be transferred to the first field device responsive to an
end.
27. System of claim 26, wherein the ending trigger condition is an end time.
28. A method of receiving a user input indicative of a user selection of a first field device
setting and a first trigger condition, producing a first field device command signal based on
command signal being transmitted to the field device; and
displaying a graphical user interface comprising a schedule for the field device.
29. The method of claim 28, wherein the first field device is a terminal.
30. A terminal comprising:
setting the terminal as a peripheral device.
32. The method of one of claims 28 to 32, wherein the trigger condition is an event occurrence.

33. The method of claims 28 to 32, wherein the trigger condition is an event occurrence.

34. The method of claim 33, wherein the trigger condition is an event occurrence.

35. The method of claims 28 to 34, wherein in a game terminal selects a play table selection, a wagering game theme selection, and a denomination selection for use at the terminal.

36. The method of claims 28 to 35, wherein in a game terminal sells includes a desired music volume and a music selection of the terminal.

37. The method of claims 28 to 36, wherein the method further comprises the steps of:

transmitting the first field device command signal to a supervisor for review;

receiving an authorization from the supervisor; and

transmitting the first field device command signal responsive to receiving the authorization from the supervisor.

38. The method of claims 28 to 37, wherein the method further comprises the steps of:

transmitting the first field device command signal, request initialization from a supervisor, wherein the supervisor is not the user.
39. The method X of claims 28 to 38, wherein the method comprises the step of:

- downloading missing components to the device responsive to receiving the first field device command signal when the first field device command signal switches the first field device to a setting wherein the device is responsive to receiving the first field device command signal.

40. The method of one of claims 28 to 39, wherein the method further comprises the step of:

- calculating a theoretical hold value and an actual hold value for the first field device and displaying the theoretical and actual hold values to the user.

42. The method of one of claims 28 to 41,

- depicting as a multi-dimensional graphical representation with an axis representing time and another axis representing terminal settings.

43. The method of one of claims 28 to 42.
wherein the graphical user interface includes a representation of a timeline, and the user selection of a trigger condition is received when the user selects a begin time by selecting a time on the representation.

45. The method of one of claims 28 to 45 further comprising the step of commanding the field device at the begin time.

46. A computer readable medium including instructions configured to be executed on a processor, so that the processor performs the steps of a method for remotely controlling a first field device comprising the steps of:

responsive to an ending condition causing a field device command signal to be transmitted to the first field device and

47. The method of one of claims 28 to 46, wherein the trigger condition is received when the user selects a begin time by setting and a first trigger condition producing a first field device command signal to be transmitted to the first field device; and

com mand signal to be transmitted to the first field device; and
displaying a graphical user interface showing schedule data for a first field device. The content is based at least in part on the user selection and trigger conditions received by the input device.

A play element for remotely controlling a first field device. This is executed by a processor (401), causing the processor to carry out the steps of the user selection:

a schedule for a first field device and

the user selection:
<table>
<thead>
<tr>
<th>Game Switch Details</th>
<th>Game Switch Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Vendor:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Software version:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Hold %</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Theme</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Denomination</strong></td>
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<tr>
<td><strong>Text</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Text</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Switch time:** Wednesday, October 11, 2006

**End time:** Wednesday, October 11, 2006

**Set default games:** 226

**Recurring:**

**Occurs once:**

**Set default games:**

**OK**

**Cancel**
BEGIN

RECEIVE USER INPUT 602

YES

PRODUCE TERMINAL COMMAND SIGNAL 604

DISPLAY TERMINAL STATUS 608

RECEIVE SUPERVISOR AUTHORIZATION? 608

YES

TRIGGER CONDITION OCCUR? 610

YES

TRANSMIT TERMINAL COMMAND SIGNAL 612

DOWNLOAD MISSING COMPONENTS 614

RECEIVE USER REQUEST TO CALCULATE HOLD VALUES? 616

YES

CALCULATE HOLD VALUES 618

END

FIG. 6
FIG. 10