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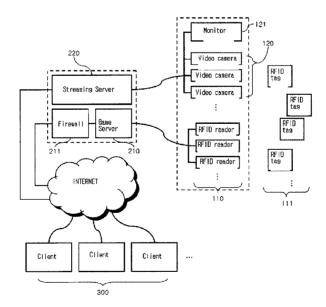
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(54) Title: A SYSTEM FOR PLAYING A REMOTE CARD GAME USING RFID



(57) Abstract: The present invention relates to a system for playing a remote card game, which automatically recognizes the card information by using the RFID so that a user remotely connected can play a game with high reliability. An object of the present invention is to provide a system for playing a remote card game using a RFID, which can automatically pursue and record a situation that a game is playing by building- in the RFID tag in a card so that a player in a long-distance can conveniently participate in a game by transmitting the information through a network. The system of this invention includes: a RFID tag built- in the respective cards one by one,- at least one RFID reader,- a game server at least one client and a monitor.





[DESCRIPTION]

[Invention Title]

A SYSTEM FOR PLAYING A REMOTE CARD GAME USING RFID

5 [Technical Field]

The present invention relates to a system for playing a remote card game using a RFID, and more particularly to a system for playing a remote card game, which automatically recognizes the card information by using the RFID so that a user remotely connected can play a game with high reliability.

[Background Art]

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Nowadays, there is a well-formed environment capable of conveniently receiving services of all kinds of business, regardless of a user's location, due to the development of the internet environment. Representatively, there is an example of financial services traditionally required a visit to a bank or securities firm, etc. that can remotely be solved by using an internet banking or a phone banking. In the same manner in entertainment, the demand and consumption of on-line games capable of comfortably being participated in other users by using a network, without directly meeting the other users in a long-distance, have shown a tendency to increase.

Card games played in a casino, etc., which are not

irrelevant to such a tendency, have a constant request that a player can remotely participate in a game through a means such as an internet, etc., despite not directly visiting the casino. However, the casino game is a game played based on the reliability between a dealer and a player. In general, when a player plays a game by directly visiting the casino, player directly sees the game being playing so that he can have the reliability on the dealer, however, when the game is remotely played, it is difficult for him to have reliability. Also, when directly playing the game, the player can directly complain to the dealer when he is discontent or the dealer makes a mistake, however, when remotely playing the game, it is difficult for the player to show such a direct and instant response, so that there is an aspect that such a system for playing the remote card game cannot actively be revitalized. Therefore, when remotely playing a card game, it has been requested that a system capable of providing high reliability to a player and completely excluding mistakes or violation of rules in playing the game be developed.

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According to such a request, there have been prior arts such as Korean Patent No. 10-0240773 ("GAMES SYSTEM FOR PROFERSSIONAL CARD OR TOKEH TABLE GAMES, IN PARTICULAR BLACK JACK", hereinafter, referred to as 'cited reference 1") and Korean Laid-Open Patent Publication No. 10-2004-0066743 (RF

GAME CARD, GAME INTERFACE METHOD USING THE SAME, AND SECURITY METHOD AND SEVER FOR THE SAME, hereinafter, referred to as 'cited reference 2').

The cited reference 1 including an optical recognition device on an exclusive table for a card game, allows a card (or more preferably, a bar-code printed on one side of the card) to pass by the optical recognition device so that individual cards can be recognized and game data can be stored.

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Thereby, when complains for the mistakes of a dealer or a player or the violation of rules are raised, the order, etc., when cards have been distributed from the beginning of the game, can perfectly be replayed so that they can fairly be solved, and each game data are accumulated so that they can be used as statistical data. Also, the location of the chip for betting can automatically be recognized by reading the color of each chip for betting and a device such as a RFID tag built-in the chip for betting by means of the optical recognition device, making it possible to easily and conveniently bet without a complicate calculation.

However, the problem of the cited reference 1 is that since the recognition of the card is only made with a pattern and color of the card or with the bar-code separately printed on one side thereof, the card should pass by a specific location, that is, the optical recognition device. Of course,

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when playing a game such as a black jack particularly defined in the cited reference 1, a professional game room such as a casino, etc., commonly adopts a manner to fully mix a pack of cards before beginning a game, to put the mixed cards into an equipment such as a box capable of collecting the cards in order, and then to pick up each card from the equipment in a box shape to distribute it to a dealer or a player. Therefore, in such a game, it may be easy that the optical recognition device is mounted or the card necessarily passes by a specific location. However, in other game not taking such a manner, since the game should be played only after the whole cards pass by the specific location, such as a dealing of cards, etc., the operation of the dealer becomes unnatural and complicate, and furthermore it is obvious that the player cannot feel as if he actually plays a game according to the dealer's unnaturalness. Also, when the pattern or the bar-code of the card is damaged, such as being stained with foreign material, etc, it cannot but exclude the possibility to cause errors due to the failure of the optical recognition device in recognizing the card. Furthermore, in order to play a card game in the manner as shown in the cited reference 1, a specifically manufactured table must be used and therefore, it costs a great deal in introducing the system.

Also, the cited reference 2 uses a manner to built-in a

RFID tag into a game card so that the information used in playing a game is transmitted. In particular, the game cards are trading cards used in a trading card game (TCG) and the respective cards include the person information represented as persons, robots, monsters, animals and plants, weapons, etc., the characteristic information represented as jobs, fighting power, defensive power, horsepower, etc., and the tool information represented as weapons, protections, liquid medicines, traps, etc. The TCG can be played by the cards invented by the cited reference 2 is not a game played by cards of which mate is completely set in one pack such as playing cards or flower cards, but a game battling with others by forming his own deck according to the prescribed rules having cards with a specific theme. Although the TCG is a game having a similar method with a table role playing game (TRPG), it uses a certain card and is more of a battle, differing from the TPRG using a rule book and a die. As can be appreciated from the property of the TCG, the value of the trading cards satisfy the is determined depending on whether it can superiority in view of the game such as deck constitution rules, battle rules, and ability balance among the respective cards, etc., and the player's taste, such as themes, card design, and illustration of the set thereof.

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However, the conventional trading cards are nothing but

simply printing card designs on material in a plate shape such as a paper so that they can be easily and illegally duplicated and furthermore, the rules of the TCG are provided free so that there is no difficulty in playing the TCG with the illegally duplicated cards. Therefore, there are many cases that TCG licenses suffer serious damage due to the illegal duplication of the game cards using the game rules developed in their companies.

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The cited reference 2 has been proposed in order to solve the above problems. A security system for preventing the illegal duplication is stored in the RFID tag built-in the cited reference 2. Also, since very diverse cards are used in the TCG as described above, it is very difficult for players to memorize the information on the whole trading cards one by one so that the information on the game rules as well as the security system are stored in the RFID tag, making it possible to smoothly play the game. However, if such trading cards conform to the rules of a certain TCG set, a plurality of new trading card can be sold and added, and it is well-known that the profit of the TCG development and the sellers is actually created therefrom. The trading card are clearly distinguished from these sorts of cards such as playing cards or flower cards used in a casino, a professional game room, etc. Therefore, their objects do not coincide with each other for applying the technique in the cited reference 2, that is, the technique invented to be used in the trading cards, to the general cards such as playing cards or flower cards.

Therefore, there has been a constant request for the technique capable of being used in these sorts of cards such as playing cards or flower cards and resolving these problems as described above from the users.

[Disclosure]

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[Technical Problem]

Therefore, the present invention is proposed to solve the problems of the prior art as described above. An object of the present invention is to provide a system for playing a remote card game using a RFID, which can automatically pursue and record a situation that a game is playing by building-in the RFID tag in a card so that a player in a long-distance can conveniently participate in a game by transmitting the information through a network. Another object of the present invention is to provide a system for playing a remote card game using a RFID, which enables for a player participated in a game in a long-distance to trust a game room by entirely recording the information on a game playing situation as well as enables for an operator of a game room to obtain data capable of gathering each statistics at needs.

[Technical Solution]

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The system for playing a remote card game using a RFID according to the present invention in order to accomplish the above objects includes: a RFID tag storing and transmitting game information including discrimination, locations, states of cards and built-in the respective cards one by one; at least one RFID reader receiving the information from the RFID tag; a game server collecting and storing the game information received from the RFID reader in real time and transmitting the game information through a fixed line /a wireless internet; at least one client receiving the game information from the game server through the internet and transmitting a selection or a betting intention for playing the game to the game server in real time; and a monitor provided so that a dealer of the card game can monitor the game information transmitted to the client and the player's intention received from the client in real time. At this time, the RFID reader is characterized by being installed on a specific location within a predetermined radius recognizable according to the rules of the card game. It is preferable that the game information that the RFID reader receives from the RIFD tag includes: discrimination information constituted by patterns and numbers of the cards to discriminate cards; location information recognizing the locations where the cards

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are put; and state information judging whether or not the cards are put to look at the patterns and the numbers of the cards. Also, the game server collects and stores the game information according to the sets of each card game, and at this time, the card game set information includes game information from beginning to end of a card game in one time, beginning time and ending time, table number where the card game is playing, identification information of a dealer and a player participated therein, and betting information. Herein, it is preferable that the game server further includes a firewall implemented in hardware and software for security. Also, it is preferable that the system for playing a remote card game further includes a video camera photographing an image of a card game in real time; a streaming server transmitting the image information photographed by the camera through an internet in real time. It is preferable that the client more receives the image information together with the game information, and the monitor more displays the image information. At this time, the client is characterized by any one selected from a desk-top computer, a notebook computer, a PDA, and cellular phone.

[Advantageous Effects]

The system for playing a remote card game using a RFID

according to the present invention has an effect capable of easily, safely, and remotely enjoy the game although the player directly goes the place such as a casino, etc. In addition, according to the present invention, the RFIG tag and reader is used to remove the inconvenience that conventional cards must be passed through the recognition device one by one. Accordingly, the game act of the dealer is not clumsy but is very natural unlikely the prior art to be able to allow the dealer to progress the convenient and natural game and the player to improve the same feeling that he/she plays the game while looking at the real game before his/her eyes. Also, game information is automatically acquired by using the RFID tag and reader as described above so that the mistake of the dealer or the player can be excluded, making it possible to increase the reliability of the player. In addition, the game information acquired as described above is stored so that it is a base able to fairly and correctly make a decision if the dissatisfaction that the dealer or the player has made a mistake or injustice is transferred, thereby maximizing the fairness of the game to make it possible to also raise the reliability of the player. Furthermore, the game information accumulatively stored can be used for a game dealer (i.e., the operator of a casino, etc.) to obtain useful numerical data such as winning average of each dealer or each

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player and all kinds of statistics, etc. so that the problems relating to the operation of a game dealer can be easily solved thereby as well as it can be very usefully and valuably used in a university or a research institute as research material of probability and statistics. Also, a system for playing a remote card game according to the present invention photographs a game playing situation by using a video camera and allows it to be displayed on a client of a player's side in real time so that a player can be clearly informed that a game currently played is not a simulation, etc. but a actual game played among real persons, making it possible to greatly increase the player's reliability.

[Description of Drawings]

The above and other objects, features and advantages of the present invention will become apparent from the following description of preferred embodiments given in conjunction with the accompanying drawings, in which:

Fig. 1 is a system view of a system for playing a remote card game according to the present invention; and

FIG. 2 is a game phase view using a system for playing a remote card game according to the present invention.

* * Description for Key Elements in the Drawings **

110: RFID reader 111: RFID tag

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120: Video camera 121: Monitor

210: Game server 211: Firewall

220: Streaming server 300: Client

(A), (B_1) , (B_2) , (C), (D): Each game phase

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[Best Mode]

Hereinafter, the embodiments of a system for playing a remote card game using a RFID of the present invention having as described above will be described in detail with reference to accompanying drawings.

FIG. 1 shows a system for playing a remote card game according to the present invention.

First, a dealer distributes a card with a built-in RFID tag 111 in a gaming place. The signal transmitted by the RFID tag 111 is received as game information by means of at least one RFID reader 110, which is installed at a proper location. Preferably, the game information includes: discrimination information informing what patterns and figures of a card (for example, information on spade A, heart 3, etc.) with the built-in RFID tag 111 are; location information informing whether the card with the built-in RFID tag 111 is put at a specific location according to a game rule, depending on what a location at which the card is put is closest to any specific RFID reader 110 or is at distance with the RFID reader 110;

indicating whether the card with the built-in RFID tag 111 is turned over and otherwise, whether the pattern and figure of the card are revealed. Since the discrimination information is very simple information, it can be displayed with a very small number of bits. Also, since the location measurement can sufficiently be performed using the frequency intensity of the signal from the RFID tag 111 or the time difference in receiving for the RFID reader 110 the signals from the same RFID tag 111, rather than performing the complicated location measurement by means of the RFID tag 111, the location information does not have to implement complicatedly.

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Preferably, the at least one RFID reader 110 is disposed at a proper location according to a game rule as described above. Typically, it has been well known in the table card game that there are special locations, such as a place at which the turned over cards (i.e., yet unused cards) is accumulated, a place on which a player puts given cards, a place to which the cards is moved. Accordingly, the respective RFID readers 110 are installed at such special locations so that upon sensing that a specific card (for example, 7 of a heart), that is, the RFID tag 111 built-in the specific card is closest to the RFID reader 110 installed at any special location (for example, location A), the information on 'the

heart 7 is put at the location A' can be recognized. At this time, whether the specific card is the hart 7 and is turned over or not can be recognized by means of the RFID reader 110 according to the contents of the signal transmitted by means of the RFID tag 111. IF the system for playing the remote card game according to the present invention is not commercial but a person intends to play a remote game with his close friend by purchasing only a set of the system, a table is not required. In actual, however, since the demand of the system for playing the remote card game is increasing in a special gaming place, it is preferable that the table for the card game is equipped. Of course, a dedicated table may be manufactured in order to accurately capture a special location of the RFID reader 10 and the RFID reader may be equipped to be properly attached to the table for the existing used card game.

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The game information received by means of the RFID reader 110 is collected and stored in a game server 210. Since the plurality of RFID readers 110 may be installed in one game table, the game server 210 collects the information from the plurality of RFID readers 110 by set of each card game. Of course, the meanings that the information is collected by set of each card game means that the card game played once in the specific table becomes one set by sensing the information by

game table as well as the information on the beginning and end of the card game. In order words, it means that the game information can be collected and stored in a manner such as in a table A/20XX-XX-XX/from P.M. 1:37 to P.M 1:50/progressed game No. 1234'. In order to increase the convenience of the gaming place as well as the players themselves, it includes personal information preferable that the game information on the dealer and player participating in the game. At this time, since the dealer progresses the game only in the table under his charge for prescribed time, the personal information on the dealer may be simply matched to the table information. Since the present invention considers the system for playing the remote card game, the player should access a specific website and then subject to an identity verification procedure confirming the person in question so that he can play the game according to the present invention. Therefore, the personal information of the player can be stored through this process. When there are the complains that the mistake or the act of injustice by the dealer or the player is committed, complains can be rapidly and accurately solved by publishing the recorded information in the stored information. Also, since the game information is accumulated and stored, the game host, that is, the casino operator can obtain a useful numerical data such as various statistics, etc.

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More specifically, the accumulated game information can be very useful to solve the problems in operation by evaluating whether the actual results of the dealer A is good according to his percentage of victories or contesting the excellent dealer with a specific player B with the high percentage of victories when he enters, etc. Further, according to the present invention, the data with high utilization and value, such as statistics-related data given to each university or laboratory in order to make various probability study using the card game, etc., can be permanently stored.

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As described above, since the present invention considers the system for playing the remote card game, in order that each player accesses the remote card game according to the present invention, they should have their player client 300. If a connection program suitably developed for the platform of the client 300 is installed, any system capable of confirming identity and accessing an internet such as a generally used computer, a PDA, or a cellular phone may be used as the client 300. As described above, the game information read by the RFID tag 111 built-in each card and the RFID reader 110 installed in each special location is transmitted through the internet by means of the game server 210 so that the player can be appreciated in real time that the card distributed by the dealer is put at which location, is turned over, and if the

card is not turned over but the front of the card is put to be revealed, the card is what card, etc. Also, the player can choose to get a further card or to stop getting a further card at proper time and he inputs the intention of the betting, etc., to the client 300 at proper time and the client 300 transfers the intention of the player to the game server 210. The transferred intention of the player is displayed on the monitor 121 so that the dealer can see it. Accordingly, the dealer recognizes the intention of the player to continuously progress the game. Preferably, the monitor 121 viewed by the dealer displays currently progressed game landscape, which is displayed on the screen of the client 300.

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However, since the game information is transferred through the internet in real time, there may be risk of the hacking or eavesdropping of the game information on other player or other table. When there are such risks, since the will of the player intending to participate in the game can be reduced, it if preferable that the game server 210 should be provided with a further fire wall 211. The fire wall 211 may be installed in the game server 210 in a software manner, but in order to further increase the stability, it is preferable that it is installed outside the game server 210 as a separate device in a hardware manner.

The objects of the present invention can be sufficiently

achieved by the constitution of the card with the built-in RFID tag 111, the table provided with the RFID reader 110, the game server 210 collecting the game information from the RFID reader 110 to control the overall game, the client receiving the game information from the game server 210 and transmitting the intention of the player to the game server 210 according to the game progress order, and the monitor 121 displaying the current progressing information displayed on the client 300 and displaying the intention of the player transmitted from the client 300 so that the dealer can progress the game. However, since the player views only the game information displayed on the computer screen, he may have a doubt on whether this game is progressed in real or the dealer plays the game simulation program. The object of the system for playing the remote card game according to present invention is to allow the player to easily securely play the card game enjoyable in the casino or the special gaming place at his desired place, without directly going to the place. To this end, it is preferable that it is further provided with the following devices in order to remove the degradation factor of the reliability of the player.

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In order words, by displaying the currently progressing game on the screen as well as photographing it using a vide camera 120 and transmitting it to the client 300 through a

streaming server 220, the player views both the moving image and the game information screen to make completely reliable that a current game is progressed in real time. Of course, when comprising the video camera 120 and the streaming server 220, it is preferable that the client 300 and the monitor 121 simultaneously view the image information and game information transmitted from the streaming server 220. Since the image information is to give the reliability to the player, unlike the game information, there is no a need to transfer the intention of selection and the intention of betting, etc., from the client 300 to the streaming server 220. Therefore, the streaming server 220 does not have to include a strong security system such as the fire wall 211, etc., as in the game server 210. However, since the streaming server 220 should transfer the moving image as well as perform a smooth transmission in real time, it is preferable that the streaming server should have transmission rate of at least 100Mbps or more.

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Referring to the FIG. 2, the game method using a system for playing a remote card game according to the present invention will be simply summarized. First, when a dealer distributes a card with a built-in RFID tag 111 (\underline{A}), a RFID reader 110 disposed at a proper location reads discrimination, location and state information of the card (\underline{B}_1) according to

the rule of a card game. The game information according to the progress of the game is transmitted to a game server 210 (not shown in FIG 2) connected to the RFID reader 110 in real time and at the same time, the figure that the dealer is currently distributing is photographed as a movie by means of a video so that the image information is also camera 120 (B_2) transmitted to a streaming server 220 (not shown in FIG. 2) in real time. The game information and the image information are transmitted to the client side 300 of the player by the internet so that the player can confirm the action of the dealer in the remotely played card game in real time through the game screen and the movie screen (provided in real time through the simultaneously progressed steps $(B_1,\ B_2)$. Now, the player can do the indication of intention for the play of the game according to the rule of the card game if he gets a chance, wherein the indication of intention corresponds to the thing such as whether he will additionally draw the card or not receive the card any longer. Such an indication of intention is input by the client 300 of the player side (C), and the indication of intention of the player is again displayed on the monitor 121 so that the dealer can view through the internet (D). The dealer now recognizes the intention of the player through the monitor 121 and progresses the game to the next step (again A). If the RIFD devices, and

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devices such as the video camera or monitor in the middle are removed, the game steps $(A \rightarrow B_1/B_2 \rightarrow C \rightarrow D)$ according to the present invention are the completely same as the steps playing the game, directly going to the gaming place, except that the game is played with the respective players remote far away from each other. That is, with the system for playing the remote card came, it is possible to enjoy the card game in real time in the exactly same manner that really plays the card game at the gaming place.

The present invention is not limited to the abovementioned embodiments, but the application range thereof, of course, is various. Of course, modifications can be made in the present invention by those skilled in the art without departing from the spirit or scope of the invention.

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[Industrial Applicability]

The present invention as described above has an effect capable of easily, safely, and remotely enjoy the game although the player directly goes the place such as a casino, etc. In addition, according to the present invention, the RFIG tag and reader is used to remove the inconvenience that the conventional cards must be passed through the recognition device one by one. Accordingly, the game act of the dealer is not clumsy but is very natural unlikely the prior art to be

able to allow the dealer to progress the convenient and natural game and the player to improve the same feeling that he/she plays the game while looking at the real game before his/her eyes. Also, game information is automatically acquired by using the RFID tag and reader as described above so that the mistake of the dealer or the player can be excluded, making it possible to increase the reliability of the player. In addition, the game information acquired as described above is stored so that it is a base able to fairly and correctly make a decision if the dissatisfaction that the dealer or the player has made a mistake or injustice is transferred, thereby maximizing the fairness of the game to make it possible to also raise the reliability of the player. Furthermore, the game information accumulatively stored can be used for a game dealer (i.e., the operator of a casino, etc.) to obtain useful numerical data such as winning average of each dealer or each player and all kinds of statistics, etc. so that the problems relating to the operation of a game dealer can be easily solved thereby as well as it can be very usefully and valuably used in a university or a research institute as research material of probability and statistics. Also, a system for playing a remote card game according to the present invention photographs a game playing situation by using a video camera and allows it to be displayed on a client of a player's side

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in real time so that a player can be clearly informed that a game currently played is not a simulation, etc. but a actual game played among real persons, making it possible to greatly increase the player's reliability.

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[CLAIMS]

[Claim 1]

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A system for playing a remote card game using a RFID including:

a RFID tag storing and transmitting game information including discrimination, locations, and states of cards and built-in the respective cards one by one;

at least one RFID reader receiving the information from the RFID tag;

a game server collecting and storing the game information received from the RFID reader in real time and transmitting the game information through a fixed line /a wireless internet;

at least one client receiving the game information from the game server through the internet and transmitting a selection or a betting intention for playing the game to the game server in real time; and

a monitor provided so that a dealer of the card game can monitor the game information transmitted to the client and the player's intention received from the client in real time.

[Claim 2]

The system for playing a remote card game using a RFID as claimed in claim 1, wherein the RFID reader is installed on a specific location within a predetermined radius recognizable

according to the rules of the card game.

[Claim 3]

The system for playing a remote card game using a RFID as claimed in claim 2, wherein the game information that the RFID reader receives from the RIFD tag includes:

discrimination information constituted by patterns and numbers of the cards to discriminate cards;

location information recognizing the locations where the cards are put; and

state information judging whether the front surface of the card is put or the rear surface of the card is put .

[Claim 4]

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The system for playing a remote card game using a RFID as claimed in claim 3, wherein the game server collects and stores the game information according to the sets of each card game.

[Claim 5]

The system for playing a remote card game using a RFID as claimed in claim 4, wherein the card game set information includes game information from beginning to end of a card game in one time, beginning time and ending time, table number where the card game is playing, identification information of a dealer and a player participated therein, and betting information.

[Claim 6]

The system for playing a remote card game using a RFID as claimed in any one of claims 1 to 5, wherein the game server further includes a firewall implemented in hardware and software for security.

[Claim 7]

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The system for playing a remote card game using a RFID as claimed in claim 6, further including:

a video camera photographing an image of a card game in real time;

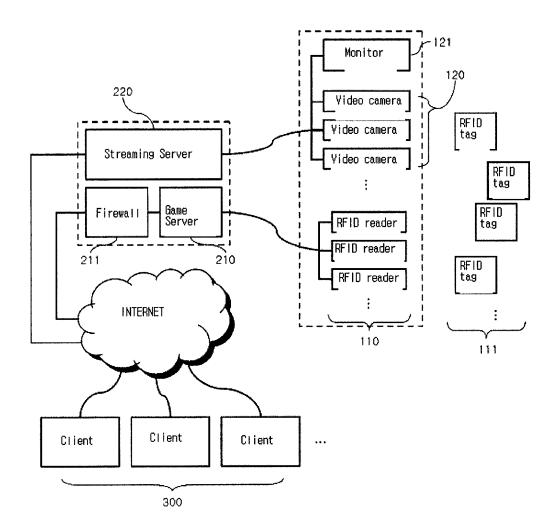
a streaming server transmitting the image information photographed by the camera through an internet in real time, wherein the client more receives the image information together with the game information, and the monitor more displays the image information.

[Claim 8]

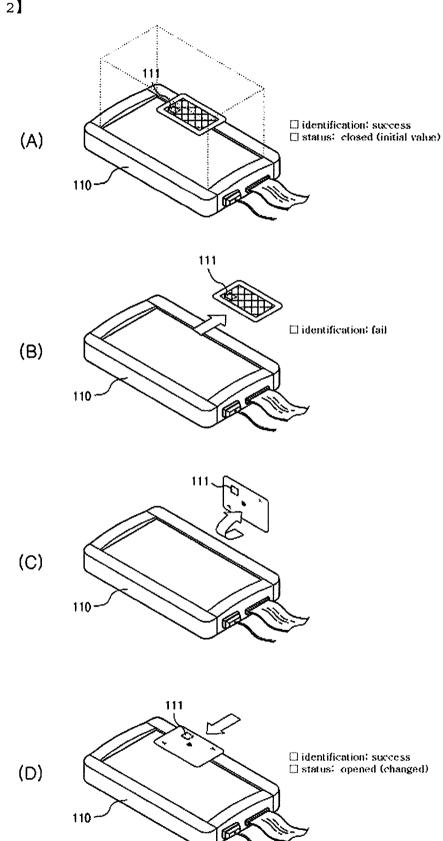
The system for playing a remote card game using a RFID as claimed in claim 7, wherein the client is characterized by any one selected from a desk-top computer, a notebook computer, a PDA, and cellular phone.

[DRAWINGS]

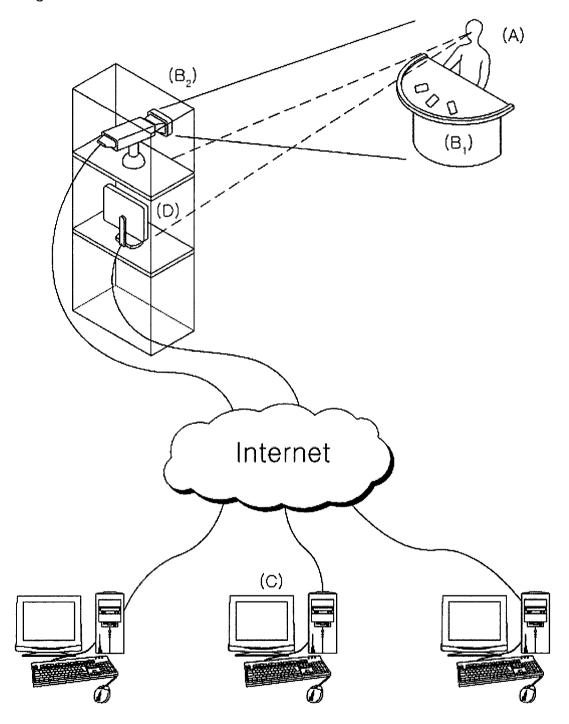
[Figure 1]



[Figure 2]



[Figure 3]



INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER

G06Q 30/00(2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC8 G06Q 30/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Korean patents and applications for inventions since 1975.

Korean utility models and applications for utility models since 1975.

Japanese utility models and applications for utility models since 1975.

Electronic data base consulted during the intertnational search (name of data base and, where practicable, search terms used) e-KIPASS(KIPO internal) "Keyword: card, RFID, remote, gamble"

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	US 2002/0147042 A1 (BINH THANH VUONG et al.) 10 October 2002 See abstract; figures 1, 2, 5, 7, 16; paragraphs 4-13, 35-72, 86-90; claims.	1, 2, 6-8 3-5
A	KR 2001-0067871 A (OH, CHANG DONG) 13 July 2001 See pages 2-7; figures 1, 2.	1-8
A	KR 2004-0066743 A (BLUEDIGM INC.) 27 July 2004 See abstract; pages 3-4; figures 1-3.	1-8
A	US 2004/0204240 A1 (JONATHAN A. BARNEY) 14 October 2004 See paragraphs 139-148; figures 20B-D.	1-8
A	US 2006/0030404 A1 (THOMAS M. POHLMAN) 09 February 2006 See claims; abstract; figures 1-4.	1-8
A	US 5735742 A (JOHN FRENCH) 07 April 1998 See abstract; figures 2, 3.	1-8

		Further documents are	listed in	the continuation	of Box C.
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See patent family annex.

- * Special categories of cited documents:
- A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier application or patent but published on or after the international
- 'L' document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
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- "&" document member of the same patent family

Date of mailing of the international search report

Date of the actual completion of the international search

12 JANUARY 2007 (12.01.2007)

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

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