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SPECIFICATION

REWRITABLE CARD AND METHOD FOR REWRITING THE REWRITABLE CARD

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority to Chinese Patent Application No. 201110188087.6, filed in china on July 06, 2011, which is incorporated herein by reference.

TECHNICAL FIELD

[0002] The present disclosure relates to electronic cards, particularly to a rewritable card and a method for rewriting the rewritable cards.

SUMMARY

[0003] A rewritable card and a method for rewriting the rewritable card are disclosed.

BRIFE DESCRIPTION OF THE DRAWINGS

[0004] FIG. 1 is a schematic, structural view of a rewritable card according to an embodiment of the present disclosure.

DETAILED DESCRIPTION

[0005] With the rapid development of information technology, electronic cards with different functions which have IDs, ICs, CPUs and magnetic materials or the like as memory carriers have been widespread around the world as identification tools. The electronic cards are

159150

successfully applied in many fields, such as social security system, public security system, road transport, hotel management, which have bought with extremely conveniences for people's common activities, and played an important role in promoting the modernization.

[0006] The electronic identification cards are cards which have card bodies, which are in accordance with ISO007816 standard, with integrated circuit chips and antennas enclosed therein, and use radio frequency identification (RFID) technology to exchange data with external reader-writers through electromagnetic coupling to achieve data exchange. The electronic identification cards have many advantages such like large amounts of information storage, precise and reliable, fast reading and writing, easily fixing and updating, and can effectively reduce risks of fake identification cards and fake information. Generally, the integrated circuit chips can be rewritten for up to 100,000 times, and can store the data for over 10 years.

[0007] Taking the social security cards, residence cards and hotel room cards for example, the electronic identification cards have card holders information stored in the chips, which can be fast identified by card readers. In addition, it is advantageous to print information stored in database or chips which may include data, words, and pictures to card bodies through printers for easy reading.

[0008] However, the currently used electronic identification cards, limited by the technologies and skills, are usually disposable because the information printed in the card surfaces are difficultly to be erased or rewritten when the information are wrongly printed or the cards are invalid,

thus the cards are unable to be repeatedly used. As a result, these expensive cards with good chips and within useful life period can be only discarded other than recycled, which causes a huge waste.

[0009] Furthermore, electronic identification cards have nondegradable Si (silicon), nonferrous metal, plastic polymer and other materials, which may cause great risks and damages to the environment and people's lives after discarding.

[0010] What is needed, therefore, is a rewritable card that can overcome the above-mentioned deficiencies. What is also needed is a method for rewriting information of the rewritable card.

[0011] In view of above-mentioned disadvantages, the object of the present disclosure is to provide a rewritable card and method for rewriting information of the rewritable card, through pasting and smearing a thermal sensitive or magnetic sensitive rewritable film or coating material, to realize rewrite in part or whole surfaces, therefore to recycle the electronic identification card, to prolong the useful life period, to save costs and to reduce damages and risks to the environment and people's lives.

[0012] It is an object of the present disclosure to provide a rewritable card including a card body, and a rewritable coat layer or film pasted or smeared on the card body, the rewritable coat layer or film constitutes rewritable areas.

[0013] Preferably, the rewritable card can further includes a storage medium. The storage medium is a non-contact chip and an antenna

packaged in the card body, the antenna and the chip being connected to each other.

[0014] Preferably, the non-contact chip is one of a non-contact ID chip, a non-contact IC chip or a non-contact CPU chip.

[0015] Preferably, the storage medium can also be a magnetic stripe, a two-dimension code, a contact IC chip or a contact CPU chip disposed on a front or rear surface.

[0016] Preferably, the rewritable coat layer or film is printed with information including data, words, and pictures stored in the storage medium or a background database, which can be rewritten repeatedly.

[0017] Preferably, the card body is made of plastic polymer material.

[0018] It is another object of the present disclosure to provide a method for rewrite information of the rewritable card, which includes a) entering a rewritable card management system, inputting "population information" of holder of the rewritable card to be rewrite, and clicking "rewrite rewritable card information" of menu of the rewritable card management system; b) placing the rewritable card to be rewrite to a black area for card reading of a card reader, clicking "read rewritable card information" and the card reader prompt a dialog box of "check population registration information" when obtaining the population data from database through reading a chip number of the rewritable card; c) clicking "target population registration information", then clicking "confirm" button, the rewritable card information and the population registration information

can be shown in the column "rewritable card information" and in the column "population information" of the rewritable card information rewritten page, respectively, then clicking "change rewritable card information", an information rewriting device will generate a "Di" sound, then quickly inserting the rewritable card into the information rewriting device; d) the information rewriting device erasing the former information in the rewritable card, and printing new information according to "population registration information" in the database corresponding to the chip number of the rewritable card to thermal sensitive or magnetic sensitive rewritable film or coat layer.

[0019] Preferably, the step d) can include: d1) the information rewriting device raise a temperature of the rewritable area of the rewritable card to 5-35 degrees Celsius; d2) the information rewriting device has a built-in printer to print population information in the database corresponding to the chip number of the rewritable card.

[0020] Preferably, the thermal sensitive film or coat layer uses thermochemistry technology to cooperate with an outside information rewriting terminal, and the terminal has a thermoinduction printer or eraser to repeatedly print and erase.

[0021] Preferably, the magnetic sensitive rewritable film or coat layer uses magnetic recording technology to cooperate with an outside information rewriting terminal, and the terminal has a thermoinduction printer or eraser to repeatedly print and erase.

[0022] The rewritable card and method for rewriting the rewritable

card of the present disclosure have advantages: 1) the rewritable card has the card body is pasted or smeared with thermal sensitive or magnetic sensitive rewritable film or coat layer in the front or rear surface and can print information in background database or stored in the storage medium to the rewritable film or coat layer through a corresponding thermal sensitive or magnetic sensitive reader terminal, and can also repeatedly erase and print to rewrite; 2) The rewritable film or coat layer with arbitrary size, shape and print area can be disposed on the electronic identification card with magnetic material, ID, IC, CPU or other storage mediums, thereby forming bar code rewritable card, magnetic strip rewritable card, contact rewritable card, non-contact rewritable card, dual interfaces CPU card; 3) The present disclosure can prolong the electronic identification cards' useful life periods up to theoretical 100,000 time or 10 years by repeatedly erasing the rewritable film or coat layer, and re-pasting or re-smearing a new rewritable film or coat layer after the rewritable film or coat layer is invalid. Thus, a recycle use of the electronic identification cards is achieved and a lot of materials and costs can be saved.

[0023] Referring to FIG. 1, a rewritable card according to an embodiment of the present disclosure is shown. The rewritable card 100 includes a card body 10, a non-contact chip (not shown) disposed in the card body 10, an antenna (not shown) disposed in the card body 10, and a rewritable area 20 disposed on a surface of the card body 10.

[0024] The rewritable area 20 is constituted by a rewritable film or coat layer formed by some thermal sensitive or magnetic sensitive rewritable materials through surface compound protection film. The

rewritable film or coat layer has good printability, and a print range of the film or coat layer can be set arbitrarily. Usually, information printed with black, blue and red colors can endure for very long time without abrasion, and has a high contrast and a high resolution.

[0025] The thermal sensitive rewritable film or coat layer mainly uses the thermochemistry technology (or thermal rewritable technology). The magnetic sensitive rewritable film or coat layer mainly uses the magnetic recording technology. The thermal sensitive or magnetic sensitive rewritable film or coat layer respectively through outside thermal sensitive or magnetic sensitive reader-writer terminal built-in thermal sensitive or magnetic sensitive printer and eraser or rewriter to repeatedly erase or print in the thermal sensitive or magnetic sensitive rewritable film or coat layer. The rewritable film or coat layer can be repeatedly rewritten for about 500 times, which is especially applicable for single printing sites needing frequent data changing.

[0026] The thermal sensitive or magnetic sensitive rewritable film or coat layer can be compounded to the surface of the card body 10 through a lamination process. The thermal sensitive or magnetic sensitive rewritable film or coat layer can also be formed by roller coating thermal sensitive or magnetic sensitive material on the surface of the card body 10. Because a range of the area that needs frequently rewriting or data changing can be different for different requirements, thus the thermal sensitive or magnetic sensitive rewritable film or coat layer can be designed to have arbitrary size and shape, and can be disposed on the front or rear surface of the card body 10, and even part or whole surface

of the card body 10, in order to meet different requirements.

[0027] In other embodiments, the card body 10 can be made of PVC, ABS, PC, PET, PETG or other plastic polymer materials.

[0028] When the rewritable area 20 formed by the thermal sensitive or magnetic sensitive rewritable film or coat layer is valid after rewriting for many times, the rewritable card 10 can continue to be used by removing the invalid rewritable film or coat layer and pasting or smearing a new rewritable film or coat layer. The rewritable card 10 has the rewritable area 20 updated. Thus, through removing invalid rewritable films and mounting new rewritable films, the rewritable card 10 can have a useful life period for up to theoretic 100,100 times or 10 years.

[0029] The non-contact chip can be non-contact ID chip, non-contact IC chip or non-contact CPU chip. The rewritable card 100 is not limited to the non-contact chip card, for example, in other alternative embodiments, the rewritable card can also be a bar code rewritable card, a magnetic strip rewritable card, a contact rewritable IC card, or a contact rewritable CPU card, and the card body 10 has bar code, magnetic strip, dimension code, contact IC chip, contact CPU chip and other storage mediums.

[0030] For the rewritable cards which have a magnetic strip, a signature strip, or a contact chip disposed on the surface, the rewritable film or coat layer should be pasted or smeared to where avoiding the magnetic strip, the signature strip, or the contact chip. For the rewritable cards which have a dimension code or a stripe code on the surface, the

stripe code or the dimension code can be rewritten through rewriting the rewritable film or coat layer.

[0031] Mounting (or pasting or smearing) the thermal sensitive or magnetic sensitive film or coat layer on different places of the card body 10 for different requirements, the rewritable card 100 can be used as social security card, residence card, hotel room card and other electronic identification card.

[0032] The following description is directed to an embodiment that the rewritable card 100 is used as a residence card.

[0033] A residence card has a manufacturing process as printing pictures; pre-locating; pressing; electrically writing; rewritable printing; checking and categorizing, in which:

[0034] Printing pictures is used for printing a picture and other information, such as name, gender, birthday, and address, of the card holder on front and rear surfaces of the card body 10.

[0035] Pre-locating is used for confirming an area of 13mm (width) × 86mm (length) as the rewritable area 20 in where the rewritable film is mounted.

[0036] Pressing is used for pressing the rewritable film to be fixed in the rewritable area 20 when the rewritable film is mounted in the rewritable area 20.

[0037] Electrically writing is used for writing the pictures and

information in a database corresponding to the card holder into a chip of the card.

Rewritable printing is used for printing address information of the card holder in the rewritable area 20, which can be omitted for those card holders who first apply for residence cards.

[0038] Checking and categorizing is used for checking the printed residence cards according to a quality standard, and categorizing the residence cards according to a category rule.

[0039] The most common problems of city residence management are the large population base and the great population mobility, such that a residence card holder usually has an real address differed from an address printed in the residence card. This may cause great hidden troubles in city security management.

[0040] In order to solve such troubles, the address or other fluidity information of the card holder printed in the residence card can be timely changed and registered when utilizing the rewritable card to rewrite on the rewritable area 20, when the card holder is moved from one place to another. The present disclosure further provides a residence management system, an address rewriting device and a card reader corresponding to the residence management system.

[0041] The card reader reads a chip number of the residence card and obtains a population information from a database. The residence management system sends a instruction for rewriting the address to the

address rewriting device. The address rewriting device makes a "Di" sound, and the residence card is inserted into a card slot of the address rewriting device. Herein an accurate operation for inserting the residence card is to put the front surface with head portrait downward, and the rear surface with magnetic stripe toward the left. After the card is inserted into the address rewriting device, a first detector of the address rewriting device detects the card when the card passes through, and then a thermal sensitive printer begins to heat up to 5-35 degrees Celsius. A motor drives a roller to move the card forward. During the moving process, the thermal sensitive printer presses down to erase down former address of the rewritable film of the card. Then card enters to end part of the address rewriting device, and a second detector of the address rewriting device detects the card when it passes through, the thermal sensitive printer raises up, the card is moved back to the detector. The roller drives the card to move forward again, and the thermal sensitive printer depresses down again to print a new address sent from the residence management system. After printing, the roller rolls back, the card is moved out.

[0042] In other words, a method for rewriting the rewritable residence card according to an embodiment can be described as following:

a) entering a rewritable card management system, inputting "population information" of holder of the rewritable card to be rewrite, and clicking "rewrite residence card address" of menu of the residence card management system;

b) placing the rewritable residence card to be rewrite to a black area for

card reading of a card reader, clicking "read residence card information" in the upper left corner, and the card reader prompt a dialog box of "check population registration information" when obtaining the population data from database through reading a chip number of the rewritable residence card;

c) clicking "target population registration information", then clicking "confirm" button, the rewritable residence card information and the population registration information can be shown in the column "residence card information" and in the column "population information" of the residence card information rewritten page, respectively, then clicking "change residence card information", an information rewriting device will generate a "Di" sound, then quickly inserting the rewritable card into the information rewriting device;

d) the information rewriting device erasing the former information in the rewritable area 20 of the residence card, and printing new information according to "population registration information" in the database corresponding to the chip number of the residence card onto the rewritable area 20.

[0043] In some embodiments, the step of d) can further includes:

d1) the information rewriting device raises a temperature of the rewritable area up to 5-35 degrees Celsius;

d2) the information rewriting device has a built-in printer to print information from the database corresponding to a chip number of the

residence card.

The method for rewriting the rewritable card uses the information rewriting device which has a thermal sensitive or magnetic sensitive terminal disposed therein.

[0044] It is to be understood, however, that even though numerous characteristics and advantages of exemplary and preferred embodiments have been set out in the foregoing description, together with details of the structures and functions of the embodiments, the disclosure is illustrative only, and changes may be made in detail, especially in matters of shape, size, and arrangement of parts within the principles of the disclosure to the full extent indicated by the broad general meaning of the terms in which the appended claims are expressed.

What is claimed is:

1. A rewritable card comprises a card body, and a rewritable coat layer or film pasted or smeared on the card body, the rewritable coat layer or film constitutes a plurality of rewritable areas.
2. The rewritable card according to claim 1, wherein the rewritable card further comprises a storage medium, the storage medium being a non-contact chip and an antenna packaged in the card body, the antenna and the chip being connected to each other.
3. The rewritable card according to claim 2, wherein the non-contact chip is one of a non-contact ID chip, a non-contact IC chip or a non-contact CPU chip.
4. The rewritable card according to claim 1, wherein the storage medium is one of a magnetic stripe, a two-dimension code, a contact IC chip or a contact CPU chip that disposed on the front or rear surface.
5. The rewritable card according to claim 2, wherein the rewritable coat layer or film is printed with information including data, words, and pictures stored in the storage medium or a background database, which can be rewritten repeatedly.
6. The rewritable card according to claim 1, wherein the card body is made of plastic polymer material.
7. A method for rewriting a rewritable card, comprising:

   a) entering a rewritable card management system, inputting "population information" of holder of the rewritable card to be rewrite, and clicking "rewrite rewritable card information" of menu of the rewritable card management system;

b) placing the rewritable card to be rewrite to a black area for card reading of a card reader, clicking "read rewritable card information" and the card reader prompt a dialog box of "check population registration information" when obtaining the population data from database through reading a chip number of the rewritable card;

c) clicking "target population registration information", then clicking "confirm" button, the rewritable card information and the population registration information can be shown in the column "rewritable card information" and in the column "population information" of the rewritable card information rewritten page, respectively, then clicking "change rewritable card information", an information rewriting device will generate a "Di" sound, then quickly inserting the rewritable card into the information rewriting device;

d) the information rewriting device erasing the former information in the rewritable card, and printing new information according to "population registration information" in the database corresponding to the chip number of the rewritable card to thermal sensitive or magnetic sensitive rewritable film or coat layer.

8. The method according to claim 7, wherein the step d) comprises:

d1) the information rewriting device raise a temperature of the rewritable area of the rewritable card to 5-35 degrees Celsius;

d2) the information rewriting device has a built-in printer to print population information in the database corresponding to the chip number of the rewritable card.

9. The method according to claim 7, wherein the thermal sensitive film or coat layer uses thermochemistry technology to cooperate with an

outside information rewriting terminal, and the information rewriting terminal has a thermoinduction printer and eraser to repeatedly print and erase.

10. The method according to claim 7, wherein the magnetic sensitive rewritable film or coat layer uses magnetic recording technology to cooperate with an outside information rewriting terminal, and the terminal has a thermoinduction printer and eraser to repeatedly print and erase.

11. A method for rewriting a rewritable card, comprise:

providing a rewritable card comprising a card body and a rewritable area disposed on at least one of a front side and a rear side of the card body;

providing an information rewriting device comprising a printer which is capable of erasing information from and printing information to the rewritable area;

putting the rewritable cart into the information rewriting device;

erasing the former information on the rewritable area if there is a former information;

printing new information to the rewritable area of the.

12. The method according to claim 11, wherein the rewritable area is formed by thermal sensitive rewritable film or coat layer, and the printer is a thermal sensitive printer.

13. The method according to claim 12, wherein the information rewriting device further comprises a roller, a card slot, a first detector, a second detector, and a motor, the card slot is configured to insert the rewritable

card into the information rewriting device, the motor is configured to drive the roller according to detecting results of the first detector and the second detector, the roller is configured to move the card forward or backward.

14. The method according to claim 13, wherein the first detect detects the rewritable card when it is inserted from the card slot, the motor then drives the roller to move the rewritable card forward while the printer depresses down and erases the rewritable area of the rewritable card; the second detector detects the rewritable card when the roller continue moving the rewritable card forward, the motor drives the roller to move the rewritable card backward while the printer raises up; the first detector detects the rewritable card again when it is moved backward, the motor then drives the roller to move the rewritable card forward again, while the printer depresses and prints new information to the rewritable area.