Claims

1. A clock synchronized dynamic password security label validity real-time authentication method, wherein the clock synchronized dynamic password security label validity real-time authentication method comprising the following steps:

step one: assigning a unique ID number for each electronic label module, wherein the ID number is expressed as IDS1 and located on a surface of the electronic label module; defining an identical clock accumulating cycle in the electronic label module and an authentication server module; writing a product information and related information to a service configuring unit, wherein the product information and the related information are represented by an ID number IDS1 of the electronic label module; defining a torrent file for associating the electronic label module with the authentication service module, wherein the torrent file comprises: a clock data DSS1, a random number RandomD, and the ID number IDS1 of the electronic label module; wherein saving a data TDSH in an application configuring unit represents that a self-destruction device of the electronic label module has been damaged; writing a PSW field, which is used to represent a type of a dynamic password generating algorithm used by the electronic label module whose ID number is IDS1, into a record corresponding to the ID number IDS1 in the service configuring unit;

step two: turning on the electronic label module by a user via a switch unit, detecting, by a managing unit, whether a self-destruction trigger unit is damaged; if the self-destruction trigger unit is damaged, outputting, by the electronic label module, a specific data TDSH via a display unit representing that the electronic label module has already stopped working; if the self-destruction trigger unit works properly initializing, by the managing unit of the electronic label module, a clock data to DSS1 in a first clock change cycle according to a clock change cycle of a clock control unit; generating, by the managing unit, a dynamic password data DKS1 by a dynamic password generating algorithm PSW1 of a first dynamic password configuring unit, using the clock data DSS1, the random number RandomD, the ID number IDS1 of the

electronic label in the torrent data as calculation factors, and displaying the DKS1 on the display unit; then accumulating, by the managing unit, an initial clock data DSS1 to obtain a DSS2 according to the predefined clock accumulating cycle, and saving the DDS2 in a cache;

step three: capturing, by an image capturing unit controlled by an application managing unit of a user authentication terminal module, an image data TDT1 of the electronic label module, wherein the image data IDT1 of the electronic label module includes the dynamic password data displayed on the display unit and the ID number IDS1 of the electronic label module located on the surface of the electronic label module; locating, segmenting, and analyzing, by the application managing unit of the user authentication terminal module via an image analysis unit, the image data IDT1 to obtain a dynamic password data DZXS displayed on the display unit of the electronic label module and the ID number IDS1 of the electronic label module; and then searching in the application configuring unit; ending an authenticating process, if the DZXS equals to the TDSH, which indicates that the self-destruction device of the electronic label module is damaged; saving the ID number IDS1 into the application configuring unit, if the DZXS does not equal to the TDSH; and then sending the IDS1 and the DZXS to the authentication service module via a data communication unit connected to the Internet.

2. The clock synchronized dynamic password security label validity real-time authentication method according to claim 1, wherein after step one, turning on the electronic label module via the switch unit; and then writing the torrent file via the torrent writing unit, while at the same time writing the torrent file into the record corresponding to the IDS1 in the service configuring unit of the authentication service module through internet.

3. The clock synchronized dynamic password security label validity real-time authentication method according to claim 1, wherein after step three, receiving, by the authentication service module, the data IDS1 and the DZXS sent from the user

authentication terminal module, and subsequently searching, by the authentication service unit, the record corresponding to the IDS1 in the service configuring unit using the IDS1, and extracting the dynamic password generating algorithm PSW2 adopted by the electronic label module represented by the clock data DSS1, the random number RandomD, and the IDS1 that are initially written into the torrent file; then obtaining, by the authentication service unit, a system time RSS1 of a current authentication service module, and subtracting the DSS1 from the RSS1to obtain a result, dividing the result by an initially defined clock accumulating cycle to obtain RZSC which is the number of times the electronic label module accumulated in accordance with the clock accumulating cycle; finally, calculating a dynamic password data RKS1 using the RandomD, the DSS1, the RZSC, and the IDS1 as calculation factors;

comparing, by the authentication service unit, the calculated RKS1 with the DZXS; sending a result indicating that this electronic label module is valid to the user authentication terminal module through the internet, if the RKS1 equals to the DZXS; sending a result indicating that this electronic label module is not valid through the internet, if the RKS1 does not equal to the DZXS;

displaying the result, after the user authentication terminal module receiving the result fed back from the authentication service module, so as to complete this validity authentication process with respect to the electronic label module.

4. A clock synchronized dynamic password security label validity real-time authentication system, wherein the clock synchronized dynamic password security label validity real-time authentication system comprising: an electronic label module, a user authentication terminal module, and an authentication service module;

an electronic label module, used for generating dynamic password data and displaying; wherein the electronic label module comprises: a managing unit, a switch unit, a torrent writing unit, a first clock control unit, a first dynamic password configuring unit, a self-destruction trigger unit, and a display unit;

a user authentication terminal module, connected with the electronic label

module, and is used for capturing a dynamic password data generated by the electronic label module and an image data of an ID number of the electronic label module; after analyzing, a text data is obtained; then sending the text data to the authentication service module through internet; wherein the user authentication terminal module comprises: an application managing unit, an image capturing unit, an image analysis unit, an application configuring unit, a data input unit, and a data communication unit;

an authentication service module, connected with the user authentication terminal module, and is used for obtaining a result of whether a first dynamic password generating algorithm of the electronic label module is consistent with a the second dynamic password generating algorithm of the authentication service module, after calculating and validating, and after receiving the text data; and returning the result to the user authentication terminal module, so as to determine the validity of the electronic label module; wherein the authentication service module comprises: an authentication service unit, a second clock control unit, a service configuring unit, and a second dynamic password configuring unit; and wherein

the managing unit, used for detecting whether the self-destruction trigger unit is damaged; initialing the clock data to DSS1 during a first clock change cycle according to a clock change cycle of the first clock control unit; using the clock data DSS1, the random number RandomD, the ID number IDS1 of the electronic label module as calculation factors, wherein the clock data DSS1, the random number RandomD, the ID number IDS1 are stored in the torrent file; generating a dynamic password data DKS1 via the dynamic password generating algorithm PSW1 of the first dynamic password configuring unit, and then displaying the DKS1 on the display

unit; then obtaining DSS2 by accumulating the initial clock data DSS1 according to the predefined clock accumulating cycle, and saving the DDS2 in the cache;

the switch unit, connected with the managing unit, and is used for turning on the electronic label module;

the torrent writing unit, connected with the managing unit, and is used for writing the torrent file;

the first clock control unit, connected with the managing unit, and is used for outputting the clock change cycle;

the first dynamic password configuring unit, connected with the managing unit, and is used for generating the dynamic password data DKS1 via the dynamic password generating algorithm PSW1;

the self-destruction trigger unit, connected with managing unit, and is used for sending a damage signal;

the display unit, connected with managing unit, and is used for displaying the dynamic password data DKS1.

5. The clock synchronized dynamic password security label validity real-time authentication system according to claim 4, wherein the dynamic password generating algorithm in the first dynamic password configuring unit uses a State Encryption Algorithm;

wherein the managing unit transmits the own ID number of the electronic label module and the clock data or a number of times of generating the dynamic password as calculation factors to the first dynamic password configuring unit, to obtain the dynamic password data; wherein the dynamic password data can be a number, a character, a combination of a number and a character, a bar code, a two-dimension code, or any password expression form;

wherein the electronic label module transmits the data to the user authentication terminal module using a display screen, an NFC, a RFID, infrared, or any communication method.

6. The clock synchronized dynamic password security label validity real-time authentication system according to claim 4, wherein the user authentication terminal module comprises: an application managing unit, an image capturing unit, an image analysis unit, an application configuring unit, a data input unit, and a data communication unit;

the application managing unit, used for controlling the image capturing unit to capture the image data IDT1 of the electronic label module; locating, segmenting, and analyzing the image data IDT1 by the image analysis unit, obtaining a dynamic password data DZXS displayed on the display unit and the ID number IDS1 of the electronic label module; and then searching in the application configuring unit;

the image capturing unit, connected with the application managing unit, and is used for collecting the image data IDT1 of the electronic label module;

the image analysis unit, connected with the application managing unit, and is used for locating, segmenting, and analyzing the image data IDT1;

the application configuring unit, connected with the application managing unit, and is used for storing data TDSH representing that self-destruction device the electronic label module is damaged, and a small database temporally storing a dynamic password data DZXS;

the data input unit, connected to the application managing unit, and is used for inputting the second dynamic password data DZXS for searching;

the data communication unit, connected to the application managing unit, and is used for sending the IDS1 and the DZXS to the authentication service module through the internet.

7. The clock synchronized dynamic password security label validity real-time authentication system according to claim 4, wherein the authentication service module comprises: an authentication service unit, a second clock control unit, a service configuring unit, and a second dynamic password configuring unit;

the authentication service unit, used for extracting the dynamic password generating algorithm PSW2 adopted by the electronic label module, which is

represented by the clock data DSS1, the random number RandomD, and the IDS1 that are initially written into the torrent file; obtaining a system time RSS1 of a current authentication service module; calculating a dynamic password data RKS1 via the dynamic password generating algorithm PSW2 of the second dynamic password configuring unit; comparing the calculated RKS1 with the DZXS;

the second clock control unit, connected to the authentication service unit, and is used for providing a clock signal for the authentication service unit;

the service configuring unit, connected with the authentication service unit, and is used as a database for storing different characteristics of the IDS1;

the second dynamic password configuring unit, connected to the authentication service unit, and is used for calculating a dynamic password data RKS1 via the dynamic password generating algorithm PSW2.

8. The clock synchronized dynamic password security label validity real-time authentication system according to claim 7, wherein the service configuring unit is a database which is configured to be read and written by the authentication service unit; the service configuring unit configuring a characteristic of the electronic label module using the ID of the electronic label module, and saving a product information represented by the electronic label module and a characteristic of the electronic label module in the database;

wherein multiple dynamic password generating algorithms corresponding to the electronic label module are positioned in the second dynamic password configuring unit of the authentication service module.

CLAIMS

1. A clock synchronized dynamic password security label validity real-time authentication method, wherein the clock synchronized dynamic password security label validity real-time authentication method comprising the following steps:

assigning a unique ID number for an electronic label module, wherein the ID number is expressed as IDS1 and located on a surface of the electronic label module; setting an identical clock accumulating cycle in the electronic label module and an authentication server module; writing a product information and related information to a service configuring unit, wherein the product information and the related information are represented by the IDS1 of the electronic label module; defining a torrent file for associating the electronic label module with the authentication service module, wherein the torrent file comprises: a clock data DSS1, a random number RandomD, and the ID number IDS1 of the electronic label module; wherein saving a data TDSH in an application configuring unit represents that a self-destruction device of the electronic label module has been damaged; writing a PSW field, which is used to represent a type of a dynamic password generating algorithm used by the electronic label module whose ID number is IDS1, into a record corresponding to the ID number IDS1 in the service configuring unit;

turning on the electronic label module by a user via a switch unit, detecting, by a managing unit, whether a self-destruction trigger unit is damaged; if the self-destruction trigger unit is damaged, outputting, by the electronic label module, a specific data TDSH via a display unit representing that the electronic label module has already stopped working; if the self-destruction trigger unit works properly, using the managing unit of the electronic label module to initialize a clock data to DSS1 in a first clock cycle according to a clock cycle of a clock control unit; generating, by the managing unit, a dynamic password data DKS1 by the dynamic password generating algorithm PSW1 of a first dynamic password configuring unit, using the clock data DSS1, the random number RandomD, the ID number IDS1 of the electronic label in the torrent file as calculation factors, and displaying the DKS1 on the display unit; then summing up, by the managing unit, an initial clock data DSS1 and the predefined clock

accumulating cycle to obtain a second clock data DSS2, and saving the DDS2 in a cache;

capturing, by an image capturing unit controlled by an application managing unit of a user authentication terminal module, an image data TDT1 IDT1 of the electronic label module, wherein the image data IDT1 of the electronic label module includes the dynamic password data displayed on the display unit and the ID number IDS1 of the electronic label module located on the surface of the electronic label module; locating, segmenting, and analyzing, by the application managing unit of the user authentication terminal module via an image analysis unit, the image data IDT1 to obtain a dynamic password data DZXS displayed on the display unit of the electronic label module and the ID number IDS1 of the electronic label module; and then searching in the application configuring unit; ending an authenticating process, if the DZXS equals to the TDSH, which indicates that the self-destruction device of the electronic label module is damaged; saving the ID number IDS1 into the application configuring unit, if the DZXS does not equal to the TDSH; and then sending the IDS1 and the DZXS to the authentication service module via a data communication unit connected to the Internet.

2. The clock synchronized dynamic password security label validity real-time authentication method according to claim 1, wherein after turning on the electronic label module via the switch unit, writing the torrent file via the torrent writing unit, while at the same time writing the torrent file into the record corresponding to the IDS1 in the service configuring unit of the authentication service module through the Internet.

3. The clock synchronized dynamic password security label validity real-time authentication method according to claim 1, wherein after sending the IDS1 and the DZXS to the authentication service module, receiving, by the authentication service module, the data IDS1 and the DZXS sent from the user authentication terminal module, and subsequently searching, by the authentication service unit, the record corresponding to the IDS1 in the service configuring unit using the IDS1, and extracting the dynamic password generating algorithm PSW2 adopted by the electronic label module represented by the clock data DSS1, the random number RandomD, and the IDS1 that are initially written into the torrent file; then obtaining, by the authentication

service unit, a system time RSS1 of a current authentication service module, and subtracting the DSS1 from the RSS1to obtain a result, dividing the result by an initially defined clock accumulating cycle to obtain RZSC which is the number of times the electronic label module accumulated in accordance with the clock accumulating cycle; finally, calculating a dynamic password data RKS1 using the RandomD, the DSS1, the RZSC, and the IDS1 as calculation factors;

comparing, by the authentication service unit, the calculated RKS1 with the DZXS; sending a result indicating that this electronic label module is valid to the user authentication terminal module through the Internet, if the RKS1 equals to the DZXS; sending a result indicating that this electronic label module is not valid through the Internet, if the RKS1 does not equal to the DZXS;

displaying the result, after the user authentication terminal module receiving the result fed back from the authentication service module, so as to complete this validity authentication process with respect to the electronic label module.

4. A clock synchronized dynamic password security label validity real-time authentication system, comprising

an electronic label module, used for generating dynamic password data and displaying, the electronic label module having an ID number IDS1;

a user authentication terminal module, connected with the electronic label module, and is used for capturing a dynamic password data generated by the electronic label module and an image data of an ID number of the electronic label module; after analyzing, the image data are converted into a text data; then sending the text data to an authentication service module through the Internet; wherein the user authentication terminal module comprises: an application managing unit, an image capturing unit, an image analysis unit, an application configuring unit, a data input unit, and a data communication unit; and

the authentication service module, connected with the user authentication terminal module, and is used for obtaining a result of whether a first dynamic password generating algorithm of the electronic label module is consistent with a second dynamic password generating algorithm of the authentication service module, after calculating and validating, and after receiving the text data; and returning the result to the user authentication terminal module, so as to determine the validity of the electronic label module; wherein the authentication service module comprises: an authentication service unit, a second clock control unit, a service configuring unit, and a second dynamic password configuring unit;

wherein the electronic label module further comprises:

a managing unit, used for detecting whether the self-destruction trigger unit is damaged; initialing the clock data to DSS1 during a first clock cycle according to a clock cycle of the first clock control unit; using the clock data DSS1, the random number RandomD, the ID number IDS1 of the electronic label module as calculation factors, wherein the clock data DSS1, the random number RandomD, the ID number IDS1 are stored in the torrent file; generating a dynamic password data DKS1 via the dynamic password generating algorithm PSW1 of the first dynamic password configuring unit, and then displaying the DKS1 on the display unit; then obtaining a second clock data DSS2 by accumulating the initial clock data DSS1 according to the predefined clock accumulating cycle, and saving the DDS2 in the cache;

a switch unit, connected with the managing unit, and is used for turning on the electronic label module;

a torrent writing unit, connected with the managing unit, and is used for writing the torrent file;

a first clock control unit, connected with the managing unit, and is used for outputting the clock cycle;

a first dynamic password configuring unit, connected with the managing unit, and is used

for generating the dynamic password data DKS1 via the dynamic password generating algorithm PSW1;

a self-destruction trigger unit, connected with managing unit, and is used for sending a damage signal; and

a display unit, connected with managing unit, and is used for displaying the dynamic password data DKS1.

5. The clock synchronized dynamic password security label validity real-time authentication system according to claim 4, wherein the dynamic password generating algorithm in the first dynamic password configuring unit uses a State Encryption Algorithm;

wherein the managing unit transmits the own ID number of the electronic label module and the clock data or a number of times of generating the dynamic password as calculation factors to the first dynamic password configuring unit, to obtain the dynamic password data; wherein the dynamic password data is selected from a group consisting of: a number, a character, a combination of a number and a character, a bar code, a two-dimension code, or any password expression form;

wherein the electronic label module transmits the data to the user authentication terminal module using a display screen, an NFC, a RFID, or infrared.

6. The clock synchronized dynamic password security label validity real-time authentication system according to claim 4, wherein the user authentication terminal module further comprises:

an application managing unit, used for controlling the image capturing unit to capture the image data IDT1 of the electronic label module; locating, segmenting, and analyzing the image data IDT1 by the image analysis unit, obtaining a dynamic password data DZXS displayed on the display unit and the ID number IDS1 of the electronic label module; and then searching in the application configuring unit;

an image capturing unit, connected with the application managing unit, and is used for collecting the image data IDT1 of the electronic label module;

an image analysis unit, connected with the application managing unit, and is used for locating, segmenting, and analyzing the image data IDT1;

an application configuring unit, connected with the application managing unit, and is used for storing data TDSH representing that self-destruction device the electronic label module is damaged, and a small database temporally storing a dynamic password data DZXS;

a data input unit, connected to the application managing unit, and is used for inputting the second dynamic password data DZXS for searching; and

a data communication unit, connected to the application managing unit, and is used for sending the IDS1 and the DZXS to the authentication service module through the internet.

7. The clock synchronized dynamic password security label validity real-time authentication system according to claim 4, wherein the authentication service module further comprises:

an authentication service unit, used for extracting the dynamic password generating algorithm PSW2 adopted by the electronic label module, which is represented by the clock data DSS1, the random number RandomD, and the IDS1 that are initially written into the torrent file; obtaining a system time RSS1 of a current authentication service module; calculating a dynamic password data RKS1 via the dynamic password generating algorithm PSW2 of the second dynamic password configuring unit; comparing the calculated RKS1 with the DZXS;

a second clock control unit, connected to the authentication service unit, and is used for providing a clock signal for the authentication service unit;

a service configuring unit, connected with the authentication service unit, and is used as a database for storing different characteristics of the IDS1; and

a second dynamic password configuring unit, connected to the authentication service unit, and is used for calculating a dynamic password data RKS1 via the dynamic password generating algorithm PSW2.

8. The clock synchronized dynamic password security label validity real-time authentication system according to claim 7, wherein the service configuring unit is a database which is configured to be read and written by the authentication service unit; the service configuring unit configuring a characteristic of the electronic label module using the ID of the electronic label module, and saving a product information represented by the electronic label module and a characteristic of the electronic label module in the database;

wherein multiple dynamic password generating algorithms corresponding to the electronic label module are positioned in the second dynamic password configuring unit of the authentication service module.