DESCRIPTION

SETTLEMENT PROGRAM, SETTLEMENT METHOD, IC CARD AND SETTLEMENT SYSTEM

TECHNICAL FIELD

[0001]

The present invention relates to a settlement program and the like for electronic money settlement.

BACKGROUND ART

[0002]

In Patent Document 1 or the like, a settlement system with an IC card including an IC chip for electronic money settlement is proposed.

CITATION LIST

PATENT LITERATURE

[0003]

Patent Literature 1: JP 2017-4234 A

SUMMARY OF INVENTION

TECHNICAL PROBLEM

[0004]

There is, however, a need to prepare a mobile terminal with an IC chip embedded.

[0005]

Accordingly, an object of the present invention is to provide a settlement program or the like, to easily execute electronic money settlement with the use of a mobile terminal without IC chip embedded.

SOLUTION TO PROBLEM

[0006]

The settlement program according to the present invention is a settlement program installed in a mobile terminal that removably holds and electrically connects an IC card including an antenna unit and a card control unit for use in electronic money settlement. The mobile terminal is capable of communicating with a server via a network. The settlement is executed at least in a case where the antenna unit is located in a communication region of a reader/writer. The settlement program executes: a reading step of reading information from the IC card; and a first determination processing step of determining whether to make the IC card in a state of which the mobile terminal holds and

connected device.

[0032]

The first card 11 has a first antenna unit 11a and a first card control unit 11b.

The second card 12 has a second antenna unit 12a and a second card control unit 12b.

The third card 13 has a third antenna unit 13a and a third card control unit 13b.

The fourth card 14 also has an antenna unit and a card control unit as well (not shown).

[0033]

Next, the configurations of the respective units (the first antenna unit 11a, the first card control unit 11b) in the first card 11 will be described. The antenna units and the card control units in the second card 12 to the fourth card 14 also have similar functions.

[0034]

The first antenna unit 11a is used for receiving signals from the reader/writer to the first card control unit 11b and for transmitting signals from the first card control unit 11b to the reader/writer.

The first card control unit 11b, which is composed of an IC chip or the like, transmits and receives signals to and from the mobile terminal (the first mobile terminal 21) holding the first card 11 via a connection unit of the mobile terminal (a first connection unit 21e of the first mobile terminal 21), besides the transmission and reception of signals to and from the reader/writer via the first antenna unit 11a.

[0035]

In a case where the first card 11 attached and electrically connected to the mobile terminal (any of the first mobile terminal 21 to the fifth mobile terminal 25), and the combination of the electrically connected mobile terminal and IC card is registered in a database D1, in a state in which the first antenna unit 11a of the first card 11 is located in a communication region of the reader/writer (any of the first reader/writer 51 and the second reader/writer 52), that is, activated, making deposit and withdrawal of electronic money via the first card 11 becomes enabled.

[0036]

In a case where the first card 11 is electrically unconnected to the mobile terminal (any of the first mobile terminal 21 to the fifth mobile terminal 25), even in a state in which the first antenna unit 11a of the first card 11 is located in the communication region of the reader/writer (any of the first reader/writer 51 and the second reader/writer 52), making deposit and withdrawal of electronic money via the first card 11 is not enabled.

[0037]

As a form of the present embodiment, however, even in a case where the first card 11 is electrically unconnected to the mobile terminal (any of the first mobile terminal 21 to the fifth mobile terminal 25), making deposit and withdrawal of electronic money via the first card 11 may be enabled in a state in which the first antenna unit 11a of the first card 11 is

the respective IC cards (see FIGS. 2, 4, and 6).

[0050]

The user ID refers to a unique number assigned for each user, and an example composed of a two-digit string such as "38" is shown herein.

The user ID is assigned from an IC card provider, an electronic money service provider, or the like for providing an IC card, and the service provider uses a predetermined terminal 70 electrically connected to the IC card to cause the card control unit of the IC card to record the user ID.

As a form of the present embodiment, however, the user himself/herself may, via the input device of the mobile terminal electrically connected to the IC card, cause the card control unit of the IC card to record the user ID.

[0051]

The card ID refers to a unique number assigned for each IC card, such as ICCID (Integrated Circuit Card ID), and an example composed of a three-digit string of alphabet(s) and number(s) combined, such as "AA1", is shown herein.

[0052]

Accordingly, the IC card according to the present embodiment records information regarding the user ID, together with the card ID.

[0053]

The terminal ID refers to a unique number assigned for each terminal, such as IMEI (International Mobile Equipment Identifier), and an example composed of a seven-digit string of alphabets and numbers combined, such as "BAE9302", is shown herein.

The deposit/withdrawal information provides the deposit and withdrawal histories of electronic money corresponding to the IC card.

The balance information provides the balance of electronic money corresponding to the IC card.

[0054]

According to the present embodiment, FIGS. 1 and 2 show an example (a first state) where user name: TANAKA (user ID: 38) holds two IC cards (the first card 11, the fourth card 14), with the first card 11 electrically connected to the first mobile terminal 21 and the fourth card 14 electrically connected to the fourth mobile terminal 24, whereas user name: KIMURA (user ID: 42) holds one IC card (the third card 13), with the third card 13 electrically connected to the fifth mobile terminal 25.

In addition, FIGS. 3 and 4 show an example (a second state) where user name: TANAKA (user ID: 38) additionally holds the third-piece's IC card (the second card 12), with the second card 12 electrically connected to the second mobile terminal 22.

In addition, FIGS. 5 and 6 show an example (a third state) where user name: KIMURA (user ID: 42) has changed the mobile terminal electrically connected to the first-piece's IC card (the third card 13), from the fifth mobile terminal 25 to the third mobile terminal 23.

That is, the server 30 deletes the registration of the combination of the card ID (AA4) of the fourth card 14 and the terminal ID (BCC1121) of the fourth mobile terminal 24 in the user ID (38) of the database D1.

In addition, the server 30 transmits the deposit/withdrawal information and the balance information regarding the withdrawal (transfer) of said amount of balance (9,238 yen), and the information regarding the invalidation, to the fourth mobile terminal 24 electrically connected to the fourth card 14.

[0108]

In the fourth mobile terminal 24, the settlement program executes the invalidation step to make it impossible to execute any electronic money deposit/withdrawal with the use of the fourth card 14 electrically connected to the fourth mobile terminal 24. Then, the information regarding the invalidation (invalidation completion screen P8) received from the server 30 is displayed (see FIG. 20).

[0109]

The deposit of electronic money to the first card 11 may be, however, executed after completing the invalidation in the fourth card 14 corresponding to the second invalidation instruction button C2 and the processing for the withdrawal of the amount of electronic money balance (after receiving the information regarding the invalidation and the withdrawal processing of the fourth card 14 from the server 30) as a form of the present embodiment.

[0110]

Thus, in such a case where said another IC card has been lost or stolen, the deposit/withdrawal of the electronic money of said another IC card is allowed to be made impossible between the IC card and said another IC card.

[0111]

It is to be noted that instead of the form in which the invalidation step can be executed in all of the mobile terminals, the invalidation step may be executed (the third display area P6c may be displayed in the balance information screen P6), only with the combination of the mobile terminal and IC card, specified in advance in the database D1 or the like (for example, the combination of the first mobile terminal 21 and the first card 11), as a form of the present embodiment.

[0112]

In addition, in the invalidation step, as a form of the present embodiment, the deposit/withdrawal of electronic money may be just made impossible between the IC card specified by the invalidation instruction button and the corresponding mobile terminal, without executing any transfer of the amount of balance.

[0113]

The several embodiments of the present invention have been described, but these embodiments have been presented as examples, and are not intended to limit the scope of the invention. These embodiments can be put into practice in other various forms, and