CLAIMS

1. A virtual code generation device, the device comprising:

a detailed code generation unit configured to generate an OTP code and an extraction code;

a virtual code generation unit configured to generate a virtual code including the OTP code and the extraction code; and

a virtual code provision unit configured to output the virtual code to an outside to provide a virtual code verification means with the virtual code,

wherein the OTP code is generated with the specific number of numeric arrays based on an OTP function and is used to calculate a conversion code in the virtual code verification means,

wherein the extraction code having a correlation with the conversion code calculated from the OTP code,

wherein the conversion code and the extraction code are used to search for a real card number, wherein the conversion code and the extraction code are used as a first code and a second code according to a condition set the virtual code verification means, respectively and the first code is to set a start point for searching for a storage location of the real card number in the virtual code verification means, and the second code is to set a search path from the start point to the storage location depending on a specific search method, and

wherein the virtual code includes all or part of the OTP code and the extraction code within a changeable range.

2. The device of claim 1, wherein the OTP code is generated as the number of numbers of a card security code in the actual card number, and

wherein the extraction code is generated with all or part of the number of numbers other than ~~the~~ fixed code, the OTP code, and an expiration date in the total number of numbers of the

virtual code, and

wherein the fixed code is a code that is combined at a predetermined location in the virtual code and determines an issuer of the virtual code.

3. The device of claim 2, wherein the conversion code is generated with the number of digits the same as the extraction code.

~~4. The device of claim 1, wherein the conversion code and the extraction code are used as a first code and a second code according to a condition set the virtual code verification means, respectively and sets a path or order for searching the real card number.~~

4~~5~~. The device of claim 1, wherein the virtual code further includes a fixed code that is combined at a predetermined location,

wherein the detailed code generation unit generates a specific number combination positioned at a digit of an expiration date, as a variable code when the fixed code is newly assigned to the virtual code of a specific card type,

wherein the conversion code is generated using the variable code and the OTP code as a seed value, and

wherein the number combination is changed and generated for each unit count, is capable of being used as an actual expiration date, and is included in a maximum period from a current count.

5~~6~~. The device of claim 1, wherein the virtual code further includes a fixed code that

is combined at a predetermined location, and the device is further comprising:

a virtual code check unit configured to determine whether the virtual code generated at a specific count is a code string capable of being used as the actual card number in a specific card type, when the fixed code is used for the actual card number of the specific card type.

67. A virtual code-based financial transaction providing method, the method comprising:

receiving, by a virtual code verification means, a virtual code provided by a virtual code generation means;

extracting, by the virtual code verification means, a plurality of detailed codes, which are included in the virtual code depending on a specific rule, wherein the plurality of detailed codes include an OTP code and an extraction code;

calculating, by the virtual code verification means, a conversion code based on the OTP code; and

searching, by the virtual code verification means, for an actual card number based on the extraction code and the conversion code, wherein the conversion code and the extraction code are used as a first code and a second code according to a condition set the virtual code verification means, respectively and the first code is to set a start point for searching for a storage location of the real card number in the virtual code verification means, and the second code is to set a search path from the start point to the storage location depending on a specific search method,

wherein the OTP code is generated with the specific number of numeric arrays based on an OTP function and is used to calculate thea conversion code in the virtual code verification

means,

wherein the extraction code having a correlation with the conversion code calculated from the OTP code, and

wherein the virtual code includes all or part of the OTP code and the extraction code within a changeable range.

78. The method of claim 67, wherein the extracting of the detailed code includes:

extracting a fixed code in an area of a card identification number within the virtual code, wherein the fixed code is a code that is combined at a predetermined location in the virtual code and determines an issuer of the virtual code;

setting a detailed code combining function corresponding to a specific card type based on the fixed code; and

extracting the OTP code and the extraction code from a numeral string listed at a digit other than a fixed code in the card identification number and a digit of a card security code, using the detailed code combining function.

89. The method of claim 78, wherein the extracting of the detailed code includes:

calculating a count value at which a virtual code is generated by comparing a comparison code, which is generated by the OTP function the same as an OTP function included in the virtual code generation means, with the OTP code, and

wherein the calculating of the conversion code includes:

calculating the conversion code by entering the count value and the OTP code as a seed value into a conversion code generation function.