

WHAT IS CLAIMED IS:

1. A portable electronic device comprising:

a biometric information obtaining unit configured to obtain a command that causes the portable electronic device to generate a PIN from an external device in which a PIN generated beforehand by a predetermined algorithm from biometric information of a user has been stored, the command including the biometric information that represents a physical feature of a user of the portable electronic device; and

an ~~PIN authentication information~~ generating unit configured to generate a ~~PIN authentication information~~ that is numeric information for authentication of the user of the portable electronic device and that has a predetermined number of digits, based on the biometric information obtained by the biometric information obtaining unit, by the same algorithm as the predetermined algorithm for generating the PIN stored in the external device; and

~~2. The portable electronic device according to claim 1, further comprising:~~

~~an output unit configured to ~~include~~ output the PIN generated by the PIN generating unit in a response to the command and transmit the ~~PIN authentication information~~ generated by the ~~PIN authentication information~~ generating unit to ~~the~~ an external device that determines the legitimacy of the user.~~

~~3. The portable electronic device according to claim 12, further comprising:~~

~~an encryption processing unit configured to encrypt the ~~PIN authentication information~~ generated by the ~~PIN authentication information~~ generating unit, wherein~~

~~the output unit is configured to output the ~~PIN authentication information~~ encrypted by the encryption processing unit to the external device.~~

~~4. The portable electronic device according to any one of claims 1 to 3, further comprising:~~

~~—— a determination unit configured to determine the legitimacy of the user based on the authentication information generated by the authentication information generating unit.~~

5 ~~5. —— The portable electronic device according to any one of claims 1 to 4, wherein
—— the authentication information generating unit is configured to generate the authentication information from the biometric information based on a predetermined algorithm.~~

10 ~~6. —— The portable electronic device according to any one of claims 1 to 4, further comprising:~~

~~—— a storage unit configured to store therein: reference biometric information obtained in advance from an owner of the portable electronic device; and the authentication information, wherein~~

15 ~~—— the authentication information generating unit is configured to determine whether or not the user and the owner are the same person, based on the biometric information obtained by the biometric information obtaining unit and the reference biometric information that is stored in the storage unit, and, upon determining that the user and the owner are the same person, to read out the authentication information from~~
20 ~~the storage unit, thereby generating the authentication information.~~

~~7. —— The portable electronic device according to claim 6, wherein~~

~~—— the authentication information generating unit is configured to compare the biometric information obtained by the biometric information obtaining unit with the reference biometric information that is stored in the storage unit, and if the biometric information and the reference biometric information match, to determine that the user and the owner are the same person.~~

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30 ~~38. The portable electronic device according to claim 1, further comprising:
a communication unit, wherein~~

the biometric information obtaining unit obtains the biometric information transmitted from an external device, via the communication unit.

9. ~~The portable electronic device according to any one of claims 1 to 6, further comprising:~~

~~—— a biometric information detecting unit configured to detect the biometric information, wherein~~

~~—— the biometric information obtaining unit is configured to obtain the biometric information detected by the biometric information detecting unit.~~

410. An authentication system including an external device and a portable electronic device connected to the external device, the authentication system comprising:

the external device including:

a storage unit in which a PIN generated beforehand by a predetermined algorithm from biometric information of a user has been stored,

a biometric information detecting unit configured to detect biometric information of a user of the portable electronic device, and

a transmission unit configured to include the biometric information of the user of the portable electronic device obtained by the biometric information detecting unit in a command that causes the portable electronic device to generate a PIN, and transmit the biometric information of the user of the portable electronic device to the portable electronic device; and

thea portable electronic device including:

—— a biometric information obtaining unit configured to obtain the command that causes the portable electronic device to generate the PIN from the external device, the command including the biometric information that represents a physical feature of thea user of the portable electronic device,

—— an PINauthentication information generating unit configured to generate a PINauthentication information that is numeric information for authentication of the user of the portable electronic device and that hasving a predetermined

number of digits, based on the biometric information obtained by the biometric information obtaining unit, by the same algorithm as the predetermined algorithm for generating the PIN stored in the storage unit of the external device, and

5 an output unit configured to ~~include~~output the PIN authentication information generated by the PIN authentication information generating unit in a response to the command and transmit the PIN generated by the PIN generating unit to the external device; and

10 wherein the external device further includes an authentication unit configured to authenticate the user of the portable electronic device by comparing the PIN included in the response configured to determine the legitimacy of the user based on the authentication information that has been outputted from by the output unit of the portable electronic device with the PIN stored in the storage unit.

15 11. ~~The system according to claim 10, wherein~~

~~—— the external device comprises a storage unit in which authentication information is stored in advance, and~~

20 ~~—— the external device is configured to determine the legitimacy of the user by comparing the authentication information that has been output by the output unit of the portable electronic device with the authentication information that is stored in the storage unit.~~

12. ~~The system according to claim 11, wherein~~

25 ~~—— the external device further comprises a biometric information detecting unit configured to detect biometric information that represents a physical feature from the user, wherein~~

~~—— the biometric information obtaining unit of the portable electronic device is configured to obtain the biometric information detected by the biometric information detecting unit.~~

543. The authentication system according to claim 410, wherein
the portable electronic device comprises a storage unit, and the storage unit of
the portable electronic device is configured to store therein an ID number that is unique
to the portable electronic device,

5 | ~~the external device comprises a storage unit, and the storage unit of the external~~
device is configured to store therein: the ID number that is unique to the portable
electronic device; and ~~thea PIN generated beforehand which is used~~(Personal
Identification Number) for authentication of an owner of the portable electronic device,
in association with each other,

10 | ~~the PINauthentication information~~ generating unit of the portable electronic
device is configured to further generate a PIN based on the biometric information, and
~~generates the authentication information such that the authentication information~~
includes: the ID number that is unique to the portable electronic device and that is
stored in the storage unit of the portable electronic device; and the ~~generated PIN~~
15 | generated by the PIN generating unit,

the output unit of the portable electronic device is configured to output the
authentication information, and

the external device is configured to extract the PIN that is associated with the ID
number and that is stored in the storage unit of the external device, based on the ID
20 | number that is included in the authentication information, and compares the ~~extracted~~
PIN extracted with the ~~generated PIN generated by the PIN generating unit~~ that is
included in the authentication information.