CLAIMS

1. A locking and unlocking system comprising:

a portable terminal;

a key unit arranged inside a vehicle or facilities; and

a locking and unlocking device installed in the vehicle or the facilities, wherein

the portable terminal includes a first sending unit that sends a first request to the key unit, the first request including first authentication information associated with the key unit,

the key unit includes:

a first receiving unit that receives the first request from the portable terminal;

a first storage unit that stores encrypted second authentication information, the second authentication information being associated with the vehicle or the facilities;

a first authentication unit that performs authentication based on the first authentication information included in the first request when the first receiving unit receives the first request;

a decryption unit that decrypts the second authentication information when the authentication by the first authentication unit is successful; and

a second sending unit that sends a second request to the locking and unlocking device, the second request including the second authentication information decrypted by the decryption unit, and

the locking and unlocking device includes:

a second receiving unit that receives the second request from the key unit;

a second authentication unit that performs authentication based on the second authentication information included in the second request, when the second receiving unit receives the second request; and

a locking and unlocking unit that locks or unlocks the vehicle or the facilities when the authentication by the second authentication unit is successful.

2. A locking and unlocking system comprising:

a portable terminal;

a key unit arranged inside a vehicle or facilities; and

a locking and unlocking device installed in the vehicle or the facilities, wherein

the portable terminal includes a first sending unit that sends a first request to the key unit, the first request including first authentication information associated with the key unit,

the key unit includes:

a first receiving unit that receives the first request from the portable terminal;

a first storage unit that stores second authentication information associated with the vehicle or the facilities;

a first authentication unit that performs authentication based on the first authentication information included in the first request when the first receiving unit receives the first request;

an access management unit that changes the second authentication information in the first storage unit from an inaccessible state to an accessible state, when the authentication by the first authentication unit is successful; and

a second sending unit that sends a second request to the locking and unlocking device, the second request including the second authentication information, and

the locking and unlocking device includes:

a second receiving unit that receives the second request from the key unit;

a second authentication unit that performs authentication based on the second authentication information included in the second request, when the second receiving unit receives the second request; and

a locking and unlocking unit that locks or unlocks the vehicle or the facilities when the authentication by the second authentication unit is successful.

3. The locking and unlocking system according to claim 1 or 2, further comprising:

a server that communicates with the portable terminal, wherein

the server includes:

a second storage unit that stores the first authentication information;

a schedule information acquisition unit that acquires schedule information on the vehicle or the facilities; and

a third sending unit that sends the first authentication information to the portable terminal when the schedule information includes a use reservation for the vehicle or the facilities by a user of the portable terminal.

4. The locking and unlocking system according to any one of claims 1 to 3, wherein

the portable terminal further includes:

a third storage unit that stores the first authentication information; and

an erasing unit that erases the first authentication information stored in the third storage unit, when a time of a use of the vehicle or the facilities ends.

5. A key unit that is arranged inside a vehicle or facilities and sends a second request to a locking and unlocking device in response to a first request sent from a portable terminal to lock or unlock the vehicle or the facilities, the locking and unlocking device being installed in the vehicle or the facilities, the second request requesting the locking or the unlocking of the vehicle or the facilities,

the key unit comprising:

a receiving unit that receives the first request from the portable terminal, the first request including first authentication information;

a storage unit that stores encrypted second authentication information, the second authentication information being associated with the vehicle or the facilities;

an authentication unit that performs authentication based on the first authentication information included in the first request when the first receiving unit receives the first request;

a decryption unit that decrypts the second authentication information when the authentication by the authentication unit is successful; and

a sending unit that sends the second request to the locking and unlocking device, the

second request including the second authentication information decrypted by the decryption unit.

6. A key unit that is arranged inside a vehicle or facilities and sends a second request to a locking and unlocking device in response to a first request sent from a portable terminal to lock or unlock the vehicle or the facilities, the locking and unlocking device being installed in the vehicle or the facilities, the second request requesting the locking or the unlocking of the vehicle or the facilities,

the key unit comprising:

a receiving unit that receive the first request from the portable terminal, the first request including first authentication information;

a storage unit that stores second authentication information, the second authentication information being associated with the vehicle or the facilities;

an authentication unit that performs authentication based on the first authentication information included in the first request when the first receiving unit receives the first request;

an access management unit that changes the second authentication information in the storage unit from an inaccessible state to an accessible state when the authentication by the authentication unit is successful; and

a sending unit that sends the second request to the locking and unlocking device, the second request including the second authentication information.