CLAIMS

[Claim 1]

An authentication system for authenticating a given action when a user is enabled to receive a given network service, based on information provided from a terminal device having position information of the user, the authentication system comprising:

a management unit for managing reference distance related information, which is information registered in advance in a storage unit, and in which a reference distance for authenticating an execution of the action by the user or information related to the reference distance is defined;

an identification unit for identifying a user who instructs the execution of the action as a specific user based on user information relating to a user who executes the action when the action is executed;

a determination processing unit for executing a determination process of determining whether the specific user when the action is executed satisfies a given user condition; and

an authentication processing unit for executing an authentication process of authenticating the execution of the action based on a result of the determination process at an action execution timing at which the action is executed, wherein

the determination processing unit executes, as the determination process:

a position information acquisition process of acquiring difference information, from the terminal device, at an action execution timing or an action execution related timing related to the action execution timing, without acquiring position information of the specific user, the difference information indicating a difference between a current position of the specific user at the action execution timing

or the action execution related timing and a position of the specific user at a past timing; and

a condition determination process of comparing the acquired difference information and the reference distance related information, and of determining whether the result of the comparison satisfies a given user condition.

[Claim 2]

The authentication system according to claim 1, wherein

the determination processing unit:

acquires difference information indicating a difference between the current position of the specific user at a timing corresponding to the action execution timing or the action execution related timing and the position of the specific user at a past timing, at every timing predetermined as an action execution related timing, as the position information acquisition process;

registers the acquired difference information in a storage unit as recorded information of the corresponding user; and

executes the condition determination process of comparing the recorded information of the specific user with the reference distance related information, and of determining whether the comparison result satisfies the user condition.

[Claim 3]

The authentication system according to claim 1, wherein

the determination processing unit:

acquires difference information indicating a difference between the current position of the specific user at a timing corresponding to the action execution timing or the action execution related timing and the position of the specific user at a

past timing, at every timing predetermined as an action execution related timing, as the position information acquisition process;

registers the acquired difference information in a storage unit as recorded information of the corresponding user; and

executes the condition determination process of comparing the recorded information of the specific user with the reference distance related information, and of determining whether the comparison result satisfies the user condition, before the action execution timing or a timing after the action is executed.

[Claim 4]

The authentication system according to any one of claims 1 to 3, wherein

the determination processing unit executes, as the determination process, an authenticity determination process of determining authenticity of the specific user when the action is executed based on the determination result of the condition determination process.

[Claim 5]

The authentication system according to any one of claims 1 to 3, wherein

the determination processing unit:

acquires, as the position information acquisition process, time information indicating a time at the action execution timing or the action execution related timing when the difference information is acquired; and

determines, as the condition determination process, whether the difference information based on the time information satisfies the user condition with respect to the reference distance related information.

[Claim 6]

The authentication system according to any one of claims 1 to 3, further comprising

a provision unit for providing the user with an execution result of the action.

[Claim 7]

The authentication system according to any one of claims 1 to 6, wherein

in a case where electronic commerce is executed as the action, and the reference distance related information defines a distance serving as a reference for authenticating the electronic commerce or information related to the distance,

the identification unit identifies, as the specific user, a transaction target person to be a target of the electronic commerce, based on transaction target person information relating to the transaction target person, the transaction target person indicating at least one user of a supplier and a client of the electronic commerce, the transaction target person information being transmitted from an information processing device that executes the electronic commerce, and

the authentication processing unit executes the authentication process of authenticating the electronic commerce between the identified supplier and the client based on a result of the determination process at a transaction execution timing at which the electronic commerce is executed as the action execution timing; and

the determination processing unit:

executes an information acquisition process of acquiring position difference information indicating a difference between a current position of the transaction target person at a timing corresponding to the transaction execution timing or a transaction execution related timing related to the transaction execution timing and a position of the transaction target person at a past timing, at the transaction execution timing or the transaction execution related timing; and

executes the condition determination process of comparing the acquired position difference information with the reference distance related information and of determining whether the result of the comparison satisfies a transaction target person condition that indicates the user condition.

[Claim 8]

The authentication system according to claim 7, wherein

the determination processing unit:

acquires, as the difference information, position difference information indicating a difference between the current position of the transaction target person and the position of the transaction target person at a past timing, every timing predetermined as the transaction execution related timing, as the position information acquisition process;

registers the acquired position difference information in a storage unit as recorded information of the corresponding transaction target person; and

executes the condition determination process of comparing the recorded information of the transaction target person with the reference distance related information, and of determining whether the comparison result satisfies the transaction target person condition.

[Claim 9]

The authentication system according to claim 7 or 8, wherein

the information processing device registers the information relating to the electronic commerce as electronic commerce information in a plurality of databases in a distributed manner, and

the electronic commerce information is formed by block information which is blocked based on a plurality of pieces of electronic commerce information including the

electronic commerce information and a hash value determined from past electronic commerce information when the electronic commerce is authenticated.

[Claim 10]

An authentication method for authenticating a given action when a user is enabled to receive a given network service, by using a computer, based on information provided from a terminal device having position information of the user, the authentication method comprising:

managing reference distance related information, which is information registered in advance in a storage unit, and in which a reference distance for authenticating an execution of the action by the user or information related to the reference distance is defined;

identifying a user who instructs the execution of the action as a specific user based on user information relating to a user who executes the action when the action is executed;

executing a determination process of determining whether the specific user when the action is executed satisfies a given user condition; and

executing an authentication process of authenticating the execution of the action based on a result of the determination process at an action execution timing at which the action is executed, wherein

the determination process includes:

acquiring difference information, from the terminal device, at an action execution timing or an action execution related timing related to the action execution timing, without acquiring position information of the specific user, the difference information indicating a difference between a current position of the specific user at the action execution timing or the action execution related timing and a position of the specific user at a past timing; and

comparing the acquired difference information and the reference distance related information, and determining whether the result of the comparison satisfies a given user condition.

[Claim 11]

A network service provision system for providing a user with a given network service including that a given action is authenticated when a user is enabled to receive the network service, based on information provided from a terminal device having position information of the user, the network service provision system comprising:

a management unit for managing reference distance related information, which is information registered in advance in a storage unit and in which a reference distance for authenticating an execution of the action by the user or information related to the reference distance is defined;

an identification unit for identifying a user who instructs the execution of the action as a specific user based on user information relating to a user who executes the action when the action is executed;

a determination processing unit for executing a determination process of determining whether the specific user when the action is executed satisfies a given user condition;

an authentication processing unit for executing an authentication process of authenticating the execution of the action based on a result of the determination process at an action execution timing at which the action is executed; and

an execution control unit for controlling an execution of the action when the execution of the action is authenticated by the authentication process,

wherein the determination processing unit executes, as the determination process:

a position information acquisition process of acquiring difference information, from the terminal device at an action execution timing or an action execution related timing related to the action execution timing, without acquiring position information of the specific user, the difference information indicating a difference between a current position of the specific user at the action execution timing or the action execution related timing and a position of the specific user at a past timing; and

a condition determination process of comparing the acquired difference information and the reference distance related information, and of determining whether the result of the comparison satisfies a given user condition.

[Claim 12]

The network service provision system according to claim 11, wherein

in a case where electronic commerce is executed as the action, and the reference distance related information defines a distance serving as a reference for authenticating the electronic commerce or information related to the distance,

the identification unit identifies, as the specific user, a transaction target person to be a target of the electronic commerce, based on transaction target person information relating to the transaction target person, the transaction target person indicating at least one user of a supplier and a client of the electronic commerce, the transaction target person information being transmitted from an information processing device that executes the electronic commerce, and

the authentication processing unit executes the authentication process of authenticating the electronic commerce between the identified supplier and the client based on a result of the determination process at a transaction execution timing at which the electronic commerce is executed as the action execution timing; and

the determination processing unit:

executes the information acquisition process of acquiring position difference information indicating a difference between a current position of the transaction target person at a timing corresponding to the transaction execution timing or a transaction execution related timing related to the transaction execution timing and a position of the transaction target person at a past timing, at the transaction execution timing or the transaction execution related timing; and

executes the condition determination process of comparing the acquired position difference information with the reference distance related information and of determining whether the result of the comparison satisfies a transaction target person condition that indicates the user condition.

[Claim 13]

A method for providing network services for providing a user with a given network service including that a given action is authenticated when a user is enabled to receive the network service, by using a computer, based on information provided from a terminal device having position information of the user, the method comprising:

managing reference distance related information, which is information registered in advance in a storage unit and in which a reference distance for authenticating an execution of the action by the user or information related to the reference distance is defined;

identifying a user who instructs the execution of the action as a specific user based on user information relating to a user who executes the action when the action is executed;

executing a determination process of determining whether the specific user when the action is executed satisfies a given user condition;

executing an authentication process of authenticating the execution of the action based on a result of the determination process at an action execution timing at which the action is executed; and

controlling an execution of the action when the execution of the action is authenticated,

wherein the determination process includes:

a position information acquisition process of acquiring difference information, from the terminal device, at an action execution timing or an action execution related timing related to the action execution timing, without acquiring position information of the specific user, the difference information indicating a difference between a current position of the specific user at the action execution timing or the action execution related timing and a position of the specific user at a past timing; and

a condition determination process of comparing the acquired difference information and the reference distance related information, and of determining whether the result of the comparison satisfies a given user condition.

[Claim 14]

A user authorization system for executing determination relating to a user for a given action when a user is enabled to receive a given network service, based on information provided from a terminal device having position information of the user, the user authorization system comprising:

a management unit for managing reference distance related information, which is information registered in advance in a storage unit and in which a reference distance for authenticating an execution of the action by the user or information related to the reference distance is defined;

an identification unit for identifying a user who instructs the execution of the action as a specific user based on user information relating to a user who executes the action when the action is executed;

a determination processing unit for executing a determination process of determining whether the specific user when the action is executed satisfies a given user condition; and

a provision unit for providing a determination result of the determination process to an information processing device,

wherein the determination processing unit executes:

a position information acquisition process of acquiring difference information, from the terminal device, at an action execution timing or an action execution related timing related to the action execution timing, without acquiring position information of the specific user, the difference information indicating a difference between a current position of the specific user at the action execution timing or the action execution related timing and a position of the specific user at a past timing; and

a condition determination process of comparing the acquired difference information and the reference distance related information, and of determining whether the result of the comparison satisfies a given user condition.

[Claim 15]

The user authorization system according to claim 14, wherein

in a case where electronic commerce is executed as the action, and the reference distance related information defines a distance serving as a reference for authenticating the electronic commerce or information related to the distance,

the identification unit identifies, as the specific user, a transaction target person to be a target of the electronic commerce, based on transaction target person information

relating to the transaction target person, the transaction target person indicating at least one user of a supplier and a client of the electronic commerce, the transaction target person information being transmitted from an information processing device that executes the electronic commerce, and

the authentication processing unit executes the authentication process of authenticating the electronic commerce between the identified supplier and the client based on a result of the determination process at a transaction execution timing at which the electronic commerce is executed as the action execution timing; and

the determination processing unit:

executes the information acquisition process of acquiring position difference information indicating a difference between a current position of the transaction target person at a timing corresponding to the transaction execution timing or a transaction execution related timing related to the transaction execution timing and a position of the transaction target person at a past timing, at the transaction execution timing or the transaction execution related timing; and

executes the condition determination process of comparing the acquired position difference information with the reference distance related information and of determining whether the result of the comparison satisfies a transaction target person condition that indicates the user condition.

[Claim 16]

A user authorization method for executing determination relating to a user for a given action when a user is enabled to receive a given network service, by using a computer, based on information provided from a terminal device having position information of the user, the user authorization method comprising:

managing reference distance related information, which is information registered in advance in a storage unit and in which a reference distance for

authenticating an execution of the action by the user or information related to the reference distance is defined;

identifying a user who instructs the execution of the action as a specific user based on user information relating to a user who executes the action when the action is executed;

executing a determination process of determining whether the specific user when the action is executed satisfies a given user condition; and

providing a determination result of the determination process to an information processing device,

wherein the determination process includes:

a position information acquisition process of acquiring difference information, from the terminal device, at an action execution timing or an action execution related timing related to the action execution timing, without acquiring position information of the specific user, the difference information indicating a difference between a current position of the specific user at the action execution timing or the action execution related timing and a position of the specific user at a past timing; and

a condition determination process of comparing the acquired difference information and the reference distance related information, and of determining whether the result of the comparison satisfies a given user condition.

[Claim 17]

An authentication system for executing authentication to log in to a given network service for a user, based on information provided from a terminal device having position information of the user, the authentication system comprising:

a management unit for managing reference distance related information, which is information registered in advance in a storage unit and in which a reference distance

for authenticating login of the user or information related to the reference distance is defined;

an identification unit for identifying a user who instructs the execution of the login as a specific user based on user information relating to a user who executes the login;

a determination processing unit for executing a determination process of determining whether the specific user when the login is executed satisfies a given user condition; and

an authentication processing unit for executing an authentication process of authenticating the execution of the login based on a result of the determination process at a login execution timing at which the login is executed,

wherein the determination processing unit executes, as the determination process:

a position information acquisition process of acquiring difference information at a login execution timing or a login execution related timing related to the login execution timing, the difference information indicating a difference between a current position of the specific user at the login timing or the login execution related timing and a position of the specific user at a past timing; and

a condition determination process of comparing the acquired difference information and the reference distance related information, and of determining whether the result of the comparison satisfies a given user condition.

[Claim 18]

An authentication method for executing authentication to log in to a given network service for a user, by using a computer, based on information provided from a terminal device having position information of the user, the authentication method comprising:

managing reference distance related information, which is information registered in advance in a storage unit and in which a reference distance for authenticating login of the user or information related to the reference distance is defined;

identifying a user who instructs the execution of the login as a specific user based on user information relating to a user who executes the login when the login is executed;

executing a determination process of determining whether the specific user when the login is executed satisfies a given user condition; and

executing an authentication process of authenticating the execution of the login based on a result of the determination process at a login execution timing at which the login is executed,

wherein the determination process includes:

acquiring difference information, from the terminal device, at a login execution timing or a login execution related timing related to the login execution timing, without acquiring position information of the specific user, the difference information indicating a difference between a current position of the specific user at the login timing or the login execution related timing and a position of the specific user at a past timing; and

comparing the acquired difference information and the reference distance related information, and of determining whether the result of the comparison satisfies a given user condition.