[PTL 1] JP 2007-257040 A

Summary

[0005]

Because the biometrics authentication device described in PTL 1 assumes that the cause of the failure of the authentication be a cause that can be resolved, the cause is notified to the user.

[0006]

However, there is a cause that has a low possibility to be resolved from among the causes that data with high quality cannot be acquired. For example, in a case where the user is a person who is not able to or has difficulty in acquiring data with an appropriate quality, even if the cause is notified to the user, the cause is unlikely to be resolved, and there is a possibility that a success rate of the authentication of the user is not improved.

[0007]

For such a user, even if the device repeatedly attempts to acquire the iris data, the iris data suitable for authentication cannot be acquired. Therefore, the attempt to acquire the iris data goes in vain. A processing time of the device that attempts to acquire the iris data is wasted, and in addition, there is a disadvantage that the user wastes labor and time.

[0008] According to one aspect, there is provided an information providing device comprising:

reception means for receiving a face image;

determination means for analyzing the face image, and determining whether a person in the face image is unsuitable for iris data acquisition by detecting, based on the analysis of the face image, whether the person has a cause that interferes the iris data acquisition ; and

output means for outputting information when the determination means determines that the person is unsuitable for the iris data acquisition by detecting that the person has the cause that interferes the iris data acquisition,

wherein the information to be output by the output means is at least one

of information indicating that the person is unsuitable for the iris data acquisition and information that urges the person to stop an action to let iris data of the person to be acquired, the information providing device further comprising:

iris data acquisition means for attempting acquisition of the iris data from the face image; and

success determination means for performing determination including determining whether the iris data is acquired by the iris data acquisition means and determining whether quality of the iris data acquired by the iris data acquisition means is sufficient to be used for authentication, wherein

the determination means determines whether the person is unsuitable for the iris data acquisition when the iris data is not acquired by the iris data acquisition means or when quality of the acquired iris data is determined to be not sufficient to be used for authentication by the success determination means, wherein

the output means outputs a message to the person when the person is not determined to be unsuitable for the iris data acquisition,

when a new face image is input after the message is output, the iris data acquisition means attempts acquisition of iris data from the new face image, and the success determination means performs the determination, and

the determination means determines that the person is unsuitable for the iris data acquisition when a count of times when the message is output to the person exceeds a threshold in a case where the iris data having quality sufficient to be used for authentication is not acquired even once from the person. According to another aspect, there is provided an information providing method comprising receiving a face image;

analyzing the face image; determining whether a person in the face image is unsuitable for iris data acquisition by detecting, based on the analysis of the face image, whether the person has a cause that interferes the iris data acquisition; and outputting information when it is

determined that the person is unsuitable for the iris data acquisition by detecting that the person has the cause that interferes the iris data acquisition, wherein the information to be output is at least one of information indicating that the person is unsuitable for the iris data acquisition and information that urges the person to stop an action to let iris data of the person to be acquired, the method further comprising:

attempting acquisition of the iris data from the face image; and

performing determination including determining whether the iris data is acquired by an iris data acquisition means and determining whether quality of the iris data acquired by the iris data acquisition means is sufficient to be used for authentication, wherein

the method determines whether the person is unsuitable for the iris data acquisition when the iris data is not acquired by the iris data acquisition means or when quality of the acquired iris data is determined to be not sufficient to be used for authentication by a success determination means, wherein

an output means outputs a message to the person when the person is not determined to be unsuitable for the iris data acquisition,

when a new face image is input after the message is output, acquisition of iris data is attempted from the new face image, and the determination is performed, and

determines that the person is unsuitable for the iris data acquisition when a count of times when the message is output to the person exceeds a threshold in a case where the iris data having quality sufficient to be used for authentication is not acquired even once from the person. According to yet another aspect, there is provided a storage medium storing a program causing a computer to execute:

reception processing of receiving a face image;

determination processing of analyzing the face image, and determining whether a person in the face image is unsuitable for iris data acquisition by detecting, based on the analysis of the face image, whether

the person has a cause that interferes the iris data acquisition; and

output processing of outputting information when the determination processing determines that the person is unsuitable for the iris data acquisition by detecting that the person has the cause that interferes the iris data acquisition, wherein the information to be output by the output processing is at least one of information indicating that the person is unsuitable for the iris data acquisition and information that urges the person to stop an action to let iris data of the person to be acquired, the storage medium further comprising:

attempt acquisition processing of the iris data from the face image; and performing determination processing including determining whether the iris data is acquired by an iris data acquisition processing and determining whether quality of the iris data acquired by the iris data acquisition processing is sufficient to be used for authentication process, wherein the storage medium is configured to:

determine whether the person is unsuitable for the iris data acquisition when the iris data is not acquired by the iris data acquisition processing or when quality of the acquired iris data is determined to be not sufficient to be used for authentication by a success determination processing, and

output a message to the person when the person is not determined to be unsuitable for the iris data acquisition,

when a new face image is input after the message is output, attempt acquisition processing of iris data from the new face image, and perform the determination processing, and

perform determination processing that the person is unsuitable for the iris data acquisition when a count of times when the message is output to the person exceeds a threshold in a case where the iris data having quality sufficient to be used for authentication is not acquired even once from the person.

One the example embodiments is to provide a device, a method, or the like that reduces a wasteful behavior, wasteful processing, or the like

that may occur in a scene in which iris data is acquired.

[0009]

An information providing device according to one example of the example embodiments includes: reception means for receiving a face

CLAIMS

[Claim 1]

An information providing device comprising:

reception means for receiving a face image;

determination means for analyzing the face image, and determining whether a person in the face image is unsuitable for iris data acquisition by detecting, based on the analysis of the face image, whether the person has a cause that interferes the iris data acquisition ; and

output means for outputting information when the determination means determines that the person is unsuitable for the iris data acquisition by detecting that the person has the cause that interferes the iris data acquisition,

wherein the information to be output by the output means is at least one of information indicating that the person is unsuitable for the iris data acquisition and information that urges the person to stop an action to let iris data of the person to be acquired, the information providing device further comprising:

iris data acquisition means for attempting acquisition of the iris data from the face image; and

success determination means for performing determination including determining whether the iris data is acquired by the iris data acquisition means and determining whether quality of the iris data acquired by the iris data acquisition means is sufficient to be used for authentication, wherein

the determination means determines whether the person is unsuitable for the iris data acquisition when the iris data is not acquired by the iris data acquisition means or when quality of the acquired iris data is determined to be not sufficient to be used for authentication by the success determination means, wherein

the output means outputs a message to the person when the person is not determined to be unsuitable for the iris data acquisition,

when a new face image is input after the message is output, the iris data acquisition means attempts acquisition of iris data from the new face image, and the success determination means performs the determination, and

the determination means determines that the person is unsuitable for the iris data acquisition when a count of times when the message is output to the person exceeds a threshold in a case where the iris data having quality sufficient to be used for authentication is not acquired even once from the person.

[Claim 2]

The information providing device according to claim 1, wherein

t~~T~~he determination means determines that the person is unsuitable for the iris data acquisition when detecting, based on the analysis of the face image, that the person has the cause that interferes the iris data acquisition regarding opening of eyelids based on shapes of the eyelids of the person.

~~[Claim 3]~~

~~The information providing device according to claim 1 or 2, further comprising:~~

~~iris data acquisition means for attempting acquisition of the iris data from the face image; and~~

~~success determination means for performs determination including determining whether the iris data is acquired by the iris data acquisition means and determining whether quality of the iris data acquired by the iris data acquisition means is sufficient to be used for authentication, wherein~~

~~the determination means determines whether the person is unsuitable for the iris data acquisition when the iris data is not acquired by the iris data acquisition means or when quality of the acquired iris data is determined to be not sufficient to be used for authentication by the success determination means.~~

~~[Claim 4]~~

~~The information providing device according to claim 3, wherein~~

~~the output means outputs a message to the person when the person is not determined to be unsuitable for the iris data acquisition,~~

~~when a new face image is input after the message is output, the iris data acquisition means attempts acquisition of iris data from the new face image, and the success determination means performs the determination, and~~

~~the determination means determines that the person is unsuitable for the iris data acquisition when a count of times when the message is output to the person exceeds a threshold in a case where the iris data having quality sufficient to be used for authentication is not acquired even once from the person.~~

[Claim 3~~5~~]

The information providing device according to claim 1~~3~~, wherein

the success determination means calculates, based on information used for the determination, a degree of failure that the iris data having the quality sufficient to be used for authentication was not acquired, and records information indicating the degree of failure in a memory, and

the determination means determines whether the person is unsuitable for the iris data acquisition based on a history of the information.

[Claim 4~~6~~]

The information providing device according to ~~any one of~~ claim~~s~~ 1 ~~to 5~~, further comprising:

imaging means for generating a face image by imaging; and

registration means for registering, in a database, a pair of the acquired iris data and identification information of the person when the iris data of which quality satisfies a predetermined criterion for authentication processing using the iris data is acquired.

[Claim 57]

An information providing method comprising:

receiving a face image;

analyzing the face image;

determining whether a person in the face image is unsuitable for iris data acquisition by detecting, based on the analysis of the face image, whether the person has a cause that interferes the iris data acquisition;_; and

outputting information when it is determined that the person is unsuitable for the iris data acquisition

by detecting that the person has the cause that interferes the iris data acquisition,

wherein the information to be output is at least one of information indicating that the person is unsuitable for the iris data acquisition and information that urges the person to stop an action to let iris data of the person to be acquired, the method further comprising:

attempting —acquisition of the iris data from the face image; and

performing determination including determining whether the iris data is acquired by an iris data acquisition means and determining whether quality of the iris data acquired by the iris data acquisition means is sufficient to be used for authentication,

wherein

the method determines whether the person is unsuitable for the iris data acquisition when the iris data is not acquired by the iris data acquisition means or when quality of the acquired iris data is determined to be not sufficient to be used for authentication by a success

determination means, wherein

an output means outputs a message to the person when the person is not determined to be unsuitable for the iris data acquisition,

when a new face image is input after the message is output, acquisition of iris data is attempted from the new face image, and the determination is performed, and

determines that the person is unsuitable for the iris data acquisition when a count of times when the message is output to the person exceeds a threshold in a case where the iris data having quality sufficient to be used for authentication is not acquired even once from the person.

[Claim 6~~8~~]

A storage medium storing a program causing a computer to execute:

reception processing of receiving a face image;

determination processing of analyzing the face image, and determining whether a person in the face image is unsuitable for iris data acquisition by detecting, based on the analysis of the face image, whether the person has a cause that interferes the iris data acquisition; and

output processing of outputting information when the determination processing determines that the person is unsuitable for the iris data

acquisition

by detecting that the person has the cause that interferes the iris data acquisition,

wherein the information to be output by the output processing is at least one of information indicating that the person is unsuitable for the iris data acquisition and information that urges the person to stop an action to let iris data of the person to be acquired, the storage medium further comprising:

attempt acquisition processing of the iris data from the face image; and performing determination processing including determining whether the iris data is acquired by an iris data acquisition processing and determining whether quality of the iris data acquired by the iris data acquisition processing is sufficient to be used for authentication process, wherein the storage medium is configured to:

determine whether the person is unsuitable for the iris data acquisition when the iris data is not acquired by the iris data acquisition processing or when quality of the acquired iris data is determined to be not sufficient to be used for authentication by a success determination processing, and

output a message to the person when the person is not determined to be unsuitable for the iris data acquisition,

when a new face image is input after the message is output, attempt acquisition processing of iris data from the new face image, and perform the determination processing, and

perform determination processing that the person is unsuitable for the iris data acquisition when a count of times when the message is output to the person exceeds a threshold in a case where the iris data having quality sufficient to be used for authentication is not acquired even once from the person.