DESCRIPTION

IMAGE PROCESSING DEVICE, IMAGE PROCESSING METHOD, AND STORAGE MEDIUM STORING PROGRAM

TECHNICAL FIELD

[0001]

The present invention relates to an image processing device, an image processing method, and a storage medium storing a program.

BACKGROUND ART

[0002]

In relation to character recognition, in an OCR input checking/correcting method disclosed in Patent Literature 1, calculation logs are prepared using a method different from that of the character recognition. In this method, in a case in which calculation logs and OCR read data match each other and there is no mismatching, reading is skipped up to a received order table in which the next error is present without screen display.

CITATION LIST

Patent Literature

[0003]

[Patent Document 1]

Japanese Unexamined Patent Application, First Publication No. H09-223187

SUMMARY ~~OF INVENTION~~

Problem to be solved by the Invention

[0004]

Not only in a case in which data such as calculation logs acquired in advance and data acquired through an OCR process match each other, but also in the other cases, it is preferable to reduce an operator's burden regarding checking results of the OCR process.

[0005]

Embodiments of the present ~~invention~~ disclosure seek to provide an image processing device, an image processing method, and a program capable of solving the problems described above.

~~Means for Solving the Problem~~

[0006]

According to a first aspect of the present ~~invention~~disclosure, an image processing device is provided including: a first feature quantity selecting means for selecting a first feature quantity for~~of~~ a document image that is a character recognition target among first feature quantities that have been recorded in advance on the basis of a result of a ~~character~~ position information recognition process for a plurality of document images and represent features of character strings of an item in the plurality of document images for each type of the document images and for each ~~specific~~ item; a character recognition processing means for performing a character recognition process for the document image that is the character recognition target; a character string selecting means for selecting configured to select ~~a~~ the character string of ~~a~~ the ~~specific~~ item ~~corresponding to the first feature quantity~~ on the basis of a comparison of the position information of the first feature quantity with position information of the character string

that is acquired in the document image among the character strings acquired ~~as a result of~~ by the character recognition process; and a determination result acquiring means for presenting the document image representing a position of the character string of the item that is acquired by the character recognition process and a character string of the item that has been input in advance, and acquiring a determination result indicating whether or not ~~a~~ the character string that has been

input in advance of the item matches the character string of the ~~specific~~ item that is acquired by the character recognition process ~~in a case in which the character string selecting means has not selected any one of the character strings acquired as a result of the character recognition process as the character string of the specific item~~, wherein the determination result acquiring means presents, to a user, the document image representing the position of the character string of the item and the character string that has been input in advance, and acquires the determination result determined by the user, wherein the determination result indicates whether or not the character string of the item appearing in the document image matches the character string that has been input in advance.

[0007]

According to a second aspect of the present ~~invention~~disclosure, an image processing method is provided including: selecting a first feature quantity ~~of~~ for a document image that is a character recognition target among first feature quantities that are recorded in advance on the basis of a result of a character recognition process for a plurality of document images and represent ~~features~~ position information of character strings of an item in the plurality of document images for each type of the document images and for each ~~specific~~ item; performing a character recognition process for the document image that is the character recognition target; selecting ~~a~~ the character string of ~~a~~ the ~~specific~~ item ~~corresponding to the first feature quantity~~ on the basis of a comparison of the position information of the first feature quantity with position information of the character string that is acquired in the document image among the character strings acquired ~~as a result of~~ by the character recognition process; and presenting the document image representing a position of the character string of the item that is acquired by the character recognition process and a character string of the item that has been input in

advance, and acquiring a determination result indicating whether or not ~~a~~ the character string that has been input in advance of the item matches the character string of the ~~specific~~ item that is acquired by the character recognition process~~in a case in which any one of the character strings acquired as a result of the character recognition process has not been selected as the character string of the specific item~~, wherein the presenting includes presenting, to a user, the document image representing the position of the character string of the item and the character string that has been input in advance, and the acquiring includes acquiring the determination result determined by the user, wherein the determination result indicates whether or not the character string of the item appearing in the document image matches the character string that has been input in advance.

[0008]

According to a third aspect of the present ~~invention~~disclosure, a program stored on a storage medium causing a computer to execute processes is provided including: selecting a first feature quantity ~~of~~ for a document image that is a character recognition target among first feature quantities that are recorded in advance on the basis of a result of a character recognition process for a plurality of document images and represent ~~features~~ position information of character strings of an item in the plurality of document images for each type of the document images and for each ~~specific~~ item; performing a character recognition process for the document image that is the

character recognition target; selecting ~~a~~ the character string of ~~a specific~~ the item ~~corresponding to the first feature quantity~~ the basis of a comparison of the position information of the first feature quantity with position information of the character string that is acquired in the document image among the character strings acquired ~~as a result of~~ by the character recognition process; and presenting the document image representing a position of the character string of the item that is acquired by the character recognition process and a character string of the item that has been input in advance, and acquiring a determination result indicating whether or not ~~a~~ the character string that has been input in advance of the item matches the character string of the ~~specific~~ item that is acquired by the character recognition process~~in a case in which any one of the character strings acquired as a result of the character recognition process has not been selected as the character string of the specific item~~, wherein the presenting includes presenting, to a user, the document image representing the position of the character string of the item and the character string that has been input in advance, and the acquiring includes acquiring the determination result determined by the user, wherein the determination result indicates whether or not the character string of the item appearing in the document image matches the character string that has been input in advance.

~~Advantageous Effects of Invention~~

[0009]

According to the present ~~invention~~disclosure, not only in a case in which data acquired in advance and data acquired through an OCR process match each other, but also in other cases, the burden on an operator checking results of the OCR process can be reduced.

BRIEF DESCRIPTION OF DRAWINGS

[0010]

Fig. 1 is a diagram illustrating an example of the device configuration of an image processing system including an image processing device according to an embodiment.

Fig. 2 is a diagram illustrating an example of the hardware configuration of an image processing device according to an embodiment.

Fig. 3 is a schematic block diagram illustrating the functional configuration of an image processing device according to a first embodiment.

Fig. 4 is a diagram illustrating an example of a document slip.

Fig. 5 is a diagram illustrating an overview of a recording table stored in a

CLAIMS

1. An image processing device comprising:

a first feature quantity selecting means for selecting a first feature quantity ~~of~~ for a document image that is a character recognition target among first feature quantities that are recorded in advance on the basis of a result of a character recognition process for a plurality of document images and represent ~~features~~ position information of character strings of an item in the plurality of document images for each type of the document images and for each ~~specific~~ item;

a character recognition processing means for performing a character recognition process for the document image that is the character recognition target;

a character string selecting means for selecting ~~a~~ the character string of ~~a specific~~the item ~~corresponding to the first feature quantity~~on the basis of a comparison of the position information of the first feature quantity with position information of the character string that is acquired in the document image among the character strings acquired ~~as a result of~~by the character recognition process; and

a determination result acquiring means for presenting the document image representing a position of the character string of the item that is acquired by the character recognition process and a character string of the item that has been input in advance, and acquiring a determination result indicating whether or not ~~a~~ the character string that has been input in advance of the item matches the character string of the ~~specific~~ item that is acquired by the character recognition process~~in a case in which the character string selecting means has not selected any one of the character strings acquired as a result of the character recognition process as the character string of the specific item~~,

wherein the determination result acquiring means presents, to a user, the

document image representing the position of the character string of the item and the character string that has been input in advance, and acquires the determination result determined by the user, wherein the determination result indicates whether or not the character string of the item appearing in the document image matches the character string that has been input in advance.

~~2. The image processing device according to claim 1,~~

~~wherein the first feature quantity selecting means selects the first feature quantity representing a position of the character string of the specific item in the document image, and~~

~~wherein the determination result acquiring means presents the document image representing the position of the character string of the specific item and the character string that has been input in advance to a user and acquires the determination result indicating whether or not the character string of the specific item appearing in the document image matches the character string that has been input in advance.~~

~~3~~2. The image processing device according to claim 1~~ or 2~~, further comprising a machine learning means for performing, using the character string that has been input in advance, machine learning for acquiring ~~information~~ the first feature quantity used for selecting the character string of the ~~specific~~ item among the character strings acquired ~~as the result of~~by the character recognition process in a case in which ~~the character string selecting means has not selected any one of the character strings acquired as the result of the character recognition process as the character string of the specific item, and~~ the determination result indicates that the character string of the item that has been input in advance matches the character string of the ~~specific~~ item acquired by the character

recognition process.

~~4~~3. The image processing device according to claim ~~3~~2, wherein the machine learning means performs the machine learning in any one of a case in which ~~the character string selecting means has selected any one of~~ the character strings acquired ~~as the result of~~ by the character recognition process are recorded as the character string of the ~~specific~~ item and a case in which ~~the character string selecting means has not selected any one of~~ the character strings acquired ~~as the result of~~by the character recognition process are not recorded as the character string of the ~~specific~~ item.

~~5~~4. The image processing device according to claim ~~3~~2, wherein the machine learning means performs the machine learning in a case in which ~~the character string selecting means has not selected any one of~~ the character strings acquired ~~as the result of~~by the character recognition process are not recorded as the character string of the ~~specific~~ item, and suppresses execution of the machine learning in a case in which ~~the character string selecting means has selected any one of~~ the character strings acquired ~~as the result of~~ by the character recognition process are recorded as the character string of the ~~specific~~ item.

~~6~~5. An image processing method comprising:

selecting a first feature quantity ~~of~~ for a document image that is a character recognition target among first feature quantities that are recorded in advance on the basis of a result of a character recognition process for a plurality of document images and represent ~~features~~ position information of character strings of an item in the plurality of document images for each type of the document images and for each ~~specific~~ item;

performing a character recognition process for the document image that is the character recognition target;

selecting ~~a~~ the character string of ~~a~~ the ~~specific~~ item ~~corresponding to the first feature quantity~~ on the basis of a comparison of the position information of the first feature quantity with position information of the character string that is acquired in the document image among the character strings acquired ~~as a result of~~ by the character recognition process; and

presenting the document image representing a position of the character string of the item that is acquired by the character recognition process and a character string of the item that has been input in advance, and acquiring a determination result indicating whether or not ~~a~~ the character string that has been input in advance of the item matches the character string of the ~~specific~~ item that is acquired by the character recognition process~~in a case in which any one of the character strings acquired as a result of the character recognition process has not been selected as the character string of the specific item~~,

wherein the presenting includes presenting, to a user, the document image representing the position of the character string of the item and the character string that has been input in advance, and

the acquiring includes acquiring the determination result determined by the user, wherein the determination result indicates whether or not the character string of the item appearing in the document image matches the character string that has been input in advance.

~~7~~6. A storage medium storing a program causing a computer to execute processes comprising:

selecting a first feature quantity ~~of~~ for a document image that is a character recognition target among first feature quantities that are recorded in advance on the basis of a result of a character recognition process for a plurality of document images and represent ~~features~~ position information of character strings of an item in the plurality of document images for each type of the document images and for each ~~specific~~ item;

performing a character recognition process for the document image that is the character recognition target;

selecting ~~a~~ the character string of ~~a~~ the ~~specific~~ item ~~corresponding to the first feature quantity~~on the basis of a comparison of the position information of the first feature quantity with position information of the character string that is acquired in the document image among the character strings acquired ~~as a result of~~by the character recognition process; and

presenting the document image representing a position of the character string of the item that is acquired by the character recognition process and a character string of the item that has been input in advance, and acquiring a determination result indicating whether or not ~~a~~ the character string that has been input in advance of the item matches the character string of the ~~specific~~ item that is acquired by the character recognition process~~in a case in which any one of the character strings acquired as a result of the character recognition process has not been selected as the character string of the specific item~~,

wherein the presenting includes presenting, to a user, the document image representing the position of the character string of the item and the character string that has been input in advance, and

the acquiring includes acquiring the determination result determined by the user, wherein the determination result indicates whether or not the character string of the item

appearing in the document image matches the character string that has been input in advance.