

VEHICLE DAMAGE ASSESSMENT METHOD, ELECTRONIC DEVICE AND COMPUTER READABLE STORAGE MEDIUM

This application claims priority for Chinese Patent Application submitted to the National
5 Intellectual Property Administration, PRC on August 03, 2017, Application No. 201710655877.8,
and titled “Vehicle Damage Assessment Method, Electronic Device and Computer Readable Storage
medium”, with all its contents hereby incorporated by reference.

TECHNICAL FIELD

This application relates to the technical field of electronics, in particular to a vehicle damage
10 assessment method, an electronic device and a computer readable storage medium.

BACKGROUND

The increase of the car ownership has led to a greater and greater vehicle density on urban roads,
which in turn results in more and more traffic accidents. When a traffic accident happens, vehicle
damage needs to be assessed by insurance companies for subsequent settlement of claim of vehicle
15 insurance.

In order to overcome the drawbacks of large workload and low efficiency of manual damage
assessment, automatic vehicle damage assessment solutions have come into being at present and are
generally implemented as follows: damage pictures of a damaged position of a vehicle under at least
two angles are acquired, and the acquired damage pictures are analyzed based on a pre-stored relation
20 table between damage pictures of all positions of motor vehicles and damage degrees so as to
determine the damaged condition of the vehicle.

Compared with manual damage assessment, such vehicle damage assessment solutions improve
the efficiency to a certain extent. However, by adoption of such solutions, damage pictures of all parts
of all models of vehicles have to be acquired in advance to generate the relation table, it is difficult to
25 acquire the damage pictures of all the parts of all the models of vehicles due to the large acquisition
difficulty, and the absence of damage pictures of certain vehicle body positions will lead to the failure
to determine the damaged condition of corresponding positions of vehicles of the corresponding

models.

SUMMARY

This application provides a vehicle damage assessment method and device and a computer readable storage medium to lower the difficulty of achieving automated vehicle damage assessment.

5 In the first aspect, this application provides a vehicle damage assessment method comprising:

Acquiring a partial picture of a vehicle to be subject to damage assessment;

Searching for a corresponding vehicle body picture in a preset image database according to a model and a vehicle body position corresponding to the partial picture, wherein the corresponding vehicle body picture is a corresponding picture of a complete vehicle body position;

10 Preprocessing the partial picture so that the preprocessed partial picture conforms to a preset image effect;

Comparing pixel values of all pixel points in the vehicle body picture and the partial picture to obtain a comparison result, wherein the comparison result indicates pixel value differences between the pixel points in the partial picture and related pixel points in the vehicle body picture, as well as the coverage area of the pixel points, having absolute values of the pixel value differences greater than a preset threshold, in the partial picture, and the related pixel points refer to pixel points corresponding to the same shooting position as the pixel points in the partial picture; and

15 Determining the damage degree of the vehicle to be subject to damage assessment on the basis of the comparison result, wherein the damage degree is related to the pixel value differences and the coverage area.

20 In the second aspect, this application provides an electronic device comprising a memory, a processor, and a computer readable instruction which is stored in the memory and is to be run on the processor, wherein the processor executes the computer readable instruction to implement the following steps:

25 Acquiring a partial picture of a vehicle to be subject to damage assessment;

Searching for a corresponding vehicle body picture in a preset image database according to a model and a vehicle body position corresponding to the partial picture, wherein the corresponding vehicle body picture is a corresponding picture of a complete vehicle body position;

Preprocessing the partial picture so that the preprocessed partial picture conforms to a preset image effect;

Comparing pixel values of all pixel points in the vehicle body picture and the partial picture to obtain a comparison result, wherein the comparison result indicates pixel value differences between the pixel points in the partial picture and related pixel points in the vehicle body picture, as well as the coverage area of the pixel points, having absolute values of the pixel value differences greater than a preset threshold, in the partial picture, and the related pixel points refer to pixel points corresponding to the same shooting position as the pixel points in the partial picture; and

Determining the damage degree of the vehicle to be subject to damage assessment on the basis of the comparison result, wherein the damage degree is related to the pixel value differences and the coverage area.

In the third aspect, this application provides a computer readable storage medium having a computer readable instruction stored therein, wherein the computer readable instruction is executed by at least one processor to implement the following steps: acquiring a partial picture of a vehicle to be subject to damage assessment;

Searching for a corresponding vehicle body picture in a preset image database according to a model and a vehicle body position corresponding to the partial picture, wherein the corresponding vehicle body picture is a corresponding picture of a complete vehicle body position;

Preprocessing the partial picture so that the preprocessed partial picture conforms to a preset image effect;

Comparing pixel values of all pixel points in the vehicle body picture searched out and the partial picture to obtain a comparison result, wherein the comparison result indicates pixel value differences between the pixel points in the partial picture and related pixel points in the vehicle body picture, as well as the coverage area of the pixel points, having absolute values of the pixel value differences greater than a preset threshold, in the partial picture, and the related pixel points refer to pixel points corresponding to the same shooting position as the pixel points in the partial picture; and

Determining the damage degree of the vehicle to be subject to damage assessment on the basis of the comparison result, wherein the damage degree is related to the pixel value differences and the

coverage area.

BRIEF DESCRIPTION OF DRAWINGS

FIG. 1 is a flow diagram of one embodiment of a vehicle damage assessment method provided by this application;

5 FIG. 2 is a flow diagram of another embodiment of the vehicle damage assessment method provided by this application;

FIG. 3 is structural diagram of one embodiment of an electronic device provided by this application;

10 FIG. 4 is a schematic diagram of modules of a computer readable instruction provided by this application.

DESCRIPTION OF EMBODIMENTS

Embodiment 1

15 A vehicle damage assessment method is described in this embodiment of this application. Referring to FIG. 1, the vehicle damage assessment method in this embodiment of the application comprises:

Step 101: a partial picture of a vehicle to be subject to damage assessment is acquired;

In this embodiment of the application, the partial picture of the vehicle to be subject to damage assessment is a picture of a certain vehicle body position of the vehicle to be subject to damage assessment.

20 In this embodiment, a picture upload interface is provided for a user; and when the user needs to assess the damage to a vehicle, a partial picture of the vehicle to be subject to damage assessment (such as a picture of a damaged vehicle body position) is shot and is then uploaded via the picture upload interface, so as to be acquired in Step 101. Or, the user triggers, in a corresponding application (or corresponding webpage), a shooting control provided by the application (or webpage) to shoot a
25 partial picture of the vehicle to be subject to damage assessment and triggers, after shooting is completed, an “OK” button to upload the shot partial picture of the vehicle to be subject to damage assessment, so that that the partial picture can be obtained in Step 101.

Optionally, in order to determine a model and a vehicle body position corresponding to the

partial picture, view boxes matched with all vehicle body positions of all models of vehicles are preset, so that the model and the vehicle body position corresponding to the partial picture are determined according to the view box selected by the user. Particularly, when model information of the vehicle to be subject to damage assessment is received, preset view boxes matched with all vehicle body positions of a corresponding model of vehicle are displayed, and the user selects the corresponding view box to shoot a picture of the corresponding vehicle body position. A specific application scene is described below. In this embodiment, when the user triggers a vehicle damage assessment process, all preset vehicle models are displayed to be selected by the user; when the user selects a certain vehicle model, corresponding model information is uploaded; afterwards, preset view boxes matched with all vehicle body positions of a corresponding model are displayed according to the model information so that the user can select the corresponding view box to shoot a picture of the corresponding vehicle body position; and when the user completes shooting and determines to upload the picture, the corresponding partial picture is uploaded to be acquired in Step 101.

It should be noted that when the user shoots the partial picture of the vehicle to be subject to damage assessment, the solution of providing view boxes matched with specific vehicle body positions for the user is optional, and is not indispensable. In other embodiments, the user can also shoot the partial picture of the vehicle to be subject to damage assessment by means of a default view box and then uploads the partial picture. This application has no limitation in this aspect.

Particularly, one, two, or more partial pictures of the vehicle to be subject to damage assessment can be acquired, the number of acquired partial pictures depends on the number of pictures uploaded by user, and this application has no limitation in this aspect.

Step 102: a corresponding vehicle body picture is searched for in a preset image database according to the model and the vehicle body position corresponding to the partial picture.

Wherein, the corresponding vehicle body picture is a corresponding picture of a complete vehicle body position.

In this embodiment of the application, pictures of all complete vehicle body positions of all models of vehicles are pre-stored in the image database (namely the vehicle body positions in the

pictures are not damaged). In Step 102, the corresponding vehicle body picture is searched for in the preset image database according to the model and the vehicle body position corresponding to the partial picture.

In one application scene of this embodiment, if the partial picture is acquired by means of a view box selected by the user, the model and the vehicle body position corresponding to the partial picture are directly determined according to the view box selected by the user.

In another application of this embodiment, if the partial picture is acquired by means of a default view box, the model and the vehicle body position corresponding to the partial picture are determined by means of image recognition on the partial picture; or, the user manually inputs the model and the vehicle body position corresponding to the partial picture; or, options of all models and all vehicle body positions are provided for the user, and then the user selects the model and the vehicle body position corresponding to the partial picture from all the models and all the vehicle body positions. This application has no limitation in this aspect.

Step 103: the partial picture is preprocessed so that the preprocessed partial picture conforms to a preset image effect.

In this embodiment of the application, in order to make the image effect (such as the image format and the light effect) of the partial picture consistent with that of pictures stored in the image database, the partial picture acquired in Step 101 is preprocessed so that the preprocessed partial picture conforms to a preset image effect, wherein the preprocessing includes, but is not limited to, compression, clipping, and shadow processing.

Step 104: pixel values of all pixel points in the vehicle body picture searched out and in the partial picture are compared to obtain a comparison result.

In this embodiment of the application, the partial picture is a picture obtained after the partial picture acquired in Step 101 is preprocessed in Step 103.

Wherein, the comparison result indicates pixel value differences between the pixel points in the partial picture and related pixel points in the vehicle body picture, as well as the coverage area of the pixel points, having absolute values of the pixel value differences greater than a preset threshold, in the partial picture, and the related pixel points refer to pixel points corresponding to the same

shooting position as the pixel points in the partial picture. That is to say, the pixel value differences between corresponding pixel points in a vehicle body picture (namely the vehicle body picture searched out in Step 102) and a partial picture (namely the picture obtained after the partial picture acquired in Step 101 is preprocessed in Step 103) corresponding to the same shooting position can be
5 acquired according to the comparison result, and the coverage area of the pixel points with the absolute values of pixel value differences greater than a preset threshold can be determined according to the distribution of the pixel points with the absolute values of the pixel value differences greater than the preset threshold. Particularly, the preset threshold can be set as 0.

In one application scene of this embodiment, if the partial picture is acquired by means of the
10 default view box, Step 104 comprises: the positions of pixel points, relating to the pixel points in the partial picture, in the vehicle body picture are determined on the basis of an image matching algorithm, and pixel values of all the pixel points in the partial picture are compared with pixel values of the related pixel points in the vehicle body picture to determine the comparison result.

In another application scene of this embodiment, if the partial picture is acquired by means of the
15 view box selected by the user, the preprocessed partial picture is regarded as highly consistent with the vehicle body picture searched out under the constraint of the view box, and in this case, Step 104 comprises: pixel values of pixel points at all pixel point positions in the partial picture are sequentially compared with pixel values of pixel points, located at the same pixel point positions as the pixel points in the partial picture, in the vehicle body picture from left to right and from top to
20 bottom to determine the comparison result.

Step 105: the damage degree of the vehicle to be subject to damage assessment is determined on the basis of the comparison result.

In this embodiment of the application, the damage degree of the vehicle to be subject to damage assessment can be determined on the basis of the comparison result obtained in Step 104, wherein the
25 damage degree is related to the pixel value differences and the coverage area. Particularly, the damage degree is positively related to an average value of the pixel value differences and the coverage area, that is to say, with the increase of the average value of the pixel value differences, the coverage area increases, and the damage degree increases accordingly.

Optionally, there are M high levels that the damage degree of the vehicle to be subject to damage assessment may fall into, and N low levels are set in each high level, wherein each high level corresponds to a coverage area range, each low level corresponds to an average value range of the pixel value differences, and M and N are set as actually needed. For example, the following coverage area ranges are preset: (0, S1], (S1, S2], and (S2, S3]; the following average value ranges of the pixel value differences are preset: (0, A1], (A1, A2], and (A2, A3]; and in this case, three high levels that the damage degree of the vehicle to be subject to damage assessment may fall into are set, wherein a first high level corresponds to (0, S1], a second high level corresponds to (S1, S2], and a third high level corresponds to (S2, S3]; and three low levels are set in each high level, wherein a first low level corresponds to (0, A1], a second low level corresponds to (A1, A2], and a third low level corresponds to (A2, A3]. In addition, damage degrees corresponding to different levels are defined as follows: Level 1.1<Level 1.2<Level 1.3<Level 2.1<Level 2.2<Level 2.3<Level 3.1<Level 3.2<Level 3.3, wherein Level 1.1 corresponds to the first low level in the first high level, Level 1.2 corresponds to the second low level in the first high level, and so on. On this basis, Step 105 is particularly implemented as follows: the level reflecting the damage degree of the vehicle to be subject to damage assessment is determined on the basis of the comparison result.

Clearly, in this embodiment of the application, the damage degree of the vehicle to be subject to damage assessment can also be determined in other ways. For instance, a damage calculation function is preset, wherein the comparison result is used as an input parameter of the damage calculation function, and an output value of the damage calculation function is used as a quantitative value of the damage degree. In this case, Step 105 is particularly implemented as follows: the damage degree of the vehicle to be subject to damage assessment is determined on the basis of the comparison result and the preset damage calculation function.

Optionally, after Step 105, an estimated amount of compensation of the vehicle to be subject to damage assessment is calculated on the basis of the model, the vehicle body position, and the damage degree determined in Step 104, and is then output to be obtained by the user and/or related claim settlement staff.

Optionally, if two or more partial pictures of the vehicle to be subject to damage assessment are

acquired in Step 101, the step of searching for a corresponding vehicle body picture in a preset image database according to a model and a vehicle body position corresponding the partial picture, and the subsequent steps (namely Step 102 to Step 105) are performed for each partial picture in this embodiment of the application. Furthermore, after Step 105, an estimated amount of compensation of the vehicle to be subject damage assessment is calculated on the basis of the model, the vehicle body positions corresponding to the two or more partial pictures, and damage degree, and is then output to be obtained by the user and/or related claim settlement staff.

It should be noted that the vehicle damage assessment method in this embodiment of the application is implemented by means of a vehicle damage assessment device which is integrated in an electronic device such as a mobile phone, a server, or a personal computer, and this application has no limitation in this aspect.

From the above description, in this embodiment of the application, a partial picture of a vehicle to be subject to vehicle damage assessment is acquired, a corresponding vehicle body picture is searched for in a preset image database according to a model and a vehicle body position corresponding to the partial picture, then pixel values of all pixel points in the vehicle body picture searched out and the preprocessed partial picture are compared, and the damage degree is determined on the basis of a comparison result. The pixel values of the preprocessed partial picture of the vehicle to be subject to damage assessment are compared with the pixel values of the corresponding picture of a complete vehicle body position of the vehicle of the same model to assess damage, so that only normal pictures of all vehicle body positions of all models of vehicles need to be collected (namely pictures of complete vehicle body positions), damage pictures of the vehicle body positions of all the models of vehicles do not need to be collected, and the normal pictures of all the vehicle body positions of the vehicles can be collected much more easily than the damage pictures of the vehicle body positions of the vehicles. Therefore, by adoption of the solution of this application, automated vehicle damage assessment can be achieved, and the difficulty of achieving automated vehicle damage assessment can be effectively lowered.

Embodiment 2

This embodiment of the application differs from Embodiment 1 in that preset view boxes

matched with vehicle body positions are provided for the user to shoot pictures in this embodiment, thus, improving the recognition accuracy of the vehicle body positions, and further improving the accuracy of vehicle damage assessment. Referring to FIG. 2, the vehicle damage assessment method in this embodiment of the application particularly comprises:

5 Step 201: model information of a vehicle to be subject to damage assessment is received.

In this embodiment of the application, when the user is about to carry out damage assessment on a vehicle, the user inputs the model information of the vehicle to be subject to damage assessment on a preset damage assessment interface and triggers a preset start control to upload the model information so as to trigger a vehicle damage assessment process. Or, in the case where model information has been bound, the user directly triggers the preset start control to upload the pre-bound model information so as to trigger the vehicle damage assessment process. Or, when the user triggers the vehicle damage assessment process, all preset vehicle models are displayed to be selected by the user, and once the user selects a certain vehicle model, corresponding model information is uploaded to be received in Step 201.

15 Step 202: preset view boxes matched with all vehicle body positions of a corresponding model are displayed according to the received model information, and the corresponding view box is selected by the user to shoot a picture of a corresponding vehicle body position.

Step 203: a partial picture of the vehicle to be subject to damage assessment is acquired.

20 In this embodiment of the application, after the user shoots the picture on the basis of the preset view box and determines to upload the picture, the corresponding partial picture is uploaded to be acquired in Step 203.

Particularly, one, two, or more partial pictures of the vehicle to be subject to damage assessment can be acquired, and the specific number of the acquired partial pictures depends on the number of pictures uploaded by the user, and this application has no limitation in this aspect.

25 Step 204: a corresponding vehicle body picture is searched for in a preset image database according to a model and a vehicle body position corresponding to the partial picture;

Wherein, the corresponding vehicle body picture is a corresponding picture of a complete vehicle body position.

Step 205: the partial picture is preprocessed so that the preprocessed partial picture conforms to a preset image effect;

In this embodiment of the application, in order to make the image effect (such as the image format and the light effect) of the partial picture consistent with that of pictures stored in the image database, the partial picture acquired in Step 203 is preprocessed so that the preprocessed partial picture conforms to the preset image effect, wherein the preprocessing includes, but is not limited to, compression, clipping, and shadow processing.

Step 206: pixel values of all pixel points in the vehicle body picture searched out and in the partial picture are compared to obtain a comparison result.

In this embodiment of the application, the partial picture is a picture obtained after the partial picture acquired in Step 203 is preprocessed in Step 205.

Wherein, the comparison result indicates pixel value differences between the pixel points in the partial picture and related pixel points in the vehicle body picture, as well as the coverage area of the pixel points, having absolute values of the pixel value differences greater than a preset threshold, in the partial picture, and the related pixel points refer to pixel points corresponding to the same shooting position as the pixel points in the partial picture. That is to say, the pixel value differences between corresponding pixel points in a vehicle body picture (namely the vehicle body picture searched out in Step 204) and a partial picture (namely the picture obtained after the partial picture acquired in Step 203 is preprocessed in Step 205) corresponding to the same shooting position can be acquired according to the comparison result, and the coverage area of the pixel points with the absolute values of pixel value differences greater than a preset threshold can be determined according to the distribution of the pixel points with the absolute values of the pixel value differences greater than the preset threshold. Particularly, the preset threshold can be set as 0.

In this embodiment of the application, the partial picture is acquired by means of the view box selected by the user, the preprocessed partial picture is regarded as highly consistent with the vehicle body picture searched out under the constraint of the view box, and in this case, Step 206 comprises: pixel values of pixel points at all pixel point positions in the partial picture are sequentially compared with pixel values of pixel points, located at the same pixel point positions as the pixel points in the

partial picture, in the vehicle body picture from left to right and from top to bottom to determine the comparison result.

Step 207: the damage degree of the vehicle to be subject to damage assessment is determined on the basis of the comparison result.

5 In this embodiment of the application, the damage degree of the vehicle to be subject to damage assessment can be determined on the basis of the comparison result obtained in Step 206, wherein the damage degree is related to the pixel value differences and the coverage area. Particularly, the damage degree is positively related to an average value of the pixel value differences and the coverage area, that is to say, with the increase of the average value of the pixel value differences, the
10 coverage area increases, and the damage degree increases accordingly.

Particularly, Step 207 can be implemented with reference to the description of Step 105 in the embodiment shown in FIG. 1, and will not be detailed anymore herein.

Optionally, after Step 207, an estimated amount of compensation of the vehicle to be subject to damage assessment is calculated on the basis of the model, the vehicle body position, and the damage
15 degree determined in Step 207, and is then output to be obtained by the user and/or related claim settlement staff.

Optionally, if two or more partial pictures of the vehicle to be subject to damage assessment are acquired in Step 203, the step of searching for a corresponding vehicle body picture in a preset image database according to a model and a vehicle body position corresponding the partial picture, and the
20 subsequent steps (namely Step 204 to Step 207) are performed for each partial picture in this embodiment of the application. Furthermore, after Step 207, an estimated amount of compensation of the vehicle to be subject damage assessment is calculated on the basis of the model, the vehicle body positions corresponding to the two or more partial pictures, and the damage degree, and is then output to be obtained by the user and/or related claim settlement staff.

25 It should be noted that the vehicle damage assessment method in this embodiment of the application is implemented by means of a vehicle damage assessment device which is integrated in an electronic device such as a mobile phone, a server, or a personal computer, and this application has no limitation in this aspect.

From the above description, in this embodiment of the application, a partial picture of a vehicle to be subject to vehicle damage assessment is acquired, a corresponding vehicle body picture is searched for in a preset image database according to a model and a vehicle body position corresponding to the partial picture, then pixel values of all pixel points in the vehicle body picture searched out and the preprocessed partial picture are compared, and the damage degree is determined on the basis of a comparison result. The pixel values of the preprocessed partial picture of the vehicle to be subject to damage assessment are compared with the pixel values of the corresponding picture of a complete vehicle body position of the vehicle of the same model to assess damage, so that only normal pictures of all vehicle body positions of all models of vehicles need to be collected (namely pictures of complete vehicle body positions), damage pictures of the vehicle body positions of all the models of vehicles do not need to be collected, and the normal pictures of all the vehicle body positions of the vehicles can be collected much more easily than the damage pictures of the vehicle body positions of the vehicles. Therefore, by adoption of the solution of this application, automated vehicle damage assessment can be achieved, and the difficulty of achieving automated vehicle damage assessment can be effectively lowered; and the view boxes matched with the vehicle body positions are provided for the user to shoot pictures, so that the recognition accuracy of the vehicle body positions is improved, and the accuracy of vehicle damage assessment is further improved.

Embodiment 3

Corresponding to the vehicle damage assessment method in Embodiment 1 or Embodiment 2, FIG. 3 shows an operating environment diagram of an electronic device relating to the vehicle damage assessment method provided by this application. For the sake of a brief description, only the parts relating to this embodiment of the application are shown.

In this embodiment of the application, the electronic device includes, but is not limited to, one or more memories 31 (only one is shown) and one or more processors 32 (only one is shown), wherein the memories 31 and the processors 32 are connected through a bus 33. The electronic device shown in FIG. 3 is provided with modules 31-33. However, it should be understood that not all modules shown in FIG. 3 need to be implemented, and alternatively, more modules (such a display) or less modules can be implemented.

In certain embodiments, the memories 31 are internal memory cells in the electronic device, such as hard disks or memories of the electronic device. In other embodiments, the memories 31 are external memory devices of the electronic device, such as pluggable hard disks, smart media cards (SMDs), secure digital cards (SDs), and flash cards. Furthermore, the memories 31 may include
5 internal memory cells and external storage devices of the electronic device and are used for storing applications installed in the electronic device and various data. The memories 31 are also used for temporarily storing output data or to-be-output data.

In certain embodiments, the processors 32 are central processing units (CPUs), microprocessors, or other data processing chips, and are used for running program codes or processing data stored in
10 the memories 31.

Furthermore, FIG. 4 shows a functional module diagram of the computer readable instruction corresponding to the vehicle damage assessment method in Embodiment 1 or Embodiment 2 provided by this application, on the basis of FIG. 3. In this embodiment of the application, the computer readable instruction is partitioned into one or more modules which are stored in a computer
15 readable storage medium such as the memory 31, and is executed by one or more processors (the processor 32 in this embodiment) to complete this application. For example, as shown in FIG. 4, the computer readable instruction is partitioned into an acquisition module 41, a searching module 42, a preprocessing module 43, a pixel value comparison module 44, and a determination module 45. The functions of the acquisition module 41, the searching module 42, the preprocessing module 43, the
20 pixel value comparison module 44 and the determination module 45 are detailed below.

The acquisition module 41 is used for acquiring a partial picture of a vehicle to be subject to damage assessment;

The searching module 42 is used for searching for a corresponding vehicle body picture in a preset image database according to a model and a vehicle body position corresponding to the local
25 picture acquired by the acquisition module 41, wherein the corresponding vehicle body picture is a corresponding picture of a complete vehicle body position;

The preprocessing module 43 is used for preprocessing the partial picture acquired by the acquisition module 41 so that the preprocessed partial picture conforms to a preset image effect;

The pixel value comparison module 44 is used for comparing pixel values of all pixel points in the vehicle body picture searched out by the searching module 42 and the partial picture to obtain a comparison result, wherein the comparison result indicates pixel value differences between the pixel points in the partial picture and related pixel points in the vehicle body picture, as well as the coverage area of the pixel points, having absolute values of the pixel value differences greater than a preset threshold, in the partial picture, and the related pixel points refer to pixel points corresponding to the same shooting position as the pixel points in the partial picture; and

The determination module 45 is used for determining the damage degree of the vehicle to be subject to damage assessment on the basis of the comparison result obtained by the pixel value comparison module 44, wherein the damage degree is related to the pixel value differences and the coverage area.

Optionally, the computer readable instruction is partitioned into the following modules:

A reception module used for receiving model information of the vehicle to be subject to damage assessment; and

A display module used for displaying preset view boxes matched with all vehicle body positions of a corresponding model according to the model information to allow a user to select the corresponding view box to shoot a picture of the corresponding vehicle body position.

Optionally, the computer readable instruction is partitioned into the following modules:

A model determination module used for determining the model corresponding to the partial picture according to the model information, received by the reception module, of the vehicle to be subject to damage assessment; and

A vehicle body position determination module used for determining the vehicle body position corresponding to the partial picture on the basis of the view box selected by the user.

Optionally, the computer readable instruction is partitioned into the following modules:

An evaluation module used for calculating an estimated amount of compensation of the vehicle to be subject to damage assessment on the basis of the model, the vehicle body position, and the damage degree; and

An output module used for outputting the estimated amount of compensation obtained by

calculation of the evaluation module

Optionally, if two or more partial pictures of the vehicle to be subject to damage assessment are acquired by the acquisition module 41, the searching module 42 is triggered for each partial picture; and in this case, the evaluation module is particularly used for calculating an estimated amount of compensation of the vehicle to be subject to damage assessment on the basis of the model, the vehicle body positions corresponding to the two or more partial pictures, and the damage degree.

It should be understood that the electronic device in this embodiment is used to implement all technical solutions in the embodiments of the method. Please refer to the description of the embodiments of the method for the parts not detailed or mentioned in this embodiment, and unnecessary details will not be given anymore herein.

CLAIMS

1. A vehicle damage assessment method, comprising:

acquiring a partial picture of a vehicle to be subject to damage assessment;

searching for a corresponding vehicle body picture in a preset image database according to a

5 model and a vehicle body position corresponding to the partial picture, wherein the corresponding vehicle body picture is a corresponding picture of a complete vehicle body position;

preprocessing the partial picture so that the preprocessed partial picture conforms to a preset image effect;

10 comparing pixel values of all pixel points in the vehicle body picture and the partial picture to obtain a comparison result, wherein the comparison result indicates pixel value differences between the pixel points in the partial picture and related pixel points in the vehicle body picture, as well as a coverage area of the pixel points, having absolute values of the pixel value differences greater than a preset threshold, in the partial picture, and the related pixel points refer to pixel points corresponding to a same shooting position as the pixel points in the partial picture; and

15 determining the damage degree of the vehicle to be subject to damage assessment on the basis of the comparison result, wherein the damage degree is related to the pixel value differences and the coverage area.

2. The vehicle damage assessment method according to Claim 1, wherein the method further comprises the following steps which are performed before the step of acquiring the partial picture of the vehicle to be subject to damage assessment:

receiving model information of the vehicle to be subject to damage assessment; and

displaying preset view boxes matched with all vehicle body positions of a corresponding model according to the model information to allow a user to select the corresponding view box to shoot a picture of the corresponding vehicle body position.

25 3. The vehicle damage assessment method according to Claim 2, wherein the method further comprises the following steps to be performed after the step of acquiring the partial picture of the vehicle to be subject to damage assessment:

determining a model corresponding to the partial picture according to the received model information of the vehicle to be subject to damage assessment; and

determining a vehicle body position corresponding to the partial picture on the basis of the view box selected by the user.

5 4. The vehicle damage assessment method according to Claim 1, wherein the method further comprises the following step to be performed the step of acquiring the partial picture of the vehicle to be subject to damage assessment:

carrying out image recognition on the partial picture, and determining a model and a vehicle body position corresponding to the partial picture.

10 5. The vehicle damage assessment method according to any one of Claims 1-4, wherein the method further comprises the following steps to be performed after the step of determining the damage degree on the basis of the comparison result:

calculating an estimated amount of compensation of the vehicle to be subject to damage assessment on the basis of the model, the vehicle body position, and the damage degree; and

15 outputting the estimated amount of compensation of the vehicle to be subject to damage assessment.

6. The vehicle damage assessment method according to Claim 5, wherein if two or more partial pictures of the vehicle to be subject to damage assessment are acquired, the step of searching for a corresponding vehicle body picture in a preset image database according to a model and a vehicle body position corresponding the partial picture, and the subsequent steps are performed for each said partial picture; and the step of calculating an estimated amount of compensation of the vehicle to be subject to damage assessment on the basis of the model, the vehicle body position, and the damage degree particularly comprises:

25 calculating the estimated amount of compensation of the vehicle to be subject to damage assessment on the basis of the model, the vehicle body positions corresponding to the two or more partial pictures, and the damage degree.

7. An electronic device, comprising a memory, a processor, and a computer readable instruction which is stored in the memory and is to be run on the processor, wherein the processor

executes the computer readable instruction to implement the following steps:

acquiring a partial picture of a vehicle to be subject to damage assessment;

searching for a corresponding vehicle body picture in a preset image database according to a model and a vehicle body position corresponding to the partial picture, wherein the corresponding
5 vehicle body picture is a corresponding picture of a complete vehicle body position;

preprocessing the partial picture so that the preprocessed partial picture conforms to a preset image effect;

comparing pixel values of all pixel points in the vehicle body picture and the partial picture to obtain a comparison result, wherein the comparison result indicates pixel value differences between
10 the pixel points in the partial picture and related pixel points in the vehicle body picture, as well as a coverage area of the pixel points, having absolute values of the pixel value differences greater than a preset threshold, in the partial picture, and the related pixel points refer to pixel points corresponding to a same shooting position as the pixel points in the partial picture; and

determining the damage degree of the vehicle to be subject to damage assessment on the basis of
15 the comparison result, wherein the damage degree is related to the pixel value differences and the coverage area.

8. The electronic device according to Claim 7, wherein the processor executes the computer readable instruction to further implement the following steps:

receiving model information of the vehicle to be subject to damage assessment before the partial
20 picture of the vehicle to be subject to damage assessment is acquired; and

displaying preset view boxes matched with all vehicle body positions of the corresponding model according to the model information to allow a user to select the corresponding view box to shoot a picture of the corresponding vehicle body position.

9. The electronic device according to Claim 8, wherein the processor executes the computer
25 readable instruction to further implement the following steps:

determining a model corresponding to the partial picture according to the received model information of the vehicle to be subject to damage assessment after the partial picture of the vehicle to be subject to damage assessment is acquired; and

determining a vehicle body position corresponding to the partial picture on the basis of the view box selected by the user.

10. The electronic device according to Claim 7, wherein the processor executes the computer readable instruction to further implement the following step:

5 after the partial picture of the vehicle to be subject to damage assessment is acquired, carrying out image recognition on the partial picture, and determining a model and a vehicle body position corresponding to the partial picture.

11. The electronic device according to any one of Claims 7-10, wherein the processor executes the computer readable instruction to further implement the following steps:

10 calculating an estimated amount of compensation of the vehicle to be subject to damage assessment on the basis of the model, the vehicle body position, and the damage degree; and

 outputting the estimated amount of compensation of the vehicle to be subject to damage assessment.

12. The electronic device according to Claim 11, wherein the processor executes the computer readable instruction to further implement the following steps: in the case where two or more partial pictures of the vehicle to be subject to damage assessment are acquired, the step of searching for a corresponding vehicle body picture in a preset image database according to a model and a vehicle body position corresponding the partial picture, and the subsequent steps are performed for each said partial picture;

20 the step of calculating an estimated amount of compensation of the vehicle to be subject to damage assessment on the basis of the model, the vehicle body position, and the damage degree particularly comprises:

 calculating the estimated amount of compensation of the vehicle to be subject to damage assessment on the basis of the model, the vehicle body positions corresponding to the two or more partial pictures, and the damage degree.

13. An electronic device, comprising:

 an acquisition module used for acquiring a partial picture of a vehicle to be subject to damage assessment;

a searching module used for searching for a corresponding vehicle body picture in a preset image database according to a model and a vehicle body position corresponding to the local picture acquired by the acquisition module, wherein the corresponding vehicle body picture is a corresponding picture of a complete vehicle body position;

5 a preprocessing module used for preprocessing the partial picture acquired by the acquisition module so that the preprocessed partial picture conforms to a preset image effect;

a pixel value comparison module used for comparing pixel values of all pixel points in the vehicle body picture searched out by the searching module and in the partial picture to obtain a comparison result, wherein the comparison result indicates pixel value differences between the pixel
10 points in the partial picture and related pixel points in the vehicle body picture, as well as a coverage area of the pixel points, having absolute values of the pixel value differences greater than a preset threshold, in the partial picture, and the related pixel points refer to pixel points corresponding to a same shooting position as the pixel points in the partial picture; and

a determination module used for determining the damage degree of the vehicle to be subject to
15 damage assessment on the basis of the comparison result, wherein the damage degree is related to the pixel value differences and the coverage area.

14. The electronic device according to Claim 13, wherein the electronic device further comprises:

a reception module used for receiving model information of the vehicle to be subject to damage
20 assessment; and

a display module used for displaying preset view boxes matched with all vehicle body positions of a corresponding model according to the model information to allow a user to select the corresponding view box to shoot a picture of the corresponding vehicle body position.

15. The electronic device according to Claim 14, wherein the electronic device further
25 comprises:

a model determination module used for determining the model corresponding to the partial picture according to the model information, received by the reception module, of the vehicle to be subject to damage assessment; and

a vehicle body position determination module used for determining the vehicle body position corresponding to the partial picture on the basis of the view box selected by the user.

16. The electronic device according to any one of Claims 13-15, wherein the electronic device further comprises:

5 an evaluation module used for calculating an estimated amount of compensation of the vehicle to be subject to damage assessment on the basis of the model, the vehicle body position, and the damage degree; and

an output module used for outputting the estimated amount of compensation obtained by calculation of the evaluation module.

10 17. The electronic device according to Claim 16, wherein if two or more partial pictures of the vehicle to be subject to damage assessment are acquired by the acquisition module, the searching module is triggered for each said partial picture; and

the evaluation module is particularly used for calculating the estimated amount of compensation of the vehicle to be subject to damage assessment on the basis of the model, the vehicle body
15 positions corresponding to the two or more partial pictures, and the damage degree.

18. A computer readable storage medium, having a computer readable instruction stored therein, wherein the computer readable instruction is executed by a processor to implement the following steps:

acquiring a partial picture of a vehicle to be subject to damage assessment;

20 searching for a corresponding vehicle body picture in a preset image database according to a model and a vehicle body position corresponding to the partial picture, wherein the corresponding vehicle body picture is a corresponding picture of a complete vehicle body position;

preprocessing the partial picture so that the preprocessed partial picture conforms to a preset image effect;

25 comparing pixel values of all pixel points in the vehicle body picture and the partial picture to obtain a comparison result, wherein the comparison result indicates pixel value differences between the pixel points in the partial picture and related pixel points in the vehicle body picture, as well as a coverage area of the pixel points, having absolute values of the pixel value differences greater than a

preset threshold, in the partial picture, and the related pixel points refer to pixel points corresponding to a same shooting position as the pixel points in the partial picture; and

determining the damage degree of the vehicle to be subject to damage assessment on the basis of the comparison result, wherein the damage degree is related to the pixel value differences and the coverage area.

19. The computer readable storage medium according to Claim 18, wherein the computer readable instruction is executed by the processor to implement the following steps:

receiving model information of the vehicle to be subject to damage assessment before the partial picture of the vehicle to be subject to damage assessment is acquired; and

displaying preset view boxes matched with all vehicle body positions of the corresponding model according to the model information to allow a user to select the corresponding view box to shoot a picture of the corresponding vehicle body position.

20. The computer readable storage medium according to Claim 19, wherein the computer readable instruction is executed by the processor to implement the following steps:

determining a model corresponding to the partial picture according to the received model information of the vehicle to be subject to damage assessment after the partial picture of the vehicle to be subject to damage assessment is acquired; and

determining a vehicle body position corresponding to the partial picture on the basis of the view box selected by the user.