

What is claimed is:

1. A method for identifying a damaged part of a vehicle, comprising:

acquiring, by a client, a captured image of the vehicle;

determining, by the client, a damaged area based on an act of marking a damage location in said  
5 captured image, and thereby forming a marked image;

sending, by the client, said marked image to a server;

identifying, by the server, feature parts in said marked image, and determining a relative positional  
relationship between said feature parts and said damaged area based on the positions of said feature  
parts and said damaged area in the marked image;

10 matching, by the server, said relative positional relationship in a feature correspondence library to  
obtain a corresponding related part; and

determining, by the server, the damaged part in said captured image based on said related part.

2. A method for identifying a damaged part of a vehicle, comprising:

15 receiving a marked image uploaded by a client, said marked image including a damaged area  
determined based on an act of marking a damage location in a captured image;

identifying feature parts in said marked image, and determining a relative positional relationship  
between said feature parts and said damaged area based on the positions of said feature parts and said  
damaged area in the marked image;

20 matching the relative positional relationship in a feature correspondence library to obtain a  
corresponding related part; and

determining the damaged part in said captured image based on said related part.

3. The method according to claim 2, wherein,

said feature parts comprise vehicle parts included in a constructed feature library, and

said feature correspondence library comprises part positional relationship data constructed by using the vehicle parts in said feature library as a reference, the part positional relationship data including relationship data characterizing at least one of a related part to which an area between vehicle parts  
5 pertains, a related part to which the area in a specified direction of a vehicle part pertains, and a related part to which an area of specified proportion between vehicle parts pertains.

4. The method according to claim 2, wherein determining the relative positional relationship between said feature parts and said damaged area comprises:

10 constructing a coordinate system by using a center point of said damaged area as an origin;  
determining position coordinate data of said feature parts in said coordinate system, respectively; and  
determining the relative positional relationship between said feature parts and said damaged area based on the position coordinate data of said feature parts.

15 5. The method according to claim 4, further comprising selecting, if it is identified that the number N of the feature parts in said marked image is greater than 3, K feature parts from the N feature parts to determine the relative positional relationship between said damaged area and said K feature reference parts, wherein  $2 \leq K \leq 3$ .

20 6. The method according to claim 5, wherein determining the relative positional relationship between said feature parts and said damaged area based on the position coordinate data of said feature parts comprises:

transforming said damaged area into a corresponding first regular geometric figure according to the shape of said damaged area;

25 constructing, in said coordinate system, second regular geometric figures including said origin and

position coordinate data of at least two feature parts;

calculating size of feature area of the first regular geometric figure included in said second regular geometric figures, respectively;

5 determining a scope information on scope of said damaged area between said feature parts based on the sizes of said feature areas and the coordinate distances of said feature parts; and

determining the relative positional relationship between said feature parts and said damaged area based on matching of said scope information.

7. The method according to claim 2, further comprising:

10 acquiring, if no positional relationship data matching said relative positional relationship is found in said feature correspondence library, positional relationship data having the highest matching degree with said relative positional relationship; and

using the related part corresponding to the positional relationship data having the highest matching degree as the related part that matches said relative positional relationship.

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8. A method for identifying a damaged part of a vehicle, comprising:

acquiring a captured image of the vehicle;

determining a damaged area based on an act of marking a damage location in said captured image, and thereby forming a marked image; and

20 sending said marked image to a server, to enable said server to identify a damaged part based on a relative positional relationship between the damaged area and feature parts in said marked image.

9. A method for identifying a damaged part of a vehicle, comprising:

acquiring, by a client, a captured image of the vehicle and sending said captured image to a server;

identifying, by the server, a first damage location in said captured image, and marking said first damage location in said captured image, thereby generating a marked image;

sending, by the server, said marked image to said client;

displaying, by the client, mark information of the first damage location in said marked image;

5 confirming, by the client, a vehicle damage location based on received interaction, said vehicle damage location including said first damage location;

sending, by the client, an auxiliary damage image of which the vehicle damage location has been confirmed to the server;

10 identifying, by said server, at least one feature part included in said auxiliary damage image, after receiving said auxiliary damage image;

determining, by the server, a relative positional relationship between said feature part and said vehicle damage location in said auxiliary damage image;

matching, by said server, said relative positional relationship in a feature correspondence library to obtain a corresponding related part; and

15 determining, by the server, the damaged part in said captured image based on said related part.

10. A method for identifying a damaged part of a vehicle, comprising:

20 acquiring a captured image uploaded by a client, identifying a first damage location in said captured image, and marking said first damage location in said captured image, thereby generating a marked image;

sending said marked image to said client;

receiving an auxiliary damage image returned from the client, identifying at least one feature part included in said auxiliary damage image, said auxiliary damage image including image information formed by confirming a vehicle damage location in said marked image based on an interaction;

determining a relative positional relationship between said feature part and the vehicle damage location in said auxiliary damage image; and

matching said relative positional relationship in a feature correspondence library to obtain a corresponding related part, and determining the damaged part in said captured image based on said  
5 related part.

11. The method according to claim 10, wherein said auxiliary damage image further comprises mark information of a second damage location, the second damage location including a new vehicle damage location added to said marked image.

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12. A method for identifying a damaged part of a vehicle, comprising:

acquiring a captured image of the vehicle and sending said captured image to a server;

receiving a marked image returned from the server, said marked image including image information generated by marking an identified first damage location in said captured image;

15 displaying mark information for marking the first damage location in said marked image;

confirming a vehicle damage location based on received interaction, said vehicle damage location including said first damage location; and

sending an auxiliary damage image of which the vehicle damage location has been confirmed to the server.

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13. The method according to claim 12, wherein confirming the vehicle damage location comprises:

confirming whether a mark position of the first damage location in the displayed marked image is correct; and if not, adjusting the mark information of said first damage location based on the received interaction.

14. The method according to claim 12, wherein confirming the vehicle damage location based on the received interaction comprises:

confirming mark information of a second damage location based on a received interaction instruction,  
5 said second damage location including a new vehicle damage location added to said marked image.

15. A method for identifying a damaged part of a vehicle, comprising:

acquiring a captured image of the vehicle;

determining a damaged area based on an act of marking a damage location in said captured image,  
10 thereby forming a marked image;

identifying feature parts in said marked image, and determining a relative positional relationship between said feature parts and said damaged area based on the positions of said feature parts and said damaged area in the marked image;

matching said relative positional relationship in a feature correspondence library to obtain a  
15 corresponding related part; and

determining the damaged part in said captured image based on said related part.

16. A method for identifying a damaged part of a vehicle, comprising:

acquiring a captured image of the vehicle, identifying a first damage location in said captured image,  
20 and marking said first damage location in said captured image, thereby generating a marked image;

displaying mark information of the first damage location in said marked image;

confirming a vehicle damage location based on a received interaction to form an auxiliary damage image, said vehicle damage location including said first damage location;

identifying at least one feature part included in said auxiliary damage image;

determining a relative positional relationship between said feature parts and the vehicle damage location in said auxiliary damage image; and

matching said relative positional relationship in a feature correspondence library to obtain a corresponding related part, and determining the damaged part in said captured image based on said  
5 related part.

17. An apparatus for identifying a damaged part of a vehicle, comprising:

a receiving module for receiving a marked image uploaded by a client, said marked image including a damaged area determined based on an act of marking a damage location in a captured image;

10 a positional relationship determining module for identifying feature parts in said marked image, and determining a relative positional relationship between said feature parts and said damaged area based on the positions of said feature parts and said damaged area in the marked image;

a matching module for matching said relative positional relationship in a feature correspondence library to obtain a corresponding related part; and

15 a part identifying module for determining the damaged part in said captured image based on said related part.

18. The apparatus according to claim 17, further comprising:

a feature library for storing vehicle parts of the vehicle; and

20 a feature correspondence library for storing part positional relationship data constructed by using the vehicle parts in said feature library as a reference, said part positional relationship data including relationship data characterizing at least one of a related part to which an area between vehicle parts pertains, a related part to which the area in a specified direction of a vehicle part pertains, and a related part to which an area of specified proportion between vehicle parts pertains.

19. The apparatus according to claim 17, wherein said positional relationship determining module is configured to:

construct a coordinate system by using the center point of said damaged area as an origin;

determine position coordinate data of said feature parts in said coordinate system, respectively; and

5 determine the relative positional relationship between said feature parts and said damaged area based on the position coordinate data of said feature parts.

20. The apparatus according to claim 19, wherein said positional relationship determining module comprises:

10 a feature selecting unit for selecting, when it is identified that the number N of the feature parts in said marked image is greater than 3, K feature parts from the N feature parts to determine the relative positional relationship between said damaged area and said K feature reference parts, wherein  $2 \leq K \leq 3$ .

21. The apparatus according to claim 20, wherein said positional relationship determining module is  
15 configured to:

transform said damaged area into a corresponding first regular geometric figure according to the shape of said damaged area;

construct, in said coordinate system, second regular geometric figures including said origin and position coordinates data of at least two feature parts;

20 calculate size of feature area of the first regular geometric figure included in said second regular geometric figures, respectively;

determine a scope information on scope of said damaged area between said feature parts based on the sizes of said feature areas and the coordinate distances of said feature parts; and

determine the relative positional relationship between said feature parts and said damaged area based

on the matching of said scope information.

22. The apparatus according to claim 18, wherein,

5 if no positional relationship data matching said relative positional relationship is found in said feature correspondence library by said matching module, positional relationship data having the highest matching degree with said relative positional relationship is acquired; and

the related part corresponding to the positional relationship data having said highest matching degree is used as the related part that matches said relative positional relationship.

10 23. An apparatus for identifying a damaged part of a vehicle, comprising:

an image acquiring module for acquiring a captured image of the vehicle;

a location marking module for determining a damaged area based on an act of marking a damage location in said captured image, thereby forming a marked image;

15 an image sending module for sending said marked image to a server, to enable said server to identify the damaged part based on a relative positional relationship between the damaged area and feature parts in said marked image.

24. An apparatus for identifying a damaged part of a vehicle, comprising:

20 an image marking module for acquiring a captured image uploaded by a client, identifying a first damage location in said captured image, and marking said first damage location in said captured image, thereby generating a marked image;

a mark sending module for sending said marked image to said client;

an auxiliary interacting module for receiving an auxiliary damage image returned from the client, and identifying at least one feature part included in said auxiliary damage image, said auxiliary damage

image including image information formed by confirming a vehicle damage location in said marked image based on an interaction;

a position determining module for determining a relative positional relationship between said feature parts and the vehicle damage location in said auxiliary damage image; and

- 5 a part identifying module for matching said relative positional relationship in a feature correspondence library to obtain a corresponding related part, and determining the damaged part in said captured image based on said related part.

25. The apparatus according to claim 24, wherein said auxiliary damage image received by said  
10 auxiliary interacting module further comprises mark information of a second damage location, said second damage location including a new vehicle damage location added to said marked image.

26. An apparatus for identifying a damaged part of a vehicle, comprising:

15 a first image sending module for acquiring a captured image of the vehicle and sending said captured image to a server;

a mark receiving module for receiving a marked image returned from the server, said marked image including image information generated by marking an identified first damage location in said captured image;

20 a mark displaying module for displaying mark information for marking the first damage location in said marked image;

a damage location confirming module for confirming a vehicle damage location based on received interaction, said vehicle damage location including said first damage location; and

a second image sending module for sending an auxiliary damage image of which the vehicle damage location has been confirmed to the server.

27. The apparatus according to claim 26, wherein said damage location confirming module comprises:

a first adjustment unit for confirming whether a mark position of the first damage location in the displayed marked image is correct; and if not, adjusting the mark information of said first damage location based on the received interaction.

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28. The apparatus according to claim 27, wherein said damage location confirming module comprises:

a second adjustment unit for confirming mark information of a second damage location based on a received interaction instruction, said second damage location including a new vehicle damage location added to said marked image.

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29. A server comprising a processor and a memory for storing processor-executable instructions, wherein upon execution of said instructions, said processor is configured to:

receive a marked image uploaded by a client, said marked image including a damaged area determined based on an act of marking a damage location in a captured image;

15 identify feature parts in said marked image, and determine a relative positional relationship between said feature parts and said damaged area based on the positions of said feature parts and said damaged area in the marked image;

match said relative positional relationship in a feature correspondence library to obtain a corresponding related part; and

20 determine the damaged part in said captured image based on said related part.

30. A client comprising a processor and a memory for storing processor-executable instructions, wherein upon execution of said instructions, said processor is configured to:

acquire a captured image of a vehicle;

determine a damaged area based on an act of marking a damage location in said captured image, thereby forming a marked image; and

send said marked image to a server, to enable said server to identify a damaged part based on a relative positional relationship between the damaged area and feature parts in said marked image.

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31. A server comprising a processor and a memory for storing processor-executable instructions, wherein upon execution of said instructions, said processor is configured to:

acquire a captured image uploaded by a client, identify a first damage location in said captured image, and mark said first damage location in said captured image, thereby generating a marked image;

10 send said marked image to said client;

receive an auxiliary damage image returned from the client, and identify at least one feature part included in said auxiliary damage image, said auxiliary damage image including image information formed by confirming a vehicle damage location in said marked image based on an interaction;

15 determine a relative positional relationship between said feature parts and the vehicle damage location in said auxiliary damage image; and

match said relative positional relationship in a feature correspondence library to obtain a corresponding related part, and determine the damaged part in said captured image based on said related part.

32. A client comprising a processor and a memory for storing processor-executable instructions, wherein upon execution of said instructions, said processor is configured to:

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acquire a captured image of a vehicle and send said captured image to a server;

receive a marked image returned from the server, said marked image including image information generated by marking an identified first damage location in said captured image;

display mark information for marking the first damage location in said marked image;

confirm a vehicle damage location based on received interaction, said vehicle damage location including said first damage location; and

send an auxiliary damage image of which the vehicle damage location has been confirmed to the server.

- 5     33. An electronic device comprising a display, a processor and a memory storing processor-executable instructions, wherein upon execution of said instructions, said processor is configured to:

acquire a captured image of a vehicle;

determine a damaged area based on an act of marking a damage location in said captured image on the display, thereby forming a marked image;

- 10    identify feature parts in said marked image, and determine a relative positional relationship between said feature parts and said damaged area based on the positions of said feature parts and said damaged area in the marked image;

match said relative positional relationship in a feature correspondence library to obtain a corresponding related part; and

- 15    determine the damaged part in said captured image based on said related part.

34. An electronic device comprising a display, a processor and a memory storing processor-executable instructions, wherein upon execution of said instructions, said processor is configured to:

acquire a captured image of a vehicle, identify a first damage location in said captured image, and

- 20    mark said first damage location in said captured image, thereby generating a marked image;

display, on said display, mark information of the first damage location in said marked image;

confirming a vehicle damage location based on received interaction to form an auxiliary damage image, said vehicle damage location including said first damage location;

identify at least one feature part included in said auxiliary damage image;

determine a relative positional relationship between said feature parts and the vehicle damage location in said auxiliary damage image; and

matching said relative positional relationship in a feature correspondence library to obtain a corresponding related part, and determine the damaged part in said captured image based on said  
5 related part.

35. A system for identifying a damaged part of a vehicle, comprising a first client and a first server, wherein

said first server implements steps of the method according to any of claims 2-7; and

10 said first client implements steps of the method according to claim 8.

36. A system for identifying a damaged part of a vehicle, comprising a second client and a second server, wherein

said second server implements steps of the method according to any of claims 10-11; and

15 said second client implements steps of the method according to any of claims 12-14.