What is claimed is:

1. Battery swapping equipment for an electric vehicle, comprising:

an unlocking mechanism configured to unlock a battery pack locked onto a fast swapping bracket of the electric vehicle, the fast swapping bracket comprising a lock base;

an image collection module configured to collect a first actual image comprising the lock base during an unlocking process of the battery pack;

a storage module configured to store a first standard image collected by the image collection module when the battery swapping equipment is located in a battery swapping position, the first standard image comprising the lock base;

a positioning judgement module configured to judge whether the battery swapping equipment is located in the battery swapping position according to the first actual image and the first standard image; if not, generating a first moving instruction according to a judged result and sending the first moving instruction to a moving mechanism of the battery swapping equipment;

the moving mechanism configured to move according to the first moving instruction.

2. The battery swapping equipment for the electric vehicle according to claim 1, wherein when the electric vehicle is parked in a parking area, the battery swapping equipment receives a second moving instruction from a battery swapping station;

the moving mechanism of the battery swapping equipment moves toward the parking area according to the second moving instruction.

3. The battery swapping equipment for the electric vehicle according to claim 1, wherein the positioning judgement module is specifically configured to judge whether outer contour positions of the lock base in the first actual image and the first standard image are the same;

if so, the battery swapping equipment is located in the battery swapping position;

if not, the battery swapping equipment is not located in the battery swapping position.

4. The battery swapping equipment for the electric vehicle according to claim 3, wherein in the first actual image and the first standard image, the outer contours of the lock base comprises a first contour adjacent to the battery pack and a second contour intersecting with the first contour.

5. The battery swapping equipment for the electric vehicle according to any one of claims 1 to 4, wherein the fast swapping bracket further comprises a lock linkage movably connected to the lock base, and the battery swapping equipment further comprises a locking judgement module;

the image collection module is further configured to collect a second actual image comprising the lock base and the lock linkage during a locking process of the battery pack;

the storage module is further configured to store a second standard image comprising the lock base and the lock linkage and collected by the image collection module when the battery pack is locked on the fast swapping bracket in place, the lock base and the lock linkage are located in a standard locking position in the second standard image;

the locking judgement module is configured to judge whether the battery pack is locked on the fast swapping bracket in place according to the second actual image and the second standard image;

if so, the locking judgement module sends a locking confirmation signal.

6. The battery swapping equipment for the electric vehicle according to claim 5, wherein the locking judgement module is specifically configured to judge whether a difference between a relative distance in the second actual image and a relative distance in the second standard image is within a preset range, wherein the relative distance is a distance between a plane where an end of the lock linkage is located and a side surface of the lock base closest to the end;

if so, the locking judgement module judges that the battery pack is locked on the fast swapping bracket in place.

7. The battery swapping equipment for the electric vehicle according to claim 6, wherein the preset range is set according to resolution of the image collection module and actual size of an image collected by the image collection module.

8. The battery swapping equipment for the electric vehicle according to claim 7, wherein the preset range is [- 0.5mm, 0.5mm] or [- 1mm, 1mm].

9. The battery swapping equipment for the electric vehicle according to any one of claims 5 to 8, wherein the image collection module is configured to be arranged in an opposite position to the lock base adjacent to the end of the lock linkage.

10. The battery swapping equipment for the electric vehicle according to claim 9, wherein the fast swapping bracket comprises two lock linkages, the battery swapping equipment comprises two image collection modules, and the two image collection modules are configured to be respectively arranged in opposite positions to lock bases adjacent to the ends of the two lock linkages.

11. The battery swapping equipment for the electric vehicle according to any one of claims 5 to 10, wherein when a result judged by the locking judgement module is yes, the image collection

module is also called to collect a third actual image comprising the lock base and the lock linkage, the storage module is called to store the third actual image, and in the third actual image, the lock base and the lock linkage are located in an actual locking position.

12. Battery swapping equipment for an electric vehicle, comprising:

an unlocking mechanism configured to unlock a battery pack locked onto a fast swapping bracket of the electric vehicle, the fast swapping bracket comprising a lock base, and the fast swapping bracket further comprising a lock linkage movably connected to the lock base;

an image collection module configured to collect a second actual image comprising the lock base and the lock linkage during a locking process of the battery pack;

a storage module configured to store a second standard image comprising the lock base and the lock linkage and collected by the image collection module when the battery pack is locked on the fast swapping bracket in place, and the lock base and the lock linkage being located in a standard locking position in the second standard image;

a locking judgement module configured to judge whether the battery pack is locked on the fast swapping bracket in place according to the second actual image and the second standard image;

if so, the locking judgement module sending a locking confirmation signal.

13. A positioning method for battery swapping equipment, the battery swapping equipment comprising an unlocking mechanism and a moving mechanism, the unlocking mechanism being configured to unlock a battery pack locked onto a fast swapping bracket of an electric vehicle, and the fast swapping bracket comprising a lock base;

the positioning method comprises:

collecting a first actual image comprising the lock base during an unlocking process of the battery pack, and storing a first standard image collected when the battery swapping equipment is located in a battery swapping position, the first standard image comprising the lock base;

judging whether the battery swapping equipment is located in the battery swapping position according to the first actual image and the first standard image;

if not, generating a first moving instruction according to a judged result and sending the first moving instruction to the moving mechanism;

the moving mechanism moving according to the first moving instruction.

14. The positioning method for the battery swapping equipment according to claim 13,

wherein before the step of collecting the first actual image comprising the lock base by the image collection module, the positioning method further comprises:

a battery swapping station sending a second moving instruction to the battery swapping equipment when the electric vehicle is parked in a parking area;

the moving mechanism of the battery swapping equipment moving toward the parking area according to the second moving instruction.

15. The positioning method for the battery swapping equipment according to claim 13 or 14, wherein the step of judging whether the battery swapping equipment is located in the battery swapping position comprises:

judging whether outer contour positions of the lock base in the first actual image and the first standard image are the same;

if so, the battery swapping equipment being located in the battery swapping position;

if not, the battery swapping equipment being not located in the battery swapping position.

16. The positioning method for the battery swapping equipment according to claim 15, wherein in the first actual image and the first standard image, the outer contours of the lock base comprises a first contour adjacent to the battery pack, and a second contour intersecting with the first contour.

17. The positioning method for the battery swapping equipment according to any one of claims 13 to 16, wherein the fast swapping bracket further comprises a lock linkage movably connected to the lock base;

wherein the positioning method further comprises: storing a second standard image comprising the lock base and the lock linkage and collected when the battery pack is locked on the fast swapping bracket in place, and the lock base and the lock linkage are located in a standard locking position in the second standard image;

wherein the positioning method further comprises:

collecting a second actual image comprising the lock base and the lock linkage during the locking process of the battery pack;

judging whether the battery pack is locked on the fast swapping bracket in place according to the second actual image and the second standard image;

if so, sending a locking confirmation signal.

18. The positioning method for the battery swapping equipment according to claim 17,

wherein the step of judging whether the battery pack is locked on the fast swapping bracket in place according to the second actual image and the second standard image comprises:

judging whether a difference between a relative distance in the second actual image and a relative distance in the second standard image is within a preset range, wherein the relative distance is a distance between a plane where an end of the lock linkage is located and a side surface of the lock base closest to the end;

if so, the battery pack being locked on the fast swapping bracket in place.

19. The positioning method for the battery swapping equipment according to claim 17 or 18 wherein when judging whether the battery pack is locked on the fast swapping bracket in place, the positioning method further comprises:

collecting a third actual image comprising the lock base and the lock linkage;

storing the third actual image;

in the third actual image, the lock base and the lock linkage being located in an actual locking position.

20. A positioning method for battery swapping equipment, the battery swapping equipment comprising an unlocking mechanism, the unlocking mechanism being configured to unlock a battery pack locked onto a fast swapping bracket of an electric vehicle, the fast swapping bracket comprising a lock base, and the fast swapping bracket further comprising a lock linkage movably connected to the lock base;

wherein the positioning method comprises:

collecting a second actual image comprising the lock base and the lock linkage during the locking process of the battery pack, and storing a second standard image comprising the lock base and the lock linkage and collected when the battery pack is locked on the fast swapping bracket in place, and the lock base and the lock linkage being located in a standard locking position in the second standard image;

judging whether the battery pack is locked on the fast swapping bracket in place according to the second actual image and the second standard image;

if so, sending a locking confirmation signal.