What is claimed is:

1. A modeling method based on point cloud data, comprising:

obtaining three-dimensional point cloud information collected by a point cloud collection device from a scanned target and a first time information when the three-dimensional point cloud information is collected;

obtaining first rotation position information of an electric motor and a second time information corresponding to the first rotation position information, wherein the electric motor is configured to drive the point cloud collection device to rotate;

determining second rotation position information corresponding to the three-dimensional point cloud information based on the first time information and the second time information; and

obtaining position information of the scanned target based on the three-dimensional point cloud information and the second rotation position information, to construct a three-dimensional panoramic model corresponding to the scanned target based on the position information of the scanned target.

2. The method according to claim 1, wherein the obtaining three-dimensional point cloud information collected by a point cloud collection device from a scanned target and a first time information when the three-dimensional point cloud information is collected comprises:

receiving a point cloud data packet collected by the point cloud collection device from the scanned target at a data collection point, wherein the electric motor drives the point cloud collection device to rotate to the data collection point; and

extracting the three-dimensional point cloud information, the first time information, and a scanning angle of the point cloud collection device from the point cloud data packet,

wherein the scanning angle is an included angle between a scanning direction of the point cloud collection device and a plane of rotation of the point cloud collection device.

3. The method according to claim 1 or 2, wherein the obtaining first rotation position information of an electric motor and a second time information corresponding to the first rotation position information comprises:

receiving a pulse signal sent by a controller or an encoder and the second time

information corresponding to the pulse signal,

wherein the controller is configured to drive the electric motor to run, and the encoder is mounted on an output shaft of the electric motor to measure a rotation speed of the electric motor.

4. The method according to claim 3, wherein the determining second rotation position information corresponding to the three-dimensional point cloud information based on the first time information and the second time information comprises:

generating a first timestamp based on the first time information, and generating a second timestamp based on the second time information;

establishing a correspondence between the second timestamp and the pulse signal; and

obtaining, based on the correspondence, a pulse signal corresponding to the second timestamp that is the same as or closest to the first timestamp, and using the pulse signal to determine a rotation angle of the electric motor.

5. The method according to claim 4, wherein the position information of the scanned target comprises: an X-axis coordinate value, a Y-axis coordinate value, and a Z-axis coordinate value of the scanned target; and the obtaining position information of the scanned target based on the three-dimensional point cloud information and the second rotation position information comprises:

establishing an X-axis coordinate conversion relationship and a Y-axis coordinate conversion relationship based on the rotation angle and the scanning angle respectively;

establishing a Z-axis coordinate conversion relationship based on the scanning angle; and

converting the three-dimensional point cloud information based on the X-axis coordinate conversion relationship, the Y-axis coordinate conversion relationship, and the Z-axis coordinate conversion relationship to obtain the position information of the scanned target.

6. The method according to claim 5, wherein the three-dimensional point cloud information comprises: a distance between the point cloud collection device and the scanned target;

the established X-axis coordinate conversion relationship is: $x_n = d_n * cos\beta_n * cos\alpha_n$;

the established Y-axis coordinate conversion relationship is: $y_n = d_n * sin\beta_n * cos\alpha_n$; and

the established Z-axis coordinate conversion relationship is: $z_n = d_n * sin\alpha_n$,

where d_n is the distance, x_n is the X-axis coordinate value, y_n is the Y-axis coordinate value, z_n is the Z-axis coordinate value, β_n is the rotation angle of the electric motor, the point cloud collection device rotates in a horizontal plane, α_n is the scanning angle, and the scanning angle is a pitch angle.

7. A modeling apparatus based on point cloud data, comprising:

a point cloud data obtaining module configured to obtain three-dimensional point cloud information collected by a point cloud collection device from a scanned target and a first time information when the three-dimensional point cloud information is collected;

a position information obtaining module configured to obtain first rotation position information of an electric motor and a second time information corresponding to the first rotation position information, wherein the electric motor is configured to drive the point cloud collection device to rotate;

a position information determination module configured to determine second rotation position information corresponding to the three-dimensional point cloud information based on the first time information and the second time information; and

a target position obtaining module configured to obtain position information of the scanned target based on the three-dimensional point cloud information and the second rotation position information, to construct a three-dimensional panoramic model corresponding to the scanned target based on the position information of the scanned target.

8. The apparatus according to claim 7, wherein

the point cloud data obtaining module is configured to: receive a point cloud data packet collected by the point cloud collection device from the scanned target at a data collection point; and extract the three-dimensional point cloud information, the first time information, and a scanning angle of the point cloud collection device from the point cloud data packet, wherein the electric motor drives the point cloud collection device to rotate to the data collection point, and the scanning angle is an included angle between a scanning direction of the point cloud

collection device and a plane of rotation of the point cloud collection device.

9. The apparatus according to claim 7 or 8, wherein

the position information obtaining module is configured to receive a pulse signal sent by a controller or an encoder and the second time information corresponding to the pulse signal, wherein the controller is configured to drive the electric motor to run, and the encoder is mounted on an output shaft of the electric motor to measure a rotation speed of the electric motor.

10. The apparatus according to claim 9, wherein

the position information determination module is configured to: generate a first timestamp based on the first time information, and generate a second timestamp based on the second time information; establish a correspondence between the second timestamp and the pulse signal; and obtain, based on the correspondence, a pulse signal corresponding to the second timestamp that is the same as or closest to the first timestamp, and use the pulse signal to determine a rotation angle of the electric motor.

11. The apparatus according to claim 10, wherein the position information comprises: an X-axis coordinate value, a Y-axis coordinate value, and a Z-axis coordinate value of the scanned target, wherein

the target position obtaining module is configured to: establish an X-axis coordinate conversion relationship and a Y-axis coordinate conversion relationship based on the rotation angle and the scanning angle respectively; establish a Z-axis coordinate conversion relationship based on the scanning angle; and convert the three-dimensional point cloud information based on the X-axis coordinate conversion relationship, the Y-axis coordinate conversion relationship, and the Z-axis coordinate conversion relationship to obtain the position information of the scanned target.

12. The apparatus according to claim 11, wherein the three-dimensional point cloud information comprises: a distance between the point cloud collection device and the scanned

target;

the established X-axis coordinate conversion relationship is: $x_n = d_n * cos\beta_n * cos\alpha_n$;

the established Y-axis coordinate conversion relationship is: $y_n = d_n * sin\beta_n * cos\alpha_n$; and

the established Z-axis coordinate conversion relationship is: $z_n = d_n * sin\alpha_n$,

where d_n is the distance, x_n is the X-axis coordinate value, y_n is the Y-axis coordinate value, z_n is the Z-axis coordinate value, β_n is the rotation angle of the electric motor, the point cloud collection device rotates in a horizontal plane, α_n is the scanning angle, and the scanning angle is a pitch angle.

13. A non-transitory computer-readable storage medium having a computer program stored thereon, wherein when the computer program is executed by a processor, the steps of the method according to any one of claims 1 to 6 are implemented.

14. An electronic device, comprising:

a processor; and

a memory and a computer program stored on the memory,

wherein the processor is configured to execute the computer program to implement the steps of the method according to any one of claims 1 to 6.

15. A computer program product, comprising a computer program, wherein when the computer program is executed by a processor, the steps of the method according to any one of claims 1 to 6 are implemented.