What is claimed is

1. A method for identifying a barcode, wherein the barcode comprises a spacer block threshold detection area, a data block threshold detection area, and a data area, wherein the spacer block threshold detection area is configured to set a spacer block threshold, and the spacer block threshold represents a value range of a sampling value corresponding to a spacer block; the data block threshold detection area is configured to set a data block threshold, and the data block threshold represents a value range of a sampling value corresponding to a data block; the data area comprises one or more data blocks and one or more spacer blocks arranged in a certain order, and the spacer block in the data area is configured to separate adjacent data blocks; the method comprises:

acquiring a data waveform, wherein the data waveform is obtained based on a waveform generated by sampling the barcode using a reading apparatus at a preset sampling frequency, with a sampling point sequence number as a horizontal coordinate and the sampling value as a vertical coordinate;

acquiring and recording the spacer block threshold based on the sampling value corresponding to the spacer block threshold detection area in the data waveform;

acquiring and recording the data block threshold based on the sampling value corresponding to the data block threshold detection area in the data waveform;

identifying code values corresponding to the one or more data blocks and the number of spacer blocks from the sampling value corresponding to the data area in the data waveform according to the spacer block threshold and the data block threshold; and

when the number of spacer blocks reaches a preset number, determining a code corresponding to the barcode according to the code values corresponding to the one or more data blocks;

wherein the identifying code values corresponding to the one or more data blocks and the number of spacer blocks from the sampling value corresponding to the data area in the data waveform according to the spacer block threshold and the data block threshold comprises:

Determining a trough or a peak according to a change trend of the sampling values corresponding to the data area in the data waveform;

determining whether the sampling value corresponding to the trough or the peak exceeds the data block threshold;

when the sampling value corresponding to the trough or the peak exceeds the data block threshold, determining a data block sampling value corresponding to the trough or the peak as

the sampling value corresponding to a first type of data block; and

when the sampling value corresponding to the trough or the peak does not exceed the data block threshold, determining the data block sampling value corresponding to the trough or the peak as the sampling value corresponding to a second type of data block;

wherein the first type of data block corresponds to a first code value, and the second type of data block corresponds to a second code value.

2. The method according to claim 1, wherein the spacer block threshold detection area, the data block threshold detection area, and the data area are sequentially arranged according to a reading order of the reading apparatus;

the acquiring and recording the spacer block threshold based on the sampling value corresponding to the spacer block threshold detection area in the data waveform comprises:

when a fluctuation in the sampling value of the data waveform is detected, acquiring and recording the spacer block threshold based on the sampling value;

the acquiring and recording the data block threshold based on the sampling value corresponding to the data block threshold detection area in the data waveform comprises:

when it is detected that the sampling value of the data waveform exceeds the spacer block threshold, acquiring and recording the data block threshold based on the sampling value; and

the identifying code values corresponding to the one or more data blocks and the number of spacer blocks from the sampling value corresponding to the data area in the data waveform according to the spacer block threshold and the data block threshold comprises:

after the sampling value of the data waveform reaches the spacer block threshold for the second time, identifying the code values corresponding to the one or more data blocks and the number of spacer blocks according to the sampling value, the spacer block threshold, and the data block threshold.

3. The method according to claim 2, wherein, when the sampling value of the data waveform exceeds an initial threshold, it is determined that the fluctuation in the sampling value of the data waveform is detected, wherein the initial threshold is a value range of the sampling value counted before the barcode enters a reading area of the reading apparatus.

4. The method according to claim 1, wherein the identifying code values corresponding to the one or more data blocks and the number of spacer blocks from the sampling value corresponding to the data area in the data waveform according to the spacer block threshold and the data block threshold

comprises:

identifying the spacer blocks from the sampling values corresponding to the data area in the data waveform according to the spacer block threshold to obtain the number of spacer blocks; and

identifying the data blocks from the sampling values corresponding to the data area in the data waveform according to the data block threshold, and determining the code values corresponding to the data blocks.

5. The method according to claim 1, wherein the identifying code values corresponding to the one or more data blocks and the number of spacer blocks from the sampling value corresponding to the data area in the data waveform according to the spacer block threshold and the data block threshold comprises:

determining a peak or a trough according to a change trend of the sampling values corresponding to the data area in the data waveform; and

determining data block sampling value corresponding to the peak or the trough as the sampling value corresponding to the spacer block in the data area.

6. The method according to claim 2, wherein the barcode further comprises a reading completion detection area, and the reading completion detection area comprises a spacer block arranged after the data area according to the reading order; the method further comprises, after the number of spacer blocks reaches the preset number and before determining the code corresponding to the barcode according to the code values corresponding to the one or more data blocks:

determining whether the sampling value of the data waveform reaches the spacer block threshold again;

when the sampling value reaches the spacer block threshold again, turning to the step of determining the code corresponding to the barcode according to the code values corresponding to the one or more data blocks; and

when the sampling value does not reach the spacer block threshold again, generating reading abnormality prompt information.

7. The method according to claim 6, wherein the reading apparatus has a reading area, when the reading apparatus samples from the reading area, the spacer block threshold detection area, the data block threshold detection area, the data area, and the reading completion detection area on the barcode sequentially pass through the reading area, and in a direction of entering the reading area,

a length of the spacer block of the reading completion detection area is greater than that of the spacer block of the data area; the determining whether the sampling value of the data waveform reaches the spacer block threshold again comprises:

when the sampling value reaches the spacer block threshold, counting a duration for which the sampling value reaches the spacer block threshold according to the data waveform to obtain a first duration;

comparing the first duration with a second duration, wherein the second duration is a duration for which the sampling value in the data area, counted according to the data waveform, reaches the spacer block threshold;

when the first duration is greater than the second duration, determining that the sampling value reaches the spacer block threshold again; and

when the first duration is not greater than the second duration, determining that the sampling value does not reach the spacer block threshold again.

8. The method according to claim 1, wherein the data waveform is obtained by pre-processing the waveform generated by sampling the barcode using the reading apparatus at the preset sampling frequency, with the sampling point sequence number as the horizontal coordinate and the sampling value as the vertical coordinate.

9. The method according to claim 8, wherein the pre-processing comprises:

sequentially extracting a plurality of sampling values from the waveform in a sliding window manner; and

respectively calculating an average of the sampling values extracted each time, and using the average as the sampling value in the data waveform.

10. An apparatus for identifying a barcode, wherein the barcode comprises a spacer block threshold detection area, a data block threshold detection area, and a data area, wherein the spacer block threshold detection area is configured to set a spacer block threshold, and the spacer block threshold represents a value range of a sampling value corresponding to a spacer block; the data block threshold detection area is configured to set a data block threshold, and the data block threshold represents a value range of a sampling value corresponding to a data block; the data area comprises one or more data blocks and one or more spacer blocks arranged in a certain order, and the spacer block in the data area is configured to separate adjacent data blocks; the apparatus comprises:

an acquisition module, configured to acquire a data waveform, wherein the data waveform is

obtained based on a waveform generated by sampling the barcode using a reading apparatus at a preset sampling frequency, with a sampling point sequence number as a horizontal coordinate and the sampling value as a vertical coordinate;

a spacer block threshold setting module, configured to acquire and record the spacer block threshold based on the sampling value corresponding to the spacer block threshold detection area in the data waveform;

a data block threshold setting module, configured to acquire and record the data block threshold based on the sampling value corresponding to the data block threshold detection area in the data waveform;

an identification module, configured to identify code values corresponding to the one or more data blocks and the number of spacer blocks from the sampling value corresponding to the data area in the data waveform according to the spacer block threshold and the data block threshold; and

a code determination module, configured to determine, when the number of spacer blocks reaches a preset number, a code corresponding to the barcode according to the code values corresponding to the one or more data blocks;

wherein the identification module is further configured to:

determine a trough or a peak according to a change trend of the sampling values corresponding to the data area in the data waveform;

determine whether the sampling value corresponding to the trough or the peak exceeds the data block threshold;

determine, when the sampling value corresponding to the trough or the peak exceeds the data block threshold, a data block sampling value corresponding to the trough or the peak as the sampling value corresponding to a first type of data block; and

determine, when the sampling value corresponding to the trough or the peak does not exceed the data block threshold, the data block sampling value corresponding to the trough or the peak as the sampling value corresponding to a second type of data block;

wherein the first type of data block corresponds to a first code value, and the second type of data block corresponds to a second code value.

11. The apparatus according to claim 10, wherein the spacer block threshold detection area, the data block threshold detection area, and the data area are sequentially arranged according to a

reading order of the reading apparatus;

the spacer block threshold setting module is further configured to acquire and record, when a fluctuation in the sampling value of the data waveform is detected, the spacer block threshold based on the sampling value;

the data block threshold setting module is further configured to acquire and record, when it is detected that the sampling value of the data waveform exceeds the spacer block threshold, the data block threshold based on the sampling value; and

the identification module is further configured to identify, after the sampling value of the data waveform reaches the spacer block threshold for the second time, the code values corresponding to the one or more data blocks and the number of spacer blocks according to the sampling value, the spacer block threshold, and the data block threshold.

12. The apparatus according to claim 11, wherein the spacer block threshold setting module is further configured to determine, when the sampling value of the data waveform exceeds an initial threshold, that the fluctuation in the sampling value of the data waveform is detected, wherein the initial threshold is a value range of the sampling value counted before the barcode enters a reading area of the reading apparatus.

13. The apparatus according to claim 10, wherein the identification module is further configured to:

identify the spacer blocks from the sampling values corresponding to the data area in the data waveform according to the spacer block threshold to obtain the number of spacer blocks; and

identify the data blocks from the sampling values corresponding to the data area in the data waveform according to the data block threshold, and determine the code values corresponding to the data blocks.

14.The apparatus according to claim 10, wherein the identification module is further configured to:

determine a peak or a trough according to a change trend of the sampling values corresponding to the data area in the data waveform; and

determine a data block sampling value corresponding to the peak or the trough as the sampling value corresponding to the spacer block in the data area.

15. The apparatus according to claim 11, wherein the barcode further comprises a reading completion detection area, and the reading completion detection area comprises a spacer block arranged after the data area according to the reading order; the apparatus further comprises:

a reading completion detection module, configured to determine, after the number of spacer blocks reaches the preset number and before determining the code corresponding to the barcode according to the code values corresponding to the one or more data blocks, whether the sampling value of the data waveform reaches the spacer block threshold again;

the code determination module is further configured to determine, when the sampling value reaches the spacer block threshold again, the code corresponding to the barcode according to the code values corresponding to the one or more data blocks; and

the apparatus further comprises a prompt information generation module, configured to generate reading abnormality prompt information when the sampling value does not reach the spacer block threshold again.

16. The apparatus according to claim 15, wherein the reading apparatus has a reading area, when the reading apparatus samples from the reading area, the spacer block threshold detection area, the data block threshold detection area, the data area, and the reading completion detection area on the barcode sequentially pass through the reading area, and in a direction of entering the reading area, a length of the spacer block of the reading completion detection area is greater than that of the spacer block of the data area; the reading completion detection module is further configured to:

count, when the sampling value reaches the spacer block threshold, a duration for which the sampling value reaches the spacer block threshold according to the data waveform to obtain a first duration;

compare the first duration with a second duration, wherein the second duration is a duration for which the sampling value in the data area, counted according to the data waveform, reaches the spacer block threshold;

determine that the sampling value reaches the spacer block threshold again when the first duration is greater than the second duration; and

determine that the sampling value does not reach the spacer block threshold again when the first duration is not greater than the second duration.

17. The apparatus according to claim 10, wherein the acquisition module is further configured to obtain the data waveform by pre-processing the waveform generated by sampling the barcode using the reading apparatus at the preset sampling frequency, with the sampling point sequence number as the horizontal coordinate and the sampling value as the vertical coordinate.

18. The apparatus according to claim 17, wherein the acquisition module is further configured to:

sequentially extract a plurality of sampling values from the waveform in a sliding window manner; and

respectively calculate an average of the sampling values extracted each time, and use the average as the sampling value in the data waveform.