CLAIMS

What is claimed is:

1. An overdue parking fee recordation method, applied to a parking fee collection system, wherein the method comprises:

detecting parking information of a vehicle in a parking environment by using an IoT device associated with the parking fee collection system;

determining parking fee payment information of the vehicle when the parking information indicates that the vehicle exits the parking environment; ~~and~~

when the parking fee payment information indicates that fee payment for the vehicle is uncompleted, publishing an overdue fee record related to the vehicle to a blockchain network by using a first blockchain node corresponding to the parking fee collection system in the blockchain network;

querying about an unresolved overdue fee record related to the vehicle in the blockchain network when the IoT device detects a parking need of the vehicle for the parking environment; and

setting a barring facility in the parking environment to an enabled state to prevent the vehicle from entering the parking environment when a quantity of overdue fee records of the vehicle reaches a first quantity and/or an unpaid amount reaches a second quantity; otherwise, setting the barring facility to a disabled state to enable the vehicle to enter the parking environment.

2. The method according to claim 1, further comprising:

receiving a query request initiated for the vehicle by a handheld fee collection terminal device used by a collection employee; and

sending an overdue fee reminder to the handheld fee collection terminal device when an unresolved overdue fee record related to the vehicle is retrieved in the blockchain network.

3. The method according to claim 1, further comprising:

querying about an unresolved overdue fee record related to the vehicle in the blockchain network when the parking information indicates that the vehicle enters the parking environment; and

sending an overdue fee reminder to a handheld fee collection terminal device used by a collection employee when the unresolved overdue fee record related to the vehicle is retrieved in the blockchain network.

~~4. The method according to claim 1, further comprising:~~

~~querying about an unresolved overdue fee record related to the vehicle in the blockchain network when the IoT device detects a parking need of the vehicle for the parking environment; and~~

~~setting a barring facility in the parking environment to an enabled state to prevent the vehicle from entering the parking environment when a quantity of overdue fee records of the vehicle reaches a first quantity and/or an unpaid amount reaches a second quantity; otherwise, setting the barring facility to a disabled state to enable the vehicle to enter the parking environment.~~

4~~5~~. The method according to claim 1, further comprising:

invoking a smart contract, wherein the smart contract is used to collect statistics on unresolved overdue fee records related to the vehicle in the blockchain network, setting a credit value of the vehicle based on a statistical result, and publishing the credit value of the vehicle to the blockchain network, wherein the credit value is negatively correlated with a quantity of overdue fee records and/or an unpaid amount.

5~~6~~. The method according to claim 4~~5~~, further comprising:

querying about the credit value of the vehicle when the IoT device detects a parking need of the vehicle for the parking environment; and

setting a barring facility in the parking environment to an enabled state to prevent the vehicle from entering the parking environment when the credit value of the vehicle is not greater than a predetermined value; otherwise, setting the barring facility to a disabled state to enable the vehicle to enter the parking environment.

6~~7~~. The method according to claim 1, wherein the overdue fee record is marked as an unresolved state by default, and the method further comprises:

marking the overdue fee record as a resolved state upon receipt of a repaid fee related to the overdue fee record.

7~~8~~. The method according to claim 1, wherein the parking environment is in an open parking lot.

8~~9~~. The method according to claim 1, wherein the blockchain node further comprises an overdue fee record related to the vehicle that is published by a second

blockchain node, and the second blockchain node corresponds to another parking fee collection system different from the parking fee collection system.

~~10. An overdue parking fee reminding method, applied to a parking fee collection system, wherein the method comprises:~~

~~detecting parking information of a vehicle in a parking environment by using an IoT device associated with the parking fee collection system;~~

~~querying about an unresolved overdue fee record related to the vehicle in a blockchain network when the parking information indicates that the vehicle enters the parking environment, wherein a publisher of the overdue fee record comprises at least one of the following: a first blockchain node corresponding to the parking fee collection system, and a second blockchain node corresponding to another parking fee collection system different from the parking fee collection system; and~~

~~sending an overdue fee reminder to a handheld fee collection terminal device used by a collection employee when the unresolved overdue fee record related to the vehicle is retrieved in the blockchain network.~~

9~~11~~. An overdue parking fee recordation apparatus, applied to a parking fee collection system, wherein the apparatus comprises:

a detection unit, configured to detect parking information of a vehicle in a parking environment by using an IoT device associated with the parking fee collection system;

a determining unit, configured to determine parking fee payment information of the vehicle when the parking information indicates that the vehicle exits the parking environment;~~ and~~

a publishing unit, configured to: when the parking fee payment information indicates that fee payment for the vehicle is uncompleted, publish an overdue fee record related to the vehicle to a blockchain network by using a first blockchain node corresponding to the parking fee collection system in the blockchain network;

a second query unit, configured to query about an unresolved overdue fee record related to the vehicle in the blockchain node when the IoT device detects a parking need of the vehicle for the parking environment; and

a first setting unit, configured to:

set a barring facility in the parking environment to an enabled state to prevent the vehicle from entering the parking environment when a quantity of overdue fee records of the vehicle reaches a first quantity and/or an unpaid amount reaches a

second quantity; otherwise, set the barring facility to a disabled state to enable the vehicle to enter the parking environment.

102. The apparatus according to claim 911, further comprising:

a receiving unit, configured to receive a query request initiated for the vehicle by a handheld fee collection terminal device used by a collection employee; and

a first sending unit, configured to send an overdue fee reminder to the handheld fee collection terminal device when an unresolved overdue fee record related to the vehicle is retrieved in the blockchain network.

113. The apparatus according to claim 911, further comprising:

a first query unit, configured to query about an unresolved overdue fee record related to the vehicle in the blockchain node when the parking information indicates that the vehicle enters the parking environment; and

a second sending unit, configured to send an overdue fee reminder to a handheld fee collection terminal device used by a collection employee when the unresolved overdue fee record related to the vehicle is retrieved in the blockchain network.

~~14. The apparatus according to claim 11, further comprising:~~

~~a second query unit, configured to query about an unresolved overdue fee record related to the vehicle in the blockchain node when the IoT device detects a parking need of the vehicle for the parking environment; and~~

~~a first setting unit, configured to: set a barring facility in the parking environment to an enabled state to prevent the vehicle from entering the parking environment when a quantity of overdue fee records of the vehicle reaches a first quantity and/or an unpaid amount reaches a second quantity; otherwise, set the barring facility to a disabled state to enable the vehicle to enter the parking environment.~~

125. The apparatus according to claim 911, further comprising:

an invoking unit, configured to: invoke a smart contract, wherein the smart contract is used to collect statistics on unresolved overdue fee records related to the vehicle in the blockchain network, set a credit value of the vehicle based on a statistical result, and publish the credit value of the vehicle to the blockchain network, wherein the credit value is negatively correlated with a quantity of overdue fee records and/or an unpaid amount.

136. The apparatus according to claim 125, further comprising:

a third query unit, configured to query about the credit value of the vehicle when the IoT device detects a parking need of the vehicle for the parking environment; and

a second setting unit, configured to set a barring facility in the parking environment to an enabled state to prevent the vehicle from entering the parking environment when the credit value of the vehicle is not greater than a predetermined value; otherwise, set the barring facility to a disabled state to enable the vehicle to enter the parking environment.

14~~7~~. The apparatus according to claim 9~~11~~, wherein the overdue fee record is marked as an unresolved state by default, and the apparatus further comprises:

a marking unit, configured to mark the overdue fee record as a resolved state upon receipt of a repaid fee related to the overdue fee record.

15~~8~~. The apparatus according to claim 9~~11~~, wherein the parking environment is in an open parking lot.

16~~9~~. The apparatus according to claim 9~~11~~, wherein the blockchain node further comprises an overdue fee record related to the vehicle that is published by a second blockchain node, and the second blockchain node corresponds to another parking fee collection system different from the parking fee collection system.

~~20. An overdue parking fee reminding apparatus, applied to a parking fee collection system, wherein the apparatus comprises:~~

~~a detection unit, configured to detect parking information of a vehicle in a parking environment by using an IoT device associated with the parking fee collection system;~~

~~a query unit, configured to query about an unresolved overdue fee record related to the vehicle in a blockchain network when the parking information indicates that the vehicle enters the parking environment, wherein a publisher of the overdue fee record comprises at least one of the following: a first blockchain node corresponding to the parking fee collection system, and a second blockchain node corresponding to another parking fee collection system different from the parking fee collection system; and~~

~~a reminding unit, configured to send an overdue fee reminder to a handheld fee collection terminal device used by a collection employee when the unresolved overdue fee record related to the vehicle is retrieved in the blockchain network.~~

17~~21~~. An electronic device, comprising:

a processor; and

a memory, configured to store an instruction that can be executed by the processor; wherein

the processor runs the executable instruction to implement the method according any of claims 1 to 8~~10~~.