CLAIMS

1. An integrated vending machine management system, comprising an application terminal and a management platform, wherein the application terminal comprises a consumer module, a sales service module and a technician module, and the consumer module, the sales service module, and an investor module are realized on the basis of a vending machine apparatus and a terminal device; the management system comprises a big data processing module; the terminal device comprises a mobile terminal and a computer terminal; the application terminal further comprises a special group module and the investor module; the consumer module refers to that consumers select, purchase or store goods in the vending machine apparatus through the terminal device or an interactive interface of the vending machine apparatus; the sales service module refers to that sales service personnel increase, decrease or replace goods in the vending machine apparatus at a specified place and in a specified time through big data information of the terminal device; the technician module refers to that technicians maintain or repair the vending machine apparatus at a specified place through the information of the terminal device; the investor module refers to that an investor knows sale, inventory, profit and position information of the vending machine apparatus invested by the investor through the terminal device, and sends an automatic checking instruction through the terminal device so as to obtain the latest sale or inventory data of the corresponding vending machine apparatus; the special group module refers to that a group with special requirements selects, purchases or stores goods in the vending machine apparatus through the terminal device or the interactive interface of the vending machine apparatus; the management platform further comprises a positioning module, and the positioning module is configured to position specific position information of the vending machine apparatus and send the position information to the terminal device; and the big data processing module refers to storing or processing data generated by the vending machine apparatus or data generated by the terminal device,

wherein the vending machine apparatus comprises a conveying system configured to convey goods, and comprises a baffle disposed at an inner side end of each goods channel, with an inventory counter being fixed on each baffle,

wherein each inventory counter comprises a range finder and a limit switch, the range finder and the limit switch are both electrically connected to the first controller, and the limit switch is fixed on one side of a guide rail, corresponds to an inner side end of the material tray; and the range finder is fixed in a middle portion of the baffle through a range finder base, the range finder base comprises a fixing base and a detachable base clamped with the fixing base, the detachable base comprises a T-shaped plate, the T-shaped plate comprises a transverse plate and a vertical plate vertically fixed to a bottom end of the transverse plate, the transverse plate and the vertical plate are integrally formed, the transverse plate is of a groove structure with an open top end, the top end of the transverse plate is covered with a cover plate, a through hole is formed in a middle portion of the cover plate, the range finder is fixed in the groove, an emitting end of the range finder corresponds to the through hole, the vertical plate is of a trapezoidal structure with a narrow top and a wide bottom, a tapered through groove matched with the vertical plate in shape is formed in one side end of the fixing base, the detachable base is clamped in the through groove through the vertical plate, and the range finder is configured to detect position information of the goods in the goods channel.

2. The integrated vending machine management system according to claim 1, wherein the management platform further comprises an authority module, the authority module comprises an identity recognition unit, a face recognition unit and a fingerprint recognition unit, the identity recognition unit is configured to recognize identity information of the consumers and the special group, and the face recognition unit is configured to collect and recognize face information of the special group.

3. The integrated vending machine management system according to claim 2, wherein the terminal device comprises a mobile phone and/or a computer, consumption APP used by the consumers, service APP used by the sales service personnel, technology APP used by the technicians, investment APP used by the investors and subsidy APP used by the special group are installed in the mobile phone and/or the computer, and the mobile phone and/or the computer are in communication connection with the management platform through a communication module.

4. The integrated vending machine management system according to claim 3, wherein

the management platform further comprises a goods selection unit, a payment unit, a login unit, a registration unit, a storage management unit, a cloud control lock unit, and a cloud delivery unit; the goods selection unit provides a list of products to be sold and is configured to select and manage the goods; the payment unit is used for payment management; the login unit is configured to provide a login port; the registration unit is configured to register new product information; the storage management unit is configured to carry out access management on the purchased goods; the cloud control lock unit is configured to control a lock of the vending machine apparatus, comprises an unlocking authority, and sets that a specified person has the authority to unlock the lock at a specified position within a specified time through the unlocking authority; and the cloud delivery unit is used for delivery management, after the consumers or the special group pay the goods, the quantity of goods purchased by the consumers may be deducted from inventory data in the corresponding vending machine apparatus; and if actual delivery is not generated after the consumers pay the goods, the goods may be automatically returned to the inventory data for secondary sale.

5. An integrated vending machine apparatus, wherein the vending machine apparatus adopts the vending machine management system according to any one of claims 1-4, and comprises a cabinet body, a main controller and a communication module; the main controller is in communication connection with the terminal device through the communication module; a storage system, the conveying system, and a cloud control lock system are disposed in the cabinet body; an interactive interface and a goods outlet are disposed at a front end of the cabinet body, and the interactive interface, the storage system, the conveying system and the cloud control lock system are electrically connected to the main controller; the storage system is configured to store goods; the conveying system is configured to convey goods; and the cloud control lock system is configured to control a lock.

6. The integrated vending machine apparatus according to claim 5, wherein the storage system comprises a refrigeration or normal-temperature region and a freezing box body which are disposed in the cabinet body, a refrigeration refrigerating apparatus is disposed in the refrigeration or normal-temperature region and is

configured to carry out refrigeration or normal-temperature storage of the goods, the freezing box body comprises a freezing refrigerating apparatus configured to freeze and store the goods, and the refrigeration refrigerating apparatus and the freezing refrigerating apparatus are electrically connected to the main controller; and an outlet end of the freezing box body is provided with a plurality of box doors, top ends of the box doors are hinged with the freezing box body, two ends of each box door are respectively provided with second electric push rods, one end of each second electric push rod is hinged with a side end of the corresponding box door, the other end of each second electric push rod is hinged with a side end of the freezing box body, and the second electric push rods are electrically connected to the main controller.

7. The integrated vending machine apparatus according to claim 6, wherein the conveying system comprises a plurality of layers of material trays distributed side by side, a plurality of goods channels disposed on each layer of material trays and distributed side by side, spiral push rods or crawler-type conveying belts disposed on the goods channels, and a goods conveying belt disposed below outer side ends of the goods channels, the goods outlet is located at one end of the goods conveying belt, the material trays are slidably installed in the refrigeration or normal-temperature region and the freezing box body through guide rail structures,

wherein the inventory counter is configured to detect position or quantity information of goods on the goods channel, the inventory counters are electrically connected to a first controller, and the first controller is electrically connected to the main controller.

8. The integrated vending machine apparatus according to claim 7, wherein the cabinet body further comprises a falling detection apparatus installed on the conveying system, the falling detection apparatus comprises a light source emitter and a light source receiver, the light source emitter is configured to send infrared light or laser, the light source receiver is configured to receive the infrared light or the laser sent by the light source emitter, the infrared light or the laser is sent in a single-point mode or a multi-point mode, and the light source emitter and the light source receiver are both electrically connected to the main controller.

9. The integrated vending machine apparatus according to claim 8, wherein the light

source emitter and the light source receiver are correspondingly installed at both side ends of the goods conveying belt.

10. The integrated vending machine apparatus according to claim 8, further comprising a light source reflecting plate, wherein the light source emitter and the light source receiver are disposed at the other end of the goods conveying belt side by side, the light source reflecting plate is disposed at one end of the goods conveying belt, and the light source reflecting plate corresponds to an emitting end of the light source emitter and a receiving end of the light source receiver.

11. The integrated vending machine apparatus according to claim 9 or 10, wherein a prompting lamp is installed at an outer side end of each goods channel, a scanner is disposed on the interactive interface, the prompting lamps and the scanner are electrically connected to the main controller, the prompting lamps are configured to prompt a position needing goods replenishment, and the scanner is configured to scan bar code information of the goods or two-dimensional code information in a mobile terminal.

12. The integrated vending machine apparatus according to claim 11, wherein a bag discharging system is disposed in the cabinet body, the bag discharging system is disposed at a front end of the cabinet body and comprises a rolled bag mounting frame, a scroll rotatably installed on the rolled bag mounting frame, a rolled bag wound on the scroll, a bag pressing mechanism and rolled bag supporting rods, the rolled bag supporting rods are configured to support the rolled bag, and the bag pressing mechanism is configured to press the rolled bag.

13. The integrated vending machine apparatus according to claim 12, wherein the cloud control lock system comprises an electric lock, a magnetic card recognition region disposed in the electric lock, and a lock control system disposed in the electric lock, the magnetic card recognition region is matched with a magnetic card, the lock control system comprises a third controller, a clock chip, a motor and a storage module, the clock chip, the motor and the storage module are all electrically connected to the third controller, the third controller is electrically connected to the main controller, the clock chip is configured to set unlocking time, the motor is configured to drive a spring bolt of the electric lock to be opened or closed, and the

storage module is configured to store a preset unlocking time threshold value.

14. The integrated vending machine apparatus according to claim 7 or 13, wherein two goods conveying belts are disposed and comprise: a first goods conveying belt and a second goods conveying belt, the first goods conveying belt and the second goods conveying belt are perpendicularly distributed, the first goods conveying belt is located between the refrigeration or normal-temperature region and the freezing box body, a goods outlet end of the conveying system in the refrigeration or normal-temperature region and the freezing box body is located above the first goods conveying belt, and the light source emitter and the light source receiver are respectively installed at two side ends of the first goods conveying belt; and the interactive interfaces, the bag discharging systems and the goods outlets comprise two groups, and the two groups of interactive interfaces, bag discharging systems and goods outlets are respectively located at two side ends of the second goods conveying belt.

15. The integrated vending machine apparatus according to claim 14, wherein the cabinet body is internally provided with a storage cabinet system, the storage cabinet system is configured to store goods, the storage cabinet system comprises a plurality of storage cabinets, temperature sensors installed in the storage cabinets, and cabinet doors installed on the storage cabinets, the temperature sensors are configured to collect temperature information in the storage cabinets, the storage cabinets are communicated with the freezing box body through pipelines, solenoid valves and fans are installed in the pipelines, the temperature sensors and the solenoid valves are electrically connected to a fourth controller, and the fourth controller is electrically connected to the main controller.