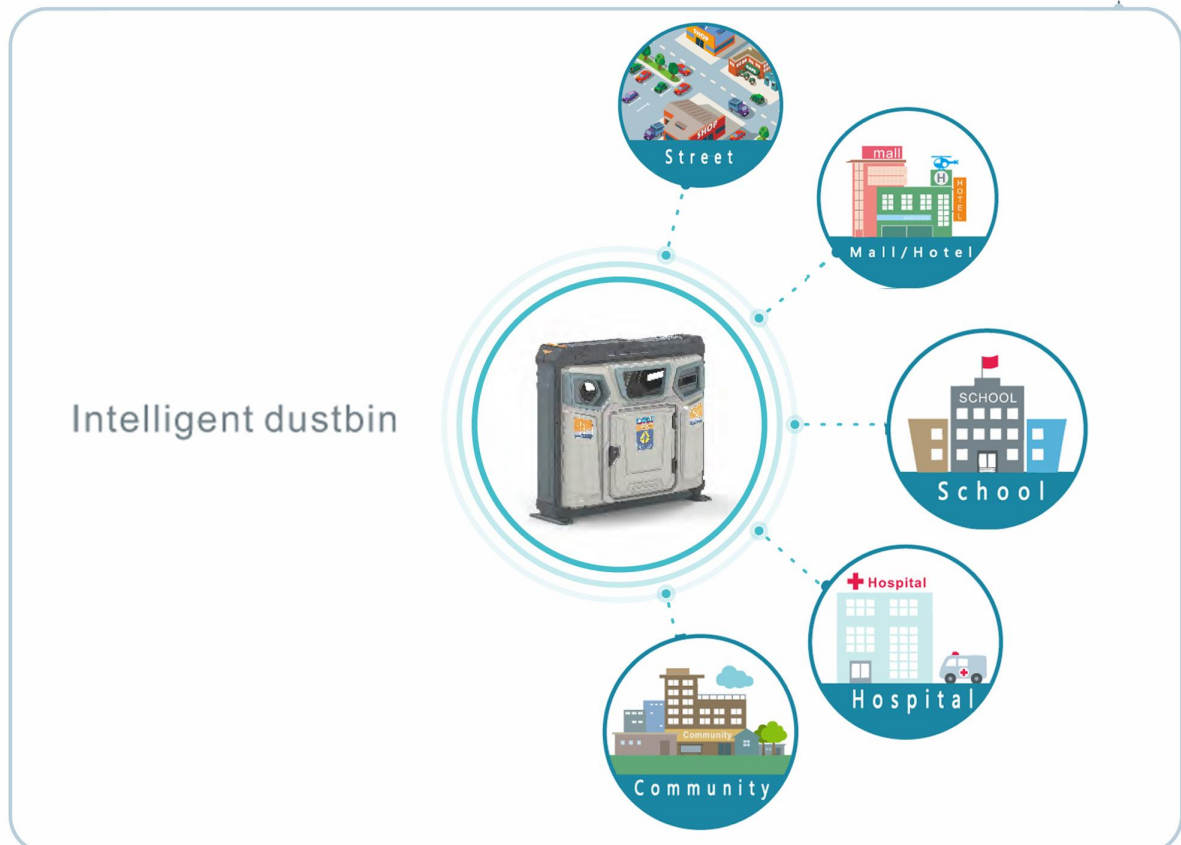# Catalog

Application scope of the project

The intelligent sanitation cloud system provides overall plans

It provides software and hardware programs according to customer demands

Applications

Intelligent dustbin

Street

Mall/Hotel

School

Hospital

Community

Definition of the intelligent sanitation cloud system

● Main functions of sanitation administrative unit

- Personnel management
- Assessment of outsourcing companies
- Real-time warning message
- Emergency management

- Assessment criterion setting
- Real-time check of equipment state
- Cleaning data statistics
- Breakdown maintenance and follow-up

● Main functions of cleaning and property management company

- Personnel management
- Assessment of dustmen
- Real-time warning message
- Optimal cleaning method

- Assessment criterion setting
- Real-time check of equipment state
- Cleaning data statistics
- Emergency management

● Main functions of maintenance service company

- Product installation and debugging
- Personnel management
- Real-time fault message
- Breakdown maintenance management

- System implementation training
- Service evaluation management
- Real-time check of equipment state
- Emergency management

System components

Intelligent dustbin	System backstage	Client	End user

Intelligent sanitation system

Hardware devices and service software are connected through network and end users can implement equipment management, business processing, data analysis according to setting flow chart.

Intelligent box

Intelligent bins

Cloud

Intelligent sanitation Collection System

Background control

Client

owner

provider

cleaning company

operator

serviceman

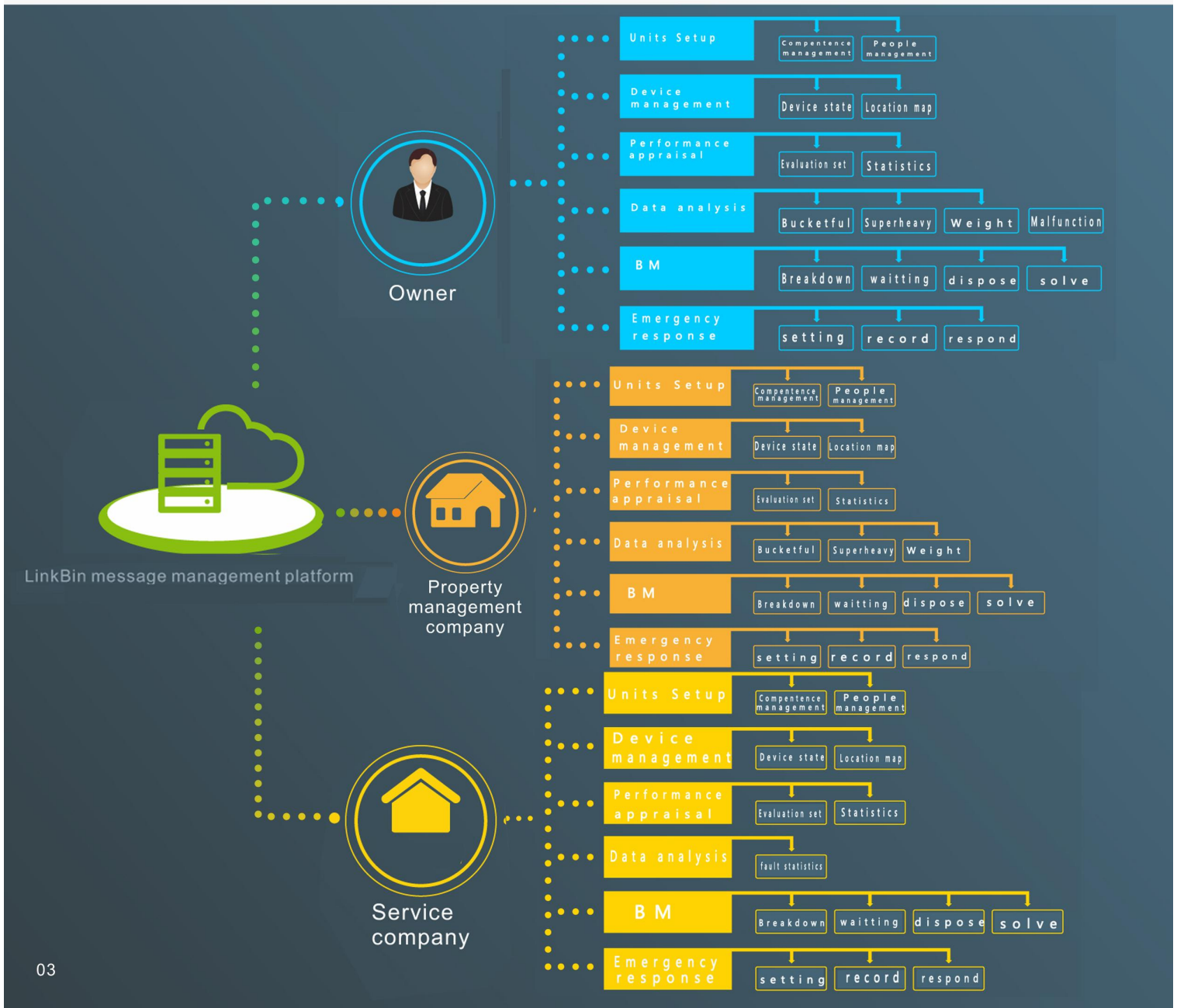pointing device

cleaner

System topology
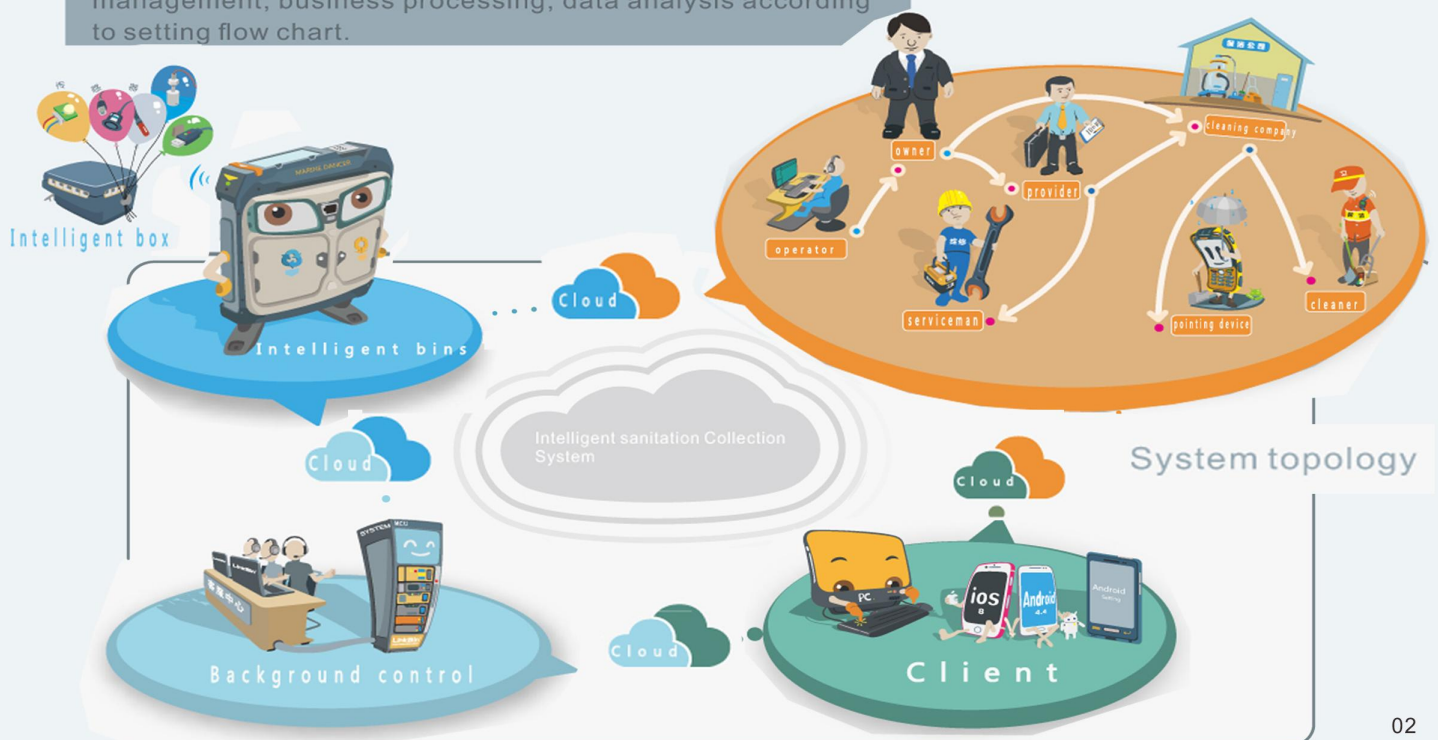
Introduction to system software

The system software is composed of foundation layer, framework layer, component layer, business layer and client. Cooperating with the relational database, a robust, stable, safe and extensible system is established, which is suitable for large-scale data processing and operation. According to demands of intelligent sanitation management, system software which has high expansibility and compatibility can open different interfaces to management software of different platforms and share big data.

Client	PC Android iOS
Operational application	- ororganization structure - counting and printing - equipment management - system setup - emergency response - data analysis - permission administration - performance appraisal - B M
Component	- WEB-U - IIOT - APPOPS - diagram - information push service - mobile internet - report forms - tenant management - CRON
Frame	- transactional control - data validation - internationalization - journal - AJAX MVC/AOP
JRE	- database - application server - load balancing Linux OS

Owner

Units Setup — Compentence management, People management

Device management — Device state, Location map

Performance appraisal — Evaluation set, Statistics

Data analysis — Bucketful, Superheavy, Weight, Malfunction

B M — Breakdown, waitting, dispose, solve

Emergency response — setting, record, respond

Property management company

Units Setup — Compentence management, People management

Device management — Device state, Location map

Performance appraisal — Evaluation set, Statistics

Data analysis — Bucketful, Superheavy, Weight

B M — Breakdown, waitting, dispose, solve

Emergency response — setting, record, respond

Service company

Units Setup — Compentence management, People management

Device management — Device state, Location map

Performance appraisal — Evaluation set, Statistics

Data analysis — fault statistics

B M — Breakdown, waitting, dispose, solve

Emergency response — setting, record, respond

LinkBin message management platform

Dustbin registration

Equipment positioning

Automatic alarm of overload

Automatic failure warning

The intelligent dustbin can send full-load and over-load information to the environmental sanitation administration and cleaning company automatically through the system backstage and inform cleaners in messages. This can prevent damages to city image and the product caused by full load or over load. Cleaners will be informed accurately, reducing labor intensity.

Function – Emergency and remote control

● Emergency

The system is equipped with an emergency platform where the environmental sanitation administration can set thresholds, such as full-load times in the setting time, failures, etc. The system can either inform users about threshold exceeding as emergency conditions or release emergency information manually during event presetting.

● Remote control

The system has remote real-time monitoring of dustbin state and remote information modification of cleaning and service companies, which is convenient for real-time troubleshooting and modification.

CE
RoHS
ISO14001:2004
ISO9001:2008
OHSAS18001:2007

The system will inform the nearest cleaner upon receiving failure message caused by full load or overload, which can increase troubleshooting efficiency and is conducive to personnel management of cleaning company and service company. This is different from traditional personnel assignment in fixed regions and requires lower labor cost.

The system has map positioning through which managers can check real-time positions of dustbins and personnel. Dustbin state or personnel information can be detected by clicking icons on the map, which is convenient for intuitive management. Moreover, personnel dynamics during working hours could be managed easily.
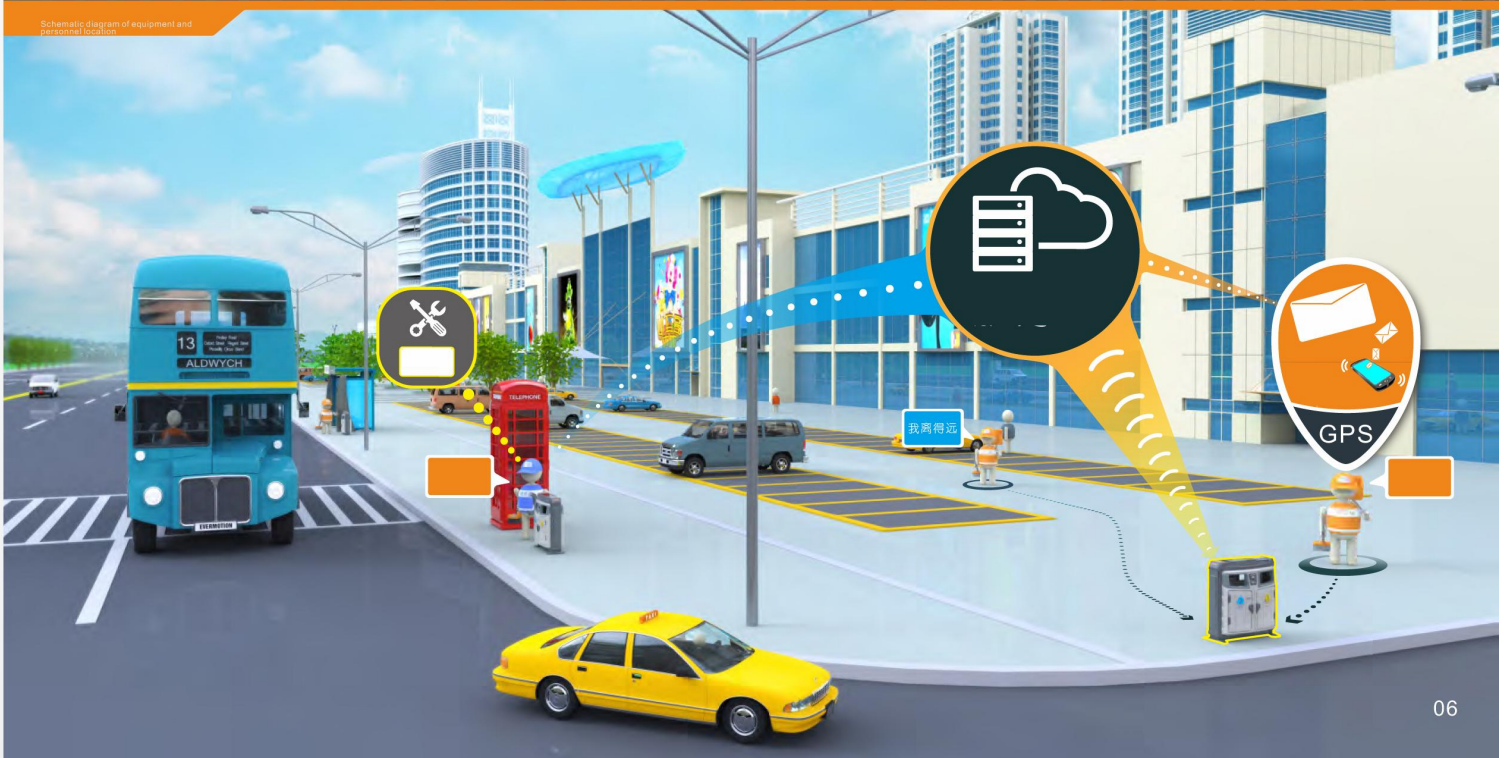
Map •

Enter the map ▶

Personnel location It can display real-time positions of cleaners and acquire information of cleaners quickly, which is convenient for communication and arrangement.

This is good for indoor high-efficiency patrol and monitoring of cleaning.

● Trace replay

● Equipment location

Based on cloud storage and cloud retrieval technique and combining with characteristics and functions of the equipment, it can show accurate positions of large-scaled equipment and describe their real-time operating status. This is convenient for equipment management.

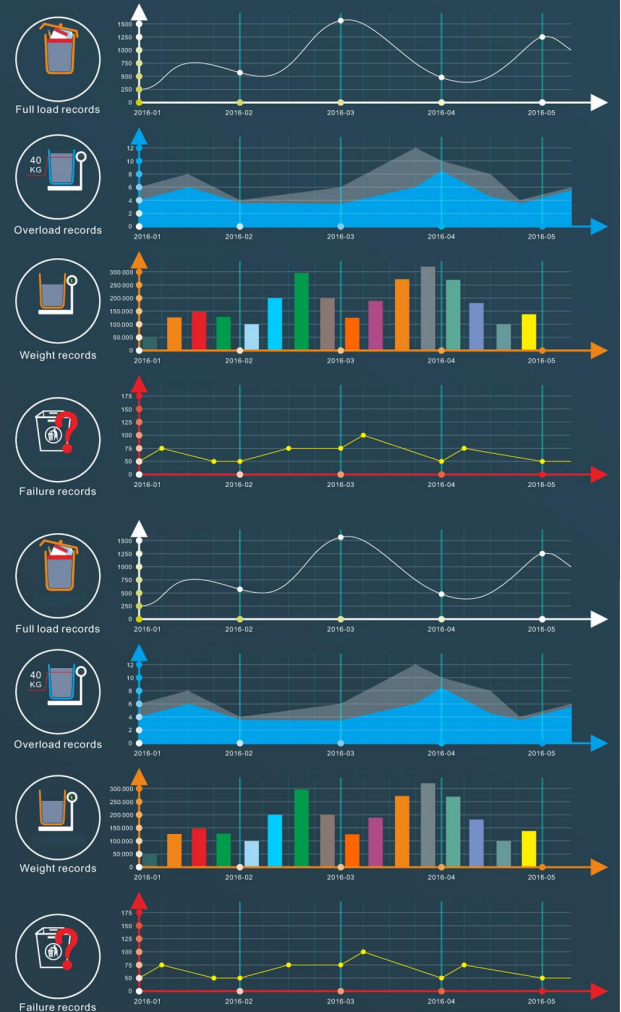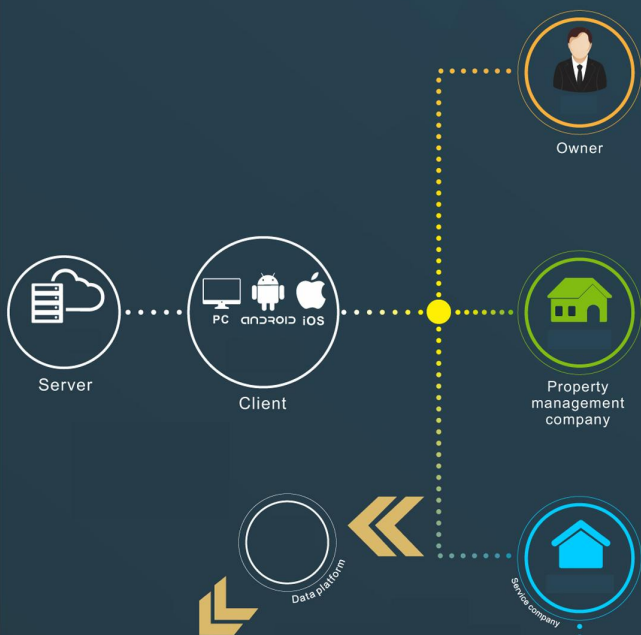Schematic diagram of equipment and personnel location

GPS

Function – EStatistical analysis of data

The data statistical analysis of the system can make statistics on cleaning and failure data in a certain period, which provides data supports to cleaning company and service company in future equipment adding, personnel assignment and key work planning, and form a certain scaled big data platform. Meanwhile, it can generate statements which are good for management and reports.
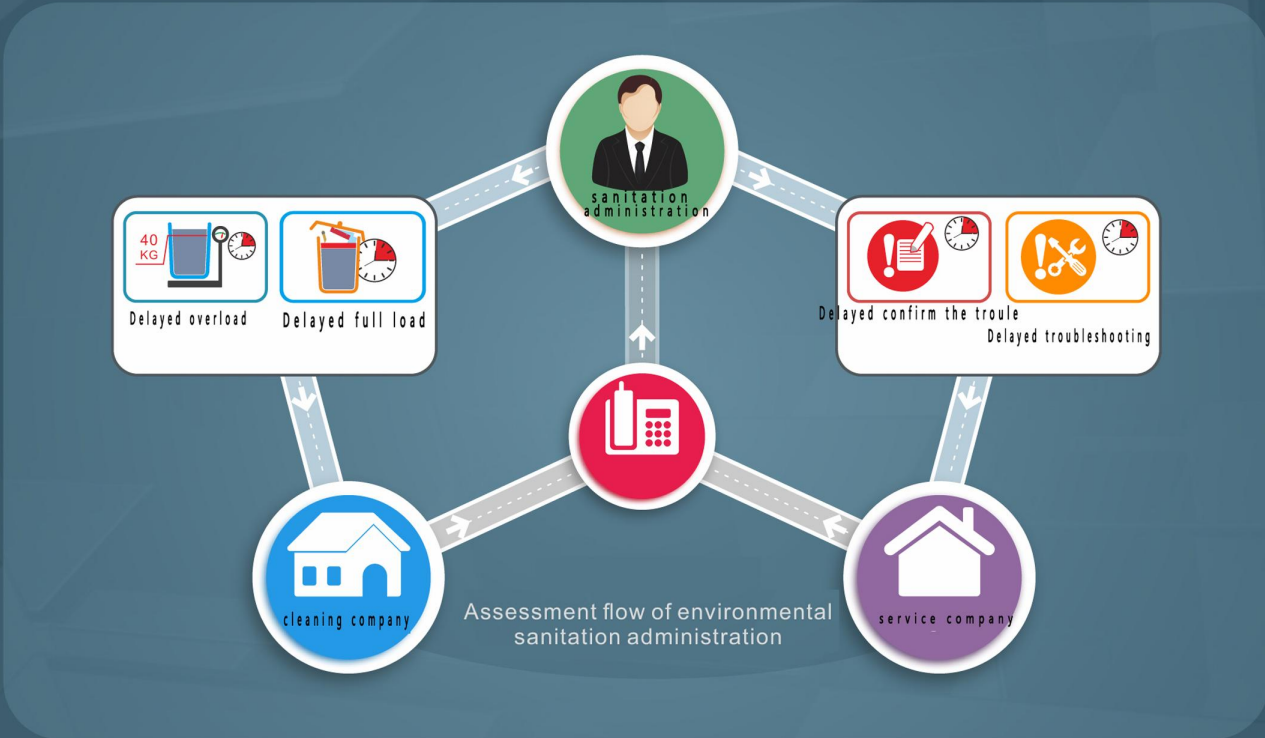

Server

Client

PC android iOS

Data platform

Owner

Property management company

Service company

Full load records

Overload records

Weight records

Failure records

Full load records

Overload records

Weight records

Failure records

Statements and suggestions

Item / Locations	Full load records	Overload records	Weight records
Wangling Road 045	2016-3-18 16:00 Full load	2016-1-15 23:00 Overload	2016-2-13 12:30 45KG
Yongan Street 008	2015-12-18 5:00 Full load	2016-3-25 13:00 Overload	2016-4-05 18:25 15KG

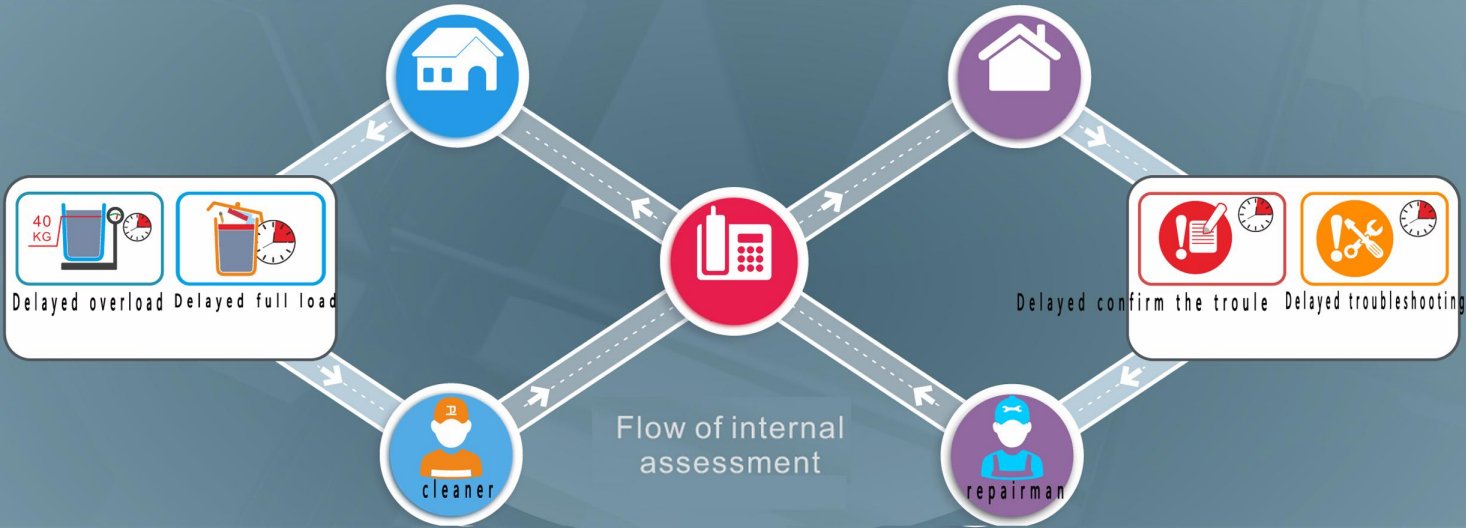Proposal: One day too much empty number, please clean up in time, thank you for your cooperation

Cleaning and service assessment of the environmental sanitation administration

The environmental sanitation administration can set assessment criteria in the systems, such as delayed cleaning, delayed troubleshooting, etc. Any violation will be scored according to preset point penalty. At the same time, cleaning and service companies can feedback unreasonable penalties through complains. It changes the original manual patrol assessment and realizes fair and justice assessment, which are benefit to improve cleaning and service quality and management efficiency.

sanitation administration

40 KG
Delayed overload   Delayed full load

Delayed confirm the troule
Delayed troubleshooting

cleaning company

Assessment flow of environmental sanitation administration

service company

Internal assessment of cleaning and service companies

The system has an internal assessment function for cleaning and service companies. Managers can set assessment criteria and the system will accomplish assessment automatically. Employees can solve controversies through the Complain platform.The internal assessment gives cleaning and service companies more justice and fair performance assessments of workers at the production line.
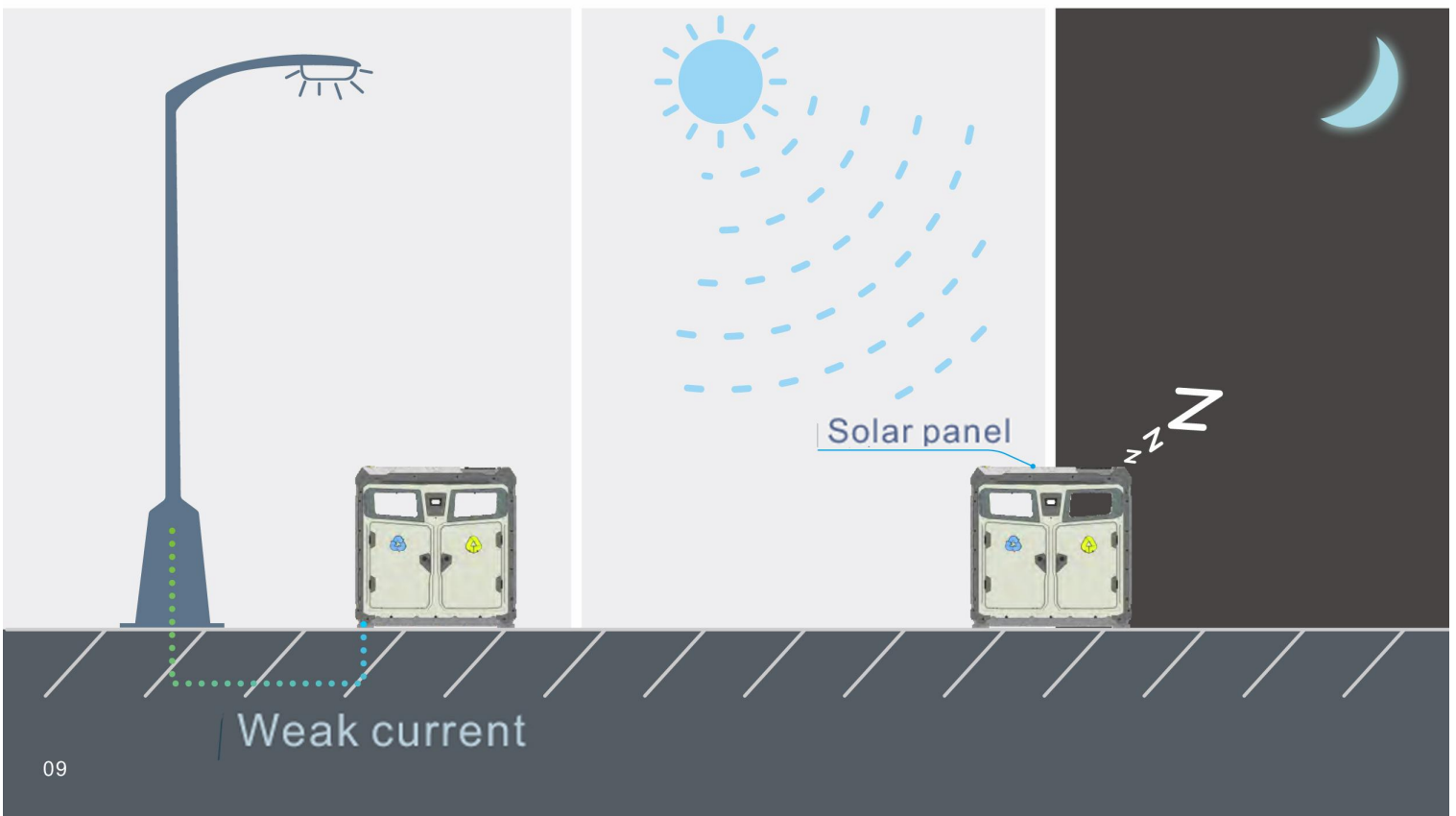
40 KG
Delayed overload   Delayed full load

Delayed confirm the troule   Delayed troubleshooting

cleaner

Flow of internal assessment

repairman

AC power supply and solar power supply are optional to the intelligent dustbin. AC power supply is switched in by urban lighting line and remote low-voltage, which protects safety use and free electric shock risk. The solar power supply is energy-saving and environmental friendly.

Meanwhile, the system can make remote energy-saving settings to make dustbins in sleep mode, which is environmental friendly, low-carbon and energy conversation.

Solar panel

Weak current

Dustbin registration

01
Open APP in mobile phone

LinkBin

02
Open the registration page in APP

LinkBin

03
Connect the mobile phone and the intelligent dustbin by a data line.

04
Input information and get No. of the intelligent dustbin.

C:\01_

05
Send authentication request to the server

Supported client

PC ANDROID iOS

Function － Others

The LinkBin possesses more additional functions, including night warning light, online hardware upgrading,voice self-inspection, etc. These make it more humanized and make the city image even better.
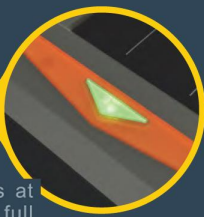
DH-02 series

Intelligent dustbin

With distinct lines and corners and ingenious design, the product can better reflect youthful charm of modern cities.Night

DH-02SK2 and DH-02ASK2 intelligent dustbin is switched in urban lighting lines and far-end low voltage, which ensures its safety service and prevents electric shock risk.

Three-color warning lights

There are three-color state warning lights at the top of upper cover: early warning of full load, water shortage and breakdown.

Location of the dustbin

The inner bin is equipped with a GPS modulus which can report the dustbin location by mobile phone APP. Any position deviation will be informed through mobile phone APP or SMS AutoSender.

Solar power supply system

A solar panel is designed at the top of the dustbin, which can convert collected solar energies into electric energies for internal electrical equipment.

Self-extinguishment

There's a water tank (≥3.3L) under the upper cover and a water-feeding rubber cover which requires manual feeding under the right shoulder cover. The nozzle at the bottom of the water tank will spray extinguishing solution automatically once the in-tank temperature exceeds 68℃ upon material combustion, which could prevent and reduce fire risks.

Garbage weighing module

This can prevent damages to city image and the product caused by full load or over load. Cleaners will be informed accurately, reducing labor intensity.

Early warning of full load

Early warning of full load will be sent to the backstage through mobile phone APP or SMS AutoSender when reaching 80% of full load. This can clean dustbins in time and prevent garbage scattering around.

Detection of temperature

Tank temperature is detected through instant messaging (IM) and the backstage will be informed overhigh temperature (>70℃) timely through mobile phone APP or SMS AutoSender. Maintainers can check the existence of fire source in advance, which increases security of public utilities significantly.

Box-door integrated enhancement

The box and door are made of high-quality hot galvanizing electrolysis cold-roll steel sheets (thickness ≥0.8mm) by integrated stretching once-shaping technique. It not only has a beautiful appearance and no welding spot, but also possesses far higher strength than those

Detection of water leve

For the convenient and prompt maintenance and saving labor resources, water level in the water tank can be detected at any time through mobile phone APP or SMS AutoSender.

Ultra-large batter capacity

The AC intelligence mode uses 2,200mA lithium battery which can protect stable and normal operation of the system. The solar intelligence mode uses 8,800mA lithium battery which can offer about 15d-service after being exposed to adequate sunlight for 1-2d.

If the water level is detected low, the right shoulder cover and water-feeding rubber cover shall be open for manual water supply.

Full-open automatic closing door

The door and box are connected by a piece of 304 stainless steel spring hinge which makes the door open for up to 150° and closing smoothly. The strength and service life of 304 stainless steel spring hinge are at least 3 times higher than those of common tension spring.

Extra-large stainless steel extinguishing flip cover

The extinguishing plate is stamped by once with wiredrawing stainless steels (thickness≥0.7mm) and a piece of cold drawing mold, accompanied with extinguishing holes and cigarette end holes. There's an ashtray (0.8L) beneath the extinguishing plate and an independent triangulation chain that can be opened separately on the extinguishing plate, which is superior to common external extinguishing plate (bowl) in effective prevention of secondary pollution caused by ashes and cigarette ends, convenient to clean, beautiful and durable.

DH-02ASK1

Side cover with warning function

The side cover can conceal joints on the upper framework and has night reflecting sign for easy recognition and protecting safety of pedestrians and vehicles at night.

Battery mouth

The battery mouth uses profiling design and the surface metal is coated with chrome.

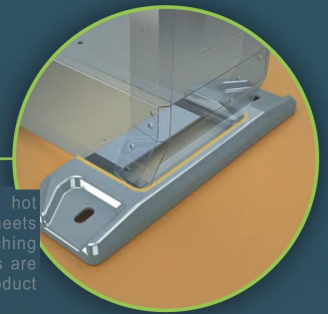## Scratch-proof engineering plastic mouth

The mouth is made of full-rounded engineering plastics, which can beautify the product and avoid scratches.

Easy-recognized 3D classification signs

3D classification signs are designed on the door and people can recognize different garbage recycling. Moreover, 3D classification signs are attractive and conducive to enhance people's awareness of garbage classification.

3D fixed seat

The fixed seat is made of high-quality hot galvanizing electrolysis cold-roll steel sheets (thickness ≥2mm) by integrated stretching once-shaping technique. Mounting holes are designed dangling, which fasten the product onto the ground.

Riveting integrated framework

The product uses riveting integrated framework without welding spot. The framework adopts hydraulic once-shaping using cold drawing mold and hot galvanizing electrolysis cold-roll steel sheets (thickness ≥0.8mm) as the base material. Its strength and corrosion resistance are at least 2 times higher than those of common shear-plate welded frame.

Ultra-large volume of inner

The inner bin is designed with ultra-large volume and the average thickness is ≥ 2.0mm. The volume of two bins reaches as high as 80L.

Bag bayonet on the inner bin

Bag bayonets are designed at the inner bin mouth to fix garbage bags. This is convenient for use and clean of the dustbin.

Dirt-storage and spill-proof inner bin

There are spill-proof convex platform and water escape valve at bottom of the inner bin. The convex platform can keep sewages during normal service and excessive water upon heavy rains could be discharged through the water escape valve, preventing garbage spill (drift) from the inner bin.

🎞 Scene case

warning light,voice self-inspection make the product more humanized and make the city image even better.

DH-02

Type / Item	DH-02K1 simple waste bin	DH-02K2 basic	DH-02SK1 solar power	DH-02SK2 AC power	DH-02SK3 lithium battery power
L W H (mm)	1054*442*1050	1054*442*1050	1054*442*1058	1054*442*1050	1054*442*1050
anti-overload inner barrel	●	●	●	●	●
extinguishing flip cover	●	●	●	●	●
self-extinguishment	○	●	●	●	●
detection of water level	○	○	●	●	●
detection of temperature	○	○	●	●	●
detection loading	○	○	●	●	●
intelligent weighing	○	○	●	●	●
GPS	○	○	●	●	●
solar power system	○	○	●	○	○
AC power system	○	○	○	●	○
lithium battery	○	○	●	●	●
battery capacity			8800mah	2200mah	24ah

Volume(L)

recyclable	40
other	40
electronics recycling	10.5
cigarette	0.8
TOTAL	91.3

water tank(L)

	3.2

Color

frame		gray
body		champagne grey
plastic door		champagne grey
other plastic		black
water tank		translucence
battery mouth		chromeplate

Material

frame	SECC
body	SECC
inner barrel	engineering plastics
plastic parts	engineering plastics

DH-02A

Type / Item	DH-02AK1 simple waste bin	DH-02AK2 basic	DH-02ASK1 solar power	DH-02ASK2 AC power	DH-02ASK3 lithium battery power
L W H (mm)	1054*442*1050	1054*442*1050	1054*442*1058	1054*442*1050	1054*442*1050
anti-overload inner barrel	●	●	●	●	●
extinguishing flip cover	●	●	●	●	●
self-extinguishment	○	●	●	●	●
detection of water level	○	○	●	●	●
detection of temperature	○	○	●	●	●
detection loading	○	○	●	●	●
intelligent weighing	○	○	●	●	●
GPS	○	○	●	●	●
solar power system	○	○	●	○	○
AC power system	○	○	○	●	○
lithium battery	○	○	●	●	●
battery capacity			8800mah	2200mah	24ah

Volume(L)

recyclable	40
other	40
electronics recycling	10.5
cigarette	0.8
TOTAL	91.3

water tank(L)

	3.2

Color

frame		gray
body		teak
plastic door		black
other plastic		black
water tank		translucence
battery mouth		chromeplate

Material

frame	SECC
body	SECC
inner barrel	engineering plastics
plastic parts	engineering plastics

DH-06 series

Intelligent dustbin

With distinct lines and corners and ingenious design, the product can better reflect youthful charm of modern cities.Night

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Three-color warning lights

There are three-color state warning lights at the top of upper cover: early warning of full load, water shortage and breakdown.
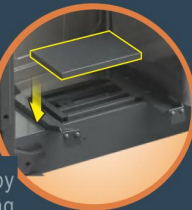
Location of the dustbin

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Solar power supply system

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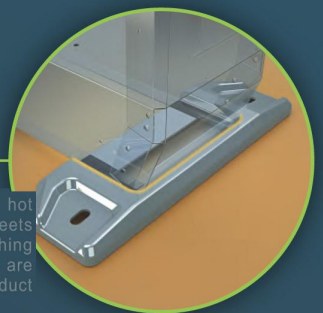
DH-06ASK1

Side cover with warning function

The side cover can conceal joints on the upper framework and has night reflecting sign for easy recognition and protecting safety of pedestrians and vehicles at night.

Battery mouth

The battery mouth uses profiling design and the surface metal is coated with chrome.

Scratch-proof engineering plastic mouth

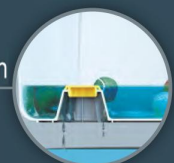The mouth is made of full-rounded engineering plastics, which can beautify the product and avoid scratches.

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Scene case

warning light,voice self-inspection
make the product more humanized and
make the city image even better.

Type / Item	DH-06K1 simple waste bin	DH-06K2 basic	DH-06SK1 solar power	DH-06SK2 AC power	DH-06SK3 lithium battery power
L W H (mm)	1054*442*1050	1054*442*1050	1054*442*1058	1054*442*1050	1054*442*1050
anti-overload inner barrel	◉	◉	◉	◉	◉
extinguishing flip cover	◉	◉	◉	◉	◉
self-extinguishment	○	◉	◉	◉	◉
detection of water level	○	○	◉	◉	◉
detection of temperature	○	○	◉	◉	◉
detection loading	○	○	◉	◉	◉
intelligent weighing	○	○	◉	◉	◉
GPS	○	○	◉	◉	◉
solar power system	○	○	◉	○	○
AC power system	○	○	○	◉	○
lithium battery	○	○	◉	◉	◉
battery capacity			8800mah	2200mah	24ah

Volume (L)

bottle	40
paper	40
comprehensive	40
cigarette	0.8
TOTAL	120.8

water tank (L)

	3.2

Color

frame		gray
body		champagne grey
plastic door		champagne grey
other plastic		black
water tank		translucence
battery mouth		chromeplate

Material

frame	SECC
body	SECC
inner barrel	engineering plastics
plastic parts	engineering plastics

DH-06A

Type / Item	DH-06AK1 simple waste bin	DH-06AK2 basic	DH-06ASK1 solar power	DH-06ASK2 AC power	DH-06ASK3 lithium battery power
L W H (mm)	1054*442*1050	1054*442*1050	1054*442*1058	1054*442*1050	1054*442*1050
anti-overload inner barrel	◉	◉	◉	◉	◉
extinguishing flip cover	◉	◉	◉	◉	◉
self-extinguishment	○	◉	◉	◉	◉
detection of water level	○	○	◉	◉	◉
detection of temperature	○	○	◉	◉	◉
detection loading	○	○	◉	◉	◉
intelligent weighing	○	○	◉	◉	◉
GPS	○	○	◉	◉	◉
solar power system	○	○	◉	○	○
AC power system	○	○	○	◉	○
lithium battery	○	○	◉	◉	◉
battery capacity			8800mah	2200mah	24ah

Volume (L)

bottle	40
paper	40
comprehensive	40
cigarette	0.8
TOTAL	120.8

water tank (L)

	3.2

Color

frame		gray
body		teak
plastic door		black
other plastic		black
water tank		translucence
battery mouth		chromeplate

Material

frame	SECC
body	SECC
inner barrel	engineering plastics
plastic parts	engineering plastics